

VITABLOCS® Mark II for KaVo Everest Working Instructions



Always on the safe side



KaVo. Dental Excellence.

Vertrieb:

KaVo Dental GmbH
Bismarckring 39
D-88400 Biberach
Tel. +49 7351 56-0
Fax +49 7351 56-1488

Hersteller:

VITA Zahnfabrik H. Rauter GmbH & Co. KG
Postfach 1338
D-79704 Bad Säckingen
Tel. +49 7761 562-222
Fax +49 7761 562-446

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1 User information

1.1 User guidance

1.1.1 Abbreviations

Abbreviation	Definition
OA	Operating Instructions
CI	Care Instructions
AI	Assembly Instructions
IT	Instructions for Technicians
SRT	Safety-related Control
IEC	International Electrotechnical Commission
RI	Repair Instructions
EMC	Electromagnetic Compatibility
WI	Working Instructions

1.1.2 Symbols

	See section Safety/Warning symbols
	Important information for users and technicians
	CE mark. A product bearing this mark complies with the requirements of the respective EU directive.
	Action required

1.1.3 Target group

This document addresses dental technicians and the laboratory staff.

2 Safety

2.1 Safety information

2.1.1 Warning symbol

	Warning symbol
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2.1.2 Structure



The introduction describes the type and source of danger.
This section describes possible consequences of disregarding dangers.
► The optional step entails necessary actions to avoid any dangers.

2.1.3 Description of danger levels

This document includes safety information categorized into three danger levels to avoid damage to persons or material/equipment.



CAUTION
describes a dangerous situation which may result in damage to material/equipment or minor to medium injuries.



WARNING
describes a dangerous situation which may result in severe or lethal injuries.



DANGER
describes a maximum risk involved in a situation which may immediately result in severe or lethal injuries.

3 Material info

3.1 Properties

VITABLOCS® Mark II for KaVo Everest are made of a fine-structure feldspar ceramic. They are used for the fabrication of inlays, onlays, partial crowns, full anterior and posterior crowns and for veneers.

See also: Brochure No. 808 "Clinical Aspects, Preparation and Cementing of All-Ceramics" and the Working Instructions No. 799 "VITA Luting Set".

Technical:

- No thermal refinement processes, such as stain, glaze or crystallization firing required.
- Optionally, simple time- and cost-saving characterization with VITA SHADING PASTE, VITA AKZENT and VITA VM 9 can be carried out.
- Superior machinability since VITABLOCS® Mark II for KaVo Everest were especially developed for the CAD/CAM technology.
- Extended service life of diamond grinding tools during the CAM process.
- Utmost material homogeneity thanks to the industrial sintering process and the fine-particle structure.

Clinical:

- Excellent clinical results over more than 20 years.
- Very good translucency characteristics, distinctive chameleon effect.
- Excellent, enamel-like abrasion characteristics to protect antagonist teeth.
- Can be very easily polished.
- Superior adhesive bonding thanks to excellent etchability.

3.2 Indications and contraindications

Indications:

- Veneers
- Inlays
- Onlays
- Partial crowns
- Anterior and posterior crowns

Contraindications:

- Bruxism
- Extreme parafunction
- Extremely malaligned teeth
- Insufficient oral hygiene
- Very deep subgingival preparation



Note

VITABLOCS® Mark II for KaVo Everest are not suitable for the fabrication of all-ceramic bridges.

3.3 Technical data

Assortment

Block size I12	10 x 12 x 15 mm
Block size I14	12 x 14 x 18 mm
Quantity	5 pieces
Shades	1 M2C, 2 M2C and 3 M2C

Physical data

The technical / physical values are typical measuring results and refer to internal samples and measurements carried out with measurement equipment available on site. When samples are produced using a different method and different measuring equipment, different measuring results may be obtained.

