

DD Bio ZX²

translucent

Valid for product version: DD Bio ZX²

Valid for: white, translucent and coloured, translucent blanks

Milling blanks. Pre-sintered, yttrium stabilized, zirconium (3Y-TZP ZrO₂).

The manufacturer maintains a quality management system:
Applied harmonized standards:

DIN EN ISO 13485
DIN EN ISO 6872 and
DIN EN 843-1

CE 0482

Chemical composition:

ZrO ₂ +HfO ₂ +Y ₂ O ₃	> 99%
Al ₂ O ₃	< 0,5 %
other oxides	< 0,25 %



Physical properties:

Properties	Unit	Value
Density (after sintering)	g/cm ³	> 6,0
CEK (25-500 °C)	10 ⁻⁶ K ⁻¹	10,5
Fracture toughness	MPa*m ^{1/2}	> 12,0
Bending strength (4-point)	MPa	1200 (+/-200)
E - Modul	GPa	> 200
Open porosity	%	0
Vickers hardness	HV5	> 1200


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1. Intendend use

DD Bio ZX² are milling blanks from which crowns, bridges, abutments, primary parts or bar constructions are fabricated to be used as dental prostheses. Because of the increased translucency, the material is particularly suitable for production of full contour restorations with or without incisal cutback.

2. Safety information

The blanks are manufactured and tested to highest quality standards. To ensure that this level of quality is passed on to the patient, it is crucial that all specifications and instructions are observed. Please read these instructions thoroughly before using the product. Improper use of the product and failure to observe the information provided may affect quality and reduce the lifetime of the dental prosthesis.

 Zirconia blanks have properties that render them non-harmful. Milling or polishing dust particles produced during processing may irritate the eyes, mucous membranes and skin, and injure the lungs. Therefore, make sure that the dust extractor at your milling machine is functioning properly. Wear safety goggles and a dust mask.

3. General information on product handling

Blanks are supplied in a pre-sintered condition. Consequently, they must be handled with care.

Please check immediately on receipt of the shipment:

- the integrity of packaging
- damage of the products (no visible cracks, no discolouration)
- Delivery documents and labelling

Storage:

Blanks should be stored in their original packaging.

Make sure that the blanks

- are not exposed to impact and strong vibration
- do not get into contact with liquids
- do not get contaminated
- are stored between 5 °C and 50 °C.

Product handling:

Only trained staff should be allowed to handle this product. In addition, it should be ensured that during processing

- dust formation and dust deposits are avoided
- a dequate ventilation and proper dust extraction is provided.

4. Designing:

During the construction of crown and bridge frameworks as well as primary parts, the following parameters should not be undercut:

Indication	Scheme	Wall thickness DD Bio ZX ² [mm]	Connector cross section Ø [mm ²]
Single crown substructure	X	0,4	-
Telescope	X	0,5	-
Bridge substructure Anterior Posterior	XOX	0,5 0,5	>7 >9
Bridge substructure Anterior Posterior	XOOX	0,6 0,6	>9 >12

Legend: X = abutment tooth O = pontic

Please note: Depending the construction, the cross section connectors might need to be of larger dimensions. Posterior bridges with two intermediate elements with up to 18 mm² cross section connectors guarantee maximum product safety.


It should be attempted to create the **largest possible cross section** while designing the connectors. For stability, **the height of the connector** is more important than its width. Doubling the width results in doubling of the strength, while doubling the height results in an 8-fold increase in strength. Therefore, try to achieve oval-shaped connector cross sections.

It should be aimed to construct restorations that support the veneering ceramic at the cusps to enable coating with almost homogenous

layer thickness. **Sharp edges at the framework should generally be avoided.**

5. Milling of the blanks

For processing blanks, the ceramic-specific processing parameters must be used.

 After milling, the framework has to be inspected and meet the following criteria:

- no discolorations
- no material eruptions
- no cracks

If any defect is identified, the framework must not be used for fabrication of dental prostheses.

6. Colouring / Sintering

To color the milled constructions before sintering we recommend to use our optimized DD Bio ZX² paint liquids.

Only high-temperature furnaces certified for this purpose should be used.

Please observe the information/parameters provided in the manuals of the respective furnace manufacturer.



Please note the separate instructions:

“Sintering instructions DD Bio Z-ZX²“

“Instruction manual_DD Bio ZX² paint liquid”

7. Finishing of sintered objects

Do not blast: Blasting may result in undesirable zirconia phase transformation.

Avoid grinding corrections: After sintering frames should only be processed further if absolutely necessary.. Only water-cooled diamond tools should be used. Otherwise, there is a risk that excessive local heat may cause cracks in the material.

General rules:

- The thinner the wall, the more care must be taken.
- Work with little pressure.
- Use only diamond tools which are in good condition. Poor cutting performance of the tool creates heat. Ideally, tools with grain sizes above 100 µm should be used – grain sizes smaller than 100 µm should only be used for the fine processing of surfaces and careful finishing of edges.
- grinding or cutting should be avoided at the interdental connecting points.
- Avoid sharp edges and try to smooth them out.
- Areas exposed to tensile loading, i.e. primarily the connectors in bridge constructions, should not be grinded.

8. Contraindications

- para-functional habits (e.g. bruxism), with the exception of full contour restorations without ceramic layering
- not enough space available
- inadequate preparation
- Known intolerance to the constituents
- insufficient oral hygiene

Chamfer or step preparation is always required. Tangential preparation is contraindicated.

9. Anchoring

Conventional cementing: with zinc- oxide phosphate cement or glass ionomer luting cement (p.e. GC Fuji Plus). Take care to ensure sufficient retention and an appropriate minimum stump height of 3mm. Suitable are p.e. also the adhesive composites Panavia® 21 or Panavia® F 2,0.

Our products are subject to ongoing development. We therefore reserve the right to make changes in handling or composition.

The current version of the working instruction you will find on:
www.dentaldirekt.de