









VITA

VITA YZ[®] ZIRCONIA

The basic steps for indication, preparation, bonding and polishing

VITA YZ[®] ZIRCONIA – Overview

Product	Application areas	Technical values	
<p>VITA YZ[®] XT</p> 	<p>Extra translucent ZrO₂ blanks</p> <p>Partially veneered and monolithic restorations</p> <ul style="list-style-type: none"> • White • Color (monochromatic, tooth shades) • Multicolor (polychromatic, tooth shades) 	<p>Yttrium content (Y₂O₃) 5 mol%</p> <p>3-point flexural strength 850 MPa</p> <p>Translucency 50 %</p>	
<p>VITA YZ[®] ST</p> 	<p>Super translucent ZrO₂ blanks</p> <p>Partially veneered and monolithic restorations</p> <ul style="list-style-type: none"> • White • Color (monochromatic, tooth shades) • Multicolor (polychromatic, tooth shades) 	<p>Yttrium content (Y₂O₃) 4 mol%</p> <p>3-point flexural strength 1200 MPa</p> <p>Translucency 46 %</p>	
<p>VITA YZ[®] T / HT</p> 	<p>Translucent and high-translucent ZrO₂ blanks</p> <p>Fully veneered restorations</p> <ul style="list-style-type: none"> • White • Color (monochromatic, tooth shades) 	<p>Yttrium content (Y₂O₃) 3 mol%</p> <p>3-point flexural strength 1350 MPa</p> <p>Translucency 32 % / 42 %</p>	

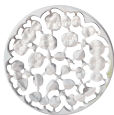
Benefits

VITA YZ ZIRCONIA offers remarkable strength and exceptional esthetics for reliable restorations. VITA YZ materials enable the precise and accurate shade production of fully / partially veneered and monolithic restorations. Discover the advantages.



- High shade accuracy and vivid chroma for exceptional esthetics ¹⁻⁴
- Proven long-term clinical stability and biocompatibility ⁵⁻⁷
- High strength for the reliable restoration of teeth and implants ⁸⁻¹⁰
- Easy and reliable polishing ¹¹
- Tested material structure for reliable processing, veneering and integration ¹²⁻¹⁸
- Precise, outstanding fit ^{19, 20}
- Restoration that preserves the tooth structure, thanks to reduced wall thickness ²¹⁻²³

Workflow



Dental technical workflow

Shade determination

CAD/CAM
process

Staining
technique

Sintering

Characteri-
zation

Polishing

Bonding

Our product recommendations

Digital shade determination

- VITA Easyshade V
- VITA Easyshade LITE

Visual shade determination

- VITA classical A1-D4 shade guide
- VITA Linearguide 3D-MASTER
- VITA Toothguide 3D-MASTER

Polishing instruments

- VITA CERAMICS Polishing Set clinical
- VITA CERAMICS Polishing Set technical

Polishing paste

- VITA Polish Cera

Self-adhesive

- VITA ADIVA SELF-ADHESIVE
- RelyX Unicem 2 (3M ESPE)

Fully adhesive

- VITA ADIVA FULL-ADHESIVE
- VITA ADIVA IA-CEM, ultra opaque
- Multilink Automix (Ivoclar Vivadent)
- Panavia V5 (Kuraray)



Glass ionomers

- Ketac CEM (3M ESPE)
- Vivaglass CEM (Ivoclar Vivadent)
- GC Fuji I (GC Dental)

Recommended indications*, taking into account esthetic requirements

Indication	T Translucent	HT High Translucent	ST Super Translucent	XT Extra Translucent
	●	●	×	×
	—	○	●	●
	—	○	●	●
	—	○	●	●
	—	○	●	●
	—	○	●	×
	○	●	●	●
	○	●	●	●
	○	●	●	×
	●	●	○	○
	●	●	○	○
	●	●	○	×
	●	●	○	○
	●	●	○	○
	●	●	○	×

- recommended
- possible
- ×
- not recommended

-  monolithic anterior restoration
-  fully/partially veneered anterior restoration

-  monolithic posterior restoration
-  fully/partially veneered posterior restoration

* VITA YZ T, HT and ST are approved for reconstructions on natural tooth stumps and implants. VITA YZ XT reconstructions are approved only for restorations on natural tooth stumps. The material-specific manufacturer's information on minimal wall thicknesses and connector cross-sections must be observed.

