Aevra Technical Guide

Engineered for Aesthetics
Perfected from Powder to Prosthesis



UPCERA

Aevra

Aevra is an advanced zirconia material that seamlessly combines outstanding strength with refined aesthetics. With a biaxial flexural strength of 800–1050MPa, it delivers exceptional durability across a wide range of dental restorations, including crowns and bridges. Its high translucency (46–50%) ensures a natural, lifelike appearance that meets the exacting demands of modern dentistry. Suitable for both anterior and posterior applications, Aevra offers dental professionals a reliable, high-performance solution that redefines the standard for restorative excellence.



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01 Product Information

1.1 Composition and technical data

1.1.1 Chemical composition

ZrO_2+HfO_2	86.3%～95.5%	Fe_2O_3	<0.2%	Other oxide	<0.5%
Y_2O_3	7%～9.7%	Er_2O_3	<1%		

1.1.2 Technical data





Raw material	4Y-5Y
Translucency (1mm, transmittance)	46%-50%
Flexural strength (MPa)	800-1050MPa
Fracture toughness	>4MPa·$m^{1/2}$
Density after sintering	≥6.0g/cm^3
CTE (25-500℃)	(10.5±0.5)×$10^{-6}k^{-1}$
Accelerated aging surface monoclinic phase content	<5%
Chemical solubility after sintering	<100μg/cm^2
Radioactivity	⩽1.0Bq/g
Sintering temperature(standard)	1510℃

1.2 Intended use

Aevra is used to fabricate anterior and posterior dental restorations with various CAD/CAM systems.


Onlay/Inlay


Veneer

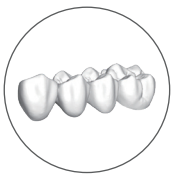

Crown

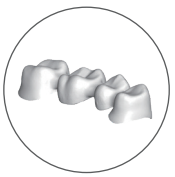

Substructure Crown


Implant-supported Single Unit


3-unit Monolithic Bridge


3-unit Substructures


Multi-unit Monolithic Bridge(≥4-unit)


Substructures Multi-unit Bridge(≥4-unit)


Implant-supported Multi-unit/Fixed Complete Dental Prosthesis

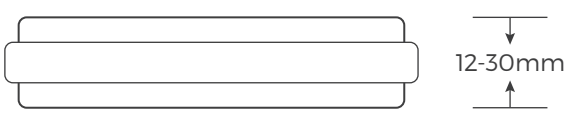
1.3 Product specifications

1.3.1 Shades


A1 A2 A3 A3.5 A4 B1 B2 B3 B4


C1 C2 C3 C4 D2 D3 D4 BL1 BL2 BL3 BL4

1.3.2 Size



D98X12 D98X14 D98X16 D98X18
D98X20 D98X22 D98X25 D98X30

02 Fabrication Process

Streamlined workflows for ultimate satisfaction:



2.1 CAD/CAM design

2.1.1 Material-specific frame parameters

The following parameters must be complied with when fabricating zirconium-oxide frames in the high-density sintered condition:

Indication	Anterior region		Posterior region	
	Minimum layer thickness in mm	Connector dimensions** in mm²	Minimum layer thickness in mm	Connector dimensions** in mm²
Full contour				
Crown	0.8	——	1.0	——
3-unit bridge	1.0	9*	1.0	12*
4 or more units Max. 2 pontics	1.0	15*	1.0	15*
Framework				
Crown	0.5	——	0.6	——
3-unit bridge	0.5	9*	0.6	12*
4 or more units Max. 2 pontics	0.5	15*	1.0	15*

Height > width

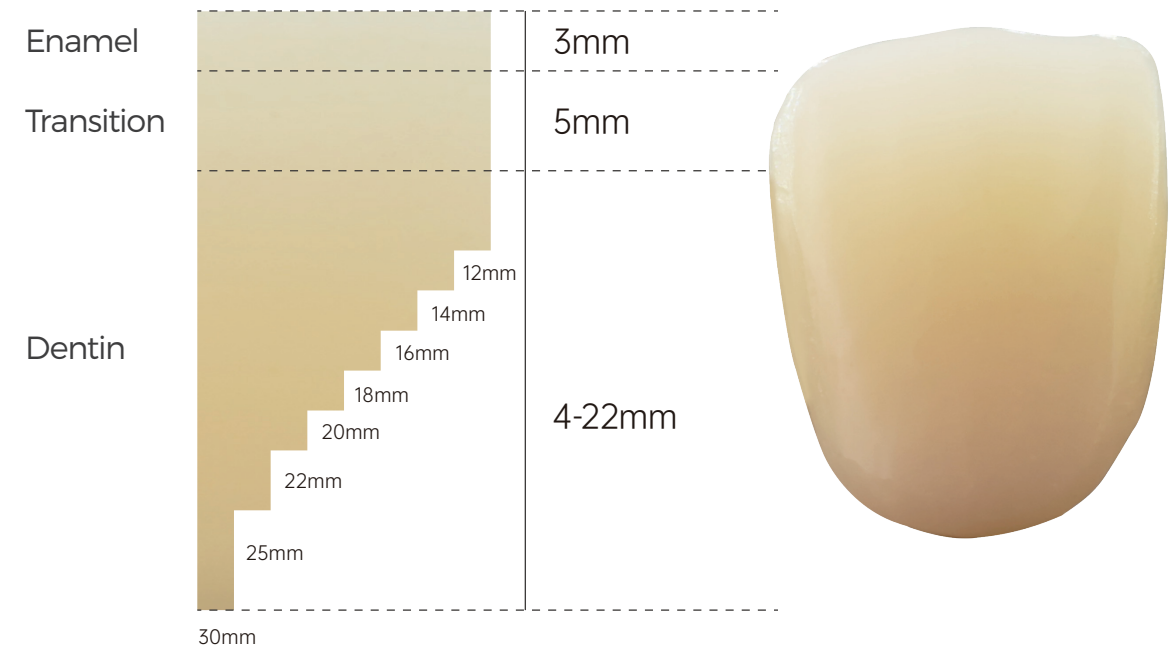
* * The specified minimum connector cross-section must be positioned in the dentin area of the blank

