

ZIRCONIA BLOCK HT/ST/TT SINTERING INSTRUCTIONS

1. Sintering



The ideal sintering temperature for AxZir TT zirconia crowns is 1450 °C in the furnace chamber. Make sure the chamber temperature is the same as the program temperature and that the furnace is calibrated correctly. If greater translucency is required, sintering temperature can be raised to 1530 °C but there will be a slight color fade.



Crown Drying

PRIOR to sintering ALL crowns made with AxZir zirconia should be dried under an infrared lamp at a distance of 60-100mm for 20-50 minutes.

Below are the recommended sintering cycles for all types of TT zirconia. (Hold at temperature for 2 hours)

TT white blocks with coloring liquid (crown thickness < 3mm)

Procedure	Initial Temp (°C)	Final Temp (°C)	Time (min)	Heating Rate (°C / min)
Step1	100	500	100	4
Step2	500	1000	62.5	8
Step3	1000	1450	112.5	4
Step4	1450	1450	120	0
Step5	1450	800	81.25	-8
Step6	800	150		Natural cooling

Total time : 7 hours 56.25 minutes plus natural cooling time

TT white blocks with coloring liquid (crown thickness >3mm)

Procedure	Final Temp (°C)	Final Temp (°C)	Time (min)	Heating Rate (°C / min)
Step1	100	500	100	4
Step2	500	1150	81.25	8
Step3	1150	1150	30	0
Step4	1150	1300	75	2
Step5	1300	1450	37.5	4
Step6	1450	1450	120	0
Step7	1450	800	81.25	-8
Step8	800	150		Natural cooling

Total time : 8 hours 45 minutes plus natural cooling time

TT multi-layer blocks (1 to 3 units)

Procedure	Final Temp (°C)	Final Temp (°C)	Time (min)	Heating Rate (°C / min)
Step1	100	1150	131.25	8
Step2	1150	1150	30	0
Step3	1150	1300	75	2
Step4	1300	1450	37.5	4
Step5	1450	1450	120	0
Step6	1450	800	81.25	-8
Step7	800	150		Natural cooling
Total time : 7 hours 55 minutes plus natural cooling time				

2. Trimming

Trim the restoration with stones specifically designed for zirconia or use water cooled emery milling burs.

Note: Try to trim the restoration at a low speed noting that too much force may lead to hotspots on the material which can result in fractures.

3. Polishing

Use a special zirconia polisher to polish the occlusal surface and polish the buccal and distal surfaces if needed.

4. Sandblasting

Sandblast under 2-2.5Bar with 50µ m Al₂O₃ grit (fresh, not recycled) and clean the restoration after sandblasting.

Purpose: to clean the crown; recover the strength and prepare for glazing.

5. Glazing

We recommend any glazing paste with a firing temperature BELOW 850 °C

Note:

- *Trim and polish the restoration before glazing to avoid an uneven glaze.*
- *Mix the glaze paste with liquid well to avoid an uneven glaze.*

ZIRCONIA BLOCK HT & ST SINTERING INSTRUCTIONS

1. Sintering



*The ideal sintering temperature for **ST Pre-shaded** crowns is 1530 °C in the furnace chamber. Make sure the chamber temperature is the same as the program temperature and that the furnace is calibrated correctly.*



