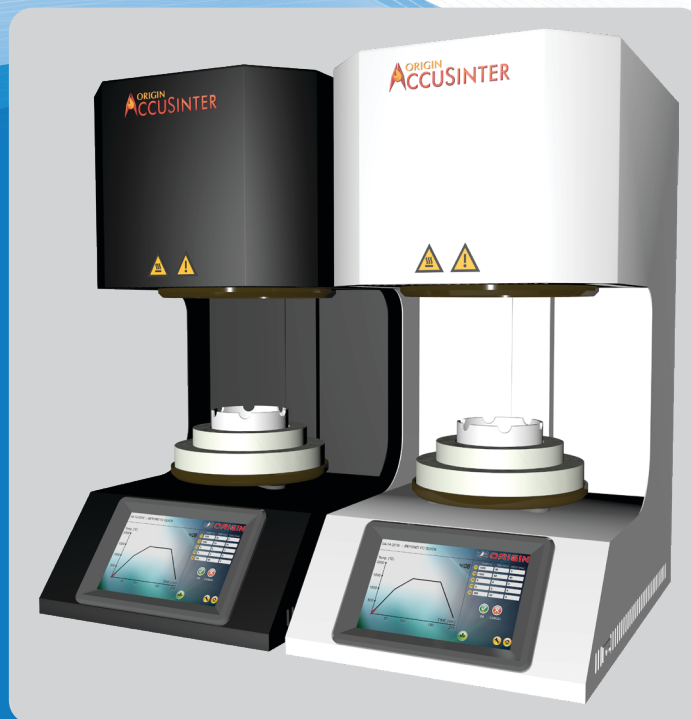


# Origin Accusinter: User Manual

Instructions for use



Last Updated: 2022

Origin Accusinter System

# Introduction

Thank you for purchasing AccuSinter furnace.

Our company, B&D Dental Corp., has been manufacturing zirconia discs since 2010 and we are well known for our high quality dental prosthetic products including Live, Beyond and Beyond Plus. While developing zirconia discs, we realized how important the sintering process actually is. As an active dental laboratory manufacturer, we know how critical it is to achieve accurate shades. There are many factors that determine what shade is produced: Zirconia disc's density, powder compositions, Yittria amount, sintering temperature, etc.

One of the most important things that a dental laboratory can control is the sintering process. If the temperature is too high, the shade comes out lighter, and if it is too low, the shade comes out darker. Heat holding time is also important. Depending on the sintering cycle, you can achieve much more natural looking crowns.

That's why we developed the AccuSinter oven. Our first model was the DuoTron, then the DuoTron Pro, and now finally, we have developed AccuSinter. AccuSinter has been intentionally designed with a smaller chamber size for better heat distribution control. When there is a bigger chamber, the lower part of the chamber and the higher part of chamber have different temperatures. Some other ovens that we tested had temperature differences of 40 degrees or more. AccuSinter's top side and bottom side difference is only about 8 degrees\*.

AccuSinter has been designed and programmed with a user-friendly layout in mind, and as a result of our quality control system, AccuSinter has impeccable performance compared to other competitors.

This Operators Manual will explain the installation and operation of the oven as well as help you get the most out of your new AccuSinter Furnace. Please read the instructions carefully in this manual for the best experience possible.

# Table of Contents

3-4	Introduction
5-6	Product Information
7	Technical Data
8	Installation
9-12	Appearance and Name
13-14	Front Panel Information
	Changing Name
	Temperature Setting
	Setup
	User Instructions
	Sintering Bridge Frameworks
	Troubleshooting
	Waranty

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

Safety Information is divided into two sections: Warning & Caution as described below:

**WARNING:** Violations of instructions may cause an increased risk of serious injury or electrical shock.

**CAUTION:** Violations of instructions may cause an increased chance of material waste or injuries.

## Warning

1. Do not disassemble, repair, or modify any part of the machine without prior approval from an authorized technician. May cause damage, electric shock, or fire.
2. Ensure the oven is properly grounded to eliminate error or electrical hazards.
3. Do not cut or modify the power cord. Do not stretch or bend the power cord.
4. Keep flammable materials away from the oven at all times.
5. Keep liquid away from the oven and avoid using the oven in damp environments to prevent electrical hazards.
6. Ensure that the power plug is firmly plugged into the correct outlet. Unstable contact may cause electric sparks and/or fire.
7. Always wear heavy thermal insulated gloves when handling units to avoid burns.
8. Always ensure that the oven is completely stopped before operating. Do not operate the oven door when the machine is in a cycle.
9. Do not touch or handle the power plug. Electric shock and/or fire may occur.
10. Carefully use tongs when removing a Casting Ring from the furnace.
11. Do not place flammable materials near or inside the furnace. May cause burn injuries or fire.

