

VITABLOCS® RealLife® for CEREC®/ inLab®MC XL

Instructions for use



VITA shade determination

VITA shade communication

VITA shade reproduction

VITA shade control

Date of issue: 2022-07

VITA – perfect match.

VITA

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The material and its benefits

- VITABLOCS RealLife are industrially manufactured, fine-structure feldspar ceramic blocks used to fabricate anterior crowns with CEREC and inLab MC XL CAD/CAM systems of Dentsply Sirona.
- Since 1990, millions of clinically proven restorations have been fabricated using VITABLOCS.
- VITABLOCS are produced from the proven Mark II ceramic. Thanks to the new spherical structure - in addition to the excellent reflective effects and the white fluorescence of the VITABLOCS Mark II ceramic - various saturation levels (chroma) and different translucency degrees can be reproduced with a few block types.
- The layer structure of the VITABLOCS RealLife corresponds to that of natural teeth.



Geometrical structure of VITABLOCS RealLife:

Spherically curved dentine core with the surrounding enamel coat



Schematic view of an anterior crown

In the CAD mode, the crown can be moved in all three dimensions to achieve a perfect shade effect as a result of the correct relation of dentine and enamel proportion.

- When combined with modern CAD/CAM technology, the structure of VITABLOCS RealLife copies the optical characteristics of a natural tooth, including translucency and color intensity, with just a few mouse clicks. VITABLOCS RealLife consistently achieve ideal integration of the restoration into the remaining natural dentition without the need to individualize the shade.

Intended use

- VITABLOCS are ceramic materials for dental treatments.

Technical data

• **Chemical composition***

Oxides	% by weight
SiO ₂	55 – 70
Al ₂ O ₃	20 – 24
Na ₂ O	6 – 10
K ₂ O	4 – 8
CaO	< 1
TiO ₂	< 1
pigments	< 1

* The values of the chemical composition listed above are dependent on the lot. Chemical elements (oxides) that are contained in very low concentrations and required, (e.g. for coloring), are not listed.

• **Physical data***

Property	Unit	Value
Coefficient of thermal expansion CTE (25–500°C)	10 ⁻⁶ · K ⁻¹	9.4 ± 0.1
Density	g/cm ³	2.4 ± 0.5
Flexural strength (ISO 6872)	MPa	136 ± 20
Transformation range	°C	780 - 790

* The technical/physical values are typical measuring results and refer to internal samples and measurement equipment available on site. If samples are prepared using different methods and measurement equipment, other measuring results may occur.

Patient target group

- No restrictions.

Intended user








- Dental professionals only:
dentist and dental technician

Indication

VITABLOCS RealLife for CEREC/inLab are particularly indicated for the fabrication of highly esthetic anterior restorations, when the following criteria are provided:

- Normal function
- All preconditions for adhesive bonding

Overview of indications

Indication	VITABLOCS RealLife
 Inlay	○
 Onlay	○
 Table top	○
 Anterior crowns	●
 Veneers	●
 Posterior crowns	○
 Endo-crown*	○

● recommended ○ possible * molars only

Contraindication

General

- In cases of inadequate oral hygiene
- Insufficient preparation results
- Insufficient hard tooth substance
- Insufficient space available

Hyperfunction

- Restorations made of VITABLOCS are contraindicated for patients diagnosed with excessive occlusal function, in particular, those who grind and clench their teeth. The use of VITABLOCS restorations for devitalized teeth of patients with hyperfunctions is absolutely contraindicated.

Endo-crowns for premolars

- Due to the small adhesive surface and the small root diameters, endo-crowns for premolars are contraindicated.

Bridges

- Since VITABLOCS consist of a fine-structure feldspar ceramic with a limited strength of approx. 140 MPa, this material is not suitable for the fabrication of monolithic (mono-ceramic) bridges.

All-ceramic substructures

- VITABLOCS are not suitable for the fabrication of all-ceramic substructures. In addition, VITA LUMEX AC must only be used for individualization and not for full veneers of copings made from these materials.

Processing requirements for VITABLOCS RealLife

Hardware requirements:

- VITABLOCS RealLife can only be processed with CEREC and InLab MC XL milling systems.

