Fast Zirconia Sintering!

Certified
Developed in the U.S.A.
Fast Sintering, High Capacity

Compact Design:
110 lbs / 12”(W) x 18”(D) x 29.5”(H)
• Roomy Interior Chamber: 3.75”(W/D) x 4.4”(H)

Stackable, Up to Three Sintering Trays:
Three Tray Capacity Allows an Average of 75 Units to Sinter in Each Cycle.

Fully Programmable & Capable of Creating Custom Cycles for Different Material Needs.

High Resolution LCD Monitor (Touch Screen).

Compact Size Provides a Smaller Footprint for Valuable Lab Space.

Stainless Steel Construction with Multiple Internal Fans & Uniquely Designed Air Holes to Maintain a Low Exterior Temperature.

• Increases zirconia production speeds and decreases costs
• Cost savings & environmental friendliness
• Compact, requiring less equipment space
• Consistent zirconia color
• Eliminate contamination build-up
• 2 year warranty - (excludes consumable items)

Quick Mode:
Single Copings or Small Bridges (3 to 4 Unit Bridges)

Regular Mode:
Large Bridge Cases or 4 Unit Bridge Cases with Large Pontics

Full Contour Mode:
Full Contour Zirconia Sintering at an Increased Temperature

Custom Modes:
Create Your Own Sintering Cycles to Fulfill All Your Zirconia Needs

Fast Sintering, Small Footprint

Compact Design:
60 lbs / 14.8”(W) x 13.4”(D) x 14.5”(H)
• Interior Chamber: 4.4”(W/D) x 2.4”(H)
• 1 Tray per Cycle (25 Units per Tray)

Mosi2 Heating Element Programmable Schedules:
• Fully Programmable & Capable of Creating Custom Cycles for Different Material Needs
• 10 Customizable Program Options

Sintering Supplies

<table>
<thead>
<tr>
<th>Item #</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>DuoTron Pro Sintering Tray</td>
<td>10008904</td>
</tr>
<tr>
<td>DuoTron Pro Tray Lid</td>
<td>10008903</td>
</tr>
<tr>
<td>Sintering Beads (1mm, 200g)</td>
<td>10008901</td>
</tr>
<tr>
<td>Sintering Beads (2mm, 200g)</td>
<td>10008902</td>
</tr>
<tr>
<td>DuoTron Tray Pick-up Tool</td>
<td>10008905</td>
</tr>
</tbody>
</table>

www.BnDdental.com
sales@BnDdental.com
800.255.2839
- **Heating Elements**
  MoSi2 (Molybdenum Disilicide)

- **Controlled Temperature Release**
  The sintering platform is released once the chamber is cooled to a pre-set temperature. This feature ensures that the sintered zirconia is cooled in a controlled manner and is not subject to sudden temperature changes during cooling. The pre-set platform release can be adjusted to specific laboratory needs.

- **Sintering Tray Cover**
  The use of the alumina sintering tray cover is a primary factor for preventing occasional zirconia discoloring that may otherwise occur due to the heating elements.

- **Maximum 3 Trays**
  Each round 95 mm diameter tray can hold an average of 25 single units. A maximum of 3 trays can be stacked up during one cycle time. The bottom support tray elevates the sintering trays to provide even heat and should have no zirconia units placed inside it.

- **Create Your Own Custom Graph in Addition to the Pre-set Parameters**
  Simply enter the temperature setting of your preferred zirconia brand, and the DuoTron Pro will create your graph automatically. You can make the heat up and cooling time shorter or longer depending on the nature of the case.
Mode & Indication

Quick Mode:
Single copings or small bridges
(3 to 4 unit bridges)

Regular Mode:
Large bridge cases or bridges cases with large pontics
(4 - 7 hours)

Full Contour Mode
Full contour zirconia sintering at an increased temperature
(7.5 hours)

Full Contour Quick Mode
Expedited mode for single full contour
(2.5 hours)

Custom Mode
Build your own sintering cycle to fulfill all your needs

1. Quick Mode - Single Case

2. FC Quick Mode - Single Full Contour
3. Regular Mode

Below is an example of a regular 8 hour sintering mode applicable to most brands of zirconia currently available on the market. Understanding the basic concepts of the graph will allow you to create any custom graph tailored to your needs for specific brands of zirconia. In addition, B&D Dental can provide preset modes for your particular brand of zirconia.