Important Note:

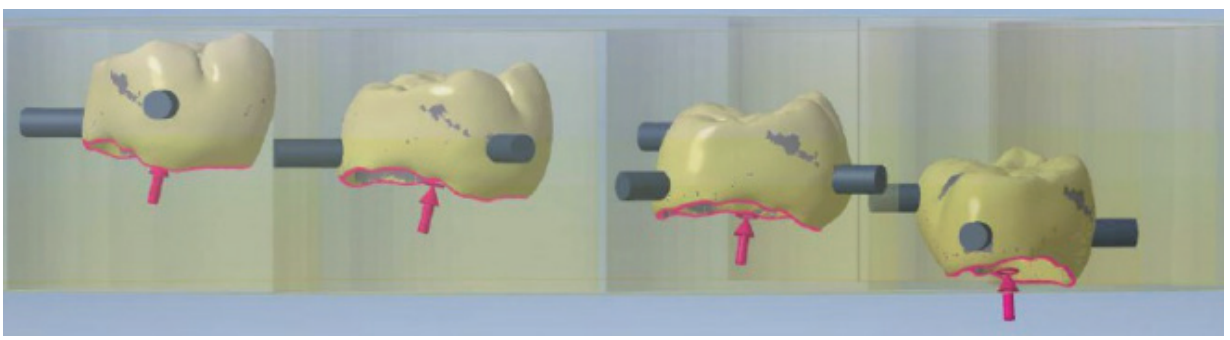
- To extend the service life of the restoration, please ensure that the height is greater than the width to avoid bridge breakage caused by the design of the restoration.
- Note that mechanical failure (e.g., fracture or chipping of the restoration) may depend on the quality of the tooth preparation.
- Ensure the minimum wall thickness of the framework on the occlusal surface is maintained even after occlusal adjustments.
- The thickness of the fabricated restoration may be adjusted based on clinical case requirements.

2.1.2 Positioning guidelines in CAM software

To achieve the best restoration effect, please design the dental crown layout according to the indicated diagram.

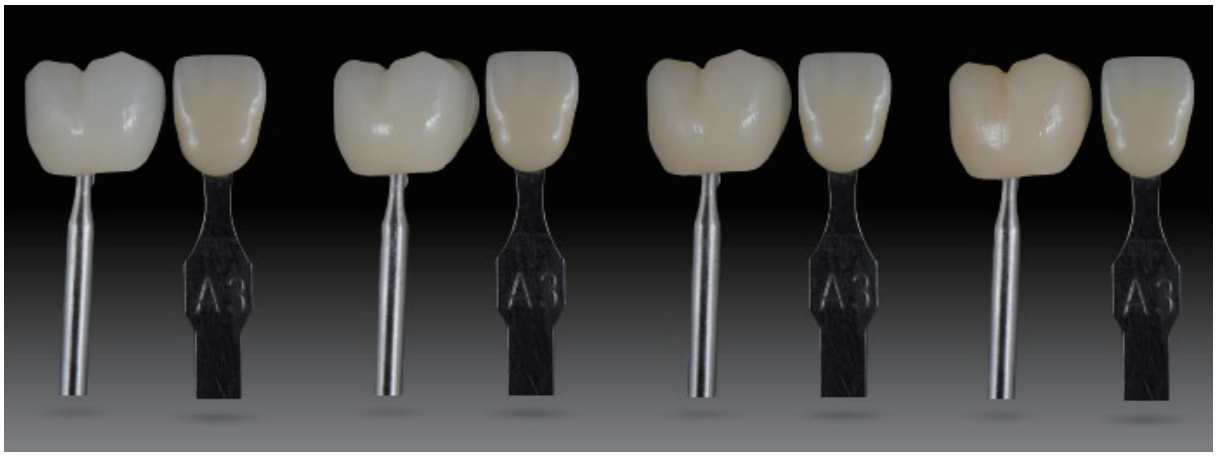


Positioning examples:



① ② ③ ④

Pic: Positioning a full-contour posterior crown in A3 18mm blank



① ② ③ ④

Pic: Shade matching with VITA A3 shade guide for different positioning crowns

Important Note:

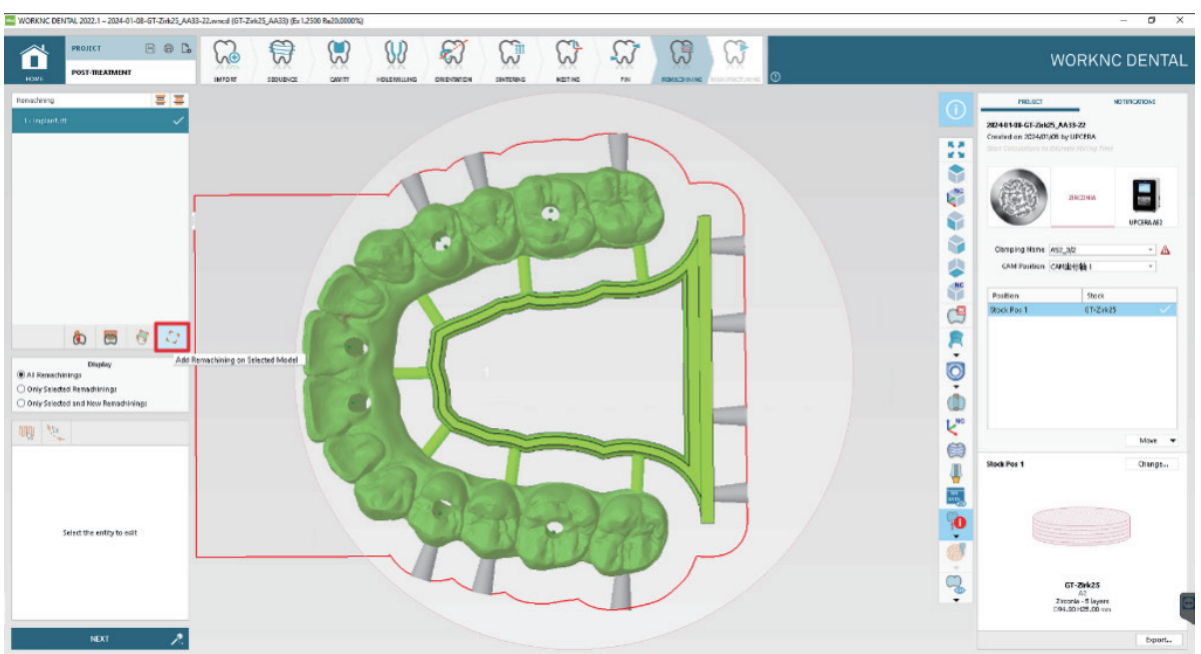
– Depending on the position of the restoration within the disc—higher or lower—the amount of incisal area can be precisely controlled. For single-tooth restorations, it is recommended to position the restoration approximately 0.5mm -1 mm below the top edge of the disc to ensure a clearly visible incisal zone.

– To avoid distortion and ensure proper fit, multi-unit restorations with significant curvature must always be sintered with a support structure. Attach a stabilizing bar perpendicular to the sintering support structure at terminal abutments.

The following bridge configurations universally require sintering support structures:

①Curved bridges (e.g., anterior dentition spans).

②Multi-unit bridges (5 units) exhibiting pronounced curvature.



Tips and tricks:
Sintering support structures
– Adopt a mirror-symmetrical positioning pattern, with positioning areas strictly confined to the cervical one-third to middle one-third of the dental crown to ensure uniform stress distribution.
– Avoid setting support bars in bridge units unless necessary, particularly steering clear of connector areas.
– A lingual sintering framework must be added during long-span bridge sintering, with thickness parameters dynamically adjusted based on the anatomical morphology of the crown.
– The sintering framework wall thickness parameters should be configured to closely approximate the lingual thickness of the dental prosthesis (theoretical recommendation).

Note: All the above operations are based on WORKNC DENTAL 2020.0.1923

2.2 Milling

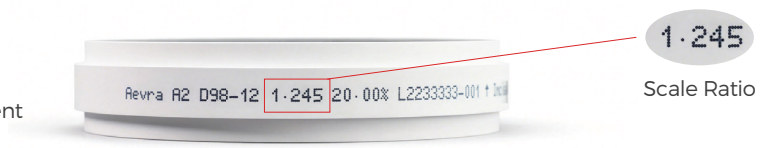


It is recommended to use a five-axis milling machine (e.g., Upcera FLNTMill A52) equipped with extended-length milling burs. Mill the blanks using the milling strategies specified for the material. The machine manufacturer's specifications must be strictly adhered to.

Note:
Processing Equipment Maintenance Protocol
Before processing long-span bridges, execute the following:
– Replace with new burs before processing.
– Equipment calibration verification (tolerance limit ≤ 0.05 mm).

To address volumetric shrinkage inherent in the sintering process, Aevra zirconia restorations are manufactured with a predetermined scaling factor. This compensation is achieved through the input of a scaling factor within the CAM software interface.The dental market offers multiple CAM software systems, each requiring distinct scaling parameter configurations.Should any issues arise, please contact the CAM software manufacturer immediately.