Preparation guidelines VITA YZ XT

To ensure clinical success of restorations made from VITA YZ XT, the following minimum layer thicknesses must be adhered to:

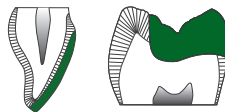
Anterior / posterior crowns (fully anatomical or substructure)

Incisal:	0.8 mm
Occlusal:	0.8 mm
Circumferential:	0.7 mm



Inlays / Onlays / Veneers

Incisal:	0.8 mm
Occlusal:	0.8 mm
Circumferential:	0.7 mm



Fully anatomical anterior bridges and substructures with one pontic

Incisal:	1.0 mm
Circumferential:	0.8 mm
Connector cross-sections:	9.0 mm ²



Fully anatomical posterior bridges and substructures with one pontic

Occlusal:	1.2 mm
Circumferential:	1.0 mm
Connector cross-sections:	12.0 mm ²



Preparation guidelines VITA YZ ST

To ensure clinical success of restorations made from VITA YZ ST, the following minimum layer thicknesses must be adhered to:

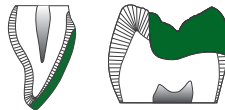
Anterior / posterior crowns (fully anatomical or substructure)

Incisal:	0.6 mm
Occlusal:	0.6 mm
Circumferential:	0.5 mm



Inlays / Onlays / Veneers

Incisal:	0.6 mm
Occlusal:	0.6 mm
Circumferential:	0.5 mm



Fully anatomical anterior bridges and substructures with one pontic

Incisal:	0.6 mm
Circumferential:	0.6 mm
Connector cross-sections:	9.0 mm ²



Fully anatomical posterior bridges and substructures with one pontic

Occlusal:	0.7 mm
Circumferential:	0.6 mm
Connector cross-sections:	12.0 mm ²



Fully anatomical anterior bridges and substructures with two pontics

Incisal:	0.8 mm
Circumferential:	0.6 mm
Connector cross-sections:	12.0 mm ²



Fully anatomical multi-unit posterior bridges and substructures with two pontics

Occlusal:	0.8 mm
Circumferential:	0.6 mm
Connector cross-sections:	15.0 mm ²



Preparation guidelines VITA YZ T / HT

To ensure clinical success of restorations made from VITA YZ T / HT, the following minimum layer thicknesses must be adhered to:

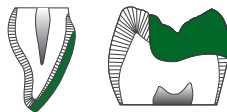
Anterior / posterior crowns (fully anatomical or substructure)

Incisal:	0.5 mm
Occlusal:	0.5 mm
Circumferential:	0.4 mm



Inlays / Onlays / Veneers

Incisal:	0.5 mm
Occlusal:	0.5 mm
Circumferential:	0.4 mm



Fully anatomical anterior bridges and substructures with one pontic

Incisal:	0.5 mm
Circumferential:	0.5 mm
Connector cross-sections:	7.0 mm ²



Fully anatomical posterior bridges and substructures with one pontic

Occlusal:	0.6 mm
Circumferential:	0.5 mm
Connector cross-sections:	9.0 mm ²



Fully anatomical anterior bridges and substructures with two pontics

Incisal:	0.6 mm
Circumferential:	0.5 mm
Connector cross-sections:	9.0 mm ²



Fully anatomical posterior bridges and substructures with two pontics

Occlusal:	0.7 mm
Circumferential:	0.6 mm
Connector cross-sections:	12.0 mm ²



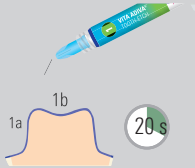
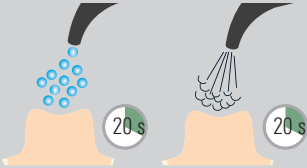
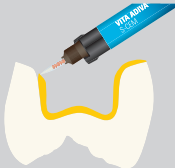
Polishing



Polishing of the occlusal surface, especially of the areas that are in direct contact with the antagonist, is particularly important for monolithic restorations.