Software requirements:

- Software-version CEREC 3D ≥V3.80 or inLab 3D ≥V3.80



The shade concept

- The shades of VITABLOCS RealLife have been matched with those of VITA SYSTEM 3D-MASTER, which is the only tooth shade system available on the market that takes all three color dimensions into account and integrates them into a systematic classification principle for shade determination and shade reproduction:

value - chroma - hue



- Restorations fabricated using VITABLOCS RealLife may have more cervical or incisal proportions, in accordance with the natural shade nuances of the residual tooth substance.
- The natural curve between the neck and the incisal edge is found in the block structure of VITABLOCS RealLife. A spherical dentine core is surrounded by a translucent enamel coat:

Overview of blocks

- Shades:

Chroma CHROMA 	0M1C	1M1C	2M1C	-
	-	1M2C	2M2C	3M2C

- Size: 14.4 x 14.8 x 18 mm
- Designation: **RL-14/14**



Initial clinical situation

Patient, born in 1993, presented with a deep fracture in tooth 22.



Detail view of tooth 22 with fracture.



Shade taking - tooth

Shade taking with the VITA Linearguide 3D-MASTER.



Additional control with the VITA Easyshade spectrophotometer.



Assessment of the shade using a cross polarization filter. Cross polarization is used to remove the reflections.

Preparation guidelines

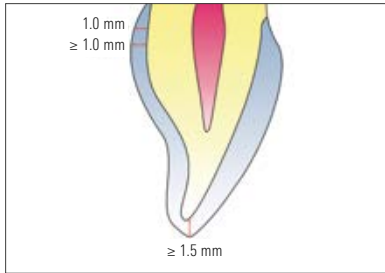
- The usual preparation guidelines for all-ceramic restorations are applicable. See also the brochure "Clinical Aspects of All-Ceramics," No. 1696.



Preparation with fine-grit diamond tools.

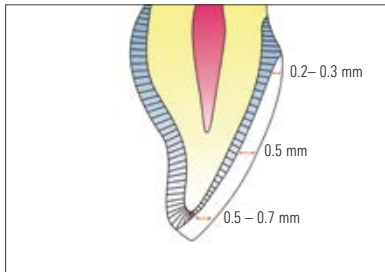
Ceramic layer thickness

- To ensure the clinical success of crowns fabricated using VITABLOCS, the following minimum layer thicknesses must be adhered to:



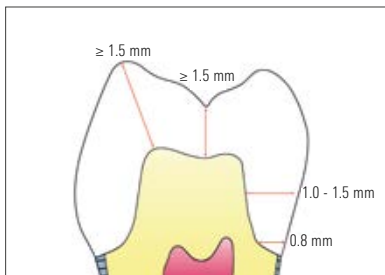
Anterior crown

Incisal: **at least 1.5 mm**
 Circumferential: **at least 1.0 mm**
 Crown margin: **1 mm**



Veneer

Labial: **on average at least 0.5 mm**
 Incisal third: **0.5 - 0.7 mm**
 Central third: **0.5 mm**
 Cervical third: **0.2 - 0.3 mm**



Premolar crown

In the area of the cusps: **1.5 - 2 mm**
 At the deepest point of the main fissure: **at least 1.5 mm**
 Circumferential: **1.0 - 1.5 mm**
 Crown margin: **0.8 mm**



Application of the retraction cord

Application of the retraction cord.



Clinical situation prior to the optical impression.



Optical impression

Application of the contrast powder, for example, with VITA Powder Scan Spray.



Optical impression with CEREC AC Bluecam or



powder-free optical recording with CEREC AC Omnicam or Primescan.



Designing the restoration

- Designing the restoration, **in this case with the CEREC 5.1.3** software, using the example of a tooth 11. Please refer to the respective manuals for further details.

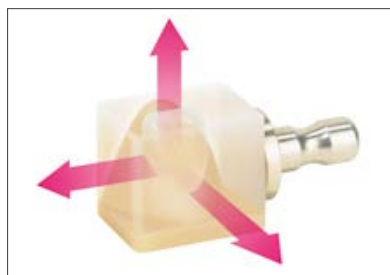
Selecting the VITA RealLife **(RL-14/14)** block

⚠ Important information: Please contact Dentsply Sirona to find out which milling system can currently be used to fabricate restorations from VITABLOCS RealLife.



Use the various software tools for designing individual restorations.

