



Instructions for Use Zirconia inLab Blocks www.zDent.com

Product Description: zDent brand dental zirconia milling blocks are made of yttria-stabilized TZP zirconia made with 100% Tosoh brand powders, designed specifically for creating copings and dental frameworks for crowns and bridges in Sirona inLab milling machines. These blocks are partially pre-sintered and will shrink by approximate 25% when sintered after milling, so you must set your milling machine to create a slightly enlarged version of the framework. Each box of blocks is labeled with an exact shrink number that should be entered into your Sirona milling machine so that it creates a block of the proper size after final sintering. After full sintering, the material densifies into an ISO 6872 Type 2 Class 6 high strength ceramic. All blanks are solely for use by or on the order of a dental professional. They are not for use by the general public or over-the-counter.

Contraindications: Contraindications are all applications not indicated above.

Composition:

Zirconium oxide (ZrO ₂)	88 – 96%
Hafnium oxide (HfO ₂)	1 – 5%
Yttrium oxide (Y ₂ O ₃)	4 – 6%

Technical Data:

Coefficient of Thermal Expansion (25-500°)	10.6 x 10 ⁶ /°C
Fully Sintered Flexural Strength	≥ 1400 MPa
Chemical Solubility (ISO 6872)	0 µg/cm ²

Preparation Guidelines: Zirconia structures that you create with our blocks are the load-bearing elements in crowns and bridges, so proper framework design is important to their success. Frameworks should be designed following the anatomy of the tooth according to the guidelines below the thickness and connector dimensions.

	Anterior	Standard Crown	Splinted Crown	3 Unit Bridge	4+ Units w/ 2 pontics	Cantilever w/ 1 pontic
Circular Thickness Incisal / Occlusal	≥ 0.5 mm ≥ 0.7 mm	≥ 0.5 mm ≥ 0.7 mm	≥ 0.5 mm ≥ 0.7 mm	≥ 0.5 mm ≥ 0.7 mm	≥ 0.7 mm ≥ 1.0 mm	≥ 0.7 mm ≥ 1.0 mm
Connector Dimensions	n/a	≥ 7 mm ²	≥ 7 mm ²	≥ 9 mm ²	≥ 12 mm ²	≥ 12 mm ²
	Posterior					
Circular Thickness Incisal / Occlusal	≥ 0.5 mm ≥ 0.7 mm	≥ 0.5 mm ≥ 0.7 mm	≥ 0.5 mm ≥ 0.7 mm	≥ 0.5 mm ≥ 0.7 mm	≥ 0.7 mm ≥ 1.0 mm	≥ 0.7 mm ≥ 1.0 mm
Connector Dimensions	n/a	≥ 9 mm ²	≥ 9 mm ²	≥ 12 mm ²	≥ 12 mm ²	≥ 12 mm ²

If you fail to carefully follow the guidelines above or if you create bridges with additional connectors, the restoration may crack or break and will not be covered under warranty.

Storage: Store in a cool dry place

Important Safety Measures:

1. Design the framework to maximize cross-sections.
2. Do not inhale grinding dust or allow it to get into your eyes (use dust mask and eyewear)
3. Carefully read the MSDS available at www.zdent.com

Milling, Finishing and Sintering Steps:

1. Fix the blank according to the milling system instructions.
2. Set the enlargement factor.
3. Start the machining.
4. After machining, dismount the blank with the framework.
5. Remove the framework from the blank with a diamond disc.
6. De-dust the framework completely before firing.
7. Dry the framework completely before firing.
8. Position the framework in a sinter-bed inside the crucible.
9. Program your furnace according to its manual and our sintering instructions (below).
10. Sinter the framework.
11. When cool down is completed, remove the sintered framework.
12. Inspect framework for flaws, wall thickness, seat and margin fit.
13. Make small adjustments with a water-cooled diamond tool.
14. Rinse the framework with water and dry it.
15. It is now ready for veneering.

Traditional Sintering Instructions:

Type	Ramp Rate	Temp	Dwell Time	Cooling
Standard Grade Crown	4 °C / min	1500 °C	2 hour	Natural
Standard Grade Bridge	3 °C / min	1500 °C	2 hour	Natural

Do not open furnace to remove frameworks until below 400 °C

Microwave Sintering Set Points: Sinter for 20 min to 700°C; then 10 min to 1000°C; then 5 min to 1200°C; then 8 min to 1400°C; then 5 min to 1500°C; hold 25 min @ 1500°C

Preparing for Veneering: To make adjustments to the framework after sintering, use only grinding instruments indicated for Zirconia materials. After grinding, sandblast with alumina $\leq 50 \mu\text{m}$ and ≤ 50 PSI pressure. Before veneering, clean framework with water or steam jet cleaner and dry.

Veneering: Our zirconia materials are compatible with any overlay porcelain approved for use with YTP zirconia with a CTE of 8.8 to $10.5 \times 10^6 / ^\circ\text{C}$. We recommend that the first wash be fired at 960 °C.

zDent Zirconia Instructions for Use