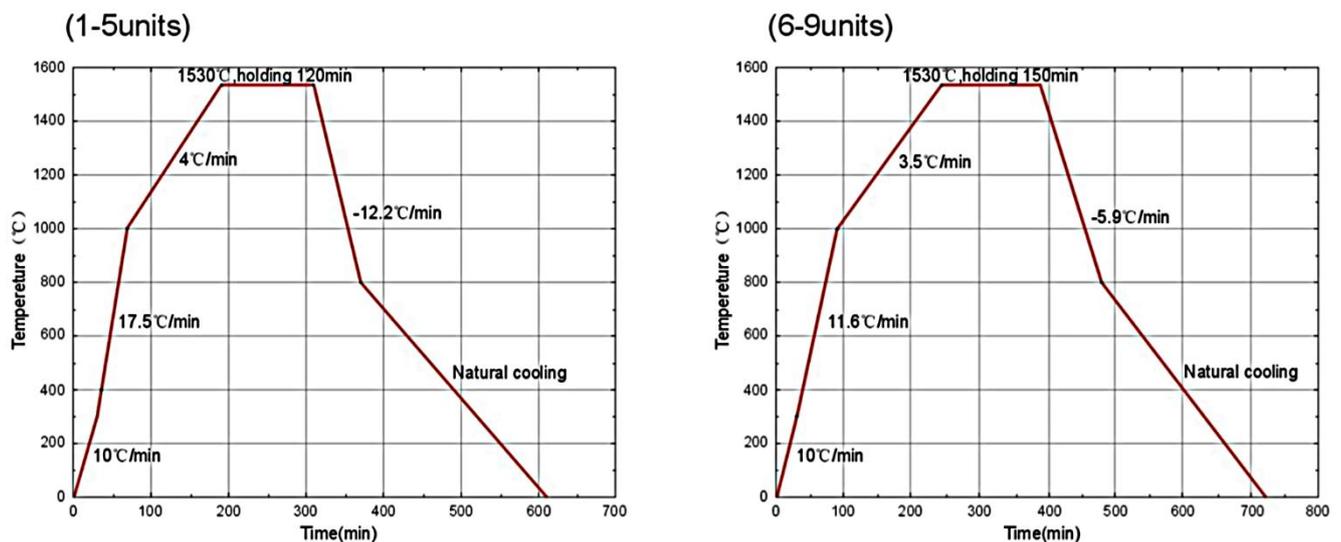
A lower temperature will create a deeper shade and lower translucency. A higher temperature will create a lighter shade and higher translucency, with a poorer ageing characteristic.



Crown Drying

***PRIOR** to sintering **ALL** crowns made with AxZir zirconia should be dried under an infrared lamp at a distance of 60-100mm for 20-50 minutes.*