Information on positioning the restoration with regard to the shade result

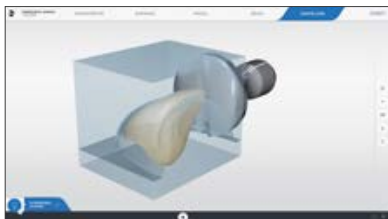
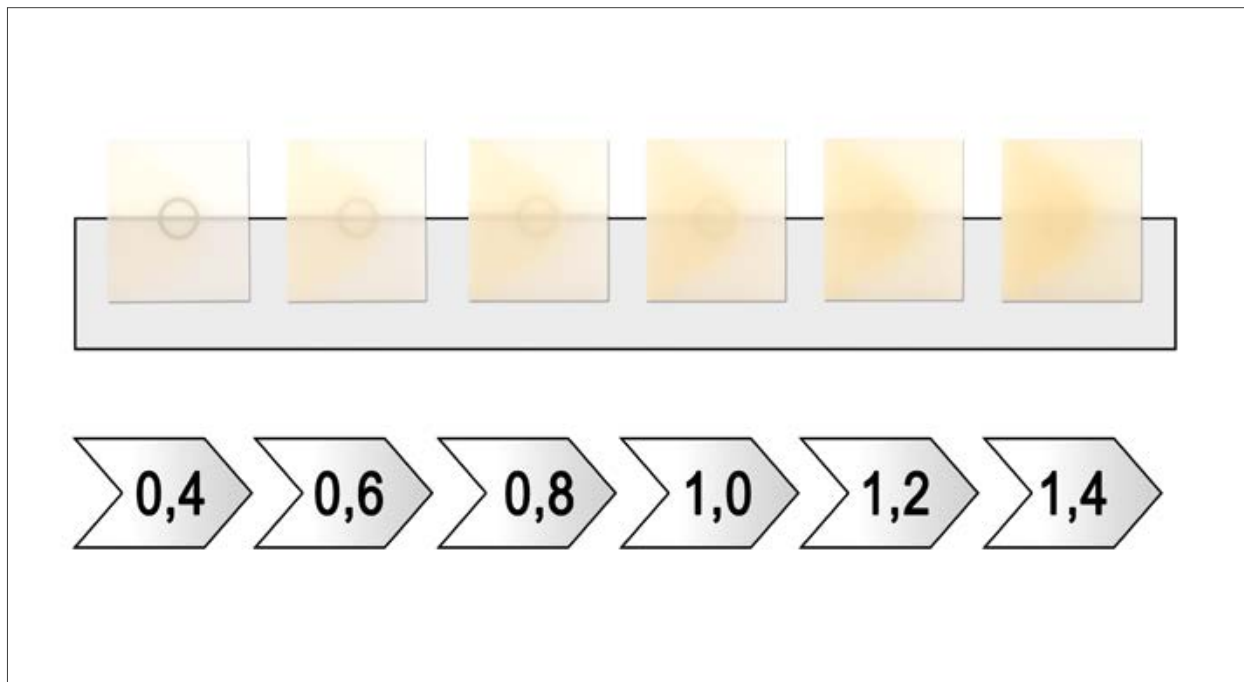


With the RealLife software, the position of the restoration in the block can be modified as required, so that the individual requirements for the shade effect of the respective clinical situation, can be reproduced with regard to translucency, chroma and lightness.

The following specific factors must be considered:

The thinner the labial wall thickness of the crown, the less space is available for the dentine-enamel shade transitions, which means that the options to create smooth shade transitions will be reduced if the wall thickness decreases.

**Change of the shade effect (chroma and lightness)
of VITABLOCS RealLife for different layer thicknesses**





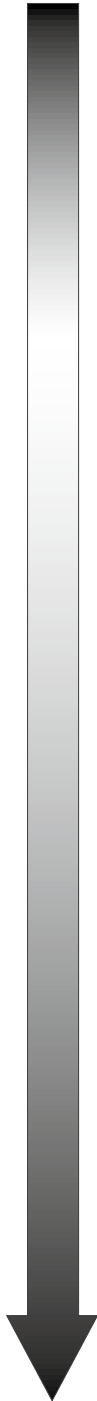


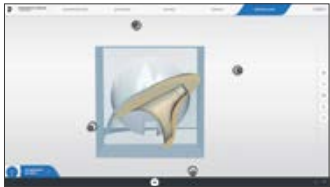



The restoration is placed in the center of the block (relating to all axes) by the software to obtain an **initial position**.

The labial/vestibular side faces the enamel coat of the block, and 75 % of it is covered with enamel.

The initial position can be changed with just a few clicks to achieve the desired shade result.