## Caution

1. The furnace generates high temperatures while running. Keep flammable objects away.
2. Handle the oven with care to avoid damage. The furnace contains fragile parts.
3. Do not operate the furnace in areas with high amounts of vibration.
4. Read the manual and understand the instructions before operating.
5. Do not leave the furnace door open.
6. Keep flammable substances or materials away from the furnace.
7. Do not install on unstable surfaces.
8. Do not unplug the furnace with sudden/strong force.
9. Keep temperatures lower than 40 degrees Celcius before sweeping dust out.
10. If any defects are found, stop operation immediately and contact the manufacturer.
11. Unplug the power and use a dry cloth when cleaning the furnace. Do not use any detergent.
12. Do not touch the furnace when in operation and immediately after the operation finishes. Do not touch the upper part of the furnace.
13. Keep all flammable materials away from the furnace to avoid fires.
14. When the furnace is not in use, turn the circuit breaker off. It is located at the back of the oven.
15. If the furnace is not in use for the long term, pull out the power plug.
16. Only use trays provided by the manufacturer. If the tray dimensions are too big or tall, it may break the muffle or heat sensor. (Dimension of tray = Smaller than 95mm x 23mm). If the muffler is broken or damaged by the use of an unsupported tray, it is not the responsibility of the manufacturer or seller.
17. High temperatures may cause glass materials to lay on moving insulation and could contaminate materials. To remove contaminated materials, use a vacuum cleaner with a brush. Do not use air compressors.



## Caution (continued)

18. To remove tray after sintering, wait until inside temperatures are lower than 100°C. Higher temperatures may damage the tray and skin.

19. Cleaning Cycle: Regularly inspect the inside of the furnace. If oxide film on the heating elements are damaged or zirconia materials are contaminated, use Cleaning Cycle to clean and prevent contamination (Caution: frequent use of Cleaning Cycle could damage muffle/heating elements. If the need to clean gets too frequent, contact the manufacturer or seller. It is recommended to run once every other week.

20. Changing Insulation: Insulator particulate may cause irritation to eyes or skin. Inhaling large quantities of particulate may cause respiratory disorders. Protect the skin, eyes, and respiratory organs by wearing safety glasses and a mask. (Compliance matters: Wear long sleeves, safety glasses, face mask, and use a vacuum to clean. After operating wash unprotected skin with fresh water.)

21. Cracks in the insulator may occur due to high temperatures or rapidly changing temperatures. Note: cracks by thermal shock in insulator does not critically affect firing result. (Cracks on the base tray insulator may affect temperature. In which case, replace the tray insulator through the manufacturer or local distributor.)

## Product Information

### Characteristics

- 50 Custom Temperature Settings
- 7 Inch TFT LCD High-quality Display
- Touch screen capabilities
- Use only 4 Dental MoSi2 heating elements for economical maintenance.
- Quick Mode enables faster sintering times (4 hours)
- Normal cycle we recommend less than 25°C/min for longer life of the heating element.
- Compact design
- Triple stack tray using provided/manufacturer's sintering tray (**ONLY use provided tray**).
- USB mouse/cursor supported
- 1900 °C rated heating element. (4 EA)

### Main Functions

- User-defined programs (AccuSinter Furnace is pre-programmed for B&D Dental zirconia discs, but you can modify the programs)
- Progress graph display
- Calculate & display remaining times
- Fine-tuning temperature levels
- Quick & easy to update software

## Technical Data

### Temperature Sensor

<b>Sensor Type</b>	Thermocouple R-type
<b>Sensor Range</b>	0 ~ 1760

### Main Controller for Monitor

<b>Voltage</b>	DC 5V
<b>Display</b>	7 inch TFT LCD with touch screen capability
<b>Control (RS-232)</b>	1 Ch. : Communicate with I/O Controller
<b>USB</b>	1 Ch. : USB port to install updates and mouse connection

### I/O Controller

<b>Voltage</b>	DC 12V
<b>Output</b>	2 Ch. : Transformer, Fan
<b>Input</b>	2 Ch. : Reserved
<b>Control (RS-232)</b>	1 Ch. : Communication with the main controller