Material certification label:
zirconia disc specifies the exact shrinkage coefficient



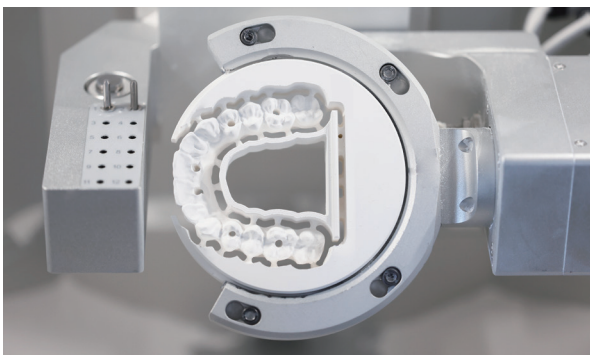
Technical escalation: In case of uncertainties, please contact your CAM supplier.

– During the installation of dental ceramic blocks, the orientation arrow must be aligned with the incisal edge direction of the restorations. Reverse positioning is strictly prohibited.



– When securing the disc in the holder, ensure both the circumferential notch and holder interface are free of contaminants. Fasten the screws sequentially in a crisscross pattern to achieve uniform torque distribution.



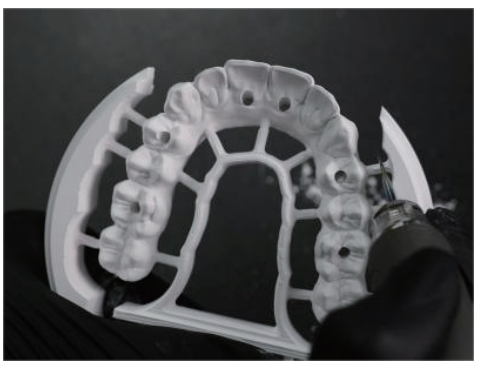


2.3 Separating and finishing

Any post-processing should be performed in the non-sintered state. To prevent material damage, proper finishing is essential after the milling process. The selection of suitable tools is critical for success.

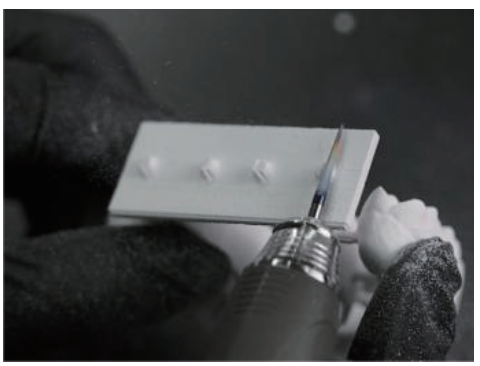
1

Fine tungsten carbide burs or diamond grinding instruments are recommended for separating the restorations.



2

Smooth out the attachment points of the holding bars.



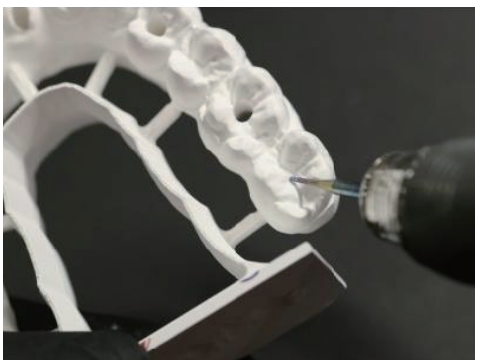
3

Refine the cervical marginal line.



4

Proper milling cutter enables extremely fine fissures to create a natural morphology.



5

Adjust surface texture.



6

Thoroughly remove any zirconium oxide dust with a soft brush and then blast it with oil-free compressed air.



Tips and tricks

– When removing holding bars, limit the single-pass cutting depth of the bur to less than 0.5 mm to minimize stress on the material.

– During support structure removal and contour refinement, apply gentle pressure and move the tool in a single, consistent direction. Avoid back-and-forth (reciprocating) motions to reduce the risk of micro-cracks.

– Utilize standardized, zirconia-specific rotary instruments, maintaining uniform and controlled pressure throughout the procedure.

– Replace tools immediately if the cutting edges become dull, such as when a significant drop in cutting efficiency is observed, to ensure precision and avoid damage.

– Use a soft-bristle brush to gently remove debris from both the internal and external surfaces of restorations.

– If compressed air is used for auxiliary cleaning, ensure the air is oil-free to prevent contamination.

– Wear a protective mask throughout the procedure to mitigate the risk of occupational pneumoconiosis.

2.4 Infiltration and drying (Optional)

Aevra is a multilayer zirconia blank, if internal staining is performed using coloring liquids, we recommend applying the brush infiltration technique. For the internal staining process of zirconia products, please strictly follow the operating instructions provided by the coloring liquid manufacturer.