Coefficient of thermal expansion CTE (20 - 500 °C)	$(9,4 \pm 0,1) \times 10^{-6} \text{ K}^{-1}$
Density	$2,44 \pm 0,01 \text{ g/cm}^3$
Flexural strength (Schwickerath) (ISO 6872)	$154 \pm 15 \text{ MPa}$
Modulus of elasticity (resonance method)	$45 \pm 0,5 \text{ GPa}$
Transformation range	780 - 790 °C

4 Processing

4.1 Preparation guidelines and minimum thicknesses

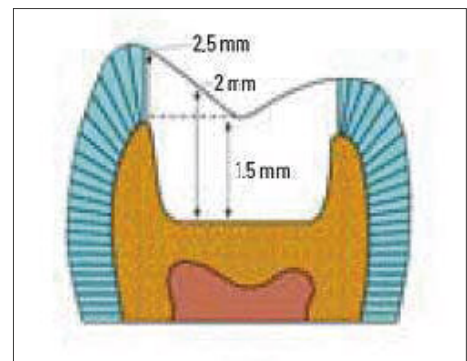
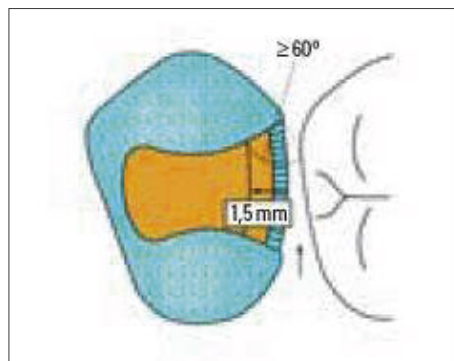
Successful fabrication of VITABLOCS® Mark II for Everest restorations is only achieved if the guidelines and minimum thicknesses described below are adhered to.

4.1.1 Inlays

Thickness of ceramic

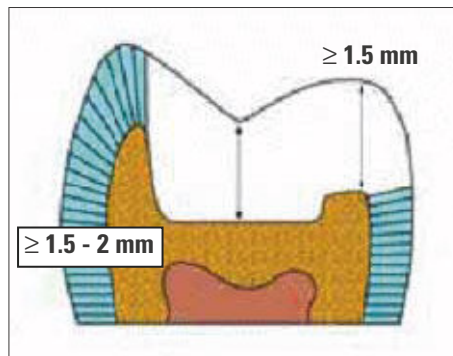
- Below the deepest point of the fissure: ≥ 1.5 mm.
- In the area of the isthmus: ≥ 1.5 mm.

A box-shaped preparation without resilient margins is recommended. Round cavity segments, in particular at the bottom of the cavity, should be prepared and sharp edges must be avoided.



- Minimum depth at the bottom of the fissure: 1.5 mm
- Minimum depth at the margin of the cavity: 2.0 mm
- If the cavity margin lies close to the cusp tip - minimum depth at the margin of the cavity: 2.5 mm
- The cervical step must not have contact with the adjacent tooth
- Minimum width of the approximal step: 1 mm
- angle between the lateral wall of the approximal box and the approximal surface: $\geq 60^\circ$.

4.1.2 Onlays

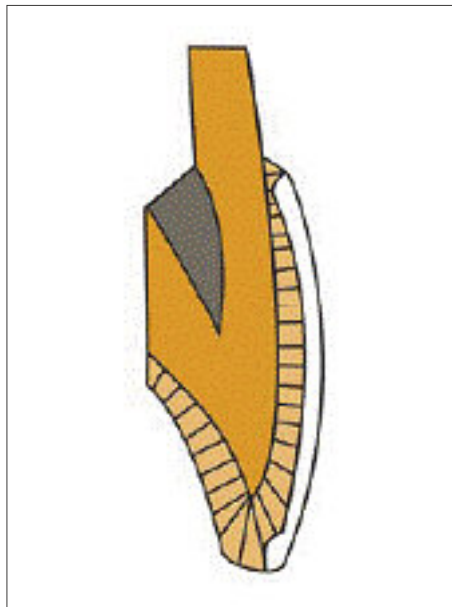


Guidelines:

- Ceramic layer in the area of the cusp: ≥ 1.5 to 2 mm.
- Thickness of ceramic layer at the bottom of the fissure: ≥ 1.5 mm.

4.1.3 Veneers

The thickness of the ceramic material (layer thickness) should be at least 0.5 mm to allow for reliable adhesive cementing.



