Aidite zirconia block User Instruction (Aizir_SHT-Plus)

[Before use]

Aidite zirconia blocks are produced by CIP technology and pre-sintered in low temperature. Although the product has some strength, because of porosity, please handle carefully. When you receive the product, please check as below. If there is something exceptional, please contact the sales manager or call+86-335-8587898.

1.Product is complete without any damage.

2.The packing is complete without any damage.

3.Label: company name, product name, batch number, inspectors and inspection date.

[Application Range]

Inlay/Onlay, Veneer, Anterior full crown, Anterior full crown bridge, Posterior full crown, Posterior full crown bridge, Anterior/ Posterior cut back crown, Anterior/ Posterior cut back crown bridge,
Full arch long bridge, Screw-retained bridge
Note: The above crown and bridge restorations all include implant restorations.

[Color]

This zirconia block is mutilayer zirconia and does not require a dyeing operation. After sintering, the blocks are directly coloured and gradient effects.

[Requirements for preparation]

Anterior crown:

The inner edge of shoulder must be slick or be fluted.
Preparation width of incisal, labial and palatal should be above 0.6mm.
The axial wall must be blunt to ensure the zirconia can reach an ideal milling effect with CAD/CAM.

Posterior crown:

The inner edge of shoulder must be slick or be fluted.
The minimum width of incisal edge, labial side, and palatal side is at least 0.8 mm.
The axial wall must be blunt to ensure the zirconia can reach an ideal milling effect with CAD/CAM.

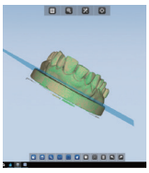
[Application method]

Scanning → Designing → Nesting → Milling → Cleaning → Sintering → Grinding → Finishing

[Application method—Scanning and Designing]

Scanning

Select a high-precision scanner for scanning to obtain accurate restoration model data.

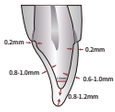


Precautions:

• Before scanning, check the impression and model for air bubbles, gypsum tumors, and layers; check the undercut of the abutment; check whether the abutment, adjacent teeth, and contralateral teeth are complete; check whether the occlusal space is suitable.

• Check to make sure that the abutment fits perfectly with the base of the model. Regularly calibrate the scanner to ensure scanning accuracy.

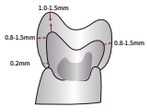
Designing



It is designed according to the actual situation of the patient and the requirements of the doctor.
As an all-ceramic restoration, the following points need to be met:

• Please design according to the following minimum thickness requirements. The thinnest should be no less than 0.6mm.

• The cross-sectional area of the anterior connector should be at least 9mm^2 and the cross-sectional area of the posterior connector should be at least 12mm^2.



• The maximum number of pontics between two abutments (teeth) should not exceed two.

• The length of pontic span ⩽18mm.

• Can be used for long bridges within 14 or 14 units.

• No free pontic

[Application method—Nesting and Milling]

Nesting

Be sure to choose a zirconium block with a thickness that is basically consistent with the height of the teeth.

——It is recommended that you can place posterior teeth more on the body layer and place anterior teeth in the middle position or more on the incisal layer.

——Do not choose blocks with a thickness higher than the height of the teeth by more than 4mm .Please refer to the nesting guide for specific nesting methods.

——The recommended thickness for the connecting rod is 2mm, which should be added to the protruding position of the crown and ensure sufficient distance from the cervical edge to prevent chipping.

Milling

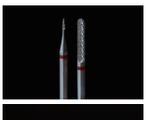
Before milling, check to see if the bur used is sharp enough and ensure the stability of the milling equipment.
During processing, liquid cooling of zirconia blanks is not allowed.
After milling is finished, check that if there are any defects happening listed below:
Is there any crack?
Is there any contamination?
Is there any break?
If any of these defects happen, reasons must be found and restorations need to be milled again.



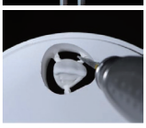
Place the disc:
Directing arrow is seen on the side of "Multilayer" disc. The arrow points at the direction of incisal, namely the part of disc showing shallower color.

[Application method—Separating and cleaning]

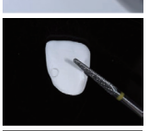
Separating:



Using technician specialized hand piece and grinding head to separate restorations from blocks.
Before grinding, a towel should be put on the desk to avoid restorations dropping on desk and crack or break. And then the connector need to be polished successively in one direction.Don't separate one connector completely off at one time; Finally, the rest of connector could be polished slightly. It is not advised to make too much adjustment on the restorations in soft condition to avoid causing sub fissure or chipping and soon.



Cleaning:



Cleaning up the powder on surface and inner side of restorations with brush.If cleaning is not thorough, uncleaned powder will contaminate color liquid when dyeing and the uncleaned powder will stay on the surface and inner side of restorations after high temperature sintering, forming white spots and therefore having negative effect on esthetics and positioning of restorations.



[Application method—Sintering]

The dried restoration with lingual side or occlusion facing down should be put on the beads in sagger, then sinter strictly in compliance with sintering process.



