Aidite

Aizir Material Information

Instructions For Use - Aizir (Anterior 3-3)

■ Everyone with a healthy and beautiful smile

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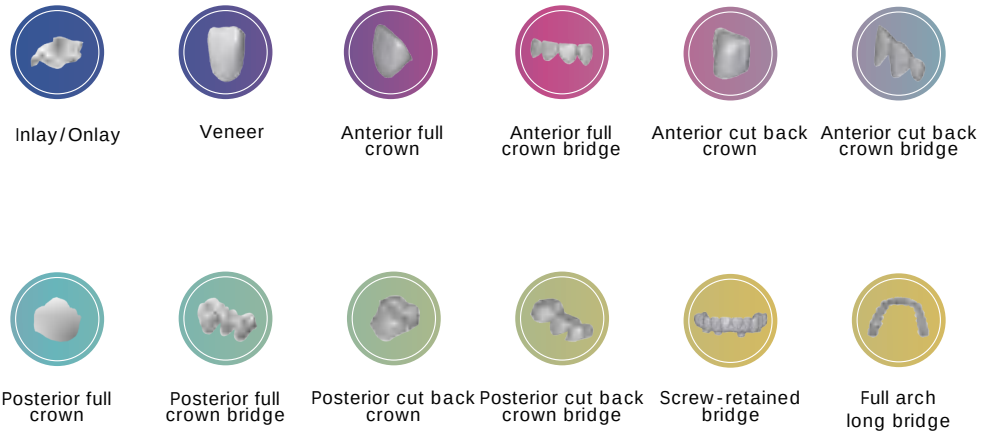
1 Advantages

Aizir represents Aidite most advanced R&D and production level, integrating several patented technologies in one. While meeting the full range of indications, it has a more systematic processingg, a wider sintering temperature range, and a more stable three-dimensional gradient effect. Aizir will uphold the vision of "making people healthier and more beautiful" and redefifine all-ceramic prosthetic materials.

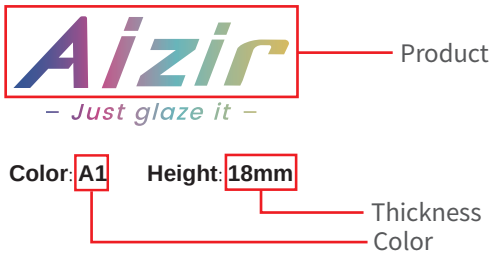
2 Indications for Use

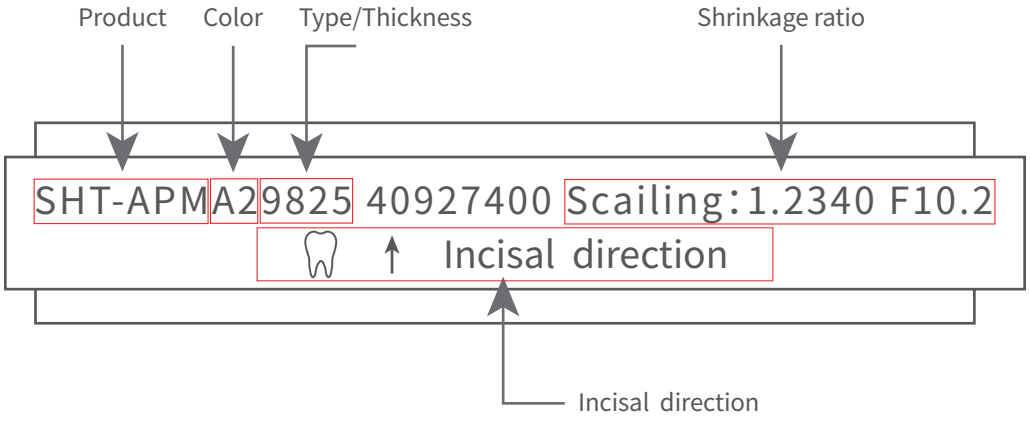


Note: The above crown and bridge restorations all include implant restorations.

3 Colors

4 Introduction to Zirconia disc





Remarks:

Please refer to the outer packing box for the batch number of the porcelain block.

Cases requirement

- The preparation should be retentive with no sharp points.
- Restricted to 2 consecutive pontics surrounding abutments.
- Restorations are less than 8mm in height.
- No cantilevered pontics.
- Retentive preparations with no undercuts.
- Make sure the radian of arch in jaw-gingival direction is not oversized.
- Minimum Vertical Space Requirements
  Ideal Minimum: 10-12 mm (for optimal strength and aesthetics)
  Absolute Minimum: 8 mm (may require design modifications)
- Considerations for Lower Vertical Space (<10 mm):
- 1.Material Strength vs. Thickness:
  Aidite Aizir is a high-translucency, multi-layered zirconia with excellent mechanical strength 。
  At 8 mm space, careful design adjustments (such as additional support in stress areas) may be needed to avoid fractures.
- 2.Alternative Options If Space is Insufficient:
  Hybrid Prosthesis: Zirconia on a titanium bar for extra reinforcement。
  Strategic Ridge Reduction: If anatomy allows, minor alveolar bone reduction can create additional space.
- 3.Aesthetic Considerations:
  If limited space does not allow sufficient material thickness for proper shading transitions, cutback and staining/glazing techniques may be needed to improve esthetics

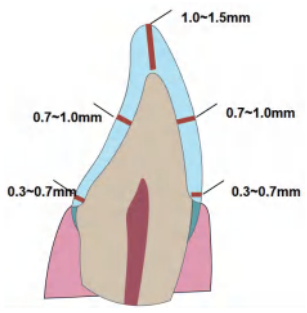
Preparation parameters

Minimum requirements for high-translucent zirconia

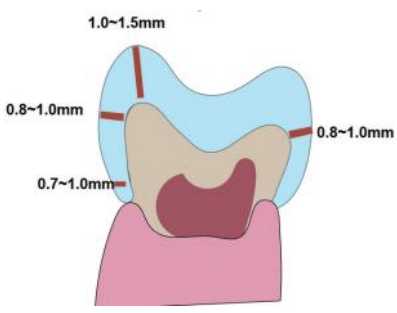
	Anterior crown	
	Single crown	Below 3units bridge
Incisal/ Occlusal surface(mm)	1.0-1.5	1.0-1.5
Lip side/Buccal(mm)	0.7-1.0	0.8-1.0
Adjacent(mm)	0.6-0.8	0.6-0.8
Lingual/Palatal(mm)	0.7-1.0	0.8-1.0
Shoulder(mm)	0.3-0.7	0.3-0.7

	Posterior crown	
	Single crown	Below 3units bridge
Occlusal surface(mm)	1.0-1.5	1.0-1.5
Buccal(mm)	0.8-1.0	1.0-1.5
Adjacent(mm)	0.6-0.8	1.0-1.5
Palatal(mm)	0.8-1.0	1.0-1.5
Shoulder(mm)	0.7-1.0	0.7-1.0

Remarks:
The preparation should be designed by dentist according to the requirements for esthetics and function. The data in the above table are the minimum values to maintain strength of the material.



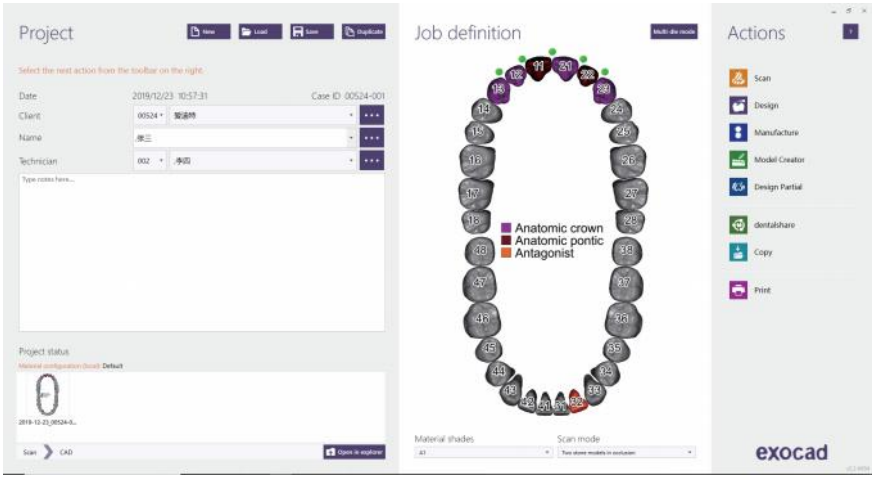
Minimum preparation guidelines for single anterior crown

