



Bring smiles to the world

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Product Manual

Lodden Zirconia Blocks

•Note: This manual is only applied to
Lodden zirconia blocks.



Lodden Zirconia Blocks Zirconia blocks more than ten years of production experience, complete models, fast delivery.	       							
	HT-W HT-C ST-W ST-C ST-ML SHT-W SHT-C SHT-ML							
	98mm/95mm/AG							
Thickness	10mm/12mm/14mm/16mm/18mm/20mm/22mm/25mm/30mm							
Translucency	37%	37%	43%	43%	43%	46%	46%	44%-47%
Strength	1350Mpa	1350Mpa	1200Mpa	1200Mpa	1200Mpa	1000Mpa	1000Mpa	800-1050Mpa
Shades	White	A1 A2 A3 A3.5 A4 B1 B2 B3 B4 C1 C2 C3 C4 D2 D3 D4 BL1 BL2 BL3 BL4	White	A1 A2 A3 A3.5 A4 B1 B2 B3 B4 C1 C2 C3 C4 D2 D3 D4 BL1 BL2 BL3 BL4	A1 A2 A3 A3.5 A4 B1 B2 B3 B4 C1 C2 C3 C4 D2 D3 D4 BL1 BL2 BL3 BL4	White	A1 A2 A3 A3.5 A4 B1 B2 B3 B4 C1 C2 C3 C4 D2 D3 D4 BL1 BL2 BL3 BL4	A1 A2 A3 A3.5 A4 B1 B2 B3 B4 C1 C2 C3 C4 D2 D3 D4 BL1 BL2 BL3 BL4
Physical Characteristics	- Density before sintering(g.cm⁻³): 3.15±0.05 - Density after sintering(g.cm⁻³): 6.12±0.01 - CTE(25-500 ℃)(K⁻¹): (10.5±0.5) ×10⁻⁶ - Fracture toughness (MPa·m^{1/2}): 6.5 - Hardness(HV10): 1350 - Accelerated aging surface monoclinic phase content: <15% - Chemical solubility after sintering(μg.cm⁻²): <100 - Cytotoxicity: 0 Level - Radioactivity(Bq.g⁻¹): <0.1		- Density before sintering(g.cm⁻³): 3.15±0.05 - Density after sintering(g.cm⁻³): 6.09±0.01 - CTE(25-500 ℃)(K⁻¹): (10.5±0.5) ×10⁻⁶ - Fracture toughness (MPa·m^{1/2}): 6.5 - Hardness(HV10): 1350 - Accelerated aging surface monoclinic phase content: <15% - Chemical solubility after sintering(μg.cm⁻²): <100			- Cytotoxicity: 0 Level - Radioactivity(Bq.g⁻¹): <0.1		
Chemical Composition	- ZrO₂ + HfO₂ + Y₂O₃: ≥ 99% - Y₂O₃: 4.5% - 6.0% - Al₂O₃: < 0.25% - Other Oxides: < 0.15%		- ZrO₂ + HfO₂ + Y₂O₃: ≥ 99% - Y₂O₃: 4.5% - 6.0% - Al₂O₃: < 0.25% - Other Oxides: < 0.5%		- ZrO₂ + HfO₂ + Y₂O₃: ≥ 99% - Y₂O₃: 4.5% - 6.0% - Al₂O₃: < 0.15% - Other Oxides: < 0.5%		- ZrO₂ + HfO₂ + Y₂O₃: ≥ 99% - Y₂O₃: 7.0%-7.8% - Al₂O₃: < 0.15% - Other Oxides: < 0.15%	
	- ZrO₂ + HfO₂ + Y₂O₃: ≥ 99% - Y₂O₃: 4.5% - 6.0% - Al₂O₃: < 0.25% - Other Oxides: < 0.5%		- ZrO₂ + HfO₂ + Y₂O₃: ≥ 99% - Y₂O₃: 4.5% - 6.0% - Al₂O₃: < 0.25% - Other Oxides: < 0.5%		- ZrO₂ + HfO₂ + Y₂O₃: ≥ 99% - Y₂O₃: 7.0%-7.8% - Al₂O₃: < 0.15% - Other Oxides: < 0.15%		- ZrO₂ + HfO₂ + Y₂O₃: ≥ 99% - Y₂O₃: 7.0% - 7.8% - Al₂O₃: < 0.15% - Other Oxides: < 0.5%	

