

GUIDANCE FOR THE USE OF ZIRCONIUM OXIDE FOR VENEERS



Design

Designing Notes

- ✓ Must be designed according to the minimum thickness requirements: the thinnest thickness is not less than 0.3mm
- ✓ Veneer adhesion is very important and the edge line must be carefully checked and manually corrected.
- ✓ The common seating path of the dental bridge must be checked to avoid irregular seating.
- ✓ Follow the operation below if the incisal areas of abutment have sharp edges.

Fill with wax at the sharp edges before scanning, or increase the compensation value of burs.

1. The horizontal width of the edge: 0.2mm	0.2mm
2. Edge slope width:	0.1mm
3. Edge tilt angle:	20°
4. The vertical height of the edge:	0

Typesetting

Nesting Notes

- ✓ For zirconium blocks with gradient colors such as **HVM**, **LVM**, and **BWM**, you must choose a zirconium block whose thickness is basically the same as the height of the tooth. The thickness left to the top and bottom surface shall be more than 0.5mm. Adjust according to the incisal translucency and chroma necessary for good coloration.

For example:

The tooth height is 10.5mm. You need to choose a zirconium puck with a thickness of 12mm. Do not choose 14mm or greater.

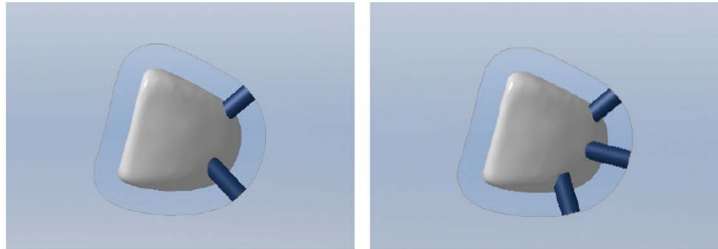


✓ puck 12mm

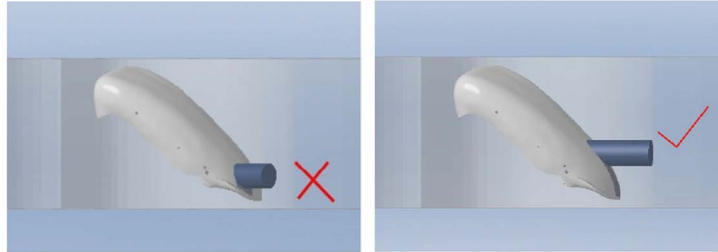


✓ puck 14mm

- ✔ The number of veneer connecting rods must be 2-3, with a diameter of 2mm or more, to prevent falling during cutting.



- ✔ The connecting rod must be far from all edges and cannot be added inside the crown. Add the connecting rod to the raised position of the tooth.



✔ Milling

Check milling machine

- ✔ The maintenance of equipment should include regular calibration, cleaning and lubrication. No vibrations abnormal noise during milling should be present. If there is a problem with the accessory, replace it in time.
- ✔ Be sure to record the number of restorations being milled. Examine the milling tools for wear according to usage per sets of milled restorations. Replace accordingly.
- ✘ Do not place the mill on an unstable table or shelf.
- ✘ Do not use wet milling method, otherwise the shade and translucency may be affected.
- ✘ Do not mill without vacuum.

✔ Separating and cleaning

Process

Step 1

Remove teeth

Grind the connecting rod with medium pressure. As shown in the figure, move the bur clockwise to slowly grind the connecting rod horizontally.



Grind out the connecting rod of the outer ring in half, and then polish the remaining connecting rods one by one to avoid the last connecting rod breaking directly, which may cause cracking or damage.



Process

Step 2

Remove excess connecting rods

After separating the restoration from the zirconia puck, continue to use a thicker tungsten steel bur or rubber wheel to remove the excess connecting rod.



Notes for tooth removal

- ✓ The speed of grinding the connecting rod is 15000r / min-20000r / min.
- ✓ The speed of removing the excess connecting rod is 15000r / min-20000r / min.
- ✓ You can use an oil-free and water-free air gun to gently spray the powder off the surface of the restoration. The air gun should not be set at high pressure.
- ✗ It is not recommended to remove the connecting using sharp discs. Use gentle pressure when working with green-state zirconia.