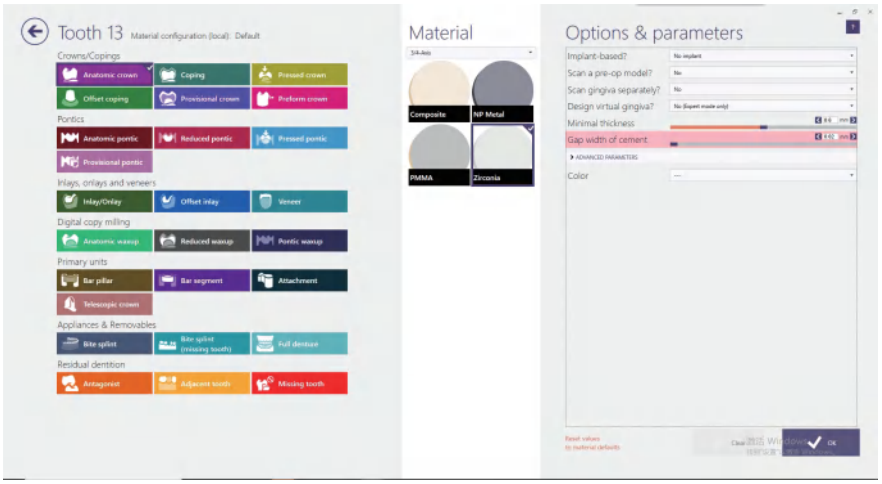


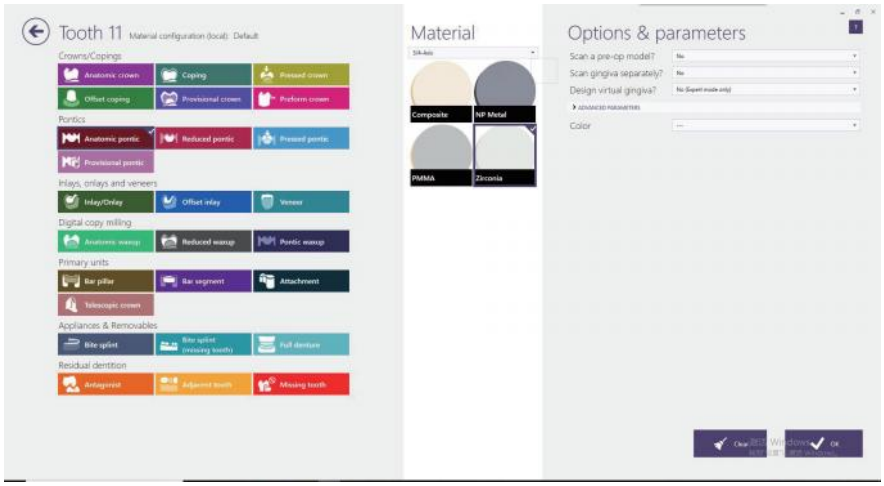
Minimum preparation guidelines for single posterior crown

Opening order digitally

Input name of client, patient and technician and other pertinent information. Click targeted teeth and choose the information such as like type of the restoration, then save it.







Scanning

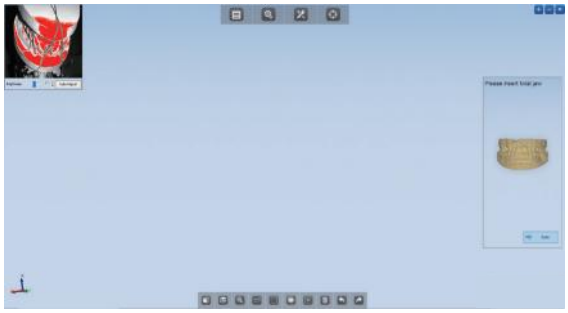
Check scanner accuracy:

Calibrate the scanner periodically for accuracy.

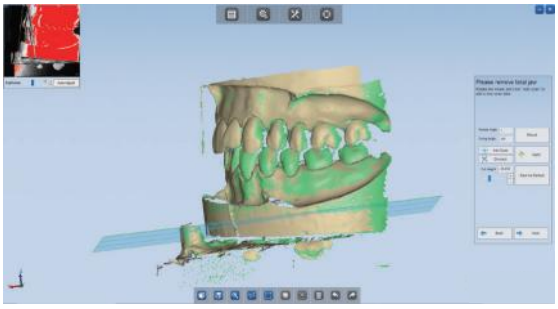
Scanning process:

1.Click scan .Choose the type of model(separate or integrated)and click ok.

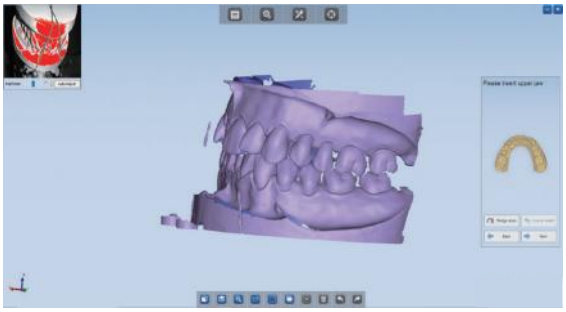
2.Place the model on the scanner following the indications on the right side and click scanning button.



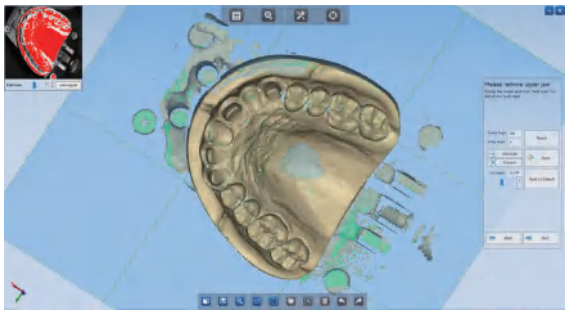
3.This process is to confirm the occlusal relation-ship. After the full-occlusion scan is finished, remove the model according to the indication on the right side.



4.Place the upper model on the scanner and click next step.

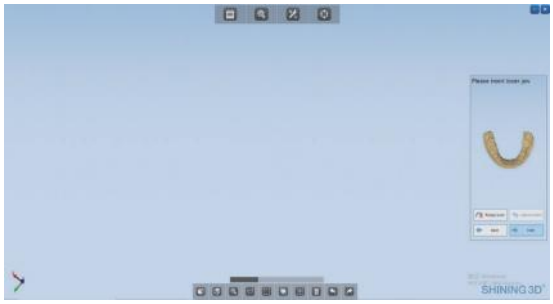


5.Work order is to restore the anterior3-3, so the abutment must be scanned clearly in this step. Click right-key of mouse ,holding it will rotate the model, and conduct additional scanning to add the missing data at the accurate positions.

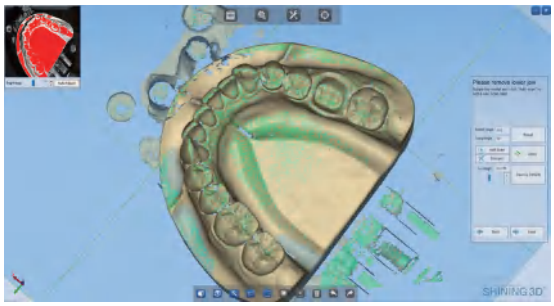


6.Remove the model of upper occlusal and click next step.

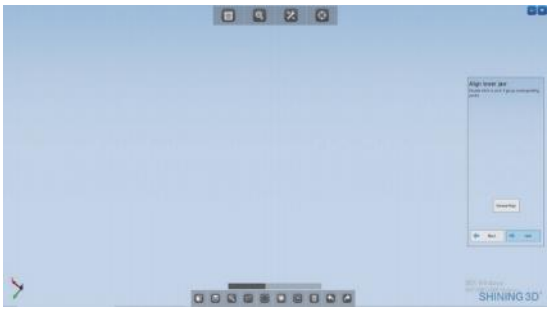
7.Place the lower model on the scanner and click next step.



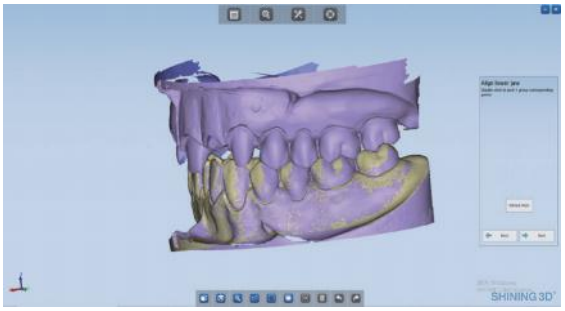
8.Focus on key position like occlusal surface and cusp . Additional scanning is necessary if the effect is not perfect. Click next if scanning is done.



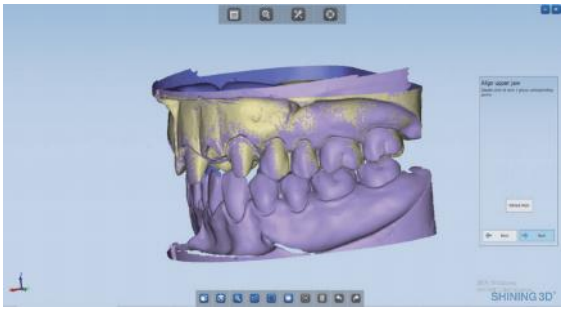
9.The software starts to splice the model of lower Jaw automatically.



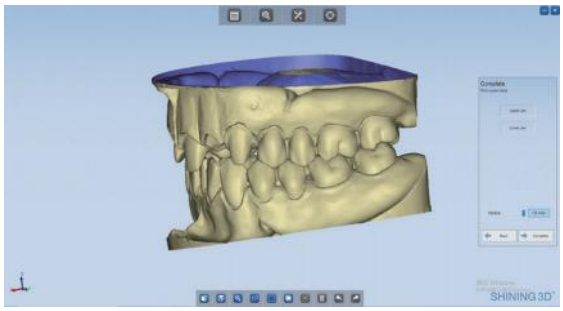
10.Once the purple and yellow color shows uniformly with an overlap distribution, the split joint is done. Click next step.



11.Split joint of Upper jaw is done. Click next step.



12.Adjust the radium of filling hole to the maximums,and click finish button.



Scanning notes

✓After，is scanning finished, the data must be checked for accuracy to avoid deviation from model. Be sure the split joint is done accurately.

✓Be sure the model is placed accurately and solidly on the base of the scanner every time before scanning of partial model.