2.5 Sintering

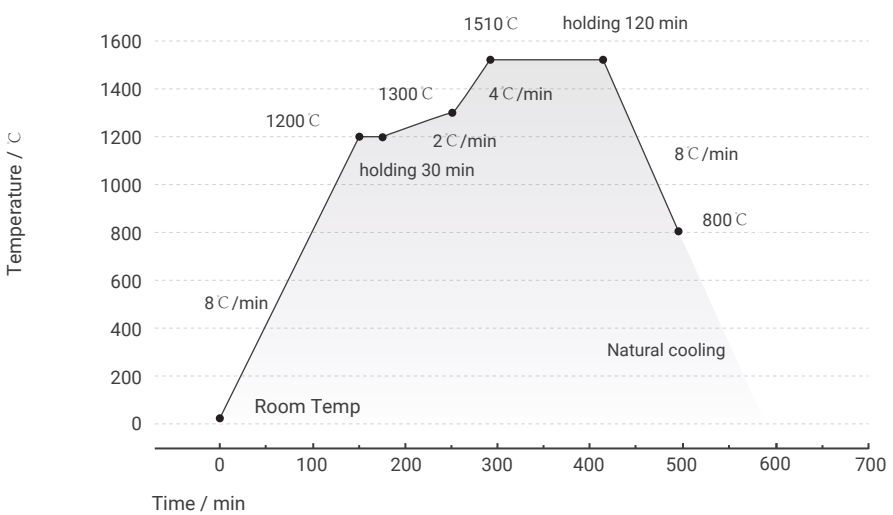
Sintering of zirconia is one of the most critical steps in the fabrication of dental restorations. Under high temperatures, the porous white zirconia green body shrinks, endowing the material with its final mechanical strength and optical translucency. To achieve optimal properties, strict adherence to defined sintering temperatures and dwell times is imperative. Deviations in temperature (either too low or too high) or duration (too short or too long) will compromise these properties.

For sintering Aevra restorations:

Use a high-temperature sintering furnace certified for dental zirconia processing.

Configure the furnace program to align with the following sintering schedule:

- **Standard sintering program for crowns and up to 14 units of bridges**



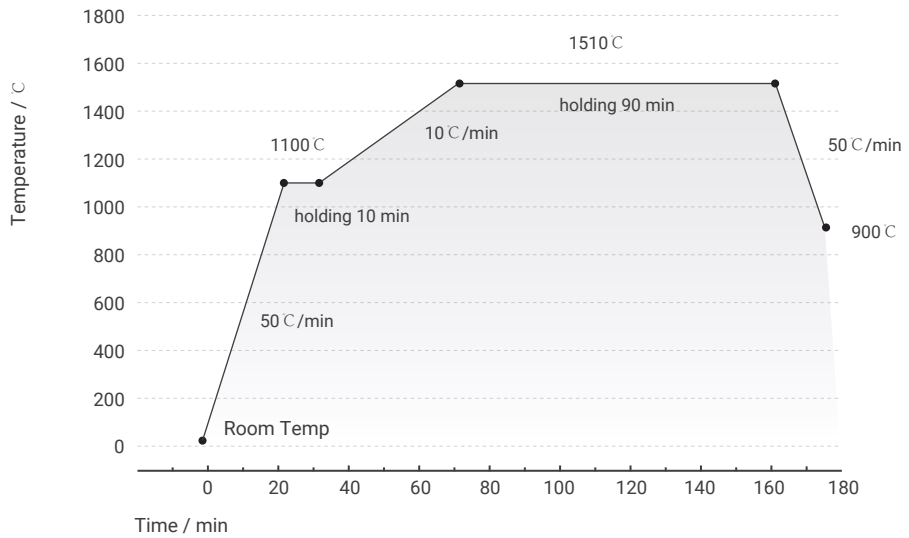
Placement notes:

As shown in the picture below, the restorations should be evenly placed and in line with the direction of thermal circulation. The long-span bridge should be placed upright and must not lie flat to prevent deformation caused by local overheating.





2. Fast sintering program for crowns and bridges within three units



Note (compared with the standard sintering program):

– The final shade of the restoration may appear slightly brighter than the intended shade selection.

This is a typical effect of fast sintering, as the shortened dwell time reduces colorant diffusion and limits full chroma development. Minor deviations can be easily compensated using external or internal staining techniques to achieve the target shade.

– For consistent structural integrity and shade uniformity, no more than 3-unit bridge with a maximum of 1 pontic can be sintered by fast sintering program.

Exceeding these limits may compromise densification and lead to shade variation or distortion due to non-uniform thermal distribution.

– Fast sintering should be used primarily for single crowns or short-span restorations.

Due to the accelerated heating rates and shorter holding period, large-span frameworks may exhibit increased risk of thermal stress, reduced translucency uniformity, or insufficient layer fusion—especially for multilayer zirconia.

Tips and tricks

– Sintering temperatures are recommendations. If necessary, carry out a trial sintering cycle and adapt the sintering temperatures or times as needed.

– The restorations must not come into contact with each other during sintering.

– Always keep the sintering accessories clean and free of dust so that no contamination of the sintered restorations occurs.

– Make sure that the appropriate sintering support structure is selected for the respective furnace system.

