



Zirconia Sintering Furnace

ZIRFIRE

Basic Manual ■



ZIRFIRE

ZIRFIRE

Basic Manual ver 1.0

TOGETHER, WE INNOVATE

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This document is used only for the purpose of explaining how to use ZIRFIRE.

If you have any questions regarding this manual or ZIRFIRE, please contact us below.

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* The basic manual distributed with the product may not contain the latest version of the content.

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INTRODUCTION.

Thank you for purchasing ZIRFIRE. ZIRFIRE Furnace is subject to stringent quality control procedures and patiently follows standard procedure. As the results of our quality system, ZIRFIRE Furnace has better performance. Also ZIRFIRE has sturdily and gracefully designed and programmed as user friendly. This Operators Manual will explain the installation and operation of the oven as well as help you get the most out of your new ZIRFIRE Furnace. Please read carefully the instructions in this manual for the best user experience.

■ Attention

Please ensure that all safety information has been read by the operator before using the oven.



Warning

Violations of instructions may cause increased risk of serious injury or death.



Caution

Violations of instructions may cause increased chance of material waste or injuries.

Safety Symbol on The Product



Safety Warning



Surface High
Temperature



Protective Earth
Terminal





Warning

1. Do not disassemble, repair or modify any part of the machine without prior approval from an authorized technician. It could be out of warranty and could cause damage, electric shock or fire.
2. Ensure the oven is properly grounded to prohibit error or electrical hazard.
3. Do not cut or modify the power cord. Do not stretch or bend the power cord that may cause electrical hazard.
4. Keep flammable materials away from the oven at all time.
5. Keep liquid away from the oven and avoid using the oven in damp environment to prevent electrical hazard.
6. Ensure that the power plug is firmly plugged into the proper section. Unstable contact may cause an electric spark and a fire.
7. Always wear heavy thermal insulated gloves when handling units with do or open to avoid burns.
8. Always ensure that the oven is completely stopped before working with the oven and only operate the door when the machine is not in a cycle.
9. Do not touch or handing the power plug. It may cause an electric shock or a fire.
10. Carefully use tongs without touching wires when takeout Casting Ring from inside of Furnace.
11. Do not place flammable materials or body inside of Furnace. It may cause a burn or a fire.



Caution

1. Keep away from Furnace during operation. While running, furnace generates high temperature.
2. Please handle the oven carefully to avoid damage. The furnace contains fragile parts.
3. Do not use in places with severe vibration.
4. Please read the manual and understand the instructions before using the oven.
5. Do not leave Furnace with a door open.
6. Do not use flammable sprays or place flammable materials near the Furnace.
7. Do not install the equipment on sloped surfaces or wobbly tables.
8. Do not pull the plug too hard when unplugging it.
9. Maintain the operating temperature of the Furnace below 40 degrees and clean the dust inside the equipment thoroughly.
10. If any defect is found during use, stop using it immediately and contact the seller or manufacturer.
11. When cleaning the Furnace, make sure to unplug the power cord and clean it with a dry cloth. If necessary, clean the inside of the Muffle as well. Do not use any cleaning agents.
12. The equipment is very hot during and immediately after use, so do not touch the Furnace body, especially the top of the equipment, as it is extremely hot. If you must touch it, wear thick heat resistant gloves.
13. Do not keep flammable materials near the equipment. It can cause fire.
14. When not using the equipment, turn off the power switch to cut off the power.

15. If Furnace is not in use for long term, pull out power plug.
16. **Insulation Replacement:** The dust from the firing chamber insulation applied to this product may cause irritation if it comes into contact with eyes or skin. Long term and heavy inhalation of dust may cause respiratory disorders. Wear safety goggles and protective masks to protect your skin, eyes, and respiratory system while working.
- * Precautions**
- Wear long sleeved clothes.
 - Wear safety goggles.
 - Wear a protective mask.
 - use a vacuum cleaner to clean dust.
 - Immediately wash unprotected skin with cold water after finishing work.
17. High temperatures and frequent temperature changes can cause cracks in the insulation. If cracks occur in the Tray Insulation due to thermal deformation at high temperatures, determine if it is an issue for use and replace if there are many cracks(consumable).

High Temperature Caution

- Do not touch the outer case when the chamber temperature is above 500°C.
- When moving the product, wait until the chamber temperature drops below 50°C.

PRODUCT INFORMATION ■

■ Characteristics

- Easy operation and various functions
- Intuitive use with 7" full touch TFT LCD applied
- Can store 50 schedules
- Convenient software updates vis USB DISKDRIVE
 - Automatically update the software through the front USB PORT

■ Key Features

- User settings function
- Display of operation progress in graph
- Display remaining time
- User can fine-tune temperature
- Easy software upgrade
- Easy temperature data backup and update
- Test firing function (Temperature measurement, Tray, bead ball burnout function)
- Cleaning Firing function
(Periodic cleaning alarm function for extending the lifespan of the furnace and preventing contamination)

TECHNICAL DATA

Temperature Sensor	Sensor type	Thermocouple R-type
	Sensor Range	0~1,760°C
Main Controller	Voltage	DC 12V
	Display	7" TFT LCD (Include touch screen function)
	USB	1 Ch. : Supports update via USB Memory
General Information	Voltage	AC 220V, 50/60 Hz or AC 110V, 50/60 Hz
	Max. Temp.	1,600°C
	Working Temp.	+2°C ~ +35°C
	Working Humidity	Below 80%
	Working Altitude	Below 3,800m

Our products are manufactured according to the following technical standards.