Views of the different shade results of a RealLife crown with different positions (enamel coating)

RealLife block shade 2M2C

Screenshot -Positioning	Result - Milled crown	Effect on the shade	Chroma
 <p>100 % enamel coverage</p>		<p>Crown with almost non-existent incisal edge and thin enamel coat. No significant shade differences between enamel and dentine. Crown has a high chroma.</p>	
 <p>75 % enamel coverage (initial position)</p>		<p>Crown with natural dentine and enamel areas. Corresponds to the original VITA SYSTEM 3D-MASTER sample tooth 2M2.</p>	
 <p>50 % enamel coverage</p>		<p>Crown appears to have a higher chroma than with 75 % enamel coverage, since the dentine core in the body area is more dominant.</p>	
 <p>25 % enamel coverage</p>		<p>Crown with high chromatic shade effect since the enamel proportion in the body area is missing.</p>	



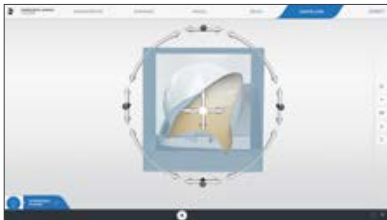
Comparison of the crowns from left to right:

100 %, 75 %, (initial position), 50 % and 25 % enamel coverage.



The restoration can be moved in all three directions in space using the buttons of the "Position" tool.

The directions of movement always refer to the restoration (not to the axes of the block).



Mesial/distal movement beyond the plane of symmetry of the dentine core.

Checking the enamel-dentine relation

The transition between the enamel coat and the dentine core should be as smooth as possible to achieve a harmonious and natural shade effect.

Rule of thumb:

To reproduce the selected shade in the best possible way, the labial surface of the crown should consist of approximately 75% of enamel, or the dentine core should be covered with approximately 75% of enamel.

The ratio of the layer thicknesses of enamel/dentine or the course of layers can be accurately checked using the buttons of the Cut tool in combination with the "+/-" button.

(click once for the cross-section)

Note: Use the mouse pointer to position the block directly on the block holder axis to enable approximal cut of the restoration.



The section through the crown shows approx. 75% coverage of the dentine core by enamel.

Important information for the milling process

- It is possible that during the rotation of the restoration in the block, the block holder may be sanded during the grinding operation, which is not critical.
- You can find detailed information on the grinding process in the corresponding manuals for CEREC or inLab.



Initial crown after milling.



Removal of the lug using a fine-grit diamond tool.



Initial crown in situ.

Prior to fitting or cementing, proximal areas are polished outside the mouth, for example with VITA KARAT diamond polishing paste.

Fine morphological adjustments / Incorporating the texture



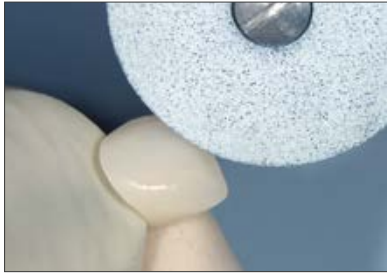
Restorations made of VITABLOCS RealLife fine-structure feldspar ceramic must not be reworked using tungsten carbide instruments because they damage the ceramics by producing microcracks. The following must be observed:

- Use only fine-grit diamond abrasive tools (40 µm) for contouring and finishing diamonds (8 µm) for prepolishing.
- When reworking restorations, exert only slight pressure and use sufficient water cooling.



The surface texture is carefully prepared using diamond tools.

⚠ **Note:** In addition to the correct lightness value, the surface design of an anterior crown is essential to achieve an esthetic final result.



Finishing and polishing

It is recommended to polish with Al₂O₃-coated flexible discs, polishing brushes and diamond polishing paste.

Careful polishing is important for the overall esthetic and functional appearance of the restoration. A carefully polished ceramic surface reduces plaque accumulation and protects the antagonist tooth against abrasion.



Pay attention to margins and contact points when polishing the restoration. The correct speed must be ensured and generation of heat must be avoided.



Polished crown in situ before shade characterization.



Characterization / Individualization of the shade

In special clinical situations, such as white stains in the enamel caused by decalcification or hyperfluorosis, additional characterization of the shade (staining technique) is recommended for simple and reliable optimization of the esthetic result. VITA AKZENT Plus stains are suitable for this purpose.

If required, individualization with VITA LUMEX AC (staining technique) can be carried out.

Please observe Working Instructions, No. 1769, VITABLOCS.







