

DIRECTA **ceramir®** **CAD/CAM BLOCKS**

Frequently Asked Questions

1. WHAT IS CERAMIR T-BLOCK?

Ceramir T-BLOCK or Translucent Blocks are highly translucent CAD/CAM BLOCKs that mimic the natural enamel in optical properties. Restorations milled from these blocks have a more life-like appearance resembling the natural tooth. The luminance of the edelweiss T-BLOCK matches that of the natural enamel blending the final restoration to its surrounding giving an excellent bio-harmonious and highly esthetic outcome.

For a highly aesthetic case the Ceramir T-block will be suited as the underlying dentin shade and together with a shaded composite cement will make it possible to adapt the colour of the final restoration to perfection.

2. WHAT IS CERAMIR C-BLOCK?

Ceramir C-BLOCK or Chroma Blocks are highly chromatic CAD/CAM BLOCKs that correspond to shades A0, A1, A2 and A3. These blocks have higher chroma values and can easily blend with their surroundings when the restoration is correctly matched.

3. WHAT IS CERAMIR i- BLOCK?

Ceramir i-BLOCKS are CAD/CAM BLOCKs used for precise and reliable fabrication of implant-supported restorations. Precision manufacturing processes guarantee the new Ceramir i-BLOCKS fit precisely onto Titanium Base (Ti-Base or similar attachments) so that the final restoration can be placed in the same appointment, reducing treatment sessions and improving the patient experience.

4. WHEN SHOULD THE T-BLOCK BE USED?

For a highly esthetic case, the Ceramir T-BLOCK will be best suited. The T-BLOCKS are highly translucent blocks that mimic the natural enamel in optical properties and tend to adapt better to their surroundings due to increased light translucence. This leads to a better blend-in effect, which is desirable for a highly esthetic outcome.

The underlying dentin shade can then be duplicated using various resin composite/cement shades. The final shade matching of the restoration can be adjusted by using the appropriate composite shades. This can be further individualized by varying the composite shades according to cervical and incisal color variations in the natural tooth.

5. WHEN SHOULD THE C-BLOCK BE USED?

The C-BLOCKS are high chromacity blocks and correspond to Shades A0, A1, A2 and A3. For simplicity of use these blocks can be easily matched to the tooth shade. They are better suited for covering discolorations and ideal for elderly patients with a reduced enamel content. Both the T-BLOCKS and the C-BLOCKS can be individualized for optimum esthetics using internal or external characterizations.

6. WHEN SHOULD THE I-BLOCK BE USED?

The Ceramir i-BLOCK can be easily integrated into your practice's digital workflow. Our new Ceramir i-BLOCKS fit perfectly with TiBase solution (or equivalent). Precision manufacturing processes ensures a precise fit. It can be used as screw retained single abutment crowns as well as for mesostructured and crown.

7. WHAT IS CERAMIR I-BLOCK COMPATIBLE WITH?

It is compatible with systems of the following providers via the TiBase interface: Alphatec, BIOMET 3i, Dentsply Sirona, Nobel Biocare, Straumann and many others.

8. WHAT DOES A SINGLE GLASS PHASE MEAN?

Ceramir dentistry presents a breakthrough in the fabrication of CAD/CAM materials. Through a process of laser sintering and vitrification, Ceramir dentistry has developed state of the art CAD/CAM BLOCKs. Through this process, the glass particles are fused, and the finished product consists of a single hybrid glass-phase embedded in a resin matrix. As a result, the esthetic properties are like that of feldspathic glass ceramic without having the brittleness of pure ceramics.

9. WHAT IS THE IMPORTANCE OF A SINGLE GLASS PHASE?

The glassy matrix defines the esthetic properties of the material. The higher the glass content, the greater the translucency is, which will work best to imitate the properties of enamel and dentin. This glassy matrix permits the diffusion of light for translucency. The glass component also allows for adhesive bonding to tooth structure, which is critical to the restoration's long-term retention and durability.

10. DOES THE GLASSY PHASE MAKE THE CERAMIR BLOCK MORE BRITTLE?

No, through a controlled manufacturing process, Ceramir dentistry has retained a small portion of resin component that provides elasticity to the block. The modulus of elasticity of the block is 20 GPa which is very similar to that of dentin. In this way the Ceramir BLOCK has the esthetics of that of feldspathic glass without having the brittleness of pure ceramics. It maintains its flexibility similar to dentin giving it the best of both worlds, flexibility and esthetics in one block

11. HOW STRONG IS THE CERAMIR CAD/CAM BLOCKS?

Restorations milled from Ceramir CAD/CAM BLOCKs offer exceptional mechanical properties. High flexural strength provides for resistant restorations. The modulus of elasticity, which is similar to dentin (20 GPa), allows for a shock-absorbing effect to reduce tension during masticatory load and provides the patient with a pleasant bite feeling. In addition, Ceramir CAD/CAM restorations are highly abrasion resistant. At the same time the wear-resistance of the material proves to be especially kinder on the antagonist teeth causing no abrasion to the opposing enamel in comparison to other ceramic restorations.