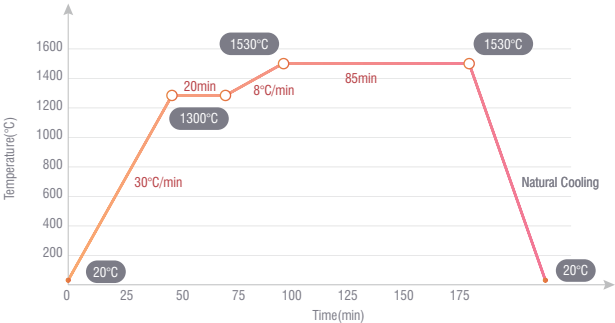
Lodden Zirconia Blocks Zirconia blocks more than ten years of production experience, complete models, fast delivery.	100% SINOcera 100% SINOcera 100% SINOcera 100% SINOcera 100% SINOcera 100% SINOcera 100% SINOcera 100% TOSOH 100% TOSOH UT-ML3DPRO3DPRO-Rapid3DPRO MAX3DPRO MAX-W4DPRO4DPRO MAX4D TURBO4DMASTER									
Diameter										
Thickness	10mm/12mm/14mm/16mm/18mm/20mm/22mm/25mm/30mm									
Translucency	49%-57%	43%-49%	43%-49%	43%-51%	43%-51%	43%-57%	43%-57%	43%-57%	43%-57%	
Strength	700-800Mpa	800-1200Mpa	800-1200Mpa	750-1200Mpa	750-1200Mpa	700-1200Mpa	800-1300Mpa	800-1300Mpa	800-1300Mpa	
Shades	A1 A2 A3 A3.5 A4 B1 B2 B3 B4 C1 C2 C3 C4 D2 D3 D4 BL1 BL2 BL3 BL4	A1 A2 A3 A3.5 A4 B1 B2 B3 B4 C1 C2 C3 C4 D2 D3 D4 BL1 BL2 BL3 BL4	A1 A2 A3 A3.5 A4 B1 B2 B3 B4 C1 C2 C3 C4 D2 D3 D4 BL1 BL2 BL3 BL4	A1 A2 A3 A3.5 A4 B1 B2 B3 B4 C1 C2 C3 C4 D2 D3 D4 BL1 BL2 BL3 BL4	White	A1 A2 A3 A3.5 A4 B1 B2 B3 B4 C1 C2 C3 C4 D2 D3 D4 BL1 BL2 BL3 BL4 OM1 OM2 OM3	A1 A2 A3 A3.5 A4 B1 B2 B3 B4 C1 C2 C3 C4 D2 D3 D4 BL1 BL2 BL3 BL4	A1 A2 A3 A3.5 A4 B1 B2 B3 B4 C1 C2 C3 C4 D2 D3 D4 BL1 BL2 BL3 BL4	A1 A2 A3 A3.5 A4 B1 B2 B3 B4 C1 C2 C3 C4 D2 D3 D4 BL1 BL2 BL3 BL4	
Physical Characteristics	- Density before sintering(g.cm⁻³): 3.15±0.05 - Density after sintering(g.cm⁻³): 6.06±0.02 - CTE(25-500 C)(K⁻¹): (10.5±0.5) ×10⁻⁶ - Fracture toughness (MPa·m^{1/2}): 3.5-5.0 - Hardness(HV10): 1150-1250 - Accelerated aging surface monoclinic phase content: <5% - Chemical solubility after sintering(μg.cm⁻²): <100 - Cytotoxicity: 0 Level - Radioactivity(Bq.g⁻¹): <0.1		- Density before sintering(g.cm⁻³): 3.15±0.05 - Density after sintering(g.cm⁻³): 6.07±0.02 - CTE(25-500 C)(K⁻¹): (10.5±0.5) ×10⁻⁶ - Fracture toughness (MPa·m^{1/2}): 5.0-6.5 - Hardness(HV10): 1250-1350 - Accelerated aging surface monoclinic phase content: <5% - Chemical solubility after sintering(μg.cm⁻²): <100 - Cytotoxicity: 0 Level - Radioactivity(Bq.g⁻¹): <0.1							
Chemical Composition	- ZrO₂ + HfO₂: ≥ 99% - Y₂O₃: 8.0%-10.0% - Al₂O₃: < 0.15% - Other Oxides: < 0.5%		- ZrO₂ + HfO₂ + Y₂O₃: ≥ 99% - Y₂O₃: 4.5%-8.0%				- Al₂O₃: < 0.15% - Other Oxides: < 0.5%			