- Safety : EN 61010-1:2010
- EMC : EN 61326-1

Specification	ZIRFIRE(T-700)	ZIRFIRE SF(T-700SF)
Max Voltage	12A	
Dimension	300mm x 400mm x 640mm (W x D x H)	270mm x 380mm x 570mm (W x D x H)
Chamber Size	ø100mm x 80mm	ø70mm x 60mm
Weight	About 41kg	About 36kg

ACCESSORIES

When opening the box of this device, please check the following standard accessory items per furnaces model. Inspect the device and its components for any damage, and if any part is damaged, please contact the seller.

* Cracks in the chamber insulation are normal.

(This is a normal occurrence during the pre heating process at the factory.)





* We recommend keeping the packaging box and materials for future maintenance.

■ Sintering Furnace ZIRFIRE(T-700)

No.	Category	Q'ty	Photo
1	Sintering Tray	2ea	
2	Sintering Plate	1ea	
3	Sintering Base	1ea	

No.	Category	Q'ty	Photo
4	Fast Sintering Tray	2ea	
5	Tray Insulation Board	1ea	
6	Tray Tongs	1ea	
7	Zirconia Beads	1ea	
8	Cooling Station	1ea	
9	Manual	1ea	

■ Sintering Furnace ZIRFIRE SF(T-700SF)

No.	Category	Q'ty	Photo
1	Fast Sintering Tray	2ea	
2	Tray Insulation Board	1ea	
3	Tray Tongs	1ea	
4	Zirconia Beads	1ea	
5	Cooling Station	1ea	
6	Manual	1ea	

INSTALL

■ Connect AC Power

The power supply for this product varies between AC 220V and AC 110V depending on the model, with a maximum current consumption of 12A or 15A respectively. For safety, connect the device exclusively to a circuit breaker from the distribution panel.

(Do not use an extension cord or connect it with other equipment, and only use the Power Cord provided by the manufacturer. Using inadequate cables can result in electrical short circuits and fire hazards hazards.)

* Precautions for Installation 220V sintering furnace in 100~120V Regions

To maximize the performance of this product, it must be used with 220V power. The plug of this product is Type C. Using an adapter to convert the plug can pose a fire hazard and is therefore prohibited. For plug changes or replacements, please contact the manufacturer or the seller.

To use this product in 100~120V regions, the following methods are recommended

1. Use the product after installing a 220V power supply.
2. Purchase and use an Automatic Voltage Regulator (AVR) with a capacity of at least 5KVA.
3. Purchase and use a step-up transformer with a capacity of at least 5KVA.

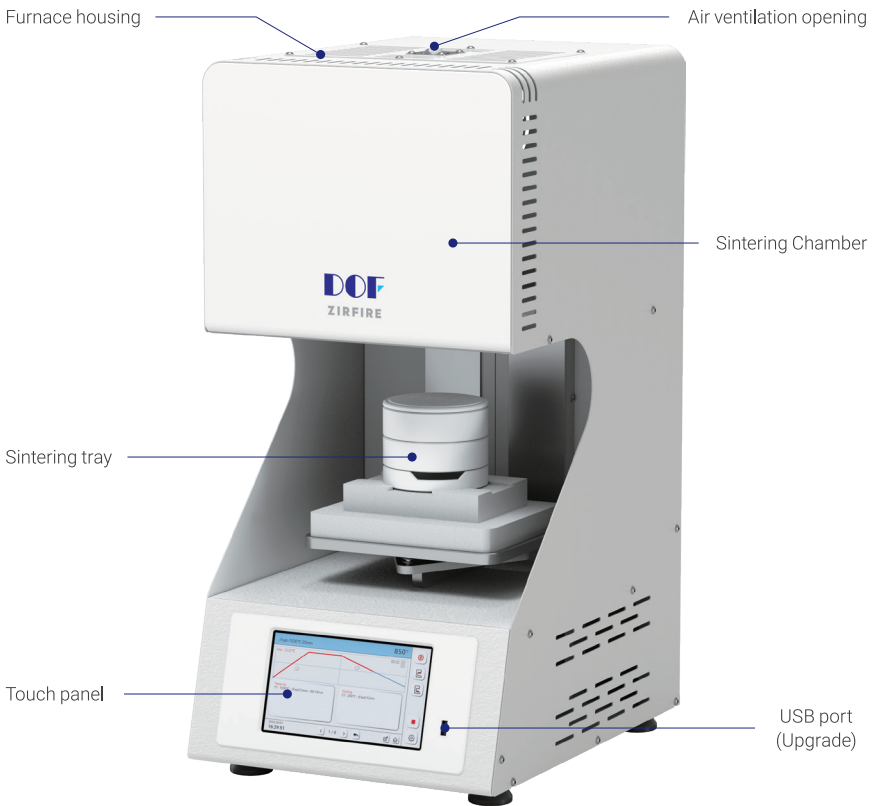
Ensure the product is connected to the power supply using these methods.

■ Product Installation

When installing this product, avoid direct sunlight and humid locations. Additionally, ensure the product is installed on a flat surface. Due to the product's characteristics, using it in a dusty environment can stress the heating elements, so it is recommended to install it in a clean environment. It is advisable to maintain a distance of at least 20cm between the product and the wall. Installing it too close to the wall can cause product malfunction. Do not place any objects on top of the product, as this can lead to overheating and fire hazards during operation.