Example of regular 8 hour graph used by most brands of zirconia

T1: Temperature climbs up to 1,100° C in 75 minutes. During this period, most of the gases from the zirconia binder and/or color liquids are burned out.

T2: Since there is no holding period after this climb, the temperature remains at 1,100° C for zero minutes.

T3: The second stage of sintering uses a slower climb to reach the high temperature of 1,500° C in 105 minutes.

T4: Holding period at 1,500° C for 70 minutes.

T5: Controlled cooling of zirconia for 230 minutes to reach the normal temperature of 25° C.

4. Long Bridge Mode

Large Bridge Cases Require the Extended Cycle Time and Slower Heat up

What is your success rate for large bridge cases? The success of large bridge cases depends on factors such as the accuracy of CAM software, Pontic design, and the control of the uneven shrinkage between thin coping areas and thick/large pontic areas. In addition, it is largely dependent on whether the heat source is circumferential or simply one directional (upward only) as it is with microwave methods. Test results show that a circumferential heat source along with the extended cycle time and slower heat up has a much higher success rate for large bridge cases.
**Substructure Shades**

**Technician’s Choice for Consistency & Color Accuracy**

- 16 shades available
- Developed for copings & substructures of 0.4 - 0.5 mm in standard thickness

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**Chroma Substructure: 150 mL**

<table>
<thead>
<tr>
<th>Shade</th>
<th>Item #</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>30701711</td>
</tr>
<tr>
<td>A2</td>
<td>30701712</td>
</tr>
<tr>
<td>A3</td>
<td>30701713</td>
</tr>
<tr>
<td>A3.5</td>
<td>30701714</td>
</tr>
<tr>
<td>A4</td>
<td>30701715</td>
</tr>
</tbody>
</table>

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**Substructure Set: 150 mL**

<table>
<thead>
<tr>
<th>Item #</th>
<th>Item #</th>
<th>Item #</th>
</tr>
</thead>
<tbody>
<tr>
<td>30701710</td>
<td>30701716</td>
<td>30701712</td>
</tr>
</tbody>
</table>

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**Substructure Shades**

- Slightly Lighter than the Body Portion of Shade Tab
- Slightly light in chroma intensity. Developed for Full Contour restorations of 1.0 - 2.0 mm in standard thickness.

- Same as the Body Portion of Shade Tab
- Creates the same shades as the body portion of each shade tab. Developed for Full Contour restorations of 1.0 - 2.0 mm in standard thickness.

- Slightly Stronger than the Body Portion of Shade Tab
- Slightly stronger in chroma intensity than shade tabs. Developed for usage with certain oven calibrations and uniquely higher temperatures.

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**Chroma Classic Shades**

- Level 80: Single 150 mL Bottles
- Level 70: (Standard) 150 mL
- Level 60: 150 mL

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**Level 80**

- Item #: 30701830
- Item #: 30701831
- Item #: 30701832
- Item #: 30701833
- Item #: 30701834
- Item #: 30701835
- Item #: 30701836
- Item #: 30701837
- Item #: 30701838
- Item #: 30701839
- Item #: 30701840
- Item #: 30701841
- Item #: 30701842
- Item #: 30701843
- Item #: 30701844
- Item #: 30701845

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**Level 70: (Standard)**

- Item #: 30701801
- Item #: 30701802
- Item #: 30701803
- Item #: 30701804
- Item #: 30701805
- Item #: 30701806
- Item #: 30701807
- Item #: 30701808
- Item #: 30701809
- Item #: 30701810
- Item #: 30701811
- Item #: 30701812
- Item #: 30701813
- Item #: 30701814
- Item #: 30701815
- Item #: 30701816