### Specification

<b>Voltage</b>	AC 220V, 50/60 Hz
<b>Max. current</b>	20A
<b>Dimensions</b>	300mm (W) × 430mm (D) × 570mm (H) (11 ¾ x 17 x 22 ½)
<b>Chamber</b>	140ø × 120mm
<b>Max. temp</b>	1650°C
<b>Max. ramp rate</b>	50°C/min
<b>Operating Temp Temperature</b>	+2°C ~ +35°C
<b>Working humidity</b>	Less than 80%
<b>Working altitude</b>	Lower than 3800m
<b>Weight</b>	41kg (90lbs)



## Installation

### Connect Correct AC Power

This product requires AC 220V. Before connecting power, ensure voltage is correct. If your outlet has less than 200V, it can cause "Low Temperature Error" if that happens, contact B&D Dental to resolve the issue.

### List of Parts

After opening the box, ensure all of the contents are present. Check for any visual damage. If you find any damages or defects, please contact the seller.

- Product contents:
- Furnace housing: 1pc
- Instruction: 1pc
- Ceramic tray: 2pc
- Ceramic lid: 2pc
- Base tray insulator: 1pc
- Zirconia beads (180g): 1pc
- Power cord: 1pc

### Installation

Avoid exposure to sunlight or moisture when installing the product. Be sure to install the oven on a sturdy leveled platform. Install in a clean environment to prevent exposure to dust which may damage the heating elements or fans. Place the furnace at least 30cm apart from the wall and 1.5m away from the ceiling to avoid fire hazards.

Do not place flammable materials on top of the oven. Before use, install a ventilation system above the product to expel harmful gasses during sintering.

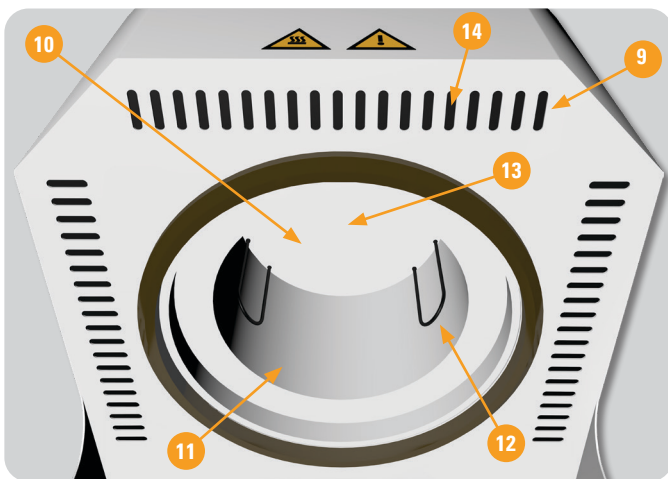
## Appearance and name

### List of parts



#### Front

1. Furnace housing
2. Lower body cover
3. Lower body removing screws (6ea)
4. USB port for program upgrades
5. Touch screen monitor
6. Air ventilation openings
7. Sintering chamber
8. Base tray insulation



#### Sintering Chamber

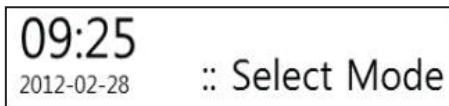
9. Air ventilation opening (top)
10. Top insulation
11. Side insulation
12. Heating elements (4ea)
13. Thermocouple
14. Insulation removing screws (4ea)

## Front Panel Information

### Detail Information

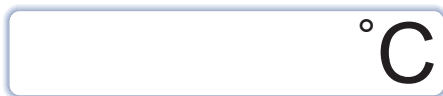




### Time and Mode Display



- Displays current time and date
- To change time & date: Double click time/date numbers
- Displays the current mode. Ex) Quick, Regular


### Current Temperature Display



Button	Description
	Tray Up
	Tray Down
	Set Temperature for Select Mode (See page 17 for Temperature settings)
	Setting Additional Functions (See page 19)
	Main Menu
	Start the selected program
	Stop the current program during operation
	Display close/open for lift. With checkmark, lift closed. Without lift close, heater can't pull the power and pop up "Limit Switch Error" Message.
	Display fan status. < Upper Case, Power Trans, Cooling Fan >
	Displays if the power is going to the heating element.
	Move between pages (Total 50 schedules can be saved).
	Change name of the schedule.
	Returns to previous menu.
	USB Inserted (See page 19)

## Changing Names



1. To change the name of the program, press the toolbutton (  ),

2. Then press the mode button (  ).



3. Type the name of the new program and press the OK button.

### Note:


\*Change font size: click this button (  ). < This function applies to all letters >

## Temperature Setting



1. Press the Mode you want to modify.
2. Press the Temp Set button ( **Temp Set** ).



3. The display will change to the following.
4. Change the temp, time and hold time to desired settings and press the Enter button ( **Ent** ).  
To move back to the main menu press the Back button (  ).