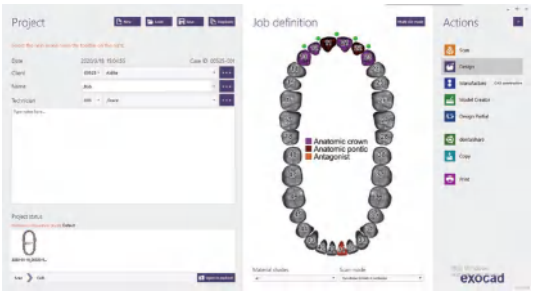
✓The main mode and the reference mode (secondary mode) must be the same.

✕The abutment must not be rotated or loose on the model.

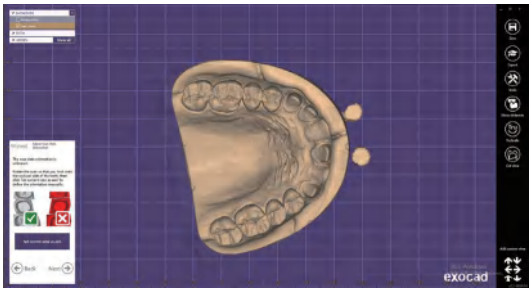
Designing

Designing process:

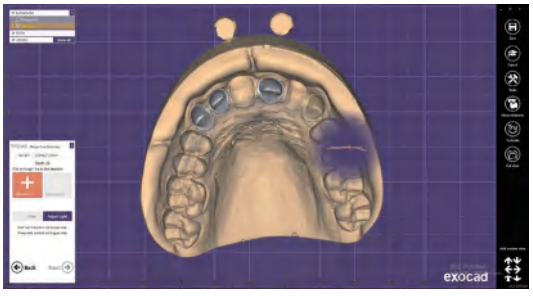
1.After scanning, return to the interface of designing and click design.



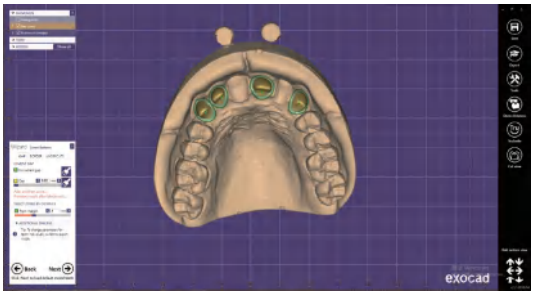
2.Set the guide of view



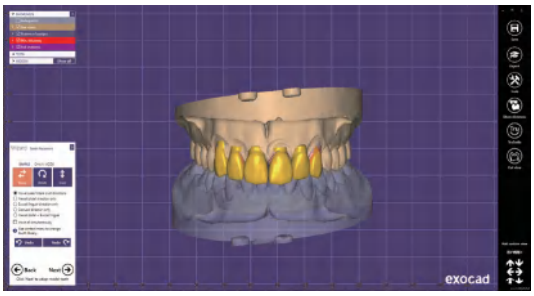
3.Draw the marginal line: It can be corrected by auto detecting or/and manual drawing.



4.Adjust the parameter of bottom of crown: The conditions of model and equipment like milling machines should be considered.



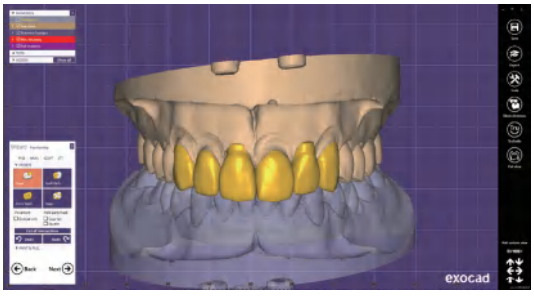
5.Type the tooth from numbering guide of view to facial/ buccal, occlusal surface, at far-center .



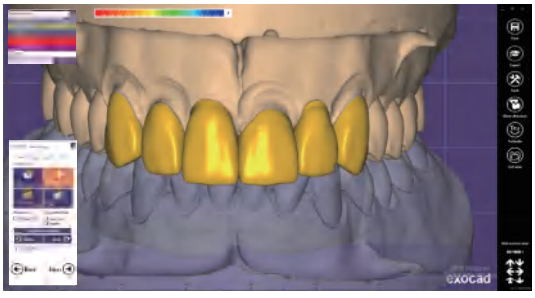
After integration, technicians can begin to design with five-step method for anterior crown.

Step 1: Outer contour treatment

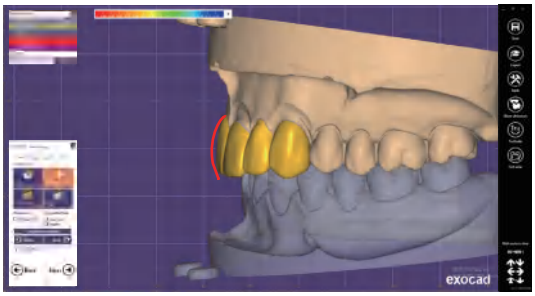
1.Outer contour includes: length, width, high points of contour, Trilateral form, tongue juga and arch radian.

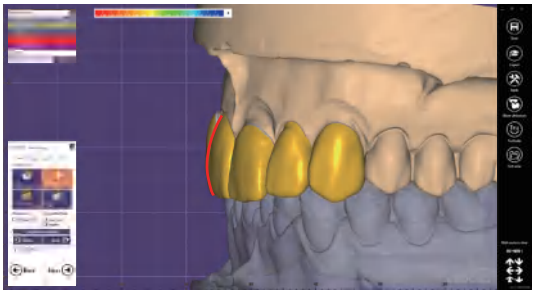


2.Adjust the length and width of facial side view as front view by dragging the image of tooth.

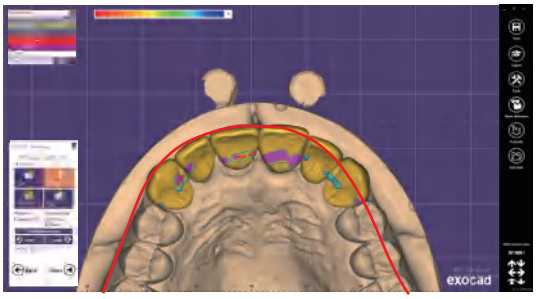


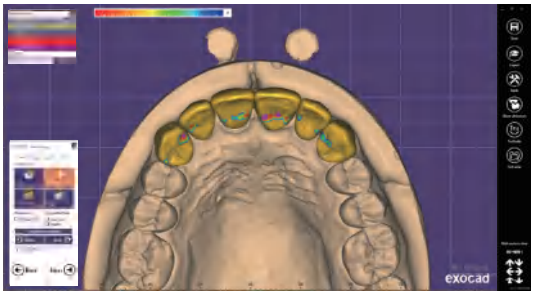
3.Adjust trilateral form and height of contour using this view this view





4.Adjust radius of arch and lingual using this view

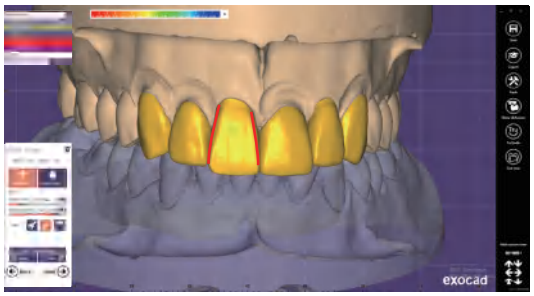


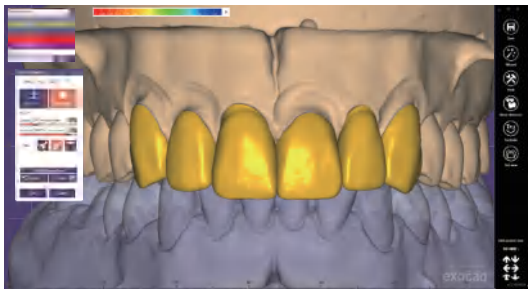


Outer contour is finished at this step.

Step 2: Drawing the outer peripheral ridge

Draw the ridge through the button of increase / decrease. The intensity and range are shown in the Chart. You can easily draw the line and angle. After adding the edge ridge, smooth and flatten them with the same intensity and range.

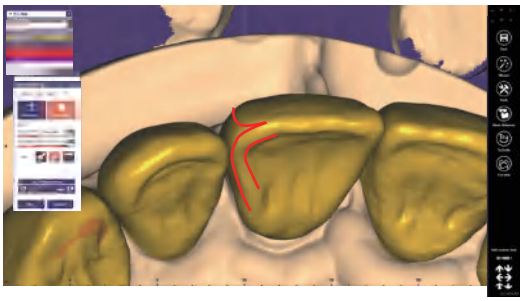




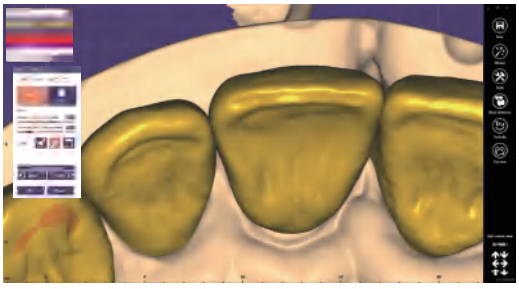
Step 3: Incisor angle and the incisal edge

The incisor angle and the incisal edge are the indicators good tooth design. Contour restorations so as to avoid bulkiness and under contour

The incisor angle is composed of three lines, the facial side edge ridge angle, the lingual side edge ridge outline, and the lingual side edge ridge outline. They are unified and coordinated through the button; increase / decrease during the production process.

