

Aidite zirconia block User Instruction(3D Pro zir)

[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]

Anterior Crown, Posterior Crown, Full Contour Crown Bridge, Veneer, Inlays, Onlays and upper part of the implant.

[Color]

A1 A2 A3 A3.5 A4 B1 B2 B3 B4 C1 C2 C3 C4 D2 D3 D4
OM1 OM2 OM3

[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 0.7mm.

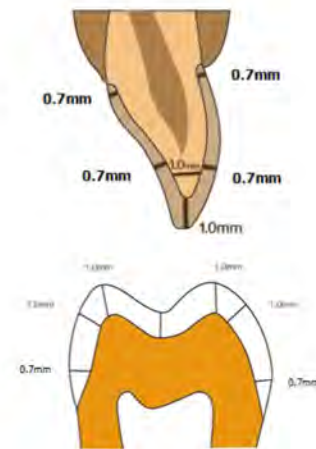
The axial wall must be blunt to ensure the zirconia can reach an ideal milling effect with CAD/CAM.

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 0.7 mm. Width of occlusal surface of lateral side of the lip, tongue preparation is more than 1.0mm.

The axial wall must be blunt to ensure the zirconia can reach an ideal milling effect with CAD/CAM.



[Application method]



[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:

- The thinnest should be no less than 0.7mm.
- Since the geometry of zirconia bridges is the key to crack resistance, the cross-sectional area of the anterior connector should be at least 9mm² and the cross-sectional area of the posterior connector should be at least 12mm².
- No more than 1 consecutive units of pontics in the bridge.
- No free pontic



[Application method—Nesting and Milling]

Nesting

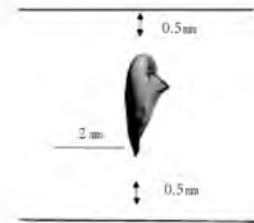
Choose zirconia block of suitable thickness. When layout, put data in the middle of disc (vertical direction) The most suitable distance between tooth data and disc surface should be at least 0.5mm.

Connector should be placed in the most protruding position on buccal side.

The thickness of connector should be 2mm (as picture shows)

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.



Milling

Before milling, check to see if the bur used is sharp enough and ensure the stability of the cutting 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.



[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.

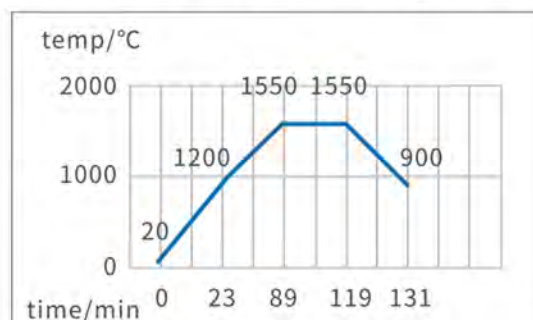
Sintering Program:

(1) Fast Sintering Program

Below 3 units bridge (2h)

start temp	phase 1 heating rate	phase1 Maximum temp	phase 2 heating rate	phase2 Maximum temp	Holding time	cooling rate	cooling to
20°C	52°C/min	1200°C	6°C/min	1550°C	30min	55°C/min	900°C

phase	temp/°C	time/min
1	20	23
2	1200	66
3	1550	30
4	1550	12
5	900	-121

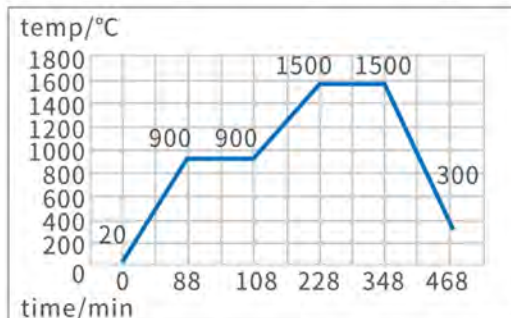


(2) Ordinary Sintering Program

Curve 1: Below 3 units bridge(8h):

start temp	phase 1 heating rate	phase 1 Maximum temp	Holding time	phase 2 heating rate	phase 2 Maximum temp	Holding time	cooling rate	cooling to
20°C	10°C/min	900°C	20min	5°C/min	1500°C	120min	10°C/min	300°C

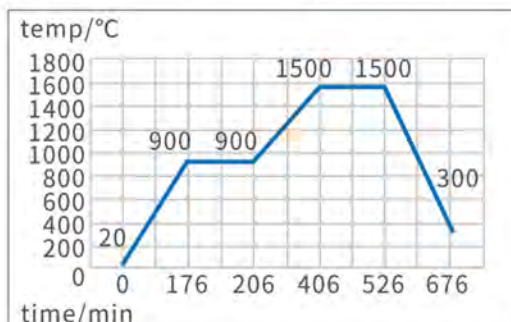
phase	temp/°C	time/min
1	20	88
2	900	20
3	900	120
4	1500	120
5	1500	120
6	300	-121



Curve 2: From 4 to 6 units bridge(11.5h):

start temp	phase 1 heating rate	phase 1 Maximum temp	Holding time	phase 2 heating rate	phase 2 Maximum temp	Holding time	cooling rate	cooling to
20°C	5°C/min	900°C	30min	3°C/min	1500°C	120min	8°C/min	300°C

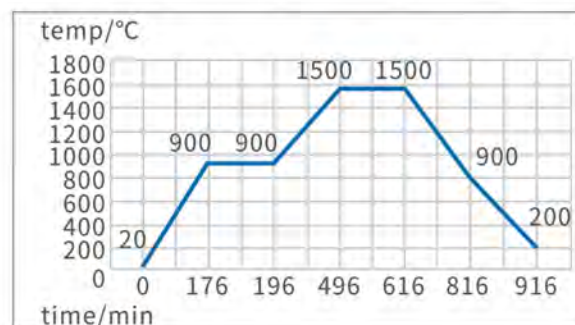
phase	temp/°C	time/min
1	20	176
2	900	30
3	900	200
4	1500	120
5	1500	150
6	300	-121



Curve3: Above 7 units bridge(16.4h):

start temp	phase 1 heating rate	phase 1 Maximum temp	Holding time	phase 2 heating rate	phase 2 Maximum temp	Holding time	Phase 3 cooling rate	phase 3 cooling to	cooling rate	cooling to
20°C	5°C/min	900°C	20min	2°C/min	1500°C	120min	3°C/min	900°C	7°C/min	200°C

phase	temp/°C	time/min
1	20	176
2	900	20
3	900	300
4	1500	120
5	1500	200
6	900	100
7	200	-121



[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 3 months) to ensure the stability of the furnace temperature.
- Be sure to sinter in strict accordance with Aidite standard curve.



[Application method—Grinding]

Use special zirconia grinding head to trim the surface of restoration. The following three procedures (rough grinding, fine grinding and rough polishing) can make restoration surface smooth.

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.

After fine grinding, use a rough polishing head to polish the cervical to avoid chipping.



[Application method—Staining and Glazing]

Clean the surface of restoration by steam or ultrasonic cleaning machine before staining.

Biomic stain & glaze kit can help achieve better esthetics and effects.

For the specific operation method, please refer to the instruction manual of Biomic stain & glaze kit.

