

-EVELEST VOLCAN SPEED & MINI

Zirconia Sintering furnace



Product User Manual

MODEL: VOLCAN SPEED & MINI

(i) Please read the instruction manual before using the product for a safe and convenient use.

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1. Introduction

Thank you for purchasing U&C International Furnace. Volcan speed Furnace is subject to rigorous quality control procedures and follows standard procedure. As the results of our quality system, Volcan speed Furnace has better performance.

Also Volcan speed has sturdily and gracefully designed and programmed as user friendly. This Manual will explain the installation and operation of the furnace as well as help you get the most out of your new Volcan speed 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 furnace.



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



Caution

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

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 warrantee and could cause damage, electric shock or fire.

2. Ensure the Furnace 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 Furnace at all time.

5. Keep liquid away from the Furnace and avoid using the Furnace 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 door open to avoid burns.

8. Always ensure that the Furnace is completely stopped before working with the Furnace 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.

Ø Caution

1. Keep away from Furnace during operation. While running, furnace generates high temperature.

2. Please handle the Furnace 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 Furnace.
- 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, and 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.

2. Product Information

(1) 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

(2) 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)

3. Technical Data

Temperature Sensor

Sensor Type	Thermocouple R-type
Sensor Range	0~1,760℃

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
Max. Temp.	1,600℃
Working Temp.	+2°C ~+35°C
Working Humidity	Below 80%
Working Altitude	Below 3800m

Our products are manufactured according to the following technical standards.

- Safety : EN 61010-1:2010

- EMC : EN 61326-1

Model	Volcan Speed	Volcan Speed mini	
Max. Current	12A		
Product Dimension[mm]	300(W) × 400(D) × 640(H)	270(W) x 380(D) x 570(H)	
Chamber Dimension[mm]	\emptyset 100 mm $ imes$ 80 mm	Ø70 mm x 60 mm	
Weight	About 41kg	About 36kg	

4. Items Included

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 Tray	2ea
	Sintering Plate	1ea
	Sintering Base	1ea
	Fast Sintering Tray	2ea
Q	Tray Insulation Board	1ea
	Tray Tongs	1ea
	Zirconia Beads	1ea
	Cooling Station	1ea
	Manual	1ea

(1) Volcan Speed

(2) Volcan Speed mini

	Fast Sintering Tray	2ea
Q	Tray Insulation Board	1ea
	Tray tongs	1ea
	Zirconia Beads	1ea
	Cooling Station	1ea
	Manual	1ea

5. Install

(1) 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.)

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.
- 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.

(2) 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.

6. Appearance and Name

(1) List of parts

- 1. Furnace housing
- 2. Sintering tray
- 3. Air ventilation opening
- 4. USB port (Upgrade)
- 5. Touch panel
- 6. Sintering Chamber



7. Front Panel Information

(1) Start

::Company 1				450℃	Ø
	Initializing	Thermistor Lift Down Lift Up Vacuum Power	Version 1.01 OK OK OK OK OK		
2020-07-29 09:25	Ŷ				\$

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

(2) Screen Layout

The 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

(3) Icon Description

lcon	Description
::Company	Selected mode status window
450 [℃]	Inside chamber temperature
ØØ	Furnace operation status display window (Flashing during operation)
	 Lift moving up (No icon for door-type models) If the lift is in operation, it changes to a stop button, pressing it again resumes the previous action
	 Lift moving down (No icon for door-type models) 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 26 for settings)

lcon	Description
Company 1	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.
2024_04-07 16:29:51	Current date and time To change the time and date, click on the display.
< 1/5 >	Sintering program (Schedule) navigation (Store up to 50 schedules)
	Go back to the previous screen
Ľ	Move schedule (Move)
Ð	Copy schedule (Copy)
Ľ	Change company name, material name, and temperature of the schedule.
â	Return to the initial screen (company selection screen)

8. Instruction for Use

(1) Change schedule name

To change the	schedule name, click the "Change" icor	n (
schedule (Material 1) to modify.		
::Schedule		25°c	
	Material0)
q w	ertyu i	o p -	
a s	d f g h j k	l.,	
	z x c v b n	m 💌	
123			J
2023-01-01 12:00:00	<1/5>	• ľà	J

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

(2) Time Setting



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

Time changes can only be made from the home screen.

::Date & Time			25 [℃]	Ø
2023 8 Sun Mon Tue Wed Thu Fri Sat		Minute		
30 31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	22 23 0 1 2	58 59 0 1 2		
20 21 22 23 24 23 26 27 28 29 30 31 1 2 3 4 5 6 7 8 9				
0000-00-00 00:00:00			۵	\$

After changing the date and time, press <a>[I] icon to save and return to the previous screen.