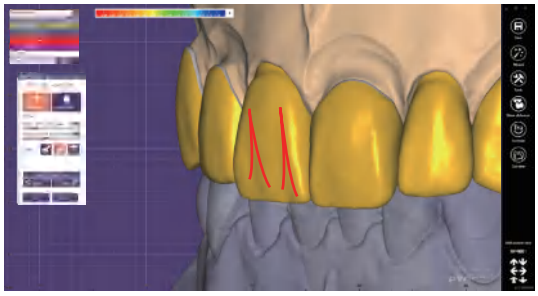


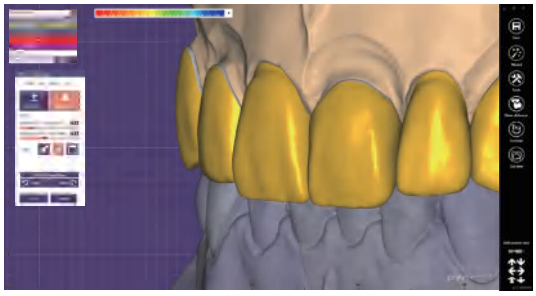
Use “Decrease” to change the incisal edge, and make it smooth and flat with the same value of strength and range.



Step 4: Developmental grooves

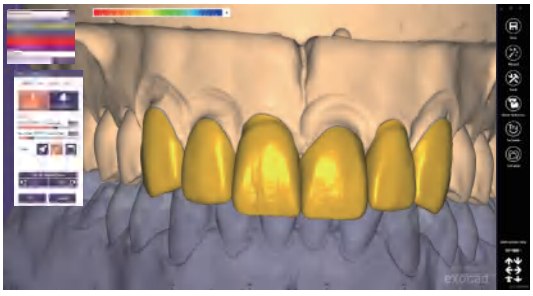
Drawing developmental grooves is easy. Use “Decrease” to carve with the strokes of “从” on the right side and remove the hollow on the grooves with smooth modifier.



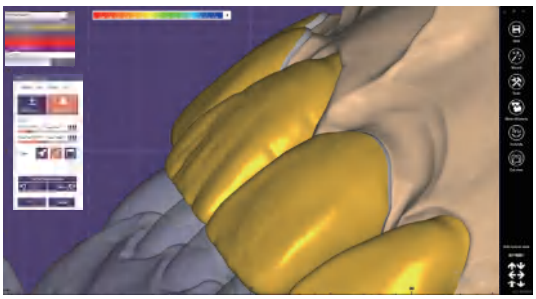


Step 5：Surface texture

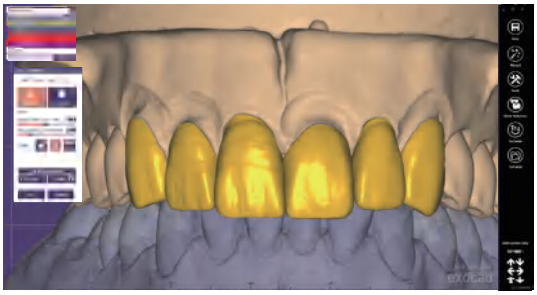
Surface texture can be defined as horizonal and vertical. Vertical grain generally has 3-4, distribution at the inner side of line and angle, like the right side chart.

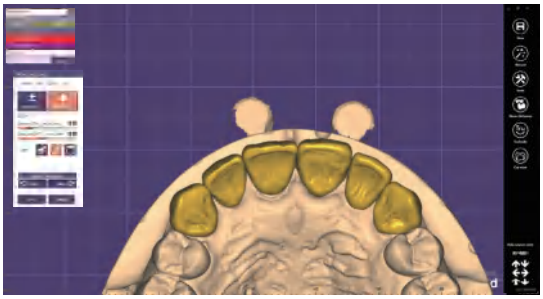


Horizonal grains is generally at 3, distribution at the vertical side with the largest and deepest one, middle side, and incisal side with a smallest one, like the chart on the right side.



Designment of Tooth 11 is done with five-step method.

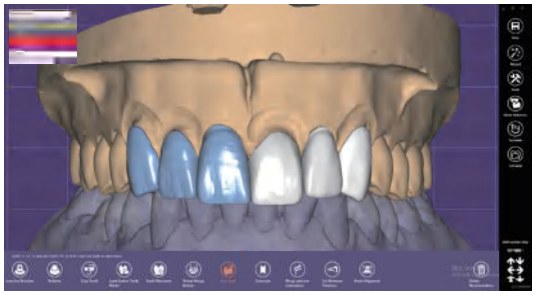




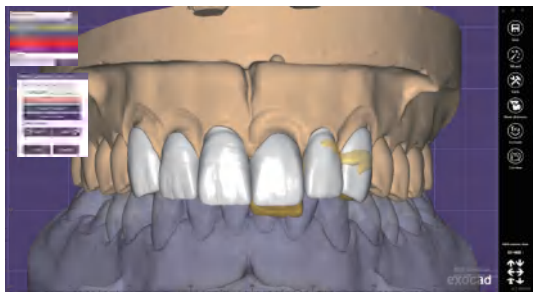
Symmetry：

For anterior teeth aesthetics, symmetry is a very important indicator. The following introduction is to create symmetry, and shape to the contralateral tooth of the same name with five-step method.

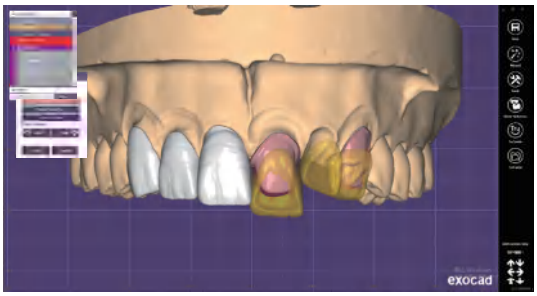
First, enter the advanced options, select 11, 12, 13 and right-click to select the mirror tooth as the preoperative model.

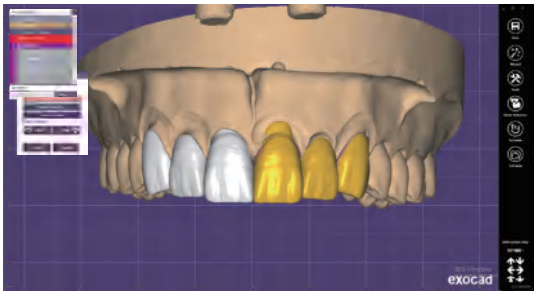


Sequencing the mirrored teeth

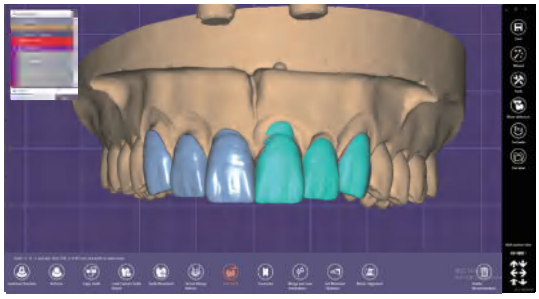


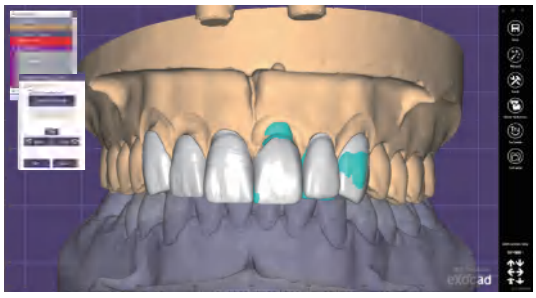
Hide the tooth 21,22,23 with the show/hide tools on the left upper side of the interface, and adjust the clarity of the preoperative model.

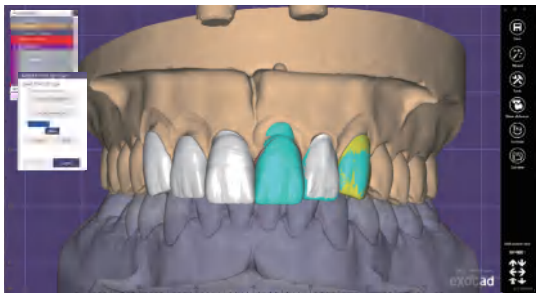


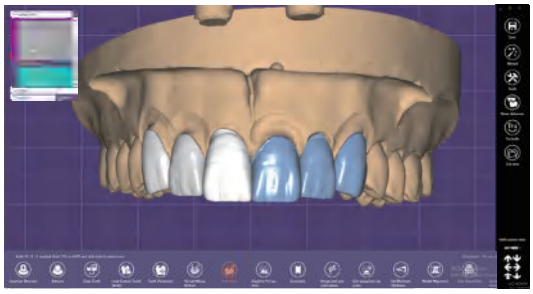


Select the three mirrored teeth, right-click on the teeth and choose the button “adjust to the pre-operative model”. (You can also directly click the button “adjust to the pre-operative model adjustment”)

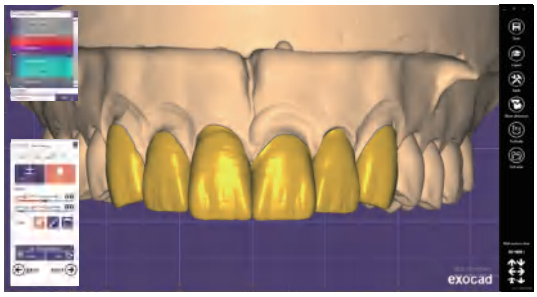








Click “ free-style model” or return to guide, simple smoothing may be necessary.