– Please also refer to the operating instructions of the respective sintering furnace.

2.6 Manual finishing after sintering

2.6.1 Grinding

Generally, the contouring of zirconia restorations is completed before sintering. However, post-sintering grinding may be required due to variations in operator proficiency. When performing post-sintering grinding under such circumstances, the following precautions must be exercised.

1. Handpiece Rotation Speed Specifications

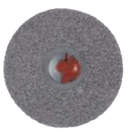
It is recommended to utilize brushless grinding handpieces, which employ digital frequency conversion control systems to achieve precise speed regulation. Integrated with brushless induction sliding rail technology, these devices significantly enhance operational stability and chuck clamping force. Key advantages include:

– Precise rotational speed control
– Enhanced equipment durability
– Reduced mechanical wear
– Superior noise suppression performance

During contouring procedures, the burs speed should be maintained below 15,000 rpm.

2. Grinding Tool Selection Guidelines

Under standard rotational speed conditions, the impact of different grinding tools on restoration edge integrity is as follows:

– Diamond Burs Material Characteristics: Silicon carbide abrasive particles Machining Performance: High risk of edge chipping	
– Coarse-Grit Zirconia-Specific Burs Machining Performance: May still induce micro-fractures Usage Recommendation: Restricted to pre-contouring phases	
– Fine-Grit Zirconia-Specific Burs Machining Performance: Effectively preserves edge integrity Best Practice: Recommended for final contouring procedures.	

2.6.2 Polishing

Polishing the occlusal surfaces of monolithic restorations is very important. Good polishing protects the antagonist from undesired abrasion. Make sure that the occlusal surfaces are carefully polished after functional adjustment by grinding. Upcera FLNT polishers and polishing agents for oxide ceramics are recommended for polishing.





Tips and tricks

– Finishing of sintered Aevra zirconia restorations should be kept to a minimum. The restoration should only be mechanically processed if it is absolutely necessary.

– Use only immaculate grinding instruments. Use only light pressure and low speed to adjust the restoration. Prevent sharp edges when finishing frameworks.

– Bridge connectors must not be post-separated with a separating disc.

– We recommend using a rubber polisher to smooth the basal side of the bridge connectors.

– The material-specific minimum wall thicknesses and connector dimensions must not be underscored during processing.

– Check the restoration for defects and cracks before and after finishing.

– During the try-on and fitting of the framework, keep the dies on the cast and try on the framework as a whole.

– Rinse the restoration under running water or use the steam jet to remove any adhering residue and dry.

2.7. Staining and glazing

2.7.1 Staining technique

The Stains firing is carried out with Upcera Artouch/Realism Stain and Glaze Paste. These staining and glazing procedures can be carried out together or separately, depending on the situation. For further information, please see Upcera Artouch/Realism Instructions for Use.

As shown in the figure below, restorations with varying thicknesses exhibit different color rendering effects. With increasing ceramic thickness, color saturation becomes more pronounced, while translucency decreases.



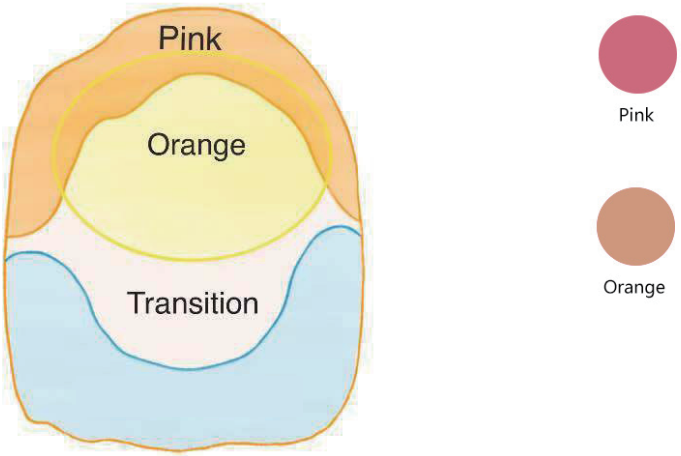
Fig: From left to right is: 0.6mm; 1.0mm; 1.5mm; 2.2mm; 3.0mm in thickness

Upcera Realism/Artouch system are recommended for staining of Aevra restorations after sintering.

A1:

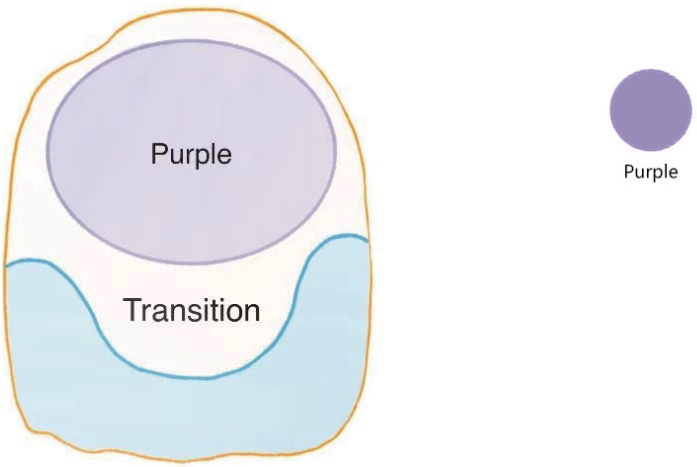
Recommendation for staining of Aevra A1 anterior crown to match the VITA A1 shade guide

Note: Add Pink to the cervical and Orange to the middle 1/3 to better match the colors of the VITA A1 shade.