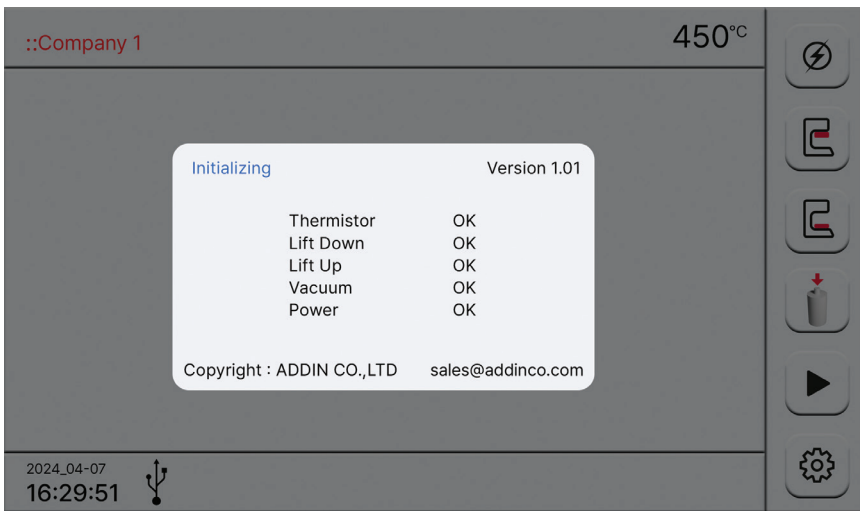
APPEARANCE & NAME

■ List of parts



FRONT PANEL INFORMATION.

■ Start

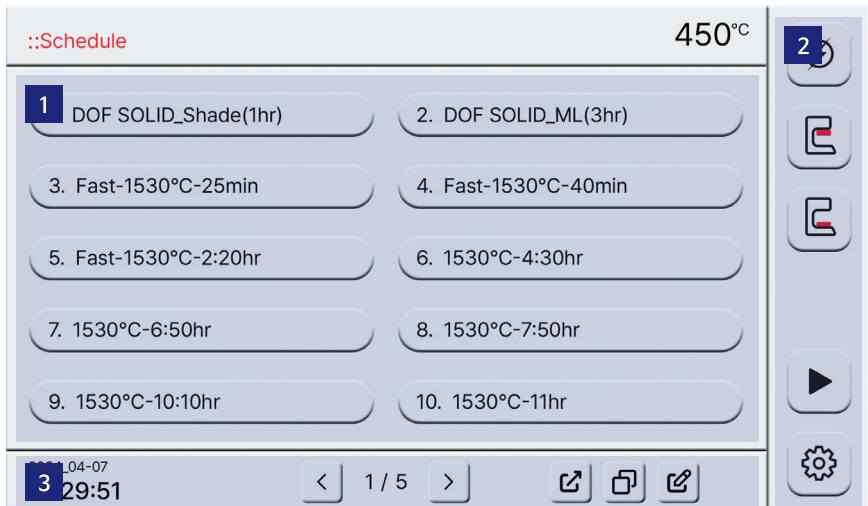


When the power is turned on, screen will display current version of the software and check the status of necessary parts for running the furnace.

- ① Temperature sensor check
- ② Lift type furnace limit S/W check
- ③ Lift type furnace limit S/W check
- ④ Vacuum motor check
- ⑤ Power check

■ Screen Layout






ZIRFIRE(T-700)models have a 7-inch color touch display and it will allow users to operate the product intuitively.



The screen is divided into three sections.

- 1 Main Screen : Selection of company and materials, schedule setting
- 2 Function Bar : Product settings and operation-related functions
- 3 Navigation Bar : Page turning, home or previous page navigation, copy, and edit


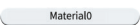
■ Button Description

Icon	Description
::Schedule	Selected mode status window
450°C	Inside chamber temperature
	Furnace operation status display window (Flashing during operation)
	Lift moving up. If the lift is in operation, it changes to a stop button, pressing it again resumes the previous action
	Lift moving down. If the lift is in operation, it changes to a stop button, pressing it again resumes the previous action
	After selecting a firing schedule, clicking the arrow icon starts the firing process. (does not work if clicked in the schedule selection window) Once the schedule starts, it changes to a stop icon. clicking the stop icon terminates the schedule.
	User option settings (refer to page 25 for settings)

Icon	Description
	<p>After selecting a firing schedule, pressing the button will lower the tray if it is closed. If no schedule is selected, it will not operate.</p>
	<p>Current date and time To change the time and date, click on the display.</p>
	<p>Sintering program (Schedule) navigation (Store up to 50 schedules)</p>
	<p>Go back to the previous screen</p>
	<p>Move schedule (Move)</p>
	<p>Copy schedule (Copy)</p>
	<p>Change company name, material name, and temperature of the schedule.</p>
	<p>Return to the initial screen (company selection screen)</p>

INSTRUCTION FOR USE

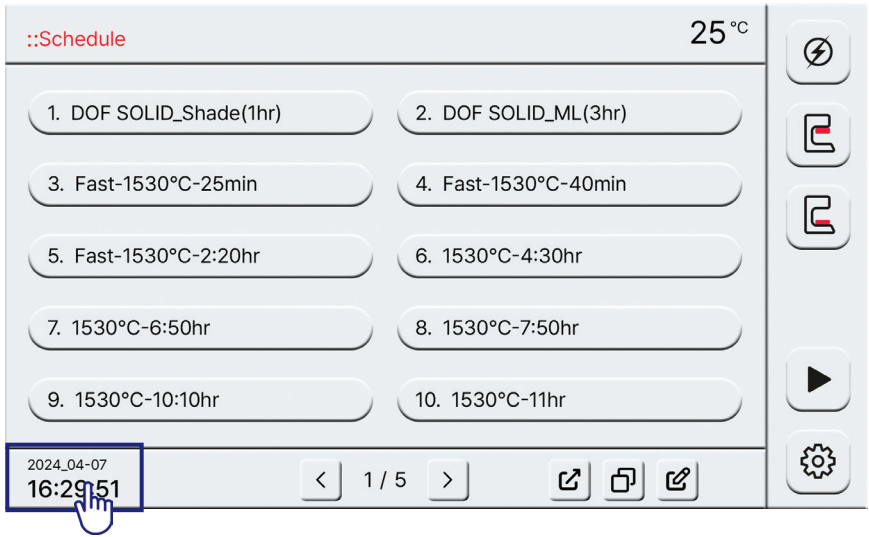
■ Change schedule name

To change the schedule name, click the 'Change' icon () and then click the schedule () want to modify.



