

# Instructions for use & technical data

## Arum Zirconia Blank



### Specifications

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### Manufacturer:

Whitepeaks Dental Solutions GmbH & Co. KG  
Langeheide 9 - 45239 Essen - Germany

### Product / Product type:

**Arum** (presintered Y-TZP zirconia-blanks) for the production of dental prostheses:  
crowns, bridges up to 16 units with max. 2 pontics or cantilevered pontics between 2 crown teeth in the posterior area, with max. 4 pontics or cantilevered pontics between 2 crown teeth in the anterior area as well as inlays, onlays, primary telescopes, bar constructions

### Product form:

Discs / variety of block & disc sizes, some with holder

### Material Type:

ZrO<sub>2</sub> (Yttriumoxid-stabilised, tetragonal zirconium) / Typ 2, class 6

### CE-mark:

CE 0483 (medical device class IIa)

### User group:

instructed user to produce zirconium constructions with manual or CAD-CAM milling machines.

### Dental Ceramics:

all ZrO<sub>2</sub>-ceramics

### Specifications (standard after final sintering)

	Zr / Zr-i	Zr / Zr-i A1 – D4	Smile (up to 3 elements in the anterior or posterior area)	Smile A1 – D4 / Symphony (up to 3 elements in the anterior or posterior area)
ZrO <sub>2</sub> :	Balance	93,99 – 94,89 %	Balance	Balance
Y <sub>2</sub> O <sub>3</sub> :	4,95 – 5,35 %	4,95 – 5,35 %	9,32 %	8,48 % – 9,21%
Al <sub>2</sub> O <sub>3</sub> :	0,15 – 0,35 %	0,15 – 0,35 %	0,05 %	0,05%
Iron hyd.	0 – 0,01 %	0,02 – 0,25 %	0 – 0,002 %	0,075% – 0,2%
ER <sub>3</sub> O <sub>3</sub>	0 %	0 %	0 %	0 – 0,5%
CO <sub>3</sub> O <sub>4</sub>	0 %	0 %	0 %	0 – 0,005%
Other	0 – 0,06 %	0 – 0,06 %	0 – 0,02 %	0 – 0,001%
Density g / cm <sup>3</sup>	6,05	6,05	6,046	6,046
Flexural strength	1400 MPa	1250 - 1400 MPa	609 MPa	609 MPa

	Zr-i Monolith HT	Zr-i Monolith A1 – D4 / Symphony	Pretty
ZrO <sub>2</sub> :	Balance	94,02 – 94,75 %	Balance
Y <sub>2</sub> O <sub>3</sub> :	5,15 – 5,55 %	4,88 – 5,55 %	4,95 – 5,35 %
Al <sub>2</sub> O <sub>3</sub> :	0,03 – 0,07 %	0,03 – 0,07 %	max. 0,1 %
Iron hyd.	0 – 0,01 %	0 – 0,06 %	max. 0,01 %
ER <sub>3</sub> O <sub>3</sub>	0 %	0- 0,05 %	0 %
CO <sub>3</sub> O <sub>4</sub>	0 %	0 – 0,0016 %	0 %
Other	0 – 0,02 %	0 – 0,02 %	0 – 0,06 %
Density g / cm <sup>3</sup>	6,09	6,09	6,05
Flexural strength	1100 MPa	1100 - 1117 MPa	1100 MPa

### Specification:

Arum blanks are made from biocompatible, tetragonal and polycrystalline zirconiumdioxide. The yttrium oxide stabilizing protects the material against cracks and increases the tensile and compressive strength. The special grain size allocation inside the material and the added aluminium oxide also result in extra strength during milling and subsequently in clinical use.

The outstanding mechanical characteristics, excellent chemical durability and the unbeaten biocompatibility combined with the translucent colour predestine Arum as the ideal material for use in dental milling systems. Partial the blocks are delivered with connected holder/frame.

### Instructions for use

The Arum blanks are milled into the required shape by CAD CAM systems or by manual methods. The shrinkage rate or expansion factor is given according to the milling system used. Shape the framework if necessary to the required shape.

### Sintering

To archive the maximum translucency of the zirconium material, do not use a speed program!