Lodden Zirconia Blocks Zirconia blocks more than ten years of production experience, complete models, fast delivery.	 HT-W	 ST-W	 ST-C	 3DPRO
Diameter	20-14-15 mm, 20-19-15 mm, 40-14-15 mm, 40-19-15 mm, 55-19-15 mm, 65-25-22 mm, 85-40-22 mm			
Translucency	37%	43%	43%	43%-49%
Strength	1350Mpa	1200Mpa	1200Mpa	800-1200Mpa
Shades	White	White	A1 A2 A3 A3.5 A4 B1 B2 B3 B4 C1 C2 C3 C4 D2 D3 D4	A1 A2 A3 A3.5 A4 B1 B2 B3 B4 C1 C2 C3 C4 D2 D3 D4 BL1 BL2 BL3 BL4
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Chemical Composition	- ZrO₂ + HfO₂ + Y₂O₃: ≥ 99% - Y₂O₃: 4.5% - 6.0% - Al₂O₃: < 0.25% - Other Oxides: < 0.15%	- ZrO₂ + HfO₂ + Y₂O₃: ≥ 99% - Y₂O₃: 4.5% - 6.0% - Al₂O₃: < 0.15% - Other Oxides: < 0.15%	- ZrO₂ + HfO₂ + Y₂O₃: ≥ 99% - Y₂O₃: 4.5% - 6.0% - Al₂O₃: < 0.15% - Other Oxides: < 0.5%	- ZrO₂ + HfO₂ + Y₂O₃: ≥ 99% - Y₂O₃: 4.5% - 8.0% - Al₂O₃: < 0.15% - Other Oxides: < 0.5%

Sintering Curve

HT series
ST series
3DPROMAX-W

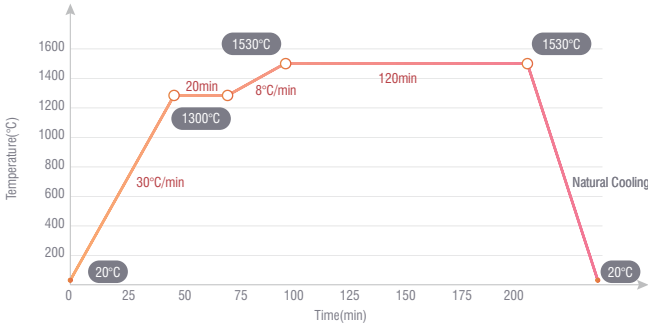
Crown thickness less than 0.5mm				
Sintering Step	Start Temperature(°C)	End Temperature(°C)	Time(min)	Rate(°C/min)
Step 1	20	1300	45	30
Step 2	1300	1300	20	0
Step 3	1300	1530	30	8
Step 4	1530	1530	85	0
Step 5	1530	20	/	Natural Cooling