Recommendation for staining of Aevra A1 anterior region pontics to match the VITA A1 shade guide

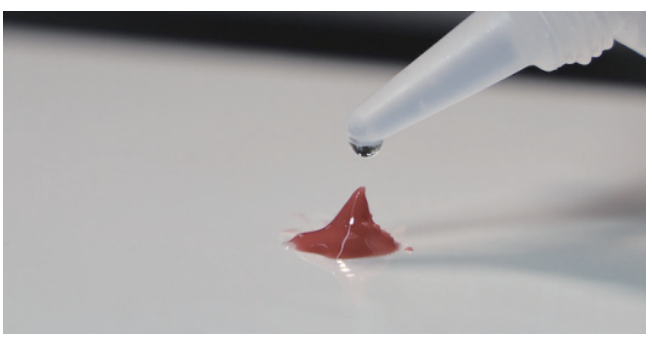
Note: Add Purple to the cervical to better match the color of the VITA A1 shade



2.7.2 Micro-layering technique

The most important micro-layering steps are shown as follows. Detailed information on the ceramic paste and its processing instructions can be found in the Upcera Artouch Technical Guide.





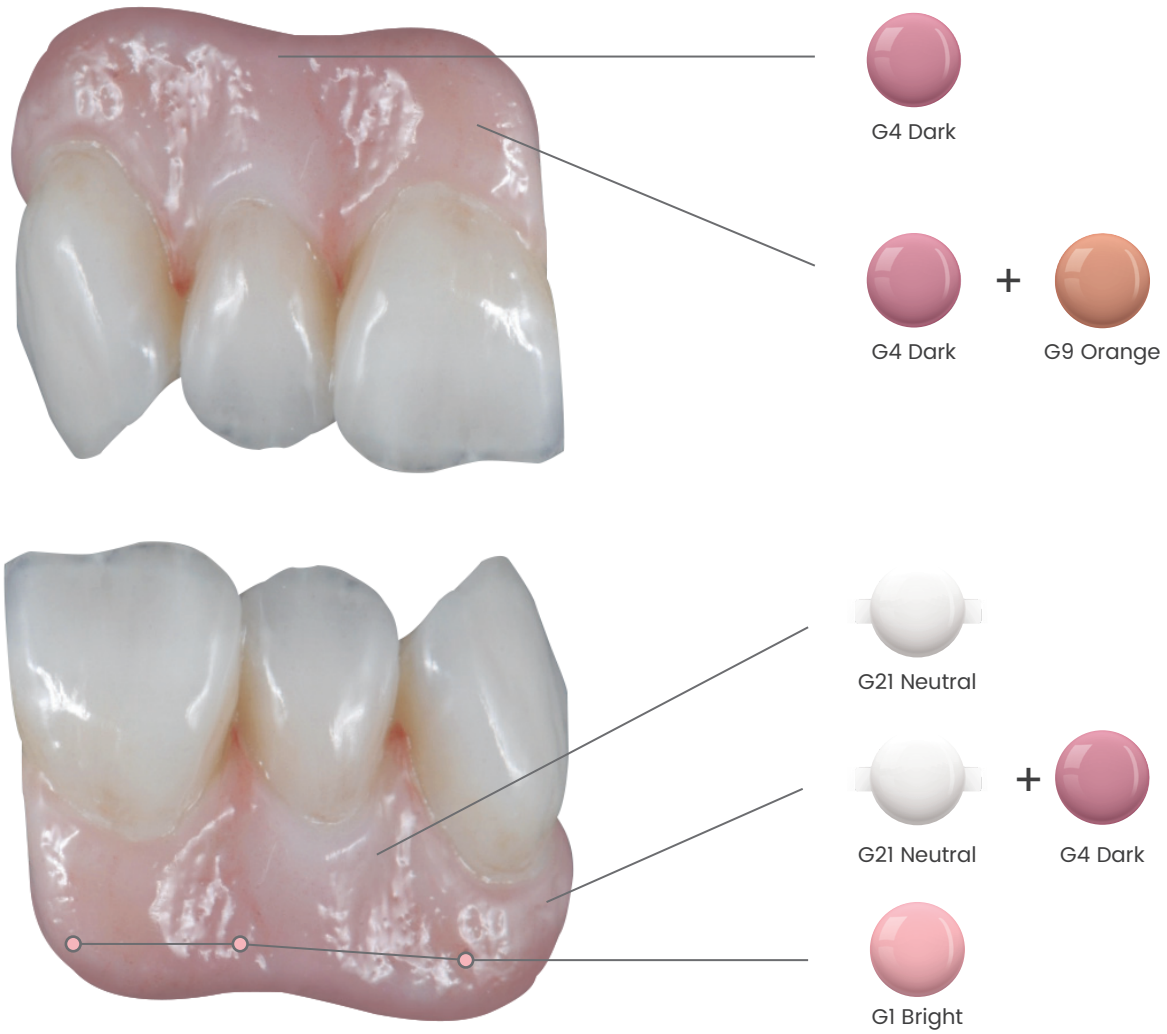




Fig: The finished Aevra restoration after firing.