**\*\*\* Important: T5 must set as set as 100, TEMP (°C/min) do NOT exceed 25. If you set more than 25 that will shorten the MOSi2 life.**

### Detail Information

- Delay (h:m): Setting delay starting of sintering time.
- TEMP (°C): Setting set point temperature < Max: 1600 °C >
- TEMP (°C/min): Temperature ramp rate < Max: 25 °C/min >
- HOLD (h:m): Setting holding time at given temperature <hour:min>  
<ex → 0:02 = 2 min., 0:20 = 20 min., 2:00 = 2 hour, 20:00 = 20 hours >
- Setting T5 when temperature ramp down ( **Hold** / **On** / **Off** )

Select **Hold** : Keep temperature at T5 after finish program.

Select **On** : Ramp up temperature at T5 then start cooling.

Select **Off** : Cooling till temperature at T5 with heater power off.

## Setup

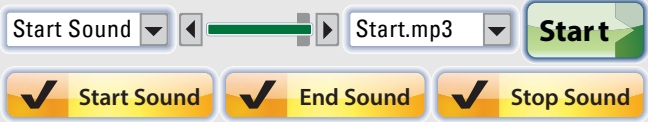

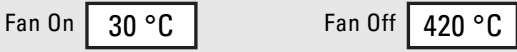
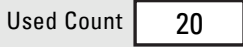






1. Press the setup button to enter setup mode ( **Setup** ).



2. Press the Temp Set Button ( **Setup** ).

**\*\*\* Do not change Fan On / Off temperature, as it will result in tray cracks.**

Button	Description
	<p>Change the alert sound for Start, End and Stop functions.</p>
	<p>Run Calibration Cycle - Measure the ring size and type the temperature of the ring at "Set Temp" window. Apply setting. This will reset all programs.</p>
	<p>Setting Trans cooling fan working temp. &lt; Fan On = 200 °C, Fan Off = 200 °C &gt;</p>
	<p>Counting number of furnace used.</p>
	<p>Perform software upgrade.</p>
	<p>Upload temperature data for program.</p>
	<p>Download temperature data for program.</p>
	<p>Exits to Windows CE menu. (To restart the program, please shut the oven off)</p>



## Software Upgrade



1. Create Run\_V folder on USB drive, then copy the file(s) you want to upgrade.

2. Insert USB drive into USB port on the right-hand side of the AccuSinter oven.



3. Clicking the ( **S/W Upgrade** ) button will start the upgrade, and the program will restart.



4. Upload and Download, follow the same steps as well.

## User Instructions

1. Dry shaded crowns under the lamp.



2. Turn of the AccuSinter furnace.



3. Place tray on the oven..



4. Use lid to avoid contamination.



5. You may use open slotted tray.



6. Use only 1 lid on top tray when using multiple trays.



**NOTE:**

*Use supplied tray, max height 80mm. Using bigger diameter tray can damage the heating element.*

*When you use more than 2 trays, heat raise temp must be lower than 15 to avoid low temperature error.*

## Sintering Bridge Frameworks

### Design Method 1: Without sintering pins



Ensure that the entire surface of the substructure is supported by the sintering beads. This avoids deformation.

Care should be taken to prevent sintering spheres becoming “jammed” in the connector areas (for Sirona Cerec, MC-XL users).

### Design Method 1: With sintering pins



This method reduces the surface friction and allows the framework to “slide” on flat pins as it shrinks. Make sure to frequently polish the surface of the round zirconia plate by rubbing it with a grinding stone. This plate is from Katana, Noritake and works well to prevent “deformation” of your framework (for DelCam and other open CAM software users).

### Design Method 3: With extra Zirconia support strut.



The proven method employed by experienced technicians is especially effective for large unit bridges. The “holding” effect of the extra support of zirconia prevents the warping of large unit bridges with dense pontic areas that shrink comparatively more than the abutments.