Preparation	Prepolishing	High luster finish	Final high-gloss polishing
<ul style="list-style-type: none">Grind zirconia wet	<p>Speed: 7,000 - 12,000 rpm</p> <p>diamond-coated polishing instruments, pink</p>	<p>Speed: 4,000 - 8,000 rpm</p> <p>diamond-coated polishing instruments, grey</p>	<p>Speed: 5,000 - 10,000 rpm</p> <p>Dry cotton buff. Note: Maintain recommended speed and work with moderate contact pressure to avoid excessive heat development.</p> <p>VITA Polish Cera: Apply polishing paste using a soft goat hair or bison polishing brush. It is very suitable in conjunction with the polishing instruments of the VITA CERAMICS Polishing Sets clinical and technical.</p>

Self-adhesive bonding*

Etching	Clean spraying/drying	Application of bonding composite Light curing
		
<p>Etch the tooth substance with 37% phosphoric acid gel, e.g., VITA ADIVA TOOTH-ETCH, for 20 sec.</p>		<p>Bonding, e.g., with self-adhesive composite VITA ADIVA S-CEM.</p>

*Self-adhesive bonding is the standard method for zirconia.

Full-adhesive bonding is also possible according to your personal preference.

More information on bonding of VITA YZ restorations can be found at www.vita-zahnfabrik.com/adiva

References

- ¹ Devigus A, Lombardi G. Shading Vita YZ substructures: influence on value and chroma, part I. *Int J Comput Dent* 2004 Jul; 7: 293-301.
- ² Sen N, Isler S. Microstructural, physical, and optical characterization of high-translucency zirconia ceramics. *J Prosthet Dent* 2020 May; 123: 761-768.
- ³ Manziuc MM, Gasparik C, Burde AV, Dudea D. Color and masking properties of translucent monolithic zirconia before and after glazing. *J Prosthodont Res* 2021 Aug 21; 65(3): 303-310.
- ⁴ Devigus A, Lombardi G. Shading Vita In-ceram YZ substructures: influence on value and chroma, part II. *Int J Comput Dent* 2004 Oct; 7(4): 379-88.
- ⁵ Chaar MS, Kern M. Five-year clinical outcome of posterior zirconia ceramic inlay-retained FDPs with a modified design. *J Dent* 2015 Dec; 43(12): 1411-5.
- ⁶ Rizo-Gorrita M, Luna-Oliva I, Serrera-Figallo MÁ, Gutiérrez-Pérez JL, Torres-Lagares D. Comparison of Cytomorphometry and Early Cell Response of Human Gingival Fibroblast (HGFs) between Zirconium and New Zirconia-Reinforced Lithium Silicate Ceramics (ZLS). *Int J Mol Sci* 2018 Sep 11; 19: 2718.
- ⁷ Brizuela-Velasco A, Chento-Valiente Y, Chávarri-Prado D, Pérez-Pevida E, Diéguez-Pereira M. Zirconia and radioactivity: An in vitro study to establish the presence of radionuclides in dental zirconia. *J Prosthet Dent* 2021 Jul; 126(1): 115-118.
- ⁸ Spitznagel FA, Röhrig S, Langner R, Gierthmuehlen PC. Failure Load and Fatigue Behavior of Monolithic Translucent Zirconia, PICN and Rapid-Layer Posterior Single Crowns on Zirconia Implants. *Materials (Basel)* 2021 Apr 15; 14: 1990.
- ⁹ Rohr N, Balmer M, Müller JA, Märtin S, Fischer J. Chewing simulation of zirconia implant supported restorations. *J Prosthodont Res* 2019 Jul; 63: 361-367.
- ¹⁰ Brizuela-Velasco A, Diéguez-Pereira M, Álvarez-Arenal Á, Chávarri-Prado D, Solaberrieta E, Fernández-González FJ, Chento-Valiente Y, Santama-ría-Arrieta G. Fracture Resistance of Monolithic High Translucency Zirconia Implant-Supported Crowns. *Implant Dent* 2016 Oct; 25: 624-8.
- ¹¹ Chun EP, Anami LC, Bonfante EA, Bottino MA. Microstructural analysis and reliability of monolithic zirconia after simulated adjustment protocols. *Dent Mater* 2017 Aug; 33(8): 934-943.
- ¹² Wertz M, Hoelzig H, Kloess G, Hahnel S, Koenig A. Influence of Manufacturing Regimes on the Phase Transformation of Dental Zirconia. *Materials (Basel)*. 2021 Aug 31; 14(17): 4980.