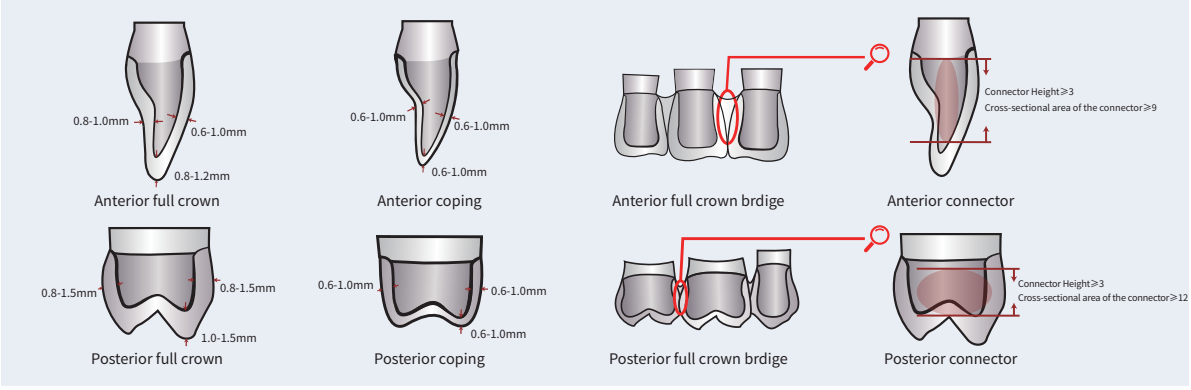
Design finished.

✓The tongue side must ensure sufficient strength and minimize the opening of gaps between teeth.

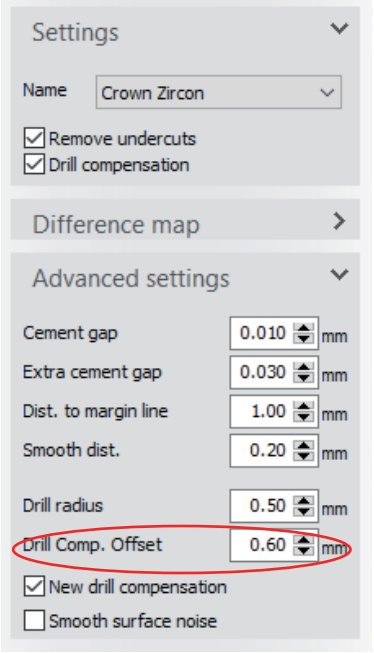
Designing notes

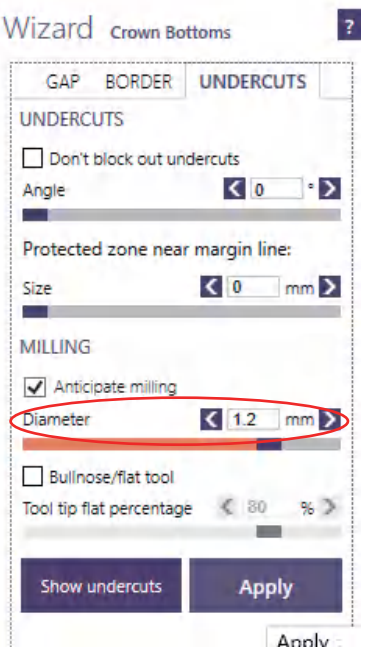
★

Aizir/Aizir Flash		Full crown	Coping
Anterior Crown	Labial thickness (mm)	0.6-1.0	0.6-1.0
	Lingual thickness (mm)	0.8-1.0	0.6-1.0
	Incisal thickness (mm)	0.8-1.2	0.6-1.0
	Cross-sectional area of the connector (mm^2)	⩾9	⩾9
	Connector Height (mm)	⩾3	⩾3
	Length of span (mm) (number of consecutive pontics)	⩽18 (⩽2units)	⩽18 (⩽2units)
Posterior Crown	Wall Thickness (mm)	0.8-1.5	0.6-1.0
	Occlusal Plane Thickness (mm)	1.0-1.5	0.6-1.0
	Cross-sectional area of the connector (mm^2)	⩾12	⩾12
	Connector Height (mm)	⩾3	⩾3
	Length of span (mm) (number of consecutive pontics)	⩽18 (⩽2units)	⩽18 (⩽2units)



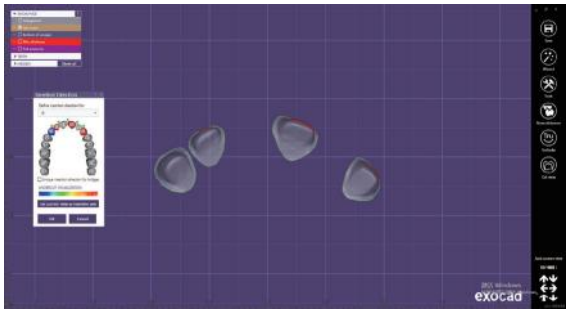
★ ✓Follow the operation below if the incisal areas of abutment have sharp edges.
Fill with wax at the sharp edges before scanning, or increase the compensation value of burs.

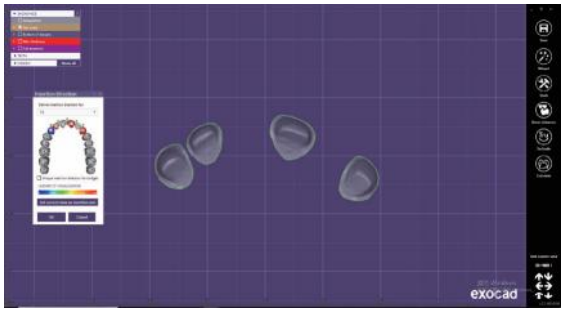




★ ✓If the automatically recognized margin line does not conform to the model, technician must check carefully and draw it by hand.

★ ✓The common seating path of the dental bridge must be checked to avoid irregular seating.





Nesting

Nesting position and block thickness selection:

★ ✓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 .

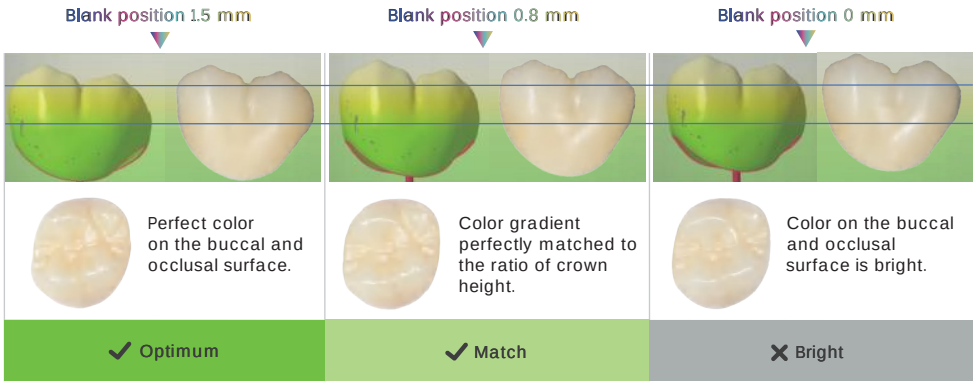
Posterior teeth

Indication 1: Crown, tooth 16, color A3 ,tooth hight in the software is 10.42mm
Blank: Aizir, Height 12 mm, 14 mm, color A3
CAM software:Millbox AMD500E

Optimum CAM nesting for posterior teeth:

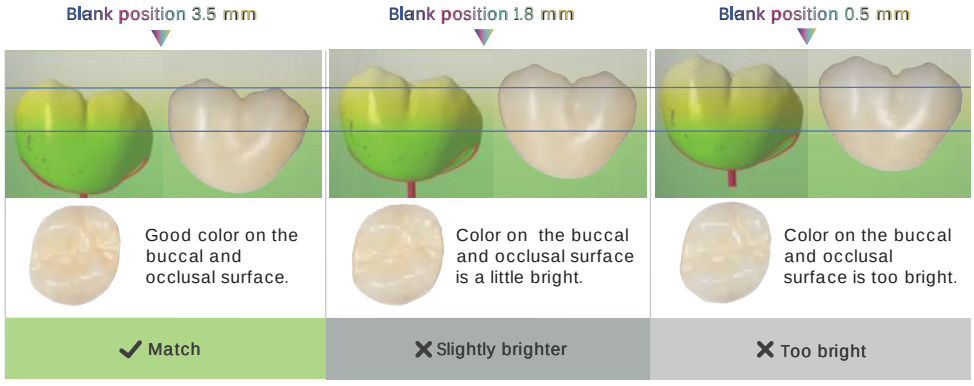
Incisal layer 1+2	25%
Intermediate layer 3+4+5	30%
Body layer 6	45%

Blank: 12mm



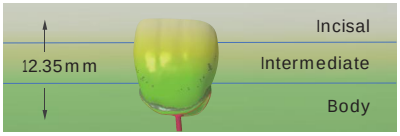
Incisal layer 1+2	25%
Intermediate layer 3+4+5	30%
Body layer 6	45%

Blank: 14mm

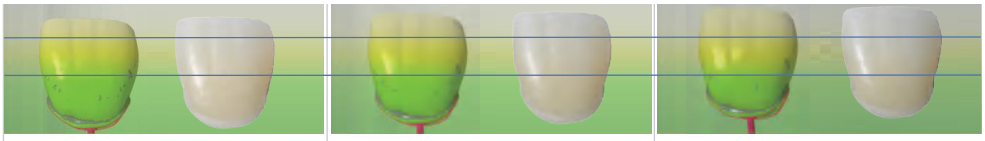


Anterior teeth

Indication 2: Crown, tooth 11, color A3 ,tooth hight in the software is 12.35mm
Blank: Aizir, Height 14 mm, 16 mm,color A3
CAM software:Millbox AMD500E