### Design Method 4: Profiling wall from CAM software.



This is another proven method for medium to large unit bridges used by outsourcing centers. The surrounding wall automatically designed by CAM software provides for uniform and even shrinkage. It prevents deformation even though there are dense pontic areas that shrink substantially more than the abutment copings (Origin CAM software users).

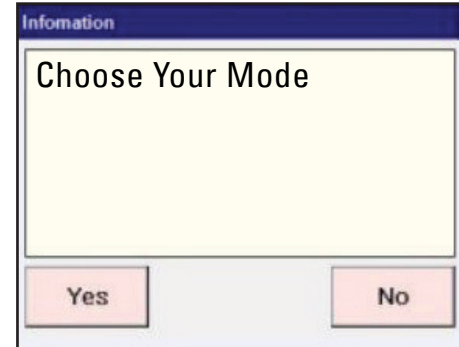
## Troubleshooting: Messages During Programming

### ► “Choose your mode”

If the user attempts to start the program without selecting a mode, this message will appear.

#### Solution

Select desired mode before starting the program.

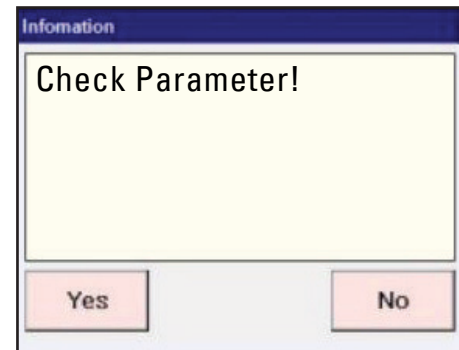


### ► “Check Parameter!”

Schedule input is invalid.

#### Solution

Double-check the sintering schedule. If the problem persists, please contact a manufacturer for further troubleshooting assistance.

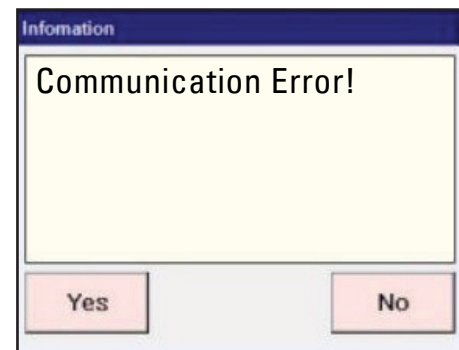


### ► “Communication error!”

If there is no communication between the display controller and I/O controller for longer than 10 seconds, this message will appear. It is normal to see when you power up. Just check “Yes”

#### Solution

Restart the oven. If the problem persists, please contact the manufacturer for further troubleshooting assistance. This usually Microsoft CE board and I/O controller communication error. Microsoft file might be corrupted. Possibly Need to replace CE board (Monitor).

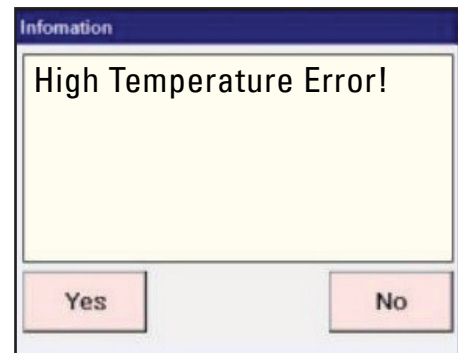


► **“High Temperature error!”**

If the inside temperature of the furnace is over 1700 °C or the thermocouple is damaged, this message will appear. Usually it happens when thermocouple is damaged.

**Solution**

Check temperature settings or replace the thermocouple.



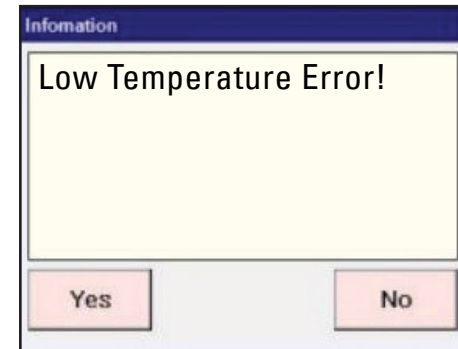
► **“Low Temperature error!”**

If the temperature inside the furnace is not ramping up, this message will appear.

**Solution**

If you have 3 trays in the chamber, please lower the H1 heat ramping rate. Because trays are absorbing the heat, chamber inside temperature is not following the intended temperature.