Sintering Curve

HT series
ST series
3DPROMAX-W

Crown thickness more than 0.5mm				
Sintering Step	Start Temperature(°C)	End Temperature(°C)	Time(min)	Rate(°C/min)
Step 1	20	1300	45	30
Step 2	1300	1300	20	0
Step 3	1300	1530	30	8
Step 4	1530	1530	120	0
Step 5	1530	20	/	Natural Cooling



Sintering Curve

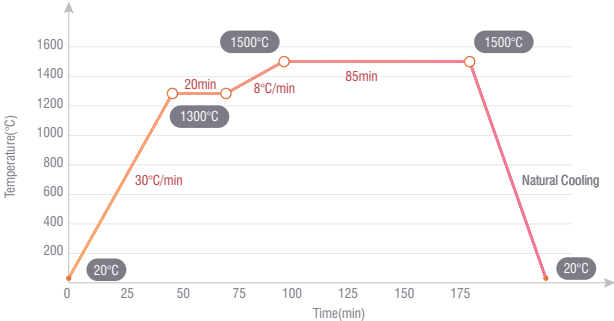
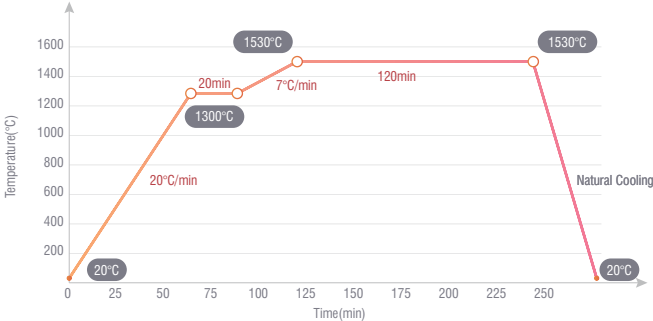
HT series
ST series
3DPROMAX-W

Long Bridge, Implant Crown, Full Arch				
Sintering Step	Start Temperature(°C)	End Temperature(°C)	Time(min)	Rate(°C/min)
Step 1	20	1300	65	20
Step 2	1300	1300	20	0
Step 3	1300	1530	35	7
Step 4	1530	1530	120	0
Step 5	1530	20	/	Natural Cooling

Sintering Curve

4D series
3D series
SHT series
UT series

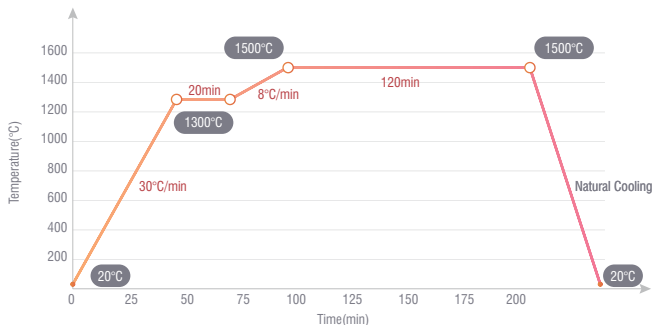
Crown thickness less than 0.5mm				
Sintering Step	Start Temperature(°C)	End Temperature(°C)	Time(min)	Rate(°C/min)
Step 1	20	1300	45	30
Step 2	1300	1300	20	0
Step 3	1300	1500	25	8
Step 4	1500	1500	85	0
Step 5	1500	20	/	Natural Cooling