PLEASE REFER TO THE SINTERING CURVES BELOW FOR TEMPERATURE & CYCLE



*Figure 1: Sintering Cycle for **ST Pre-Shaded** Zirconia Crowns*

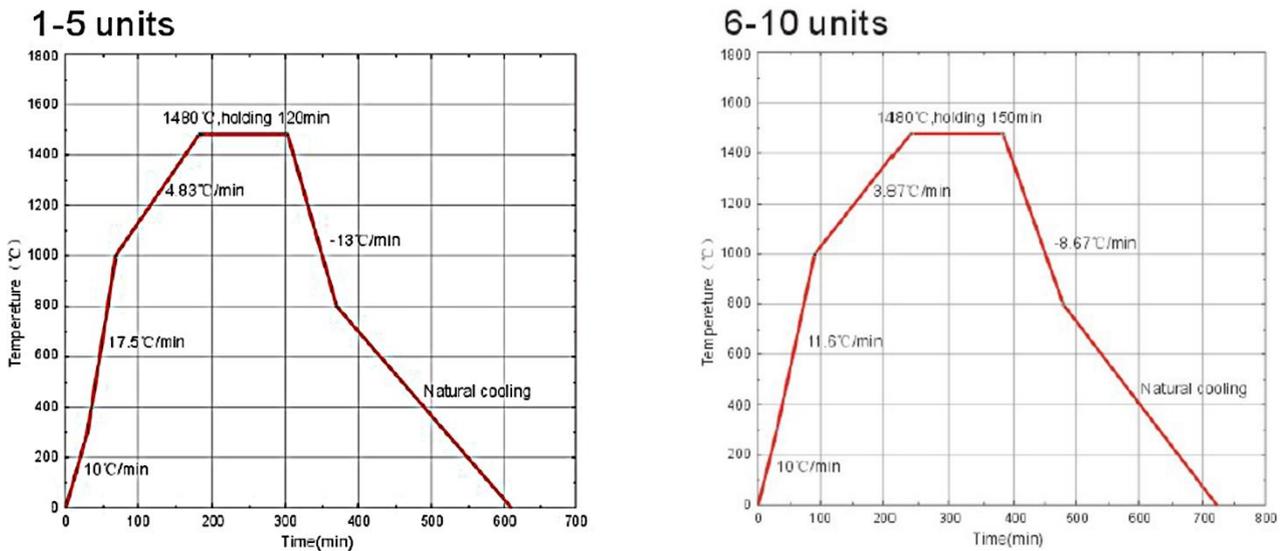


Figure 2: Sintering Cycle for **HT & ST White Zirconia Crowns**



The ideal sintering temperature for White **HT & ST White zirconia crowns** is 1480 °C in the furnace chamber. Make sure the chamber temperature is the same as the program temperature and that the furnace is calibrated correctly.



If greater translucency is desired, sintering temperature can be raised to 1530 °C, however There will be a slight color fade. In this case please modify the color with stain or use a deeper color liquid.

2. Heat Treatment

Prior to tinting and glazing, crowns made with **HT & ST zirconia** heat-treated in a porcelain furnace at a temperature of 1000 °C which can lower shade deviation and recover strength.

PLEASE REFER TO THE HEAT TREATMENT TEMPERATURE & CYCLE BELOW

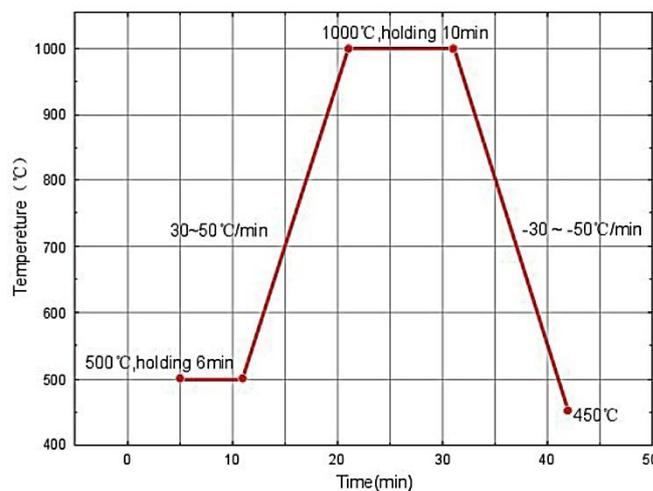


Figure 3: Heat Treatment Cycle for **HT & ST Zirconia Crowns**



- (1) *Thick crowns (> 2mm) or long bridges need a slower heating and cooling rate.*
- (2) *Put the crown on the high-temperature firebrick when the furnace temperature is lower than 300 °C, leave to cool naturally.*

3. Trimming

Trim the restoration with stones specifically designed for zirconia or use water cooled emery milling burs.

Note: Try to trim the restoration at a low speed noting that too much force may lead to hotspots on the material which can result in fractures.

4. Polishing

Use a special zirconia polisher to polish the occlusal surface and polish the buccal and distal surfaces if needed.

5. Sandblasting

Sandblast under 2-2.5Bar with 50µ m Al₂O₃ grit (fresh, not recycled) and clean the restoration after sandblasting.

Purpose: to clean the crown; recover the strength and prepare for glazing.

6. Glazing

We recommend any glazing paste with a firing temperature BELOW 850 °C

Note:

- *Trim and polish the restoration before glazing to avoid an uneven glaze.*
- *Mix the glaze paste with liquid well to avoid an uneven glaze.*



PLEASE DOWNLOAD AND READ THE COMPLETE USAGE INSTRUCTIONS

Complete Instructions for Use for AxZir HT & ST zirconia can be found at:

<http://www.axsysdental.com/documents/AxZir-Instruction-of-full-contour-fabrication 2018.pdf>

Complete Instructions for Use for AxZir ST Pre-Shaded Zirconia can be found at:

<http://www.axsysdental.com/documents/AxZir IFU+ST+pre-shaded+zirconia 2018.pdf>



A Division of Axsys Incorporated

29627 West Tech Drive, Wixom, MI 48393

Phone: 248.926.8810 Fax: 248.926.9085

Website: www.axsysdental.com