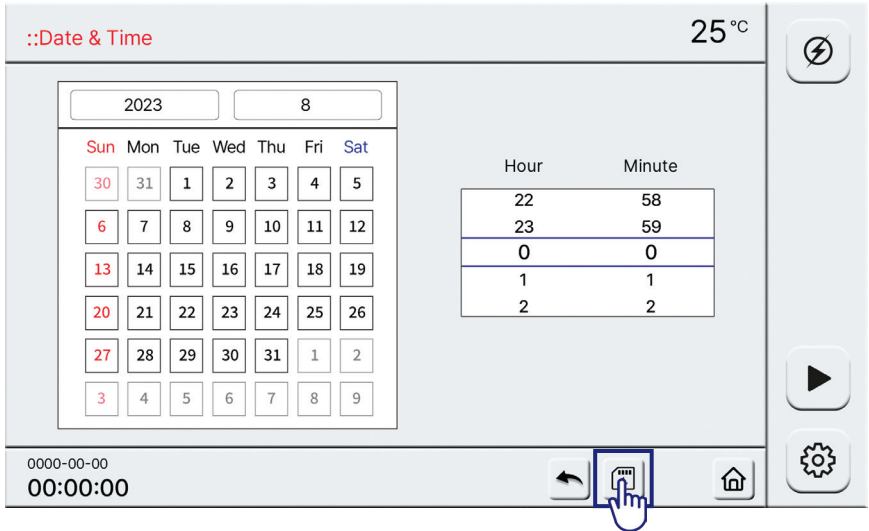
After switching to the above screen, enter the desired name, press Enter to save will be directed back to the schedule selection screen.

■ Time Setting



Short-click on the displayed time to modify the date and time.

Time changes can only be made from the home screen.



After changing the date and time, press  icon to save and return to the previous screen.

SCHEDULE SETTING (Temp. Set.)

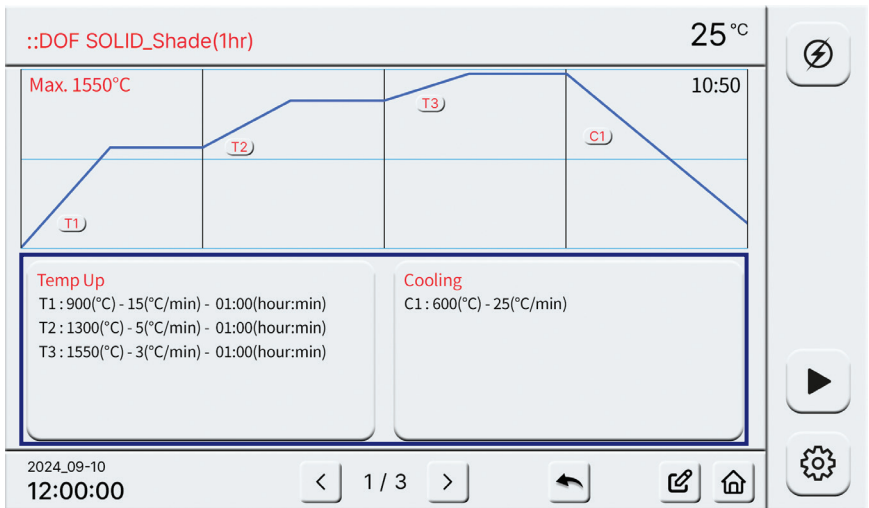
■ Select Schedule


The screenshot displays the 'Schedule Setting' interface for ZIRFIRE. At the top right, the current temperature is 25°C. The main area contains a list of 10 schedules, each in a rounded rectangular button. A blue border and a hand cursor highlight the first schedule: '1. DOF SOLID_Shade(1hr)'. Other schedules include '2. DOF SOLID_ML(3hr)', '3. Fast-1530°C-25min', '4. Fast-1530°C-40min', '5. Fast-1530°C-2:20hr', '6. 1530°C-4:30hr', '7. 1530°C-6:50hr', '8. 1530°C-7:50hr', '9. 1530°C-10:10hr', and '10. 1530°C-11hr'. On the right side, there are icons for power, a red 'C' symbol, a play button, and a gear. At the bottom, there is a date and time display (2024_04-07 16:29:51), navigation arrows, and icons for copy, paste, and share.

Select the schedule to use. The ZIRFIRE(T-700) features a built-in DOF SOLID block rapid sintering schedule. (Schedule No.1 & No.2)

* This is a recommended rapid sintering schedule for the DOF SOLID block, and adjustments to the sintering temperature and time can be made depending on the type and quantity of prosthetics and other user-specific conditions.

■ Schedule Screen



Visually displayed screen for easy monitoring selected schedule temperature and time during progress. If there are no changes, press  icon to start schedule.

During the schedule is in progress, a red line indicates the current progress stage and temperature. To change the schedule's time and temperature settings, double-click on the window of the item to be changed on the current screen and modify the schedule.

■ Changing Temperature Setting




Temp Up
 T1 : 900(°C) - 15(°C/min) - 01:00(hour:min)
 T2 : 1300(°C) - 5(°C/min) - 01:00(hour:min)
 T3 : 1550(°C) - 3(°C/min) - 01:00(hour:min)


Double Click

Double-click on 'Temp up' to change temperature settings.