Sintering Curve

Crown thickness more than 0.5mm

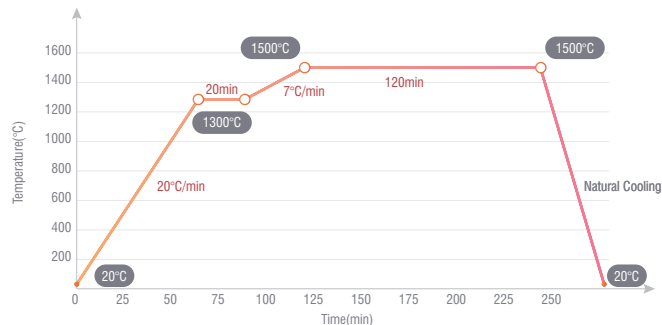
Sintering Step	Start Temperature(°C)	End Temperature(°C)	Time(min)	Rate(°C/min)
Step 1	20	1300	45	30
Step 2	1300	1300	20	0
Step 3	1300	1500	25	8
Step 4	1500	1500	120	0
Step 5	1500	20	/	Natural Cooling



Sintering Curve

Long Bridge, Implant Crown, Full Arch

Sintering Step	Start Temperature(°C)	End Temperature(°C)	Time(min)	Rate(°C/min)
Step 1	20	1300	65	20
Step 2	1300	1300	20	0
Step 3	1300	1500	30	7
Step 4	1500	1500	120	0
Step 5	1500	20	/	Natural Cooling



4D series
3D series
SHT series
UT series

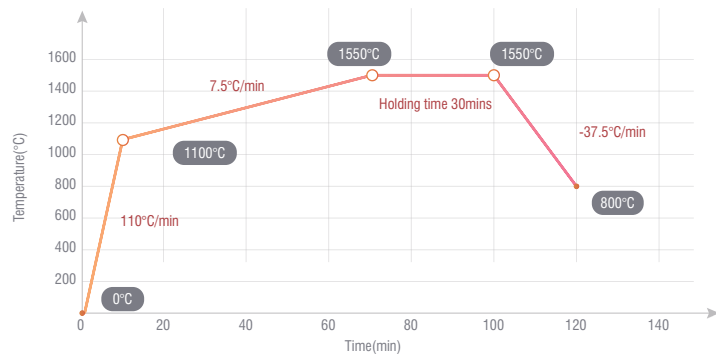
4D series
3D series
SHT series

Sintering Curve

3DPRO
Rapid

1-3 Unit Bridges

Sintering Step	Start Temperature(°C)	End Temperature(°C)	Time(min)	Rate(°C/min)
Step 1	20	1100	10	110
Step 2	1100	1550	60	7.5
Step 3	1550	1550	30	0
Step 4	1550	800	20	-37.5



01

Prepare

Coloring Instruction

Use a brush or ceramic brush to thoroughly remove the powder on the surface of the restoration and inside the crown.



1. If the cleaning is not thorough, the powder will adhere to the surface and crown of the restoration after high-temperature sintering, forming white spots can affect the aesthetics and positioning of the restoration.

2. At the same time, dyeing solution will be dyed during soaking, which affects the accuracy of color.

02

Coloring Method

Soaking method, brushing method,
soaking + brushing method

1 Soaking Method(A3 as example)

1. Soak the crown in A3 colored liquids for 30 to 60 seconds.

Note: The soaking time is 1 The color depth of dental crowns with a thickness of less than 5 mm has little effect; The thicker the crown, the longer the soaking time has a greater impact on the deep color of the crown; For crowns with a thickness greater than 3 mm, it is recommended to soak them in a light one color solution.

It is best to cover the soaking container during the soaking process to prevent moisture from evaporating and darkening the color.



2. Use plastic tweezers to remove the crown and dry the stain inside and outside the crown.

3. Dry with an infrared drying lamp.

Note: Single and multiple crowns (crown thickness < 2 mm) need to be dried for 30 minutes, while bridges and thicker crowns need to be dried for more than 60 minutes. The distance between the infrared drying lamp and the crown during drying depends on the power of the infrared drying lamp, and the temperature at the crown generally needs to be less than 100 °C.