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**Level 60**

- Item #: 30701746
- Item #: 30701747
- Item #: 30701748
- Item #: 30701749
- Item #: 30701750
- Item #: 30701751
- Item #: 30701752
- Item #: 30701753
- Item #: 30701754
- Item #: 30701755
- Item #: 30701756
- Item #: 30701757
- Item #: 30701758
- Item #: 30701759
- Item #: 30701760
- Item #: 30701761

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**Full Contour Set: 150 mL**

- 150 mL

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**Slightly Lighter than the Body Portion of Shade Tab**
- Slightly light in chroma intensity. Developed for Full Contour restorations of 1.0 - 2.0 mm in standard thickness.

**Same as the Body Portion of Shade Tab**
- Creates the same shades as the body portion of each shade tab. Developed for Full Contour restorations of 1.0 - 2.0 mm in standard thickness.

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**800.255.2839**
**Additional Chroma Liquids**

- **Incisal Enhancer**
  - 0.5, 1.0, 1.5, 2.0, 2.5, 3.0 & 3.5
  - Creates a gradually reduced chroma effect and increases translucent effects on the applied area of the incisal and occlusal ridges. 2.0 & 3.0 are ideal for the darker shades as they have more gray.

- **Chroma Inhibitor For Bridge Pontics**
  - Creates balanced chroma between the pontics and abutments on bridge cases by reducing the chroma intensity on the pontics (large mass) that would otherwise be too strong.

**5 Incisal Effects & 9 Effect Shades**

B&D Dental is pleased to announce our new Effects Liquids. These intense internal colorants are used pre-sinter to enhance and customize Beyond and Beyond Plus translucent zirconia. Now high end aesthetic outcomes are achievable using these specialized coloring liquids. Available in 15 shades, a ceramist can create beautiful custom shaded full contour zirconia restorations. Call us today to order our 5 shade starter kit.

- **5 Incisal Effect Colors**
  - To increase the translucency effect for occlusal and incisal area.

- **10 Effect Colors**
  - Ideal for individualization of cervical, body area, fissures and incisal areas.

**Optimized for Beyond Plus™ zirconia for maximum translucency effects**

Origin’s Revolutionary Formula, Imparting Natural Color Quickly & Easily With Consistent Results.

3D-Master Shade matching for full contour zirconia restorations has long been a challenge for dental laboratories. The new CHROMA 3D-Master Shade liquids precisely match the Origin Beyond Plus™ zirconia for a quick and consistent approach to staining. Simply dip the restoration into the color liquid for 1 minute after applying the Incisal Enhancer on the incisal area.

- Water based, Non-acidic color liquid
- Eliminate the tedious & inconsistent conversion to 3D-Master from Classic 16

**ChromaJars & ChromaMat**

- Clearly labeled ★ Easy to use ★ Durable
- ChromaJars feature a tray that helps prevent chipping, provides quick and easy access to restorations, and raises restorations above any sediment layer which might affect end shade. These clear walled jars provide a full view of any crowns in the liquid, reducing the chance of crowns being left in the liquid too long.

**Origin Chroma Jars & Chroma Mat**

- **ChromaJars**
  - ChromaJars feature a tray that helps prevent chipping, provides quick and easy access to restorations, and raises restorations above any sediment layer which might affect end shade. These clear walled jars provide a full view of any crowns in the liquid, reducing the chance of crowns being left in the liquid too long.

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**Additional Chroma Liquids**

- **Incisal Enhancer**
  - Please Call for Free Sample
  - 0.5, 1.0, 1.5, 2.0, 2.5, 3.0 & 3.5
  - Creates a gradually reduced chroma effect and increases translucent effects on the applied area of the incisal and occlusal ridges. 2.0 & 3.0 are ideal for the darker shades as they have more gray.

- **Chroma Inhibitor For Bridge Pontics**
  - Please Call for Free Sample
  - Creates balanced chroma between the pontics and abutments on bridge cases by reducing the chroma intensity on the pontics (large mass) that would otherwise be too strong.