::DOF SOLID_Shade(1hr) : Temp Value 25 °C

	Temp.(°C)	Fast	Rate(°C/min)	Hold time(hour:min)	Multi Step
T1	900	<input type="checkbox"/>	25	00:00	3
T2	1100	<input type="checkbox"/>	15	00:00	
T3	1530	<input type="checkbox"/>	10	01:00	

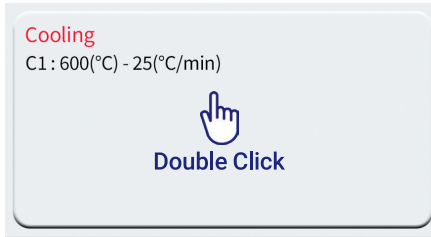
0000_00-00 00:00:00  < 1 / 2 >  

Click on the window of the section to be changed, enter the number, and press  icon to make modification.

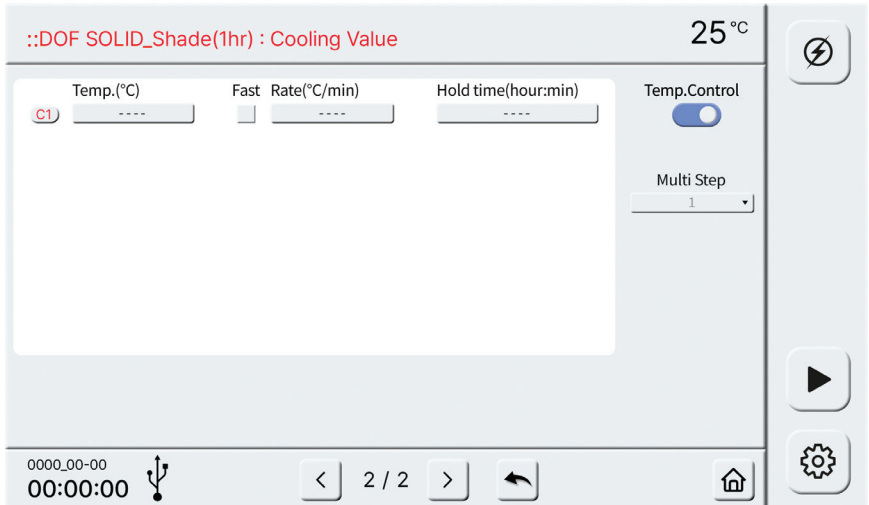
Temp(T1, T2, T3)	Enter target temperature for each segment (°C / min)
Rate(T1, T2, T3)	Enter heating rate for each segment (°C / min)
Hold Time(T1, T2, T3)	Enter soak time (hold time at selected temperature) (min : sec)
Multi Step	Select if add or delete temperature setting steps

If the FAST checkbox (**Fast Rate(°C/min)**) is selected, the maximum current of the power supply is used to raise the temperature at the highest speed.

■ Cool Down Temperature and Cooling Rate Settings




Double-click on the cooling input window to set the cooling temperature and cooling rate settings.



When selected, cooling can be controlled by dividing it into multiple segments and can control adjusting temperature and cooling rate.




If Fast Check Box is Selected, temperature control is disabled, and the lift is opened to cool as fast as possible.

Select on the window of the section need to be changed, enter the number, and press  icon to make the modification.

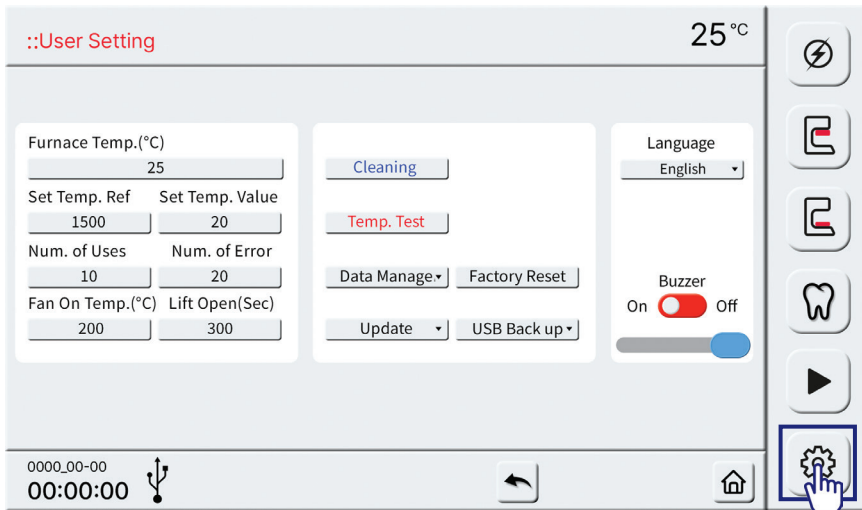
Temp	Enter cool down temperature
Rate	Enter cooling rate for each segment (°C / min)
Hold Time	Enter soak time (hold time at selected temperature) (min : sec)

RUN.

■ User Settings Screen

Select "Set up icon" () will change the screen to the following.

Screen for setting temperature, cleaning and software update.



The screenshot shows the "User Setting" screen with a temperature of 25°C. The settings are organized into several sections:

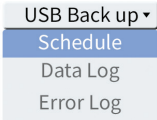
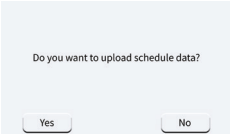
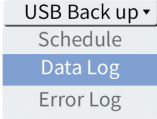

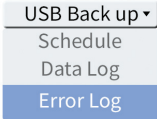
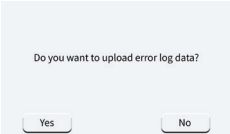
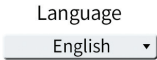
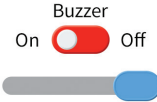
- Temperature Settings:**
 - Furnace Temp.(°C): 25
 - Set Temp. Ref: 1500
 - Set Temp. Value: 20
 - Num. of Uses: 10
 - Num. of Error: 20
 - Fan On Temp.(°C): 200
 - Lift Open(Sec): 300
- Cleaning and Testing:**
 - Cleaning
 - Temp. Test
- Management and Factory Settings:**
 - Data Manage
 - Factory Reset
 - Update
 - USB Back up
- Language and Buzzer:**
 - Language: English
 - Buzzer: On (toggle switch)

The bottom status bar shows "0000_00-00", "00:00:00", a USB icon, a refresh icon, a home icon, and a gear icon (the "Set up icon") which is highlighted with a blue box and a hand cursor.