Note

1. Staining solution for soaking needs to be stored separately, and it is recommended to store it at room temperature ($20^{\circ}\text{C} \pm 5^{\circ}\text{C}$). If the indoor temperature changes significantly, it is recommended to refrigerate in a refrigerator. When using refrigerated dye solution in the refrigerator, it should be taken out of the refrigerator half an hour in advance.
2. When soaking multiple crowns together, it is important to note that the crowns cannot be placed on top of each other, and the position of the crowns can be slightly moved during the soaking process to change the contact position between the crowns and facilitate better penetration of staining solution.



2 Brushing Method

Painting method is divided into hierarchical painting method and simple painting method

A. Layered brushing method: Multi color and multi-step brushing, with natural and beautiful colors.



End cutting fluid

1. Apply 1-2 coats of cutting fluid to jaw 1/3 using OP pen or No.1 glaze pen.



A3

2. Apply 2-3 coats of A3 staining solution to the middle 1/3 and neck 1/3 using 4-6 porcelain pens.



A3

3. Apply 2-3 coats of A3 staining solution to the entire crown using 4-6 porcelain pens.



A3

4. Apply A3 staining solution 1-2 times to neck 1/3 using 4-6 porcelain pens.



A2

7. Apply A2 staining solution 3-5 times to the entire maxillofacial area using a 4-6 ceramic pen.



A2

6. Apply 1-2 coats of A2 staining solution to jaw 1/3 using 4-6 porcelain pens.



A2

5. Use porcelain pens 4-6 to apply A2 staining solution 2-3 times to middle 1/3 and jaw 1/3.

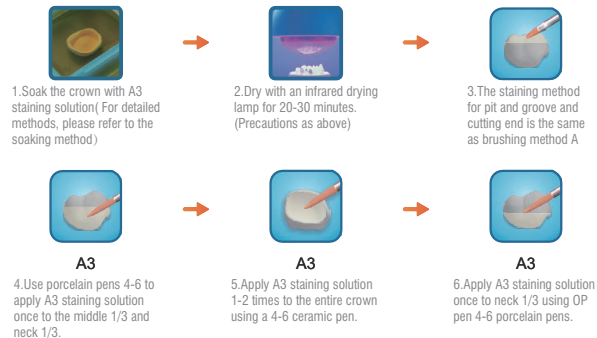
B. Simple brushing method: Single color step-by-step brushing, with relatively simple operation and high requirements for crown design.



Note

1. The dye used for brushing needs to be removed and placed in a color palette for use. The unused dye should be discarded and cannot be recycled.
2. It is recommended to clean the brush before use to prevent it from not being cleaned after the last use. The same brush needs to be cleaned before dipping in different colored dye solutions.
3. The depth of penetration of the staining solution into the crown using the brushing method is relatively shallow. When using the brushing method to stain the crown, attention should be paid to the accurate design of the crown shape. After sintering, it should be minimized to prevent the crown color from becoming lighter after adjusting the shape.

3 Soaking+Brushing Method



Dyeing Precautions

1. Stained dental crowns must be clean and dry (It is not recommended to rinse the tooth crown, as it must be dried before staining.).
2. The staining solution is weakly acidic, and it is recommended to wear gloves for those with skin allergies. If accidentally splashed into the eyes, please rinse immediately with water and seek medical attention promptly.
3. Do not dilute the dyeing solution with water on your own to avoid affecting color stability.
4. After dyeing, the crown must be dried before sintering to avoid contamination of the internal components of the sintering furnace and the possibility of hidden cracks inside the crown.
5. It is recommended to use brushing A or soaking+brushing methods to reduce the color difference between the bridge body and the crown for dental bridge staining. There is slight deviation in the color and permeability of dental crowns after sintering using different brands of sintering furnaces, different sintering temperatures, and programs.
6. Do not use rapid sintering for thicker dental bridges and crowns, as it may completely affect the strength and permeability of the crown due to the rapid heating rate of the zirconia crystal.