Flexural strength MPa Biaxial	Flexural strength MPa Three point	Compressive Strength MPa	Flexural Modulus e-modulus	Surface hardness
320 MPa	200 MPa	550 MPa	20 GPa	100 HV

12. WHICH CLINICAL SITUATIONS IS CERAMIR CAD/CAM BLOCKS INDICATED FOR?

- Anterior and posterior single crowns
- Partial crowns
- Implant supported single crowns.
- Inlays and Onlays
- Veneers

13. WHAT ARE THE ADVANTAGES OF CERAMIR CAD/CAM BLOCKS?

- Esthetically superior, lifelike appearance: Combines the esthetics of feldspathic glass and the strength of ceramics in a single hybrid glass for natural translucency and high strength.
- Flexible clinical color match: Ceramir BLOCKs are translucent to mimic the natural enamel. The final color match is adjusted through use of corresponding composite cement shade. Ceramir BLOCKs are also available in Vita shades A0, A1, A2, A3.
- Custom internal characterizations according to patients needs with Ceramir Opaque White, EFFECT SHADES Ice and Blue.
- Ultrafine glass microstructure combines high strength with permanent high gloss.
- Proven high compressive strength.
- Biocompatible. Zinc oxide nanoparticles provide built-in antibacterial properties preventing any plaque accumulation on the surface of the material. Fluoride enables possible hydroxyapatite regeneration if required. The addition of ZnO and F⁻ is unique to the Ceramir CAD/CAM BLOCKs.
- Simple cementation procedure with proven perfect seal and absence of microleakage.
- Shorter milling times, no additional firing required, simply polish and cement.
- Cost saving. Faster processing time reduces chairside times.
- Kinder to the milling burs. Because of the higher pure glass content and resin portion together with the absence of any ceramic component the milling process is much shorter, and the milling burs tend to last longer. It is possible to be able to mill more restorations from a single milling bur.

14. HOW DO CERAMIR CAD/CAM BLOCKS DIFFER FROM OTHER BLOCKS ON THE MARKET?

In the market today, CAD/CAM BLOCKs range from mainly glass component blocks like feldspathic glass which is highly esthetic but brittle to high strength zirconia blocks that lack esthetics. Composite CAD/CAM BLOCKs on the other hand lack both strength and esthetics but have the flexibility of dentin. In contrast to other CAD/CAM materials, Ceramir CAD/CAM BLOCKs are made up of a single glass phase for excellent esthetics and a little resin component for an ideal modulus of elasticity. The modulus of elasticity, which is similar to dentin, allows for a shock-absorbing effect to reduce tension during masticatory load and provides the patient with a pleasant bite feeling. It is a block for all occasions and has components that give the block the best of both worlds, high esthetics without the brittleness of pure glass matrix.

15. WHAT PREPARATION GUIDELINES NEED TO BE OBSERVED?

Minimum thickness at walls should be at least 0.5 mm. For veneers, minimal cervical thickness of at least 0.3 mm. Prepare margins with chamfer or rounded shoulder preparation. For inlays and onlays, all internal edges and angles should be rounded. Avoid having margins in direct occlusal contact with the opposing tooth. The minimum thickness of the restoration should be 1.5 mm in pit and fissure areas and 1.5 mm in cusp areas.

16. WHAT KIND OF BURS ARE RECOMMENDED FOR MILLING THE CERAMIR CAD/ CAM BLOCKS?

Diamond burs are recommended during the milling process. To select the correct burs, it is suggested to refer to the device manufacturer's recommendation

17. SHOULD CERAMIR CAD/ CAM BLOCKS BE MILLED WET OR DRY?

Ceramir recommends using a wet grinding/milling process to achieve best possible results.

18. WHICH HARDWARE AND SOFTWARE CONDITIONS ARE REQUIRED FOR PROCESSING CERAMIR CAD / CAM BLOCKS?

Ceramir CAD/CAM is available as a block 12 x 14 x 18 mm and is compatible with most CAD/CAM milling devices. The block size and milling parameters are standard parameters and are available in all software settings of the CAD/CAM systems. Select a program used for hybrid blocks.

19. HOW SHALL THE MILLED RESTORATION BE FINISHED AND POLISHED?

All excessive cement must be removed. Occlusal contacts can be adjusted with a suitable grinding instrument, also interproximal areas need to be cleared of any excess cement using a finishing & polishing strip- we recommend you use the ContacEZ finishing strips. Final polishing of the restoration is achieved using a cotton/linen buff for a high gloss finish.

20. WHICH CEMENT SHOULD BE USED FOR CEMENTATION?

We recommend that you use an adhesive resin based shaded composite or composite cement for the cementation. Follow the instructions for use for the cement manufacturer.
For more detailed information see Ceramir CAD/CAM BLOCKS IFU.

21. HOW MUST THE CERAMIR CAD/CAM RESTORATION BE PRETREATED?

After the try on of the restoration is confirmed, the restoration must be treated with a hydrophobic primer prior to cementation. We recommend that you use Edelweiss Veneer bond. Other bonding materials can be used, for more alternatives, brands- see Ceramir CAD/CAM BLOCKS IFU.

Apply a thin layer of or Edelweiss Veneer bond onto the surface of the restoration, rub the surface for 20 seconds. Gently air-dry the surface with an oil free air.

22. HOW SHOULD THE TOOTH SURFACE BE PRETREATED PRIOR TO CEMENTATION?

Prepare the tooth using an adhesive composite bonding- follow the instructions for use from the manufacturer.

23. CAN CERAMIR CAD/CAM RESTORATIONS BE REPAIRED OR MODIFIED?

Yes, the Ceramir CAD/CAM restorations can be both modified and repaired without affecting the properties of the material. If a reparation inside the mouth is necessary, the surface of the restoration shall be roughened with a diamond bur. Step two, apply a hydrophobic bonding to the surface of the restoration- we recommend the Edelweiss Veneer bond. Also, other bonding materials can be used- for more detailed information see the IFU for Ceramir CAD CAM BLOCKS. Always follow the IFU from the manufacturer of the bonding material.

Apply a resin-based light cured composite to the area that needs to be repaired.

Final polishing of the composite is done by following the Instructions for use from the manufacturer.

24. HOW SHOULD CERAMIR BLOCKS BE STORED?

It is recommended for optimal performance, to be stored at room temperature away from direct sunlight and high humidity.