**Origin Chroma Jars & Chroma Mat**

- Clearly labeled ★ Easy to use ★ Durable
- ChromaJars feature a tray that helps prevent chipping, provides quick and easy access to restorations, and raises restorations above any sediment layer which might affect end shade. These clear walled jars provide a full view of any crowns in the liquid, reducing the chance of crowns being left in the liquid too long.

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Factors that Affect the Final Color of Zirconia Restorations

1. Coloring Liquid
Origin® CHROMA™ coloring liquid was developed based on zirconia powder processing unique to Origin® Live™ zirconia. Different zirconia with different processing technology will respond differently to the same coloring liquid. For best result, please match Origin® LIVE™ zirconia with Origin® CHROMA™ coloring system.

2. Sintering Oven
The Origin® zirconia coloring system, CHROMA™, was developed based on the test results sintered from the Origin® DuoTron™ oven which is one component of the Origin® CAD/CAM system. The DuoTron™ gives consistent and reproducible results over long periods of time. Test results show that conventional ovens with a longer sintering cycle (7-8 hours) give a result that is one shade darker (or at least a half shade darker) as compared to when the DuoTron™ oven is used. So if you are sinteing Origin® LIVE™ zirconia colored with the Origin® CHROMA™ system, make sure you use level 80 liquid instead of the standard level of 70.

3. Glazing Temperature
The higher glazing temperature you use, the lighter color your glazed zirconia will have. The high glazing temperature for Origin® LIVE™ zirconia colored with the Origin® CHROMA™ system is 800 °C with a holding time of 1min 30 seconds. The proper glazing temperature schedule is introduced on page 12 of the Instructions For Use for the Origin® LIVE™ zirconia & Origin® CHROMA™ zirconia coloring system.

4. Glazing with Vacuum
Test result shows that using a vacuum during glazing will create lighter shades in final glazed zirconia. In addition, the vacuum level of different brands of glazing ovens differs from each other. As a result, we have eliminated this varying factor from our standard process and recommend that you do not use vacuum during glazing. Your glazed zirconia will still look great at the glazing temperature of 800 °C.

5. Light Conditions when Checking Shade
Color perception of the final glazed zirconia restoration depends on many factors including; the light source (natural light, fluorescent light, incandescent light), light intensity (3000 K - 6500 K), abundance of light in a room, observation angle, etc. The Origin® CHROMA™ zirconia coloring system was developed based on the following parameters.

- light source: Natural, full-spectrum light
- light intensity(color temperature): 5000 K (3000K-Soft white, 3500-Neutral, 4100 K- Cool white, 5000 K-Natural light, 6500 K - Daylight)
- color reproduction capability (color rendering index) of light source: 90%
- observation angle of the restoration: combination of straight angle and side angle
- color determination: combination of experience of skilled ceramist and colorimeter (VITA Easyshade Compact)
Different Furnaces Produce Different Results

Test 1. Different Sintering Ovens - Different Results in Redish Brown Chroma

Two different ovens were tested for sintering results. The same shade zirconia (either from a pre-colored multi-layered disc or colored by the liquid method) were sintered in different ovens; sample A was sintered using the Origin® DuoTron™ quick mode (3 hrs) and sample B was sintered using a conventional oven with a long cycle time of 8 hours. The shade of sample A came out as intended, whereas sample B from the conventional oven came out with a stronger/higher chroma.

Test 2. Different Temperature Settings - Different Results in Chroma

The same oven was tested using different temperature settings. As the sintering temperature gets higher, the redish brown chroma of the A2 shade gets weaker. Between 1530 °C (purple bar) and 1550 °C (green bar), the difference was nearly unnoticeable, but between 1570 °C (red bar) and 1530 °C (purple bar) the chroma difference was quite noticeable.
The Origin® zirconia color system was developed based on the Origin® DuoTron™ sintering furnace

The Origin® zirconia discs and the Origin® coloring system, CHROMA™, were developed based on numerous test results utilizing the Origin® DuoTron™ oven which is one component of the Origin® CAD/CAM system. The DuoTron™ gives consistent and reproducible results over long periods of time. Test results show that conventional ovens with a longer sintering cycle (7-8 hours) give a result that is one-half shade to one full shade darker as compared to when the DuoTron™ oven is used.