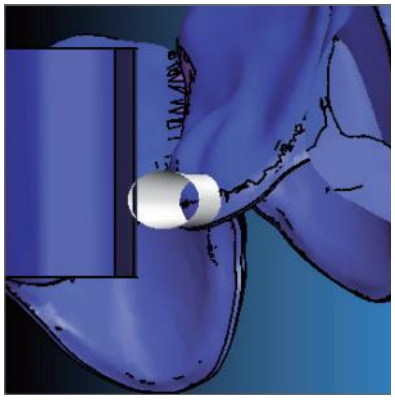
Optimum CAM nesting for anterior teeth:

		Blank position 1.5 mm	Blank position 0.8 mm	Blank position 0 mm
Incisal layer 1+2	25%			
Intermediate layer 3+4+5	30%			
Body layer 6	45%			
Blank: 14mm		Slightly dark color on the labial surface.	Color gradient perfectly matched to the ratio of crown height.	Color on the labial surface is slightly bright.The incisal part is more translucency.
		✗ Slightly dark	✓ Optimum	✓ Slightly bright

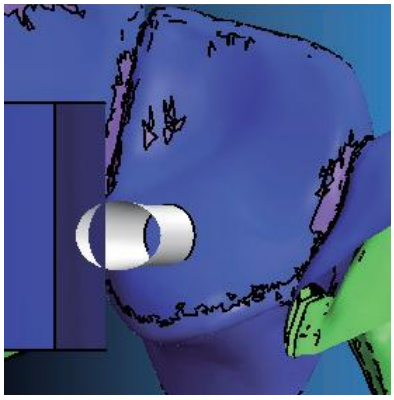
		Blank position 3.5 mm	Blank position 1.8 mm	Blank position 0.8 mm
Incisal layer 1+2	25%			
Intermediate layer 3+4+5	30%			
Body layer 6	45%			
Blank: 16mm		Dark color on the labial surface. No translucency on the incisal part.	The transparency of incisal part is not obvious.Color on labial surface is a little bright.	Color on the labial surface is bright.
		✗ Dark	✓ Slightly bright	✗ Bright

Long Bridge Nesting:

1.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.

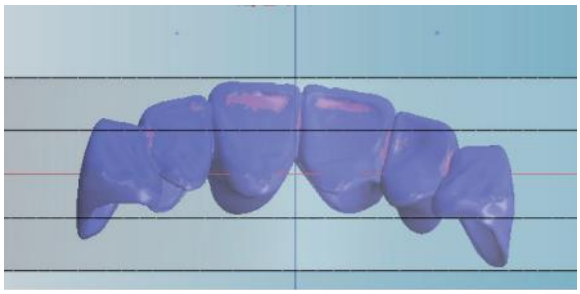


×The connecting rod is too close to the margin

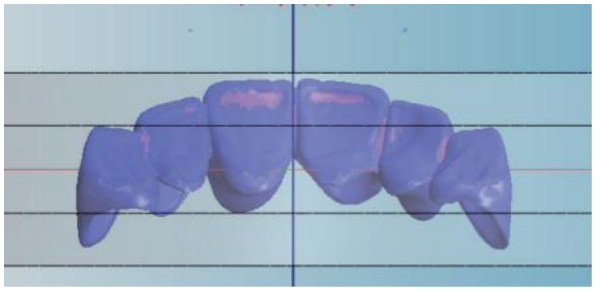


✓Right positioning of connecting rod

2.If the long span bridge radius is large and the incisal of every units is not on the same horizontal line, rotation adjustment of bridge as much as possible can help every unit of the arch have similar effect, but within the movable range of the nesting software.

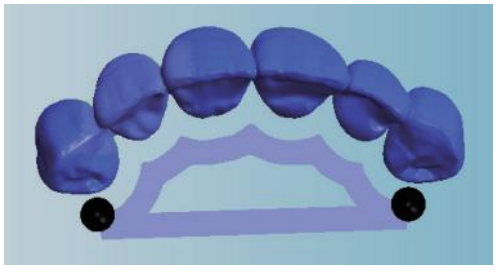


Before rotation

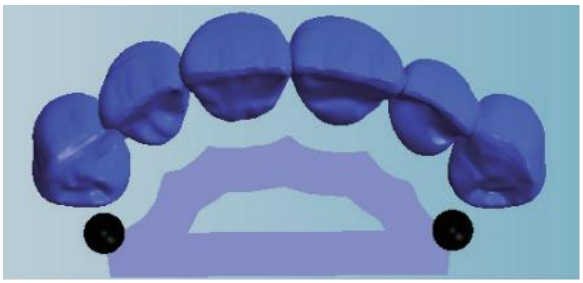


After rotation

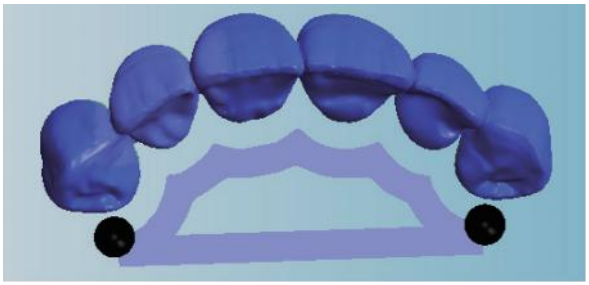
3.For the bridge which have huge radian or big amount of units, it is recommended to add hollow sintering rack to minimize the deformation after sintering.



4.Be sure to select a hollow sintering rack that is equivalent to the mass of the long span bridge. The height and thickness of the sintering rack can be adjusted in the software. For long bridges with thin or normal crowns, it is recommended to choose a sintering frame with a thickness of about 1.5-1.8mm. For long bridges with thick dental crowns (such as screw fixed bridges), it is recommended to choose a sintering frame with a thickness of about 2mm.



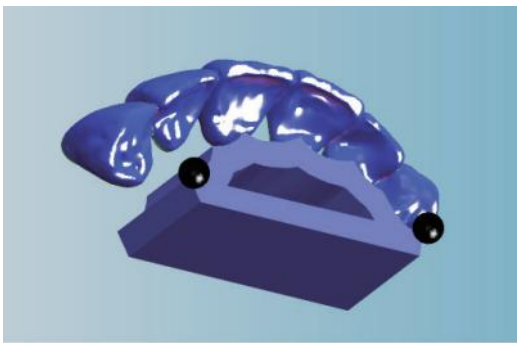
×Too thick



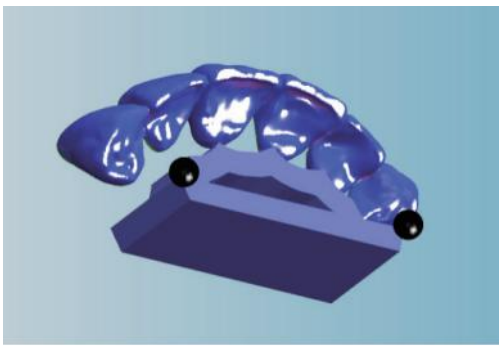
√Normal thickness

The mass of the palatal support can be adjusted:

Adjust mass of palatal support

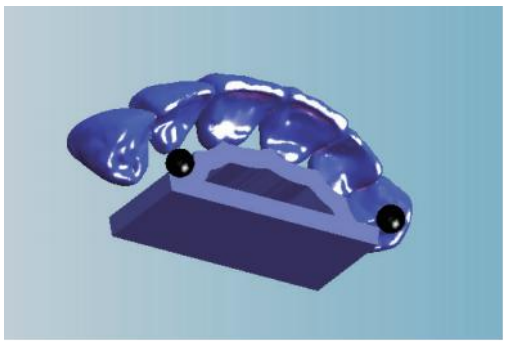


×Side support plate height is too high



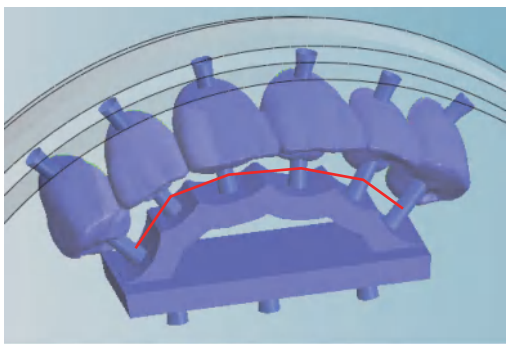
√Side support plate height is normal

Adjust base plate thickness



×Base support plate height is too high

√Base support plate height is normal

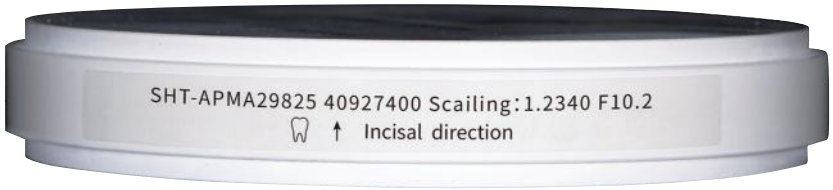


5.The position and number of connecting rods between the long bridge and the sintering rack should be evenly distributed, and the rods should be placed at height of contour.

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.
- ✓ Monitor the usage status of burs on the UI interface. When a bur replacement prompt appears, replace the milling bur promptly to ensure optimal performance.
- ✓ Aizir needs to be milled with 5axis equipment.
- × 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.
- Milling notes:
  ✓ Loading requirement: The side of the puck is marked with an arrow, and the arrow points to the incisal.