9. Schedule Setting (Temp. Set.)

(1) Select Schedule



Select the schedule to use.

(2) 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.

While 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.

(3) Changing Temperature Setting



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

Temp.(°C) Fast Rate(°C/min) Hold time(hour:min) Multi Step 11 900 25 00:00 3	J
T2 1100 15 00:00	
T3 1530 10 01:00	
	7
	5

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 ($^\circ\!\!\!C$)		
Rate(T1, T2,T3)	Enter heating rate for each segment ($^\circ\!\!\!C$ / 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		

(4) Cool Down Temperature and Cooling Rate Settings



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

::Material0 : Cooling	g Value		25℃	G
Temp.(°C)	Fast Cool Rate(°C/min)	Hold time(hour:min)	Temp.Control	
<u>c</u>				
			Multi Step	
			<u> </u>	
0000-00-00	\$ 2/2	>	ଜ	¢
00:00:00				
Temp.Control Wh	en selected, cooling ca	an be controlled by c	lividing it into	

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

Select on the window of the section need to be changed, enter the number, and

Temp	Enter cool down temperature
Cool Rate	Enter cooling rate for each segment ($^\circ\!\!\!C$ / min)
Hold time	Enter soak time (hold time at selected temperature) (min : sec)

press 🔳 icon to make the modification.

Multi Step 1 -

10. User Settings

(1) User Settings Screen

Select "Set up icon" () will change the screen to the following. Screen for setting temperature, cleaning and software update.

::User Setting		25 [℃]	Ø
Furnace Temp.(°C)		Language	
25 Set Temp.Ref Set Temp.Value	Cleaning	English 👻	
1500 20	Temp. Test		
Used Count Error Count			
10 0	Data Manage Factory Reset	Buzzer	
Fan On Temp.(°C)		On 🔵 Off	
200	Download - Upload -		
0000-00-00			(j)
00:00:00 ل	<u> </u>	<u>ل</u> ع	

(2) Icon Descriptions

lcon	Descriptions		
Furnace Temp.(°C) 25	Display current temperature of chamber		
Set Temp.Ref Set Temp.Value	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.		
Used Count	Furnace used count (Indicate one cycle of the schedule as a single use)		
Error Count	Display the number of errors encountered during product use		
Fan On Temp.(°C) 200	Fan on temperature setting (Not used in Ceramic furnace)		
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)		
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)		

Data Manage . Back up Restore	سی Furnace Data backuj	Do you want to data back up? esNo p in the furnace.	
Data Manage . Back up Restore	Restore backup data	Do you want to restore your data?	
Factory Reset	"Factory Reset" Res (Initial Password : 00	es No Po you want to run a factory reset? No Poets the settings to or 000)	riginal state.
Download ▼ USB Test Schedule F/W F/W + Image	Checking USB recog	USB meory test OK	
Download USB Test Schedule F/W F/W + Image	Download schedule	Yes No data in USB to the fu	urnace
Download → USB Test Schedule F/W F/W + Image	Download new firmw	Yes No Vare in USB to the full	rnace.
Download → USB Test Schedule F/W	Do you wa Download new firmw	Yes No Vare+Image in USB t	o the furnace.

Upload - Schedule Data Log Error Log	Do you want to upload schedule data? Yes No Copy schedule data in furnace to USB		
Upload - Schedule Data Log Error Log	Do you want to upload log data?		
Upload Schedule Data Log Error Log 	Do you want to upload error log data? Yes No Save Error log in furnace to USB		
Language English 👻	Language settings (Korean, English, Japanese, Russian, Spanish)		
Buzzer On Off	Turning on and off the buzzer sound. Adjusting the volume of the sound		

11. Operation

(1) Rapid Sintering

- % Caution *
- 1. Use rapid sintering schedules only when the operator is present.
- 2. For rapid sintering (within 2 hours), use only the rapid sintering tray.
- 3. Never use a regular sintering tray in a rapid sintering schedule.
 - -> Furnace damage and fire hazards may occur if used.
- 4. Excessive coloring liquid may cause to have a crack on the units when using a rapid sintering. Aviod coloring or use minimal amounts. [Instruction]
- 1. Drying materials (About 30min)



3. Lift down



5. Select sintering schedule.



2. Furnace Main Power S/W On.



4. Place units on rapid sintering tray



6. Confirm/Modify selected schedule.



< Refer to Page23 for temperature setting >

7. Start the sintering.



8. Sintering completed.

Operation is Completed.
ок

9. Remove the tray after the sintering is completed.



<Caution>

- ① Do not place a hot tray in front of the furnace, as it may damage the display.
- ② Always place the hot tray on the cooling station.
- ③ Wait until the furnace temperature drops below 100°C before handling the units to avoid the risk of burns or fire.