Crown after characterization of the shade in situ.



The VITA SMART.FIRE firing unit should preferably be used for characterization/individualization of the shade.

Overview of firing programs recommended for characterization (staining technique) in the VITA SMART.FIRE





	Predry. °C	 min	 min	 °C/min	approx. temp. °C	 min	VAC min
Stains fixation firing	400	4.00	4.23	80	850	1.00	–
Glaze firing with VITA AKZENT Plus POWDER and SPRAY	500	4.00	5.37	80	950	1.00	–
VITA AKZENT Plus PASTE	500	6.00	5.37	80	950	1.00	–

When using dental ceramics, the firing result largely depends on the individual firing procedure of the user, including, among other aspects, the type of furnace, the location of the temperature sensor, the firing tray and the size of the object during the firing cycles.

Our application recommendations for the firing temperatures (regardless of whether they have been provided orally, in writing or in the form of practical instructions), are based on extensive experience and tests. The user, however, should consider this information only as a reference.

If the surface quality or the degree of transparency or glaze does not correspond to the firing result that is achieved under optimum conditions, the firing procedure must be adjusted accordingly. The critical factors for the firing procedure are not the firing temperature indicated on the furnace display, but the appearance and the surface quality of the firing object after firing.

Explanation of the firing parameters:

- Predry. °C Start temperature
-  min Predrying time in minutes, closing time
-  min Heating time in minutes
-  °C/min Temperature rise rate in degrees Celsius per minute
- Temp. approx. °C End temperature
-  min Holding time for end temperature
- VAC min. Vacuum holding time in minutes



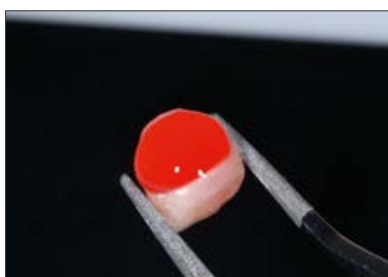
Completed crown made of VITABLOCS RealLife prior to adhesive bonding in situ.

Adhesive bonding



bonding composite	VITABLOCS RealLife	
	Crown	Veneer
Full-adhesive luting composite: VITA ADIVA F-CEM	●	●
Self-adhesive luting composite: VITA ADIVA S-CEM	●	—

- Adhesive bonding of crowns should preferably be performed using a more flowable, dual-curing composite (depending on the thickness of the layering).
- Dual-curing composite cements should not be used for thin veneers, since these materials may cause a slight change in color (yellow shade) after curing. A light-curing composite is preferred. A microbrush glued to the veneer using light-curing bonding material or an adhesive stick can be used as holders. Fixing the veneer with a finger allows more uniform distribution of pressure during adhesive placement.



Preconditioning the crown

Etch with hydrofluoric acid gel, such as VITA ADIVA CERA-ETCH.

Etching time: 60 sec.



Completely remove any remaining acid by using water spray (60 sec).



Apply silane (e.g., VITA ADIVA C-PRIME) to the etched surfaces. Allow to evaporate completely.

Preconditioning the tooth



Application of the adhesive system, such as VITA ADIVA T-BOND.



Application of the luting composite, such as VITA ADIVA F-CEM.



Crown in situ with excess cement.



Pre-curing the adhesive composite for a short time.



Removal of excess adhesive composite.



Final curing. Please observe the respective instructions of the manufacturers of the cements/composites.



Completed crown immediately after adhesive bonding in situ.

Block shade used: 2M2C



Lip image of completed crown.



The happy patient after restoring tooth 22 with a crown made of VITABLOCS RealLife, shade 2M2C.







Package sizes - VITABLOCS RealLife for CEREC / inLab

VITABLOCS RealLife for CEREC / inLab				
Shade	Designation	size	Contents	Prod. No.
0 M1C	RL-14/14	14 x 14 x 18 mm	5 pieces	EC40M1CRW1414
1 M1C	RL-14/14	14 x 14 x 18 mm	5 pieces	EC41M1CRW1414
1 M2C	RL-14/14	14 x 14 x 18 mm	5 pieces	EC41M2CRW1414
2 M1C	RL-14/14	14 x 14 x 18 mm	5 pieces	EC42M1CRW1414
2 M2C	RL-14/14	14 x 14 x 18 mm	5 pieces	EC42M2CRW1414
3 M2C	RL-14/14	14 x 14 x 18 mm	5 pieces	EC43M2CRW1414