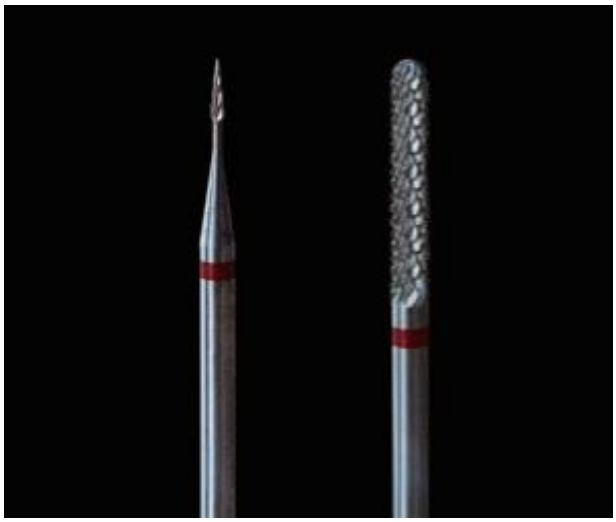


- × Do not use too much force when loading the puck. Do not overtighten the screws. Otherwise, the zirconium puck will be pinched or the milled restoration may crack.

Separation and cleaning

Check tools:

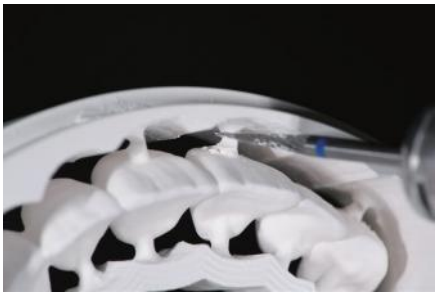
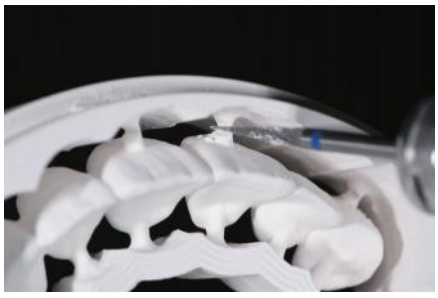
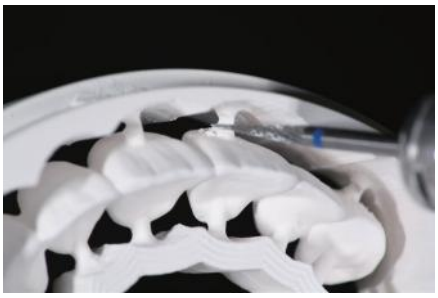
- ✓ Hand piece is stable and vibration-free.
- ✓ A soft towel or sponge pad needs to be placed on the table to prevent the teeth being damaged.
- ✓ Use fluted tungsten steel burs to separate the connecting rod.
- × The grinding environment must be clean of debris. Burrs, table tops, and the surrounding environment should be clean. Adequate ventilation and dust vacuum is required. Do not breath dust particles, use a qualified mask while performing any grinding
- × The brush must not be contaminated by water, oil or metal debris.
- × The burrs should not be bent, otherwise it will cause vibration.

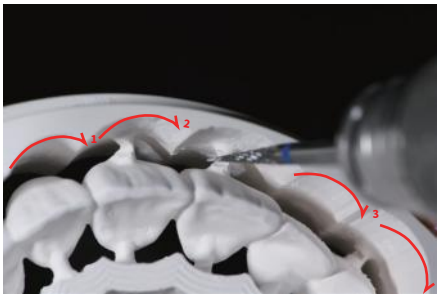


Process:

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.

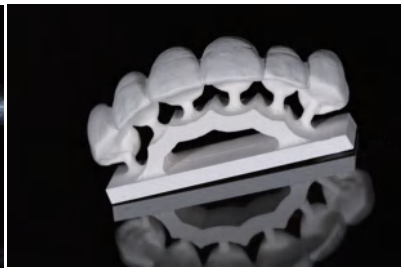
Step 2: Remove excess connecting rods

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.


Step 3: Clean up the powder

Use a brush or porcelain brush to thoroughly clean the powder on the surface of the restoration and inside the crown. If the cleaning is not complete, the powder will adhere to the surface of the restoration and the crown after sintering at high temperature, forming white spots and cause fit issues. This will affect the quality of restoration.





★ 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

Before Sintering :
✓It is not suggested to use coloring liquids or magic liquids on 3D Pro, because liquids
★ will decrease flexural strength of 3D Pro, especially magic liquids will decrease much more
★ strength than coloring liquids do. To avoid fracture problem in after steps, please use s taining to get aesthetic result.
✓Avoid adjusting shape, embrasure and occlusal surface which may cause hidden crack or chipping. Be careful of skill and speed if adjustment is necessary.

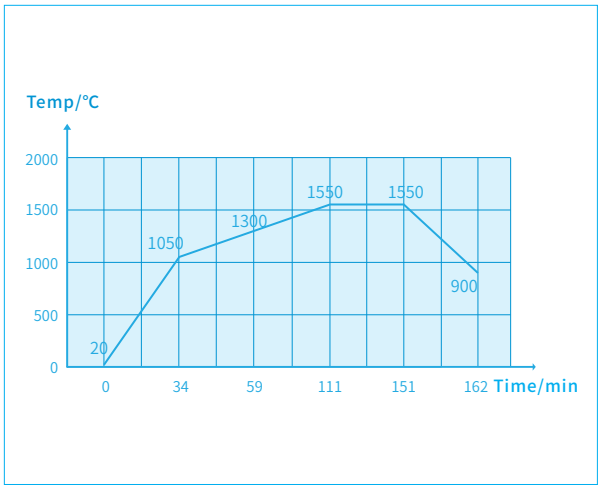
★ Check the Sintering equipment and tools::
Sintering furnace:
★ ✓The sintering furnace must use a voltage regulator to ensure stable operating voltage.
✓The sintering furnace must be cleaned regularly(once a week) and kept dry.
Cleaning method:
scrape off the impurities in the furnace.
Place green-state 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 d ust, 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.
✓Make sure that use the suggested sintering programs.
✓Furnace opening temperature shall not be more than 300°C, and it is forbidden to use cold metal tweezers to touch the teeth which are not at indoor temperature.
✓Avoid the direct blowing of cold air to the bridge.
✓By using sintering rack, make the bridge stand straight to get more uniform heat and shrinkage. 5.It is not suggested to sinter with the restorations which are treated with coloring liquids.
✓Check the furnace temperature regularly(every month)to ensure the stability of the furnace temperature.·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 restoration,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.
✓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 mill and made.

Sintering Program:

Below 3 units bridge (2.7h)

Start temp	Phase 1 heating rate	Phase 1 maximum temp	Phase 2 heating rate	Phase 2 maximum temp	Phase 3 heating rate	Phase 3 maximum temp	Holding time	Cooling rate	Cooling to
20°C	30°C/min	1050°C	10°C/min	1300°C	5°C/min	1550°C	40min	60°C/min	900°C

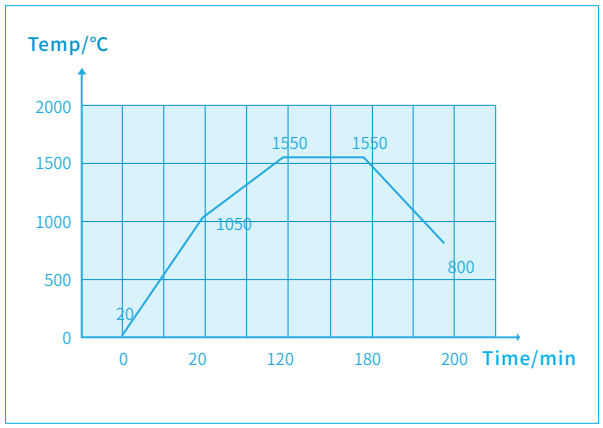
Phase	Temp/°C	Time/min
1	20	34
2	1050	25
3	1300	52
4	1550	40
5	1550	11
6	900	-121



Below 6 units bridge (3.4h)

Start temp	Phase 1 heating rate	Phase 1 maximum temp	Phase 2 heating rate	Phase 2 maximum temp	Holding time	Cooling rate	Cooling to
20°C	51.5°C/min	1050°C	5°C/min	1550°C	60min	37.5°C/min	800°C

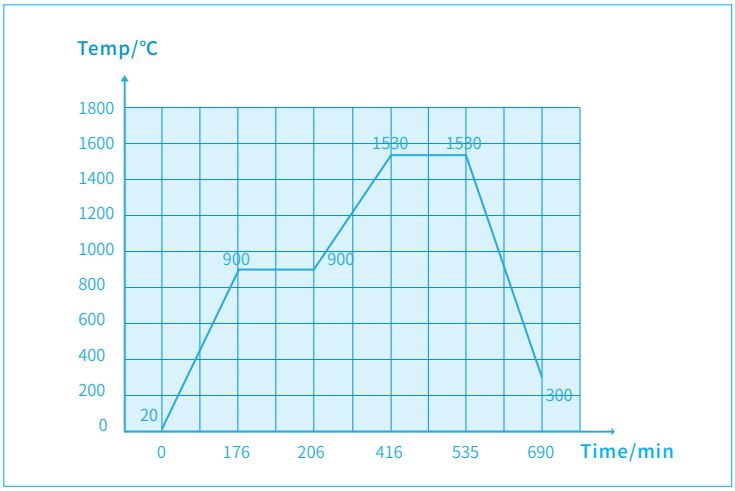
Phase	Temp/°C	Time/min
1	20	20
2	1050	100
3	1550	60
4	1550	20
5	800	-121



Above 7 units bridge (11.5h)

Start temp	Phase 1 heating rate	Phase 1 maximum temp	Holding time	Phase 2 maximum temp	Phase 2 maximum temp	Holding time	Cooling rate	Cooling to
20°C	5°C/min	900°C	30min	3°C/min	1530°C	120min	8°C/min	300°C

Phase	Temp/°C	Time/min
1	20	176
2	900	30
3	900	210
4	1530	120
5	1530	154
6	300	-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.
- ✓ Use Aidite Zirconium Beads and it is recommended to use zirconium beads with a diameter less than or equal to 1.0mm to sinter long bridges, and use zirconium beads with a diameter greater than 1.2mm to sinter single crown.