■ Icon Descriptions

Icon	Description
Furnace Temp.(°C) <input type="text" value="25"/>	Display inside of the chamber temperature.
Set Temp. Ref Set Temp. Value <input type="text" value="1500"/> <input type="text" value="20"/>	Offset furnace temperature. Enter the temperature need to be offset at 'Set Temp. Ref' section, If need to increase chamber temperature 10 degree, enter 10 at "Set Temp. Value" section. If need to decrease chamber temperature 10 degree, enter -10 at 'Set Temp. Value' section.
Num. of Uses <input type="text" value="10"/>	Furnace used count (Indicate one cycle of the schedule as a single use)
Num. of Error <input type="text" value="20"/>	Display the number of errors encountered during product use
Fan On Temp.(°C) <input type="text" value="200"/>	Fan on temperature setting (Not used in Ceramic furnace)
<input type="button" value="Cleaning"/>	Use if cleaning the heating element and chamber. After 200 uses following purchase, cleaning icon will pop up. After that, cleaning pop up every 100 uses. Clean the chamber and do not insert the trays during the cleaning. (Total duration approximately 4 hours 10 minutes)
<input type="button" value="Temp. Test"/>	Function used to measure the temperature inside chamber To verify temperature, place the temperature ring at the desired location in the chamber and press icon 'Temp. Test' to start. After test ends, measure the diameter of temperature ring using Vernier calipers or a micrometer. Convert the measured diameter to a temperature using a temperature conversion table. Total duration approximately 6 hours and 5 minutes. (Max : 1530°C 2 hours hold) (Please contact the dealer or manufacturer for details on the Temperature ring)

Icon	Description
<div data-bbox="165 331 318 416"> <p>Data Manage ▾</p> <p>Back up</p> <p>Restore</p> </div>	<div data-bbox="418 304 647 440"> <p>Do you want to data back up?</p> <p>Yes No</p> </div> <p data-bbox="695 341 880 400">Furnace Data backup in the furnace.</p>
<div data-bbox="165 507 318 592"> <p>Data Manage ▾</p> <p>Back up</p> <p>Restore</p> </div>	<div data-bbox="418 480 647 616"> <p>Do you want to restore your data?</p> <p>Yes No</p> </div> <p data-bbox="695 533 880 557">Restore backup data.</p>
<div data-bbox="165 703 318 730"> <p>Factory Reset</p> </div>	<div data-bbox="418 655 647 791"> <p>Do you want to run a factory reset?</p> <p>Yes No</p> </div> <p data-bbox="695 671 902 762">Resets the settings to original state. (Initial Password : 0000)</p>
<div data-bbox="165 815 318 967"> <p>Update ▾</p> <p>USB Test</p> <p>Schedule</p> <p>F/W</p> <p>F/W + Image</p> </div>	<div data-bbox="418 823 647 959"> <p>USB memory test OK</p> <p>Yes No</p> </div> <p data-bbox="695 860 902 919">Checking USB recognition status.</p>
<div data-bbox="165 991 318 1142"> <p>Update ▾</p> <p>USB Test</p> <p>Schedule</p> <p>F/W</p> <p>F/W + Image</p> </div>	<div data-bbox="418 999 647 1134"> <p>Do you want to download schedule data?</p> <p>Yes No</p> </div> <p data-bbox="695 1035 913 1094">Download schedule data in USB to the furnace.</p>
<div data-bbox="165 1166 318 1318"> <p>Update ▾</p> <p>USB Test</p> <p>Schedule</p> <p>F/W</p> <p>F/W + Image</p> </div>	<div data-bbox="418 1174 647 1310"> <p>Do you want to proceed with the F/W update?</p> <p>Yes No</p> </div> <p data-bbox="695 1211 913 1270">Download new firmware in USB to the furnace.</p>
<div data-bbox="165 1342 318 1493"> <p>Update ▾</p> <p>USB Test</p> <p>Schedule</p> <p>F/W</p> <p>F/W + Image</p> </div>	<div data-bbox="418 1350 647 1485"> <p>Do you want to proceed with the F/W & image update?</p> <p>Yes No</p> </div> <p data-bbox="695 1366 913 1457">Download new firmware & Image in USB to the furnace.</p>

Icon	Description
 <p>USB Back up ▾ Schedule Data Log Error Log</p>	 <p>Do you want to upload schedule data?</p> <p>Yes No</p> <p>Copy schedule data in furnace to USB.</p>
 <p>USB Back up ▾ Schedule Data Log Error Log</p>	 <p>Do you want to upload log data?</p> <p>Yes No</p> <p>Save Data log in furnace to USB.</p>
 <p>USB Back up ▾ Schedule Data Log Error Log</p>	 <p>Do you want to upload error log data?</p> <p>Yes No</p> <p>Save Error log in furnace to USB.</p>
 <p>Language English ▾</p>	<p>Language settings (Korean, English, Japanese, Russian, Spanish)</p>
 <p>Buzzer On <input checked="" type="checkbox"/> Off [Volume Slider]</p>	<p>Turning on and off the buzzer sound. Adjusting the volume of the sound.</p>