03 Safety Notice

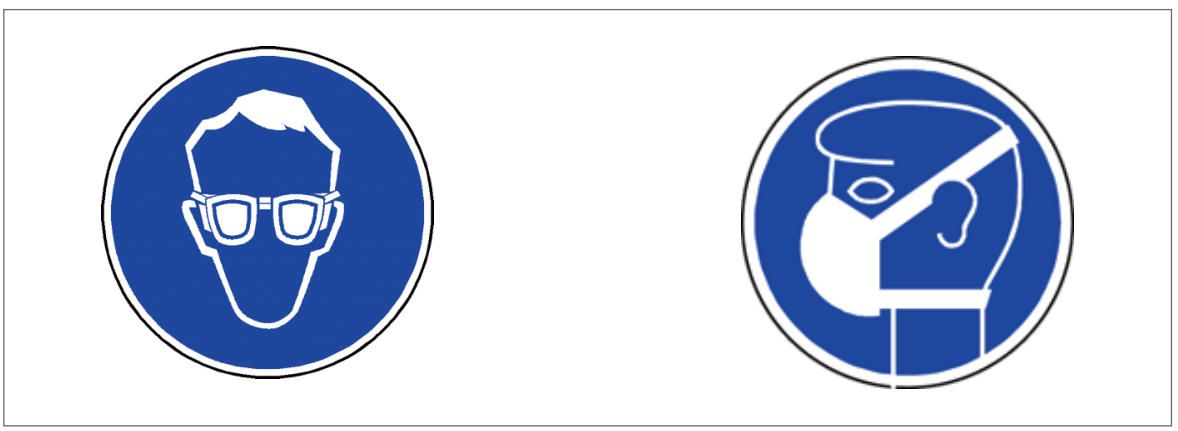
NOTE

The product shall be used only by trained personnel. The manufacturer is not liable for any erroneous results, since we have no control if this instruction is properly followed or if the product is appropriately used. Any claims for damages therefore shall be limited exclusively to the commercial value of our products.

Please make sure that the dentist has received all of the necessary information for the correct use of the product.

Safety Instruction

1. Avoid collision with hard material, avoid squeezing or shaking.
2. Don't apply to patient before the material is fully sintered.
3. This product should only be handled by dental specialist.
4. Wear a suitable face mask to prevent fine dust inhalation. Avoid fine dust air pollution by using the air blaster in short bursts only rather than a continuous flow.



Disposal

The material is not hazardous to the environment.

04 Appendix

4.1 Related product

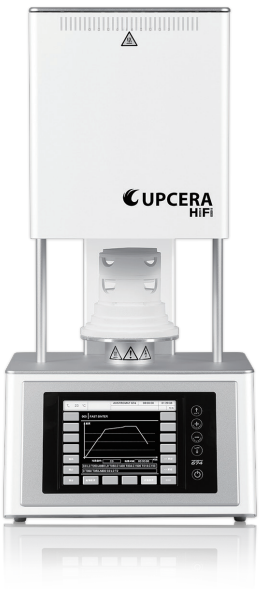
Grinding and Polishing Kits



Upcera FLNTMill A52



UPCERA HiFi Sinter



FLNTShine ZrO_2 Polishing Paste



· Polishing



· Super Polishing



· Polishing Wheel

UPCERA Realism / Artouch system



4.2 FAQ

Q: How is the improved material structure of Aevra achieved and what benefits does it have?

A: A dual-core powder engineering system from Sinocera that ensures homogeneous particle distribution and controlled granule morphology — leading to Aevra zirconia with unmatched optical and mechanical consistency.

Q: For which processing techniques is Aevra material suitable?

A: Aevra is suitable for all processing techniques including staining, cut-back, micro-layering techniques.

Q: How do I recognize on which side the occlusal/incisal area is located in an Aevra disc?

A: The imprinted side of the disc is the incisal/occlusal area.

Q: Why is it advisable to wear gloves during the processing before the material is sintered?

A: Contaminated hands can leave a grease film or dirt on the restoration, and these may lead to an undesirable shade on the restoration.

Q: Does the surface of a monolithic restoration have to be polished before being inserted in the patient's mouth?

A: If occlusal contacts have been adjusted via grinding in the patient's mouth, polishing is imperative. Failure to observe this instruction may cause higher abrasion to the antagonist.

Q: Can zirconium oxide restoration be etched as an alternative to sandblasting before cementation?

A: No, zirconium oxide restorations cannot be etched. The cementation surfaces are recommended to be sandblasted.

UPCERA AROUND THE WORLD



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Please note that the technical guide cannot replace the product IFU. Please follow the product instructions for proper usage.

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