More Than just Sintering - Certainty

The final shade results of the 20 pre-colored discs are best presented when sintered with the Origin® DuoTron™ furnace. From this important aspect, the DuoTron™ provides certainty and consistency.
Origin® LIVE™ zirconia colors were determined under these parameters

1. Sintering Oven
   Oven used: Origin® DuoTron™
   Test results show that different brands of ovens may produce different levels of chroma intensity. Under the same conditions (ex. same zirconia, same color method - either from liquid or pre-colored disc), brand A furnace produced an A2 shade while brand B furnace produced an A2.5 or A3 shade. Possible reasons include the heating coil type, heating coil thickness, age of the oven, heating chamber size, temperature schedule, degree of protective glass oxide layer over the heating coil (in the case of an MoSi2 heat source).

2. Glazing Parameters
   High temperature: 800 °C. Holding time: 1 min 30 sec
   The higher glazing temperature you use, the lighter color your glazed zirconia will have. The proper glazing temperature schedule is introduced on page 12 in the Instructions For Use of the Origin® LIVE™ zirconia & Origin® CHROMA™ zirconia coloring system.

3. Glazing Without Vacuum
   Test results show that using vacuum during glazing will create lighter shades in the final glazed zirconia. In addition, the default vacuum level of different brands of porcelain ovens differ from each other. As a result, we have eliminated this varying factor from our standard processing and recommend that you do not use vacuum during glazing. Your glazed zirconia will still look great at the glazing temperature of 800 °C.

4. Color Conditions when Checking Shades
   Color perception of the final glazed zirconia restoration depends on many factors including: the light source (for example, natural light, fluorescent light, incandescent light, etc), light intensity (3000 K - 6500 K), abundance of light in a room, observation angle, etc. The Origin® CHROMA™ zirconia coloring system was developed based on the following parameters:
   - Light source: Natural, full-spectrum light
   - Light intensity (color temperature): 5,000 K (3000K-soft white, 3500-Neutral, 4100 K-Cool white, 5000K-Natural light, 6500K-Bright daylight)
   - Color reproduction capability (color rendering index) of light source: 90%
   - Observation angle of the restoration: combination of straight angle and side angle
   - Color determination: combination of experience of skilled ceramist and colorimeter (Vita® Easyshade Compact)

Color Temperature
Increased Energy (cost) Savings & Environmental Friendliness

**DuoTron sintering: 2kw X 2 hour= 4kw-h**

**Conventional sintering: 5kw X 7 hour= 35kw•h**

- DuoTron increases zirconia production speeds and decreases production costs
- DuoTron systems are more compact, requiring less equipment space

**Technical Info**

- **Maximum working temp:** 1,600° C (2,912 °F)
- **Size (outside):** 72 cm (H) X 30 cm (W) X 46 cm (D) (28.4’ (H) X 11.8’ (W) X 18.1’ (D))
- **Weight:** 45 kg (99 Lbs)
- **Oven power:** 2kW
- **Electricity power:** 220 Volts
- **Max. current:** 30 Amps
- **Fuse:** 30 Amps
- **Frequency:** 60 Hz
- **Capacity:** Max 60 copings per cycle time (average 25 copings (single crowns) X 3 trays)
- **Outer diameter of the sintering tray:** 95 mm. (inner diameter: 84mm)
- **Furnace chamber insulated with high-purity fiber insulation**
- **Table top construction**
- **Fully programmable & capable of creating custom cycles for different material needs**
- **High-tech touch pad screen**
- **Free software upgrades through USB port**
- **1 year manufacturer’s warranty**

Developed in the USA

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