■ Rapid Sintering

* Caution

- Use rapid sintering schedules only when the operator is present.
- **For rapid sintering (within 2 hours), use only the rapid sintering tray.**
- **Never use a regular sintering tray in a rapid sintering schedule.** Furnace damage and fire hazards may occur if used.
- Excessive coloring liquid may cause to have a crack on the units when using a rapid sintering. Avoid coloring or use minimal amounts.
- **Cracks may occur in the insulation(tray board) due to temperature changes during furnace use, but this does not affect its functionality(heat loss or control).** However, if there is separation of parts due to fractures or deep cracks of 2mm or more extending from inside the chamber to the outside, heat loss may occur, and replacement of the insulation(tray board) is necessary.
- **Depending on the user environment (set temperature, usage frequency, surrounding temperature, etc.), cracks or fractures may appear on the tray after a certain period of use. In such cases, normal operation is still possible, but replace the tray part if necessary.**

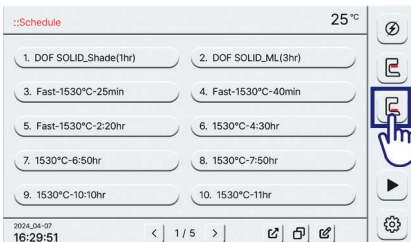
1 Drying materials. (About 30 min)



2 Furnace Main Power S/W On.



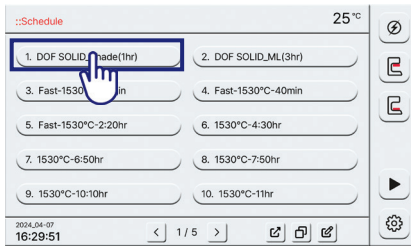
3 Lift Down tray.



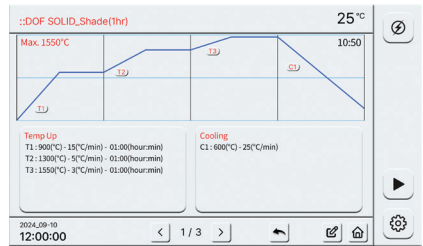
4 Place units on rapid sintering



5 Select sintering schedule.

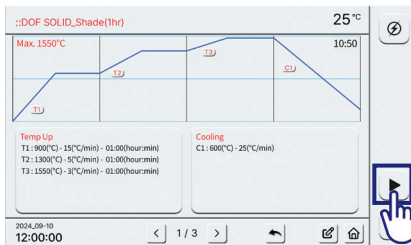


6 Confirm/Modify* selected.

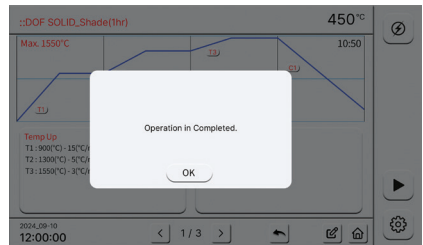


* Refer Page 23 for temperature setting.

7 Sintering start.



8 Sintering completed.



9 Remove the tray after sintering is complete.



* The image above shows the components specific to the ZIRFIRE (T-700) model.

Caution

- Do not place a hot tray in front of the furnace. It may damage the display.
- Place the hot tray on the cooling station.
- Wait until the furnace temperature drops below 100°C before handling units. There is a risk of burns and fire.

■ Regular Sintering

* Caution

- Do not set heating/cooling rate to exceed 40°C/min if running regular sintering. Setting it faster may result in tray damage can cause damage on the furnace and fire hazards. Consult the manufacturer if it needs to set faster rate.
- **Cracks may occur in the insulation(tray board) due to temperature changes during furnace use, but this does not affect its functionality(heat loss or control).** However, if there is separation of parts due to fractures or deep cracks of 2mm or more extending from inside the chamber to the outside, heat loss may occur, and replacement of the insulation(tray board) is necessary.
- **Depending on the user environment (set temperature, usage frequency, surrounding temperature, etc.), cracks or fractures may appear on the tray after a certain period of use. In such cases, normal operation is still possible, but replace the tray part if necessary.**

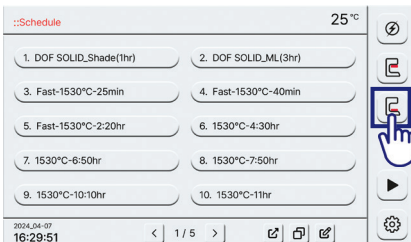
1 Drying materials. (About 30 min)



2 Furnace Main Power S/W On.



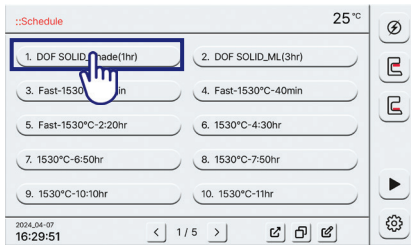
3 Lift Down tray.



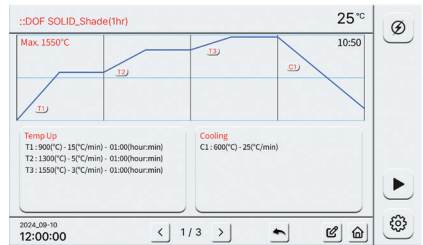
4 Please units on the tray and place the tray in the middle of chamber.



5 Select sintering schedule.

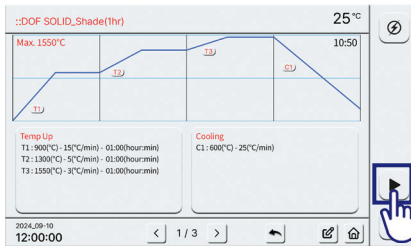


6 Confirm/Modify* selected.

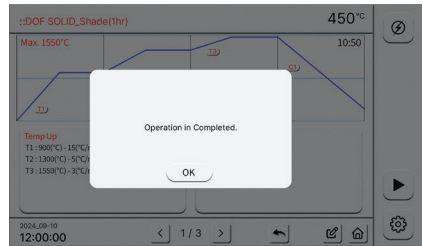


* Refer Page 23 for temperature setting.