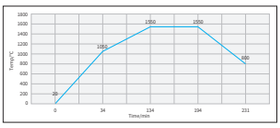
Sintering Program:

The following curve is applicable to all sintering furnaces. If you want customized curves for different sintering furnaces or faster sintering curves, please contact us.

Below 6 units bridge（4h）

No.	Rate (℃/min)	Temp (℃)	Holding time (min)
1	30*	1050	0
2	5	1550	60
3	20	800	0

No.	Temp/℃	Time/min
1	20	34
2	1050	100
3	1550	60
4	1550	37
5	800	-121

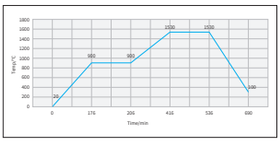


*Note: Different sintering furnaces have different heating rates, and the first stage heating rate can be adjusted according to the furnace performance

Above 7 units bridge(11.5h)

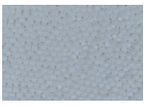
No.	Rate (℃/min)	Temp (℃)	Holding time (min)
1	5	900	30
2	3	1530	120
3	8	100	0

No.	Temp/℃	Time/min
1	20	176
2	900	30
3	900	210
4	1530	120
5	1530	154
6	100	-121



Note:
1.The above curve is only for reference, as there may be temperature differences in each sintering furnace without calibration. It is recommended to place a temperature measuring ring during the sintering process and observe whether there are any abnormalities in the dental effect. If the sintering effect is abnormal, combined with the temperature measurement results of the temperature measuring ring, we can provide guidance for adjusting the curve.
2.Note: When using the long bridge sintering curve, the furnace opening temperature should not exceed 100 ℃

[Zirconium beads]



• When the zirconium beads are severely discolored, the shape is broken or damaged, , it must be replaced immediately.
• If the zirconium beads are stuck together, be sure to break them apart to ensure proper bead function.
• The amount of zirconium beads should completely cover the bottom of the box (2 - 3 layers).
• When replacing zirconium beads, first sinter the zirconium beads with remnants of green state zirconia and conduct a normal sintering cycle.
• It is recommended that Aidite Zirconium Beads be used and it is recommended to use zirconium beads with a diameter less than or equal to 1.0mm to sinter long bridges. Use zirconium beads with a diameter greater than 1.2mm to sinter single crown.

[Sintering furnace]



• The sintering furnace must use a voltage regulator to ensure stable operating voltage.
• The sintering furnace must be cleaned regularly(once a week) and kept dry. Cleaning method: scrape off the impurities in the furnace.
• Place green-state scrap zirconia scraps into the furnace and sinter them according to the normal zirconia sintering curve.
• If furnace has not been used for more than a week, it must be decontaminated before used.
• When the equipment is not in use, the furnace should be closed to ensure a dry environment inside the furnace. Please keep the operation room of the sintering equipment clean and free of dust and debris. Do not place sintering furnace in a dusty environment. Metal shavings or dust, can adversely affect the heating elements.
• The heating elements of the sintering furnace must not show damage. If there is a small amount of peeling on the surface of the heating rod (silicon-molybdenum rod), the leftover material can be burned and the sintering furnace will back to normal.
• Check the furnace temperature regularly (every month) to ensure the stability of the furnace temperature.
• Be sure to sinter in strict accordance with Aidite standard curve.
• If there is a power outage or shutdown of the sintering furnace during the sintering process, it is possible to observe whether the repair body crystallizes (shrinks). If crystallization has not occurred, it can be re sintered. If crystallization has already occurred, it needs to be re cut and made.
• If the sintering furnace temperature is not accurate, it may lead to poor sintering effect. The specific situation is as follows: 1. Low furnace temperature may cause low transparency, deep color, and poor glossiness of the repair body, and it is necessary to calibrate the furnace temperature; 2. If the furnace temperature is too high, it may lead to light color, increased or decreased transparency (material burning), and the furnace temperature needs to be calibrated.

[Application method—Grinding]

Use special zirconia grinding head to trim the surface of restoration. Usually, it goes through three steps: rough grinding, fine grinding, and rough polishing. For areas with special requirements, fine grinding can replace rough grinding.

Attention:

The cervical edge cannot be polished with rougher tools such as rough grinding or diamond grinding tools, otherwise it will increase the risk of fracture and even lead to the fracture of the restoration.

Only fine grinding and rough polishing tools can be used to polish the cervical edge.



Rough grinding:
This is the first grinding step after sintering restoration. The aim is to seat the restoration, adjust adjoining, occlusion and trim the anatomic contour of teeth.



Fine grinding:
Please make the tooth surface evenly and uniformly as well as the surface texture more smoothly.



Rough polishing:
To make the surface even and smooth.

[Application method—Staining and Glazing]

Clean the surface of restoration by steam or ultrasonic cleaning machine before staining.
Aidite stain & glaze kit can help achieve better esthetics and effects.
For the specific operation method, please refer to the instruction manual of Aidite stain & glaze kit.