Explanation of symbols

Medical device		Manufacturer	
For dental users only	Rx only	Date of manufacture	
Observe instructions for use		Expiration date	
Product number		Lot number (batch)	

The following products require hazard identification:		
<p>VITA ADIVA® CERA-ETCH (hydrofluoric acid ceramic etching gel, 5 %)</p>	<p>Caustic/Toxic</p> <p>For extraoral use only! Contains hydrofluoric acid. Toxic if swallowed. Fatal in contact with skin. Causes severe skin burns and damage to eyes. Harmful by inhalation. Wear protective gloves/protective clothing/safety goggles. Keep locked up. If swallowed, call the Toxicological Information Center immediately and provide safety data sheet. In case of contact with clothing/skin, remove contaminated clothing immediately and rinse with a copious amount of water. Specific measures, see safety data sheet. In case of contact with eyes, rinse with water for a few minutes and consult a doctor/Toxicological Information Center. This material and its container must be disposed of as hazardous waste.</p>	
<p>VITA ADIVA® TOOTH-ETCH (phosphoric acid etching gel, 37 %)</p>	<p>Caustic</p> <p>Causes severe skin burns and eye damage. Contains phosphoric acid. When working with the product, do not eat or drink. Do not inhale gas/fume/vapor/aerosol. In case of contact with eyes, rinse thoroughly with water and consult a doctor. When working with the product, wear suitable safety goggles / face protection, protective gloves, and protective clothing. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). This material and its container must be disposed of as hazardous waste.</p>	
<p>VITA ADIVA®-C-PRIME (ceramic primer)</p>	<p>Highly flammable</p> <p>Highly flammable liquid and vapor. Store well-sealed container in an adequately ventilated place. Keep away from ignition sources. - No smoking. Do not empty into drains. This material and its container must be disposed of as hazardous waste.</p>	

<p>Safety clothing</p>	<p>When working with the product, wear suitable safety goggles / face protection, gloves and safety clothing. In case of formation of dust, use an extraction system or wear a face mask.</p>	
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The corresponding safety data sheets can be downloaded at www.vita-zahnfabrik.com/sds.



General notes on handling / product safety

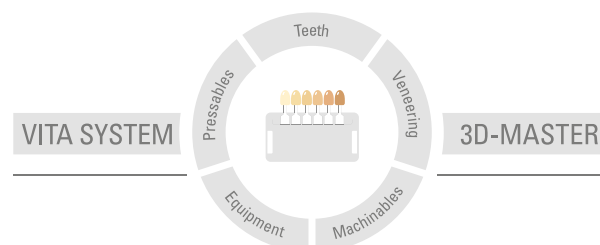
Information on reporting serious incidents in connection with medical devices, general risks associated with dental treatments, residual risks and (if applicable) short clinical safety and performance reports (SSCPs) can be found at www.vita-zahnfabrik.com/product_safety



Storage information

- The VITABLOCS must be stored in a dry place. They can be disposed of with household waste.
- The products labelled with a pictogram for hazardous substances are to be disposed of as hazardous waste. Recyclable waste (such as attachments, paper and plastics) must be disposed of using appropriate recycling systems. If necessary, contaminated product residues should be pretreated in accordance with regional regulations and disposed of separately.

With the unique VITA SYSTEM 3D-MASTER, all natural tooth shades can be systematically determined and perfectly reproduced.



Please note: Our products must be used in accordance with the instructions for use. We accept no liability for any damage resulting from incorrect handling or usage. The user is furthermore obliged to check the product before use with regard to its suitability for the intended area of applications. We cannot accept any liability if the product is used in conjunction with materials and equipment from other manufacturers that are not compatible or not authorized for use with our product and this results in damage. The VITA Modulbox is not necessarily a component of the product. Date of issue of this information for use: 2022-07

After the publication of this information for use, any previous versions become obsolete. The current version can be found under www.vita-zahnfabrik.com

VITA Zahnfabrik has been certified and the following products bear the mark:

CE 0124

VITABLOCS RealLife®

Harvard Dental International GmbH has been certified in accordance with the Medical Device Directive and the following products bear the CE mark

CE 0482

VITA ADIVA® F-CEM, VITA ADIVA® S-CEM, VITA ADIVA® TOOTH-ETCH, VITA ADIVA® T-BOND I + II, VITA ADIVA® C-PRIME, VITA ADIVA® OXY-PREVENT

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