7 Sintering start.



8 Sintering completed.



- 9 Remove the tray after sintering is complete.



* The image above shows the components specific to the ZIRFIRE (T-700) model.

Caution

- Do not place a hot tray in front of the furnace. It may damage the display.
- Place the hot tray on the cooling station.
- Wait until the furnace temperature drops below 100°C before handling units. There is a risk of burns and fire.

MESSAGE & TROUBLESHOOTING

■ Possible Error Messages and Troubleshooting

Error	Error Message	Troubleshooting	Remark
Err-01	Thermocouple Error	Inspect/replace sensor	
Err-02	Control Board Error	Inspect mainboard	
Err-03	Low Temperature Error	Inspect/replace heating element	
Err-04	Sensor IC Error	Inspect PCB sensor & heating element	
Err-05	Vacuum Error	Inspect vacuum pump & hoses	Ceramic Only
Err-06	Lift Motor Error	Inspect lift and lift motor	
Err-07	Upper Limit S/W Error	Inspect upper limit S/W	
Err-08	Lower Limit S/W Error	Inspect lower limit S/W	
Err-09	Press Board Communication Error	Inspect PCB communication part	Ceramic Only
Err-10	Press Board Motor Error	Inspect stepping motor	Ceramic Only
Err-11	Press Motor Upper Limit S/W Error	Inspect press limit S/W	Ceramic Only
Err-12	Press Board Weight Calibration Required	Calibrate press board weight	Ceramic Only
Err-13	Press Board Weight Calibration Error	Inspect load cell	Ceramic Only
Err-14	Trans Power Error	Inspect power trans	Sintering Only
Err-15	Door Open(Close the door)	Detect door open during in progress	
Err-16	ADC Chip Error	Inspect PCB ADC	
Err-17	Reserved	Reserved	
Err-18	Reserved	Reserved	
Err-19	Press Load Error	Detect press weight error	Ceramic Only
Err-20	Reserved	Reserved	
Err-21	AC power over voltage detected	Detect AC overvoltage. AC power unstable	
Err-22	AC power low voltage detected	Detect AC low voltage. AC power unstable	
Err-23	File not found in USB memory	USB memory read error, file not found	
Err-24	USB file write error	USB file write error	
Err-25	Low Temperature Error	Inspect/replace heating element wire mesh	
Err-26	Power Measurement Error	Inspect PCB power measurement parts	

WARRANTY ■

No.	Condition	Whithin warranty period	After warranty period
1	Within 10 days of purchase, require major repair by defect even though used in normal condition	Exchange or refund	
2	After 1 month of purchase, require major repair by defect even though used in normal condition	Exchange	
3	Manufacturer could not repair for a month from customer request to be fix	Exchange	Exchange + Charge for depreciation in price
4	Same problem occur 3 times	Free Repair	Repair + fee
5	Same problem occur 4 times	Exchange	Repair + fee
6	Within 6 month after repairing with charging fee, same problem occur	Repair without fee or refund repair fee	
7	5 times repaired by troubles in several parts, but detecting trouble again	Exchange	Repair + fee
8	Cannot be repaired although have the spare parts. (Within spare parts holding period)	Exchange	Exchange + Charge for depreciation in price
9	Cannot be repaired by out of parts (Within spare parts holding period)	Exchange	Exchange + Charge for depreciation in price
10	Incident due to operator error	Repair + fee	Repair + fee
11	Lost parts or products by manufacturer	Exchange	Exchange + Charge for depreciation in price
12	Damage in delivery	Exchange(Claim for damages to carrier)	
13	Lost or damaging parts during delivery from customer to manufacturer	Customer fault. Out of warranty condition	
14	Damage during the install by manufacturer	Exchange	Exchange parts
15	Any other quality issue	Additional progress	

The warranty period is 1 year from the date of purchase, and parts retention period is 5 years from the date of manufacture.

For all refunds, you must submit the purchase receipt.

<Additional Exceptions>: The manufacturer is not responsible for business losses during the product's malfunction period.

WARRANTY CARD

To protect benefit of customers and official dears, Addins inc. assure product quality as follow

Warranty is void under these circumstances

- Modification not approved by authorized support technician
- Incident due to operator error
- Sales performed by unauthorized persons
- Oven not operated as outlined in the manual
- Damage caused by external sources such as power outage, fire, act of God, etc.
- Without a warranty

Customer	Name	
	Phone	
	Address	
Seller	Company	
	Phone	
	Address	
Install date		
Serial No.		Warranty Period
Product Name		

Fill out this warranty card and send to e-mail (addins@korea.com) or fax to 031-848-2072. Without submitting this warranty card, warranty may not be covered.



Warranty Info

1. Warranty Length

Warranty is good for 1 year after purchase for malfunctions due to manufacturer defects.

2. Warranty Exclusions

- Warranty is void under these circumstances
- Modification not approved by authorized support technician.
 - Incident due to operator error.
 - Sales performed by unauthorized persons.
 - Oven not operated as outlined in the manual.
 - Damage caused by external sources such as power outage, fire, act of God, etc.
 - Without a warranty.

3. Miscellaneous

Sales must be invoiced to be eligible for warranty.

Caution at use

- Avoid places of sudden and/or drastic temperature changes.
- Do not use flammable material for cleaning.
- Do not install near high voltage usage or voltage fluctuations.
- Avoid heavy shock to the machine.
- Do not place oven in direct sunlight or in place with heavy dusts.
- Store in dry places.
- Do not use in area with vibrations.

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