References

- ¹³ Guilardi LF, Pereira GKR, Gündel A, Rippe MP, Valandro LF. Surface micro-morphology, phase transformation, and mechanical reliability of ground and aged monolithic zirconia ceramic. *J Mech Behav Biomed Mater* 2017 Jan; 65: 849-856.
- ¹⁴ Coldea A, Fischer J, Swain MV, Thiel N. Damage tolerance of indirect restorative materials (including PICN) after simulated bur adjustments. *Mater* 2015 Jun; 31(6): 684-94.
- ¹⁵ Kohorst P, Butzheinen LO, Dittmer MP, Heuer W, Borchers L, Stiesch M. Influence of preliminary damage on the load-bearing capacity of zirconia fixed dental prostheses. *J Prosthodont* 2010 Dec; 19(8): 606-13.
- ¹⁶ Figueiredo VMG, Pereira SMB, Bressiani E, Valera MC, Bottino MA, Zhang Y, Melo RM. Effects of porcelain thickness on the flexural strength and crack propagation in a bilayered zirconia system. *J Appl Oral Sci* 2017 Sep-Oct; 25: 566-574.
- ¹⁷ Tholey MJ, Swain MV, Thiel N. Thermal gradients and residual stresses in veneered Y-TZP frameworks. *Dent Mater* 2011 Nov; 27: 1102-10.
- ¹⁸ Şanlı S, Çömlekoğlu MD, Çömlekoğlu E, Sonugelen M, Pamir T, Darvell BW. Influence of surface treatment on the resin-bonding of zirconia. *Mater* 2015 Jun; 31: 657-68.
- ¹⁹ Att W, Komine F, Gerds T, Strub JR. Marginal adaptation of three different zirconium dioxide three-unit fixed dental prostheses. *J Prosthet Dent* 2009 Apr; 101(4): 239-47.
- ²⁰ Kohorst P, Brinkmann H, Dittmer MP, Borchers L, Stiesch M. Influence of the veneering process on the marginal fit of zirconia fixed dental prostheses. *J Oral Rehabil* 2010 Apr; 37(4): 283-91.
- ²¹ Devigus A, Lombardi G. Shading Vita YZ substructures: influence on value and chroma, part I. *Int J Comput Dent* 2004 Jul; 7: 293-301.
- ²² Devigus A, Lombardi G. Shading Vita In-ceram YZ substructures: influence on value and chroma, part II. *Int J Comput Dent* 2004 Oct; 7(4): 379-88.
- ²³ Chaar MS, Kern M. Five-year clinical outcome of posterior zirconia ceramic inlay-retained FDPs with a modified design. *J Dent* 2015 Dec; 43(12): 1411-5.



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