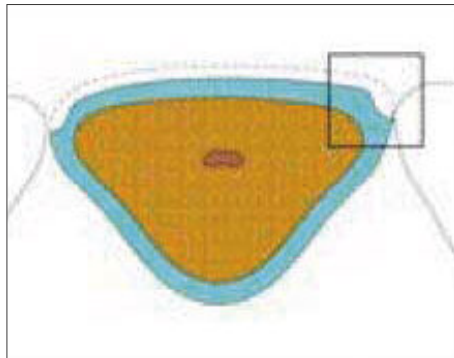
Labial

- Progression of vestibular tooth contour should be maintained.
- Average labial reduction: 0.5 mm
 - cervical third: 0.2 - 0.3 mm
 - central third: 0.5 mm
 - incisal third: 0.5 - 0.7 mm

Cervical

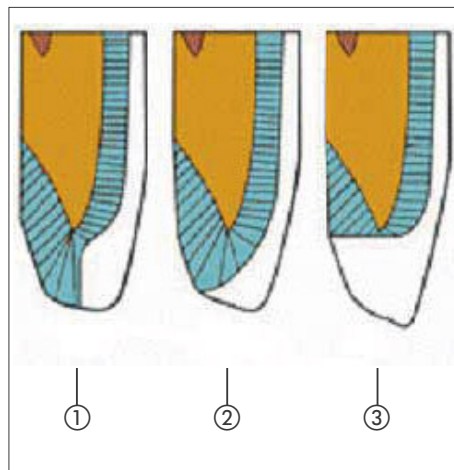
Slightly rounded shoulder (or chamfer) parallel to the gingival margin, running supragingivally.

Approximal



- Prepare chamfer-like approximal margins
- Retain natural contact points
- "Saddle-shaped" embracing

Variations of incisal veneer preparation



Labio-incisal ditching if tooth length is to be maintained ①.

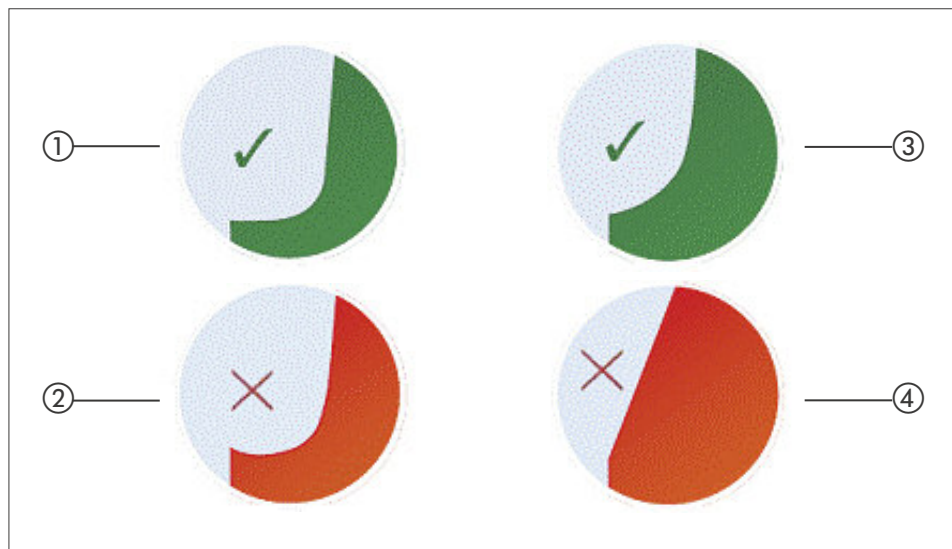
A slight reduction enables a slightly thicker ceramic layer for more individual characterization ②.

For the extension, bevel the incisal edge, round off the edge ③.

4.1.4 Crowns

A chamfer or a step with rounded inner angle (shoulder preparation) should be prepared in the case of crowns.