(2) Regular Sintering

% Caution *

1. Do not set the heating/cooling rate to exceed 40°C/min during regular sintering. Exceeding this rate may cause tray damage, furnace damage, or fire hazards. (Consult the manufacturer if a faster rate is required.)

2. Use a regular sintering tray and manually raise the lift before starting the sintering process. Ensure the tray does not touch the heating elements. Close the lift after confirming this, then start the process.

[Instruction]

1. Drying materials (About 30min)



2. Furnace Main Power S/W On.



 Use "Lift Down" icon to lower the tray for Lift type furnaces, Open the door to check inside chmaber for Door Type furnaces



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





5. Select sintering schedule,



6. Confirm/Modify selected schedule



< see Page23 Temperature Settings >

7. Start the sintering.

10:50		
(1)		
/min)		
/	mn)	

9. Remove the tray after the sintering is completed.



<Caution>

- ① Do not place a hot tray in front of the furnace, as it may damage the display.
- ② Always place the hot tray on the cooling station.
- ③ Wait until the furnace temperature drops below 100°C before handling the units to avoid the risk of burns or fire.



8. Sintering completed.

12. Pre-Set 4 Sintering Schedules



13.Messages and Troubleshooting

(1) 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 Wegiht 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	

14. Warranty

No.	Condition	Within warranty period	After warranty period	
1	Within 10 days of purchase, require major repair by	Exchange or		
I	defect even though used in normal condition	refund		
0	After 1 month of purchase, require major repair by	Evolopido		
2	defect even though used in normal condition	Exchange		
2	Manufacturer could not repair for a month from	Evebongo	Exchange + Charge for	
3	customer request to be fix	Exchange	depreciation in price	
4	Same problem occur 3 times	Free Repair	Repair + fee	
5	Same problem occur 4 times	Exchange	Repair + fee	
C	Within 6 month after repairing with charging fee,	Denois without fee as refund renais fee		
D	same problem occur	Repair without re	e or retund repair tee	
7	5 times repaired by troubles in several parts, but	Evolution	Densir L fas	
	detecting trouble again	Excitatige	Repair + lee	
8	Cannot be repaired although have the spare parts.	Evolution	Exchange + Charge for	
	(Within spare parts holding period)	Excitatige	depreciation in price	
0	Cannot be repaired by out of parts	Evebongo	Exchange + Charge for	
9	(Within spare parts holding period)	Exchange	depreciation in price	
10	Incident due to operator error	Repair + fee	Repair + fee	
11	Last parts or products by many factures	Evebongo	Exchange + Charge for	
	Lost parts of products by manufacturer	Exchange	depreciation in price	
12	Damage in delivery	Exchange(Claim for damages to carrie		
13	Lost or damaging parts during delivery from	Customer fault., Out of warranty condition		
	customer to manufacturer			
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.

Memo

WARRANTY CARD

To protect the benefit of customers and agency, U&C International assure product quality as follows.

Warranty is void under these circumstances:

- Modification not approved by authorized support technician.
- · Incident due to operator error.
- · Sales performed by unauthorized persons.
- Furnace not operated at outlined in the manual. Damage caused by external sources such as power outage, fire, natural disaster, etc.
- Lack of a valid warranty.

Fill out this warranty card and send to email (marketing@uncint.net) or FAX to +82-2-864-7713. Without submitting this warranty card, warranty may not be covered.

Warranty Info

1. Warranty Length

The warranty is valid for 1 year from the date of purchase and

2. Warranty Exclusions

· Modifications not approved by an authorized support technician

furnace not operated according to the guidelines in the manual
 Damage caused by external sources such as power outages,

covers malfunctions due to manufacturer defects.

The warranty is void under the following circumstances

Customer	Name		
	Phone		
	Address		
Seller	Company		
	Phone		
	Address		
Install Date			
Serial Number		Warranty Period	
Product Name			



4. 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 furnace in direct sunlight or
 - in place with heavy dusts
- Store in dry places
- Do not use in area with vibrations



· Incidents due to operator error

· Sales performed by unauthorized persons

3. Miscellaneous

Sales must be invoiced to be eligible for warranty

* Product functions may change without notice to enhance performance.

We will always strive to provide you with high-quality products and seamless service consultations.

Product Inquiry	WhatsApp	
Direct number +82-70-4880-3665	You can get counseling on WhatsApp.	
FAX number +82-2-864-7713		
E-mail marketing@uncint.net		

The user manual is subject to change based on the company's circumstances.

MODEL: VOLCAN SPEED & MINI

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