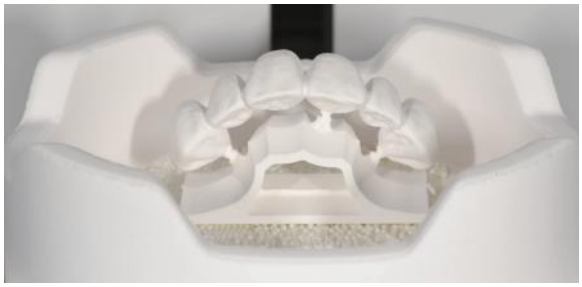

Zirconium beads

Sintering sagger:

★ ✓Be sure to use a perforated sintering sagger to heat the restoration more evenly.

Sintering:

★ ✓The standing sintering method is adopted to make the heating and shrinking more uniform.



Sintering finished.

Sintering notes:

★ ✓Bridge above 6 units shoud be sintered with reinforcing band to ensure the shrinkage is even.

★ ×A single crown or a bridge below 3 units can be sintered using the fast firing curve in an Aidite fast firing furnace.

★ ×Do not sinter 3D pro Zir together with restoration dipped or brushed with coloring liquids.

★ ×After the sintering of the long bridge is completed, in order to prevent cracks, the opening temp. of the furnace must be lower than 200 °C. The restoration should be naturally cooled to room temp. in the crucible before being removed.

★ ×Avoid direct air conditioner or fans to prevent potential fracture or cracking due to fast cooling. Take the restorations out after have cooled naturally.

★ ×Do not use quench cooling tools such as metal to contact high temperature restorations.

Grinding

★ Check the Grinding tools:

✓A special grinding bur for zirconia must be used. Use the Aidite Dental Grinding and Polishing Kit.

×Do not grind the crown too roughly. After rough grinding, go over it again with fine grinding (Recommended Speed:20000-35000r/min) and rough polishing (Recommended Speed:10000-16000r/min) to make the surface smooth. If only rough grinding is carried out, it may result in dull glazing and the appearance of white spots on the surface.

Grinding process:

Step 1: Remove connecting rods

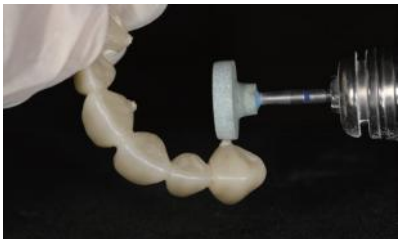
Separate restoration from sintering frame and remove the remnant connecting rods.

Use adequate water to cool during grinding. Be sure to not overheat restoration while grinding. The temperature of zirconia should not exceed 60°C. Cooling with water will ensure the temperature of zirconia will not exceed 60°C at any time.

Using correct rotation speeds grind to remove excess material. Do not grind restoration for long periods of time to avoid overheating. Grind and continuously changing position. Do not grind continuously at the same position.

Support Removal

Support removal finished



Contouring excess connecting rods

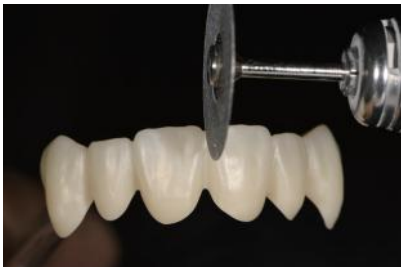
Finished

Notes of removing connecting rods:

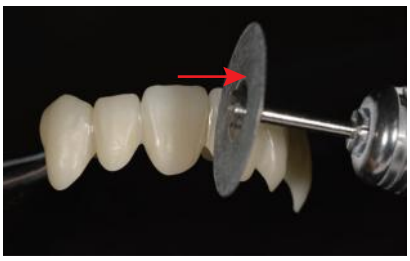
- ✓Grinding speed of removal tools:15000-20000r/min
- ✓Revolving speed of rough grinding: 20000-35000r/min
- ✓Dip in water before grinding to prevent high temperatures
- ×Do not grind the restoration with high pressure.
- ×Do not grind continuously at the same position, to avoid potential fracture or cracking caused by overheating.

Step 2: Grinding embrasure

Suggest using sintered diamond discs to grind proximal area between teeth, similar to point grinding. Do not grind zirconia more than a fews second at a time. Use edges and points to reduce overheating.



Grind outwards, to have silicon carbide particles contact incisal embrasure, and proximal area between teeth. Do not grind vertically.



Grinding direction

Notes of grinding embrasure:

- ✓ Revolving speed: 20000r/min, keep hand piece stable in hand.Do not generate large vibrations and shocks.
- ×Do not cut vertically which will lead to excessive pressure stress and localized overheating. Use shearing stress of sand discs to remove material.
- ×Do not cut continuously at the same position, to avoid potential fracture or cracking caused by overheating.

  Next, use Aidite special zirconia grinding tools to adjust restoration surface. Create restoration surface smooth by a 3 steps process: rough grinding, fine grinding, rough polishing.

Step 3: 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 rough grinding:

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

Step 4: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.

Step 5: 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.

Sharper access tools of rough polishing are suitable for polishing some area that is not easy to access, e.g. tooth cusps or incisal embrasures.

In order to reduce the wear to opposing teeth, polishing in occlusal area is necessary. 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.

Staining and Glazing

★ ✓Aidite Biomic stain & glaze kit is recommended to help achieve better esthetics and effects.

Preliminary preparation:

✓ Sandblasting is not required inside the crown of a prosthesis with good mechanical retention, and sandblasting is required in the crown of a prosthesis with poor mechanical retention.

✓ If sandblasting is required inside the crown, use 50um white alumina oxide, sandblasting pressure of 2bars , and sandblasting distance of 10cm.

Zirconia Surface Treatment Process

Surface treatment plan 1 Use zirconia special polishing tool and follow the steps below to polish. Do not sandblast, clean after rough polishing and put it into a porcelain furnace for heat treatment.

Step 2
Use a fine grinding needle to polish the entire surface, making the surface patterns of the teeth neat, even, and delicate.
Speed: 20000-35000r/min.

Step 4
Clean the restoration with a steam or ultrasonic oscillation cleaning machine.

Step 1
Use a rough grinding needle to wear the teeth, adjust the adjacent and occlusal surfaces, and trim the anatomical shape of the teeth.
Speed: 20000-35000r/min.

Step 3
Use a rough polishing needle to gently polish the entire surface, making the tooth surface flat, even, and smooth. Only rough polishing is allowed without excessive polishing,
with a speed of 10000-16000r/min.

Step 5 Put the restoration into a porcelain furnace and perform heat treatment sintering according to the following curve. This step can remove surface stress, allowing the paste to bind well with the surface of zirconia without flowing.

Start temperature	Drying time	Heating rate	Highest temperature	Holding time	Vacuum starting temperature	Vacuum ending temperature	cooling down
450℃	2min	80℃/min	800℃	3min	450℃	799℃	-

Surface treatment plan 2 Use zirconia special polishing tool and follow the steps below to grind. Sandblasting with 50um sand and 1-2bar pressure.

Step 2
Use a fine grinding needle to polish the entire surface, making the surface patterns of the teeth neat, even, and delicate.
Speed: 20000-35000r/min.

Step 4
Clean the restoration with a steam or ultrasonic oscillation cleaning machine.

Step 1
Use a rough grinding needle to wear the teeth, adjust the adjacent and occlusal surfaces, and trim the anatomical shape of the teeth.
Speed: 20000-35000r/min.

Step 3
Use 50um sand and 1-2bar pressure for sandblasting.

Staining process:

The restoration is painted with transparent glaze as a whole.

The cervical is painted with the main colors such as A shade.

Use terracotta at the neck margin and the lower part of the adjacent surface.

Use a small amount of brown at the neck edge to create a sense of hierarchy.

Use orange 2 on the upper 1/3 of the incisal edge to build mamel-on fifinger structure.

Use blue 1 on the two sides of theincisal, use blue 2 on the middle area of the incisal

Use black on the more transpar-ent area of the incisal to enhance transparency.

Use orange 1 at the incisal edge to create the halo effffect.

Final effect.

Staining Precautions::

1.Clean the surface of restoration by steam or ultrasonic cleaning machine before staining
2.When baking short bridge(≤5units)or single unite restoration,the furnace-opening temperature should not be higher than 600°C,and the cooling-down time should be 3 minutes; When baking a long span bridge(>5units)or a relatively thick restoration,the furnace-opening temperature should not be higher than 500°C,and the cooling-down time should be 5 minutes.If the furnace-opening temperature is too high,a sudden temperature drop will occur,leading to hidden cracks in the restoration.
3.Appropriately reducing the heating rate can improve the baking quality.
4.Extending the holding time can compensate for the poor thermal conductivity of zirconia.
5.Extending the cooling-down time can prevent zirconia from developing cracks due to rapid cooling.
6.When using a"shell style"porcelain furnace,long-span bridges or thicker restorations must be placed closer to the internal back wall of the porcelain furnace.
7.Avoid the direct blowing of cold air to the bridge.

Aidite

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