Sintering

Sintering Program

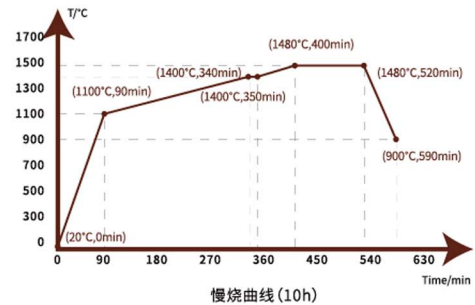
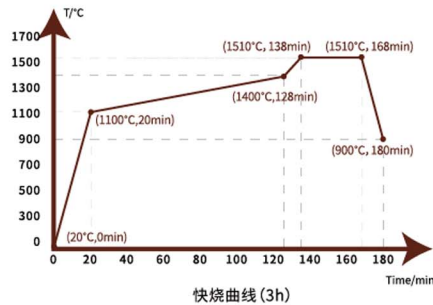


Fast burn curve (3h)

Starting temperature	Heating time	The first stage temperature	Heating time	second stage temperature	Heating time	third stage temperature	Holding time	Cooling time	Temperature drops
20°C	20min	1100°C	108min	1400°C	10min	1510°C	30min	12min	900°C

Slow burn curve (10h)

Starting temperature	Heating time	The first stage temperature	Heating time	second stage temperature	Holding time	Heating time	third stage temperature	Holding time	Cooling time	Temperature drops
20°C	90min	1100°C	250min	1400°C	10min	50min	1480°C	120min	70min	900°C



Grinding

Check The Grinding Tools

- ✓ Using special zirconia grinding tools, Aidite special zirconia grinding tools are recommended.
- ✗ Do not use diamond burs to adjust mass areas of restorations, otherwise that will cause potential fracture, cracking or white spots during glazing.



Grinding Process

Step 1

Rough grinding

This process is used for fitting and, adjusting the adjacent, occlusal surface, entire surface. As well for grinding connecting rods to remove materials.

Grind in the same direction, to make the lines fine and smooth. It is effective to grind in the right direction, wrong direction grinding will lead to low efficiency and increase wear of grinding head.

Using rotation speed of grinding head and point grinding to remove, be sure to avoid overheating or stress by concentrating in one position. Grind with minimum pressure by continuously changing positions.



Notes Of

- ✔ Revolving speed of rough grinding: 20000-35000r/min.

Rough Grinding

- ✘ Don't grind the restoration with high pressure.
- ✘ Don't grind continuously at the same position, to avoid potential fracture or cracking caused by overheating.
- ✘ Don't use rough grinding tools to grind cervical margin of restoration.

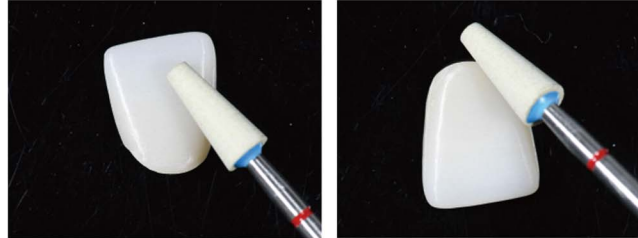
Grinding Process

Step 2

Fine grinding

Following the rough grinding step, make the surfaces smooth, uniform and delicate. It is the same as rough grinding, grinding the surface of restoration from right to left in the same direction.

Use fine grinding head to adjust the cervical margin.



Notes Of

Fine Grinding

- ✔ Revolving speed of fine grinding: 20000-35000r/min.
- ✔ Use fine grinding head to grind after rough grinding.
- ✘ Do not grind the restoration with high pressure.
- ✘ Do not grind continuously at the same position, to avoid potential fracture or cracking caused by overheating.
- ✘ Do not use rough grinding tools to grind cervical margin of restoration.

Grinding Process

Step 3

Rough polishing

Make the surface fine and smooth to enhance the overall effect, and reduce wear to opposing teeth.

Polish slightly from right to left in the same direction.

Rough polishing tools also can be used for cervical margin adjustment to prevent chipping problems. Cake-shaped, columnar and cone shaped tools are available in three shapes.



Notes Of

Rough Polishing

- ✔ Revolving speed of rough polishing: 10000-16000r/min
- ✔ After fine grinding, use a rough polishing head to polish the neck edge
- ✘ Don't use too much pressure during rough polishing. Roughly polishing matt polish is preferred.

External staining

AiditeBiomic External Dyeing Kit Outer dyed and glazed curve



	Starting temperature	Drying time	Heating rate	Vacuum initial temperature	Vacuum stop temperature	Sintering temperature	Holding time	Slow cooling
First sintering <small>(20 paste, 30 paste, transparent glaze)</small>	450	8	55	450	730	730	1 <small>(不需真空)</small>	-
Second sintering <small>(20 paste, 30 paste, transparent glaze)</small>	450	8	55	450	720	720	1 <small>(不需真空)</small>	-
Single crown fast glazing and sintering <small>(Only transparent glaze)</small>	450	2	99	450	720	720	0.5 <small>(不需真空)</small>	-
Zirconia Long Bridge Sintering <small>(4-7 units)</small>	450	8	40	450	730	730	1 <small>(不需真空)</small>	50
Zirconia Long Bridge Sintering <small>(≥8 units)</small>	450	10	30	450	730	730	1 <small>(不需真空)</small>	10

Notes

- ✔ The highest temperature of Aidite stain & glaze kit is between 720°C to 900°C, temperature should be adjusted according to customers' requirement for texture and glaze.