	Speed Program	Normal Program	Slow Program	Translucency Program
Heating rate	50°C per minute to 1100°C	10°C per minute to 950°C	5°C per minute to 950°C	5°C per minute to 950°C
Holding time	None	none	none	none
Heating rate	20°C per minute to 1500°C	6°C per minute to 1500°C	2°C per minute to 1500°C	2°C per minute to final temperature
Holding time	at final temperature 30min	at final temperature 90min	at final temperature 120min	at final temperature 120min
Final temperature	1500°C	1500°C	1500°C	1500°C - 1630°C
Cooling	unregulated in closed furnace	unregulated in closed furnace	unregulated in closed furnace	unregulated in closed furnace

### Finishing

After the final sintering the construction can be fitted to the model by a wet grinding process with diamond-coated burs if necessary. Sinter diamonds, corundum stones or hart metal milling burs must not be used. Overheating has to be avoided.

### Porcelain bonding

All known brands of zirconium veneering ceramics can be used as long as their thermal expansion coefficient is between 10 and 10-10,6<sup>-6</sup>/K. We generally advise you to: Clean the framework after final shaping with hot steam. Cover the zirconium frame completely with a layer of ceramic. Follow the instruction for use for the veneering material of your choice.

### Storage conditions

Dry storage. Protect from moisture / humidity.

## Lifetime Warranty by Manufacturer



### Guarantee

#### § 1 Relation to Statutory Warranty Provisions and to National Law

In case of a defect already existing by the time of delivery the customer has statutory rights according to §§ 437 et seq. German Civil Code (BGB). These statutory warranties shall not be limited by this guarantee but will remain valid unrestrictedly, no matter whether the guarantee case occurs or the customer makes use of the guarantee. Thus, the guarantee represents an additional performance promise that exceeds the statutory provisions but does not replace them. The guarantee conditions by Whitepeaks Dental Solutions GmbH & Co. KG are applicable as far as the respective national law with regard to the terms of the guarantee does not conflict.

#### § 2 Guaranteed Performance

This guarantee is only applicable to the following zirconium products: Copran Zirconium Group  
In case of guarantee customer will receive replacement of enough material (Zirconium/Zirconium blanks) to reproduce the defect construction.

#### § 3 Guarantee Period

Whitepeaks Dental Solutions GmbH & Co. KG warrants customer a lifelong guarantee according to the guarantee conditions below.

#### § 4 Guarantee Conditions

Whitepeaks Dental Solutions GmbH & Co. KG only grants the guarantee provided that customer attains to the following conditions:

- The wall thickness must not fall below 0,5mm for anterior teeth and 0,6mm for posterior teeth.
- The joint area between interconnected anterior teeth must not fall below 8 square millimeters.
- The joint area between an anterior tooth and a pontic must not fall below 10 square millimeters.
- The joint area between two interconnected posterior teeth must not fall below 10 square millimeters.
- The joint area between two interconnected anterior pontics must not fall below 10 square millimeters.
- The joint area between a posterior tooth and a pontic or two interconnected posterior pontics must not fall below 13 square millimeters.
- The cross section area for a bar construction must not fall below 15 square millimeters. Extension bars are not covered by this warranty.

These figures apply for the dimensions after the final sintering procedure.

The instruction for use for our materials, which customer receives with product or can download at our website <http://www.white-peaks-dental.com/downloads.php>, has to be followed and must only be colored with our zirconium coloring liquid Copran Color Group.

#### § 5 Additional Terms

Any claims derived from this guarantee terms will prescribe one year after guarantee case. Further guarantee claims, especially for damage and loss, no matter of what sort, that occurs due to guarantee object or through its use, (especially consequential damages) are excluded.

#### § 6 Claims

In case of guarantee, the faulty part has to be sent to Whitepeaks Dental Solutions GmbH & Co. KG for assessment. Customer has to provide Whitepeaks Dental Solutions GmbH & Co. KG with the lot number the part was milled from and the number of the purchase invoice.

#### § 7 Guarantor

Guarantor is  
Whitepeaks Dental Solutions GmbH & Co. KG  
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