If you have 1 or 2 trays and getting this error message, heating element might be damaged. Or check the voltage of the outlet. If it is less than 200V it can cause Low Temp error. If voltage is lower than 200V, Use buck booster to increase voltage. To replace the heating element, contact the manufacturer or seller.

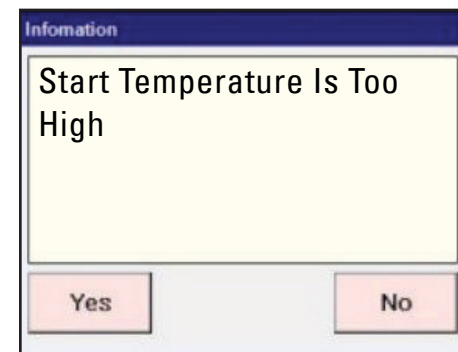


► **“Start temperature is too high”**

If the temperature inside of the furnace is higher than the initial set temperature, this message will appear.

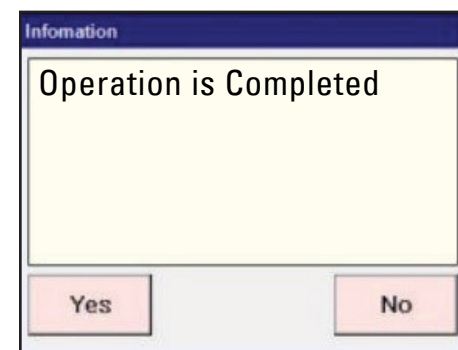
**Solution**

Wait until the temperature inside of the furnace lower than 250C before trying again. If furnace chamber temperature is not hot but you are getting message then usually thermocouple is damaged. Please replace the thermocouple.



► **“Operation is completed”**

If the temperature inside of the furnace is higher than the initial set temperature, this message will appear.



No.	Condition	Within 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, requires major repair by defect even though used in normal condition.	Exchange	
3	Manufacturer could not repair for a month from customer request to be fixed.	Exchange	Exchange + Charge for depreciation in price
4	Same problem occurs 3 times.	Free repair	Repair + fee
5	Same problem occurs 4 times.	Exchange	Repair + fee
6	Within 6 months after repairing with charging fee, same problem occurs.	Repair without fee or refund repair fee.	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 part holding period).	Exchange	Exchange + Charge for depreciation in price.
9	Cannot be repaired but out of spare parts (within spare part 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)	Exchange (claim for damages to carrier)
13	Lost or damaging parts during delivery from customer to manufacturer.	Customer fault	Customer fault
14	Damage during the install by manufacturer	Exchange	Repair + fee
15	Any other quality issue	Additional progress	Additional progress

★ **Manufacturer is not responsible for any business loss while product is not working.**

# WARRANTY CARD

To protect the benefit of customers, B&D Dental ensures product functionality as detailed below. Warranty is void under the following circumstances:

- Modification not approved by authorized support technician.
- Incident due to operator error.
- Oven not operated as outlined in the manual.
- Damage caused by external sources such as a power outage, fire, flood etc.

**Please fill out the form below and send a copy to (support@bnddental.com) or fax to (1-801-281-4022). Failure to submit the warranty card may void warranty coverage.**

<b>Customer</b>	
Name:	
Phone:	
Address:	
<b>Seller</b>	
Company:	
Phone:	
Address:	
Installation Date:	
Serial No.:	
Product Name:	
Warranty Period:	

## WARRANTY INFO

- 1 Warranty length:** Valid for 1 year after purchase for malfunctions due to manufacturer defects. 2nd year will be covered with a 50% discount of the parts. Does not include heating elements.
- 2 Warranty exclusions:**
  - Modification not approved by authorized support technician.
  - Incident due to operator error or natural disaster.
  - Sales performed by unauthorized personnel or dealer.
  - Oven not operated as outlined in the manual.
  - Damage caused by external sources such as a power outage, fire, flood etc.
- 3 Caution at use:** Avoid installing in places with drastic temperature changes, high voltage fluctuations, dust, vibrations, or direct sunlight. Do not use flammable materials for cleaning and store in dry environments. Voltage must be over 208 volt.

**Need to Place an order? Have Questions? Contact us today!**

BnDdental.com • sales@BnDdental.com • 800.255.2839 (Toll Free) • 801.281.4012