- Circumferential cutting depth: ≥ 1.0 mm.
- Vertical preparation angle: $\geq 3^\circ$.
- All transitions from the axial to the occlusal or incisal surfaces should be rounded.
- Uniform and smooth surfaces.
- Prepare wax-up and silicone key to control the preparation. They also support the diagnosis and clinical application (defect-oriented preparation).
- Depth of preparation – supragingival, epigingival, subgingival: ≥ 0.5 mm.



- ① Correct shoulder preparation
② Incorrect chamfer preparation

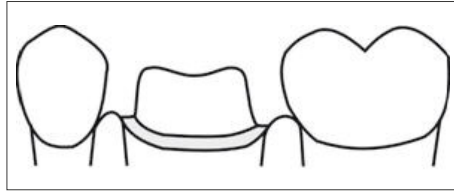
- ③ Correct chamfer preparation
④ Contraindicated: tangential preparation



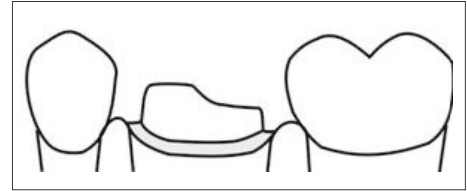
Note

General recommendation: Prepare up to a depth which still allows to keep the area of treatment dry.

Preparation types for crowns



"Classic"



"Reduced"

Thickness of ceramic layer for crowns:

In the main fissure:

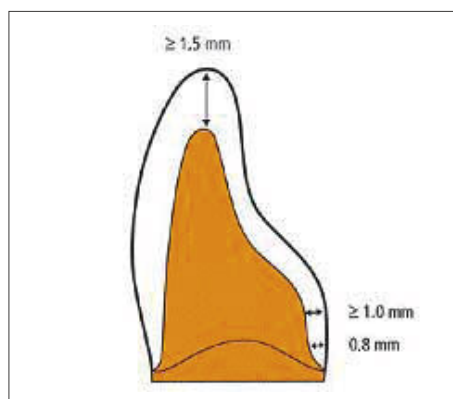
While the occlusal margins taper off thinly, the minimum layer thickness of the ceramic below the deepest part of the fissure is 1.5 mm. Care should be taken during preparation to ensure that the cavity dimensions are sufficient. Establishing a functional dentine adhesion does away with the need for cavity lining and avoids reduction of the wall thickness of the ceramic at a given preparation depth. The layer thickness must be verified using the milling preview function of the 3D software. Reduction of the minimum layer thickness through manual processing of the fissure after seating must be avoided.

Cuspal coverage for normal function:

Restoration with cuspal coverage is recommended for thin cavity walls (< 2 mm) and cavity walls without dentine support in the area of centric cusps of vital teeth. The minimum wall thickness in the cuspal area is 2.0 mm.

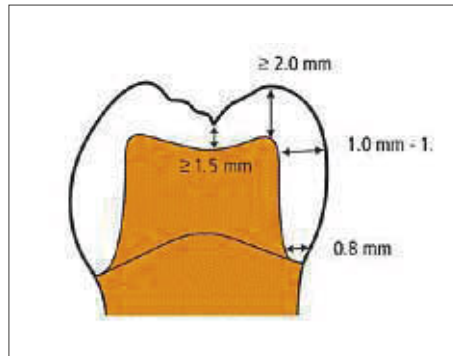
Cuspal coverage of devitalized teeth:

Existing cusps of devitalized teeth should be shortened by at least 2 mm and restored with cuspal coverage.



Thickness of ceramic layer for anterior crowns:

- Incisal: ≥ 1.5 mm
- Circumferential: ≥ 1.0 mm
- Crown margin: ≥ 1.0 mm



Thickness of ceramic layer for posterior crowns:

- At the deepest point of the main fissure: ≥ 1.5 mm
- In the area of the cusps: ≥ 2.0 mm
- Circumferential: $1.0 - 1.5$ mm
- Crown margin: ≥ 1.0 mm

4.1.5 Cementation of restorations made of VITABLOCS® Mark II for Everest

Silicate ceramics such as VITABLOCS Mark II (flexural strength < 350 MPa) must be cemented adhesively using fine hybrid composites and a properly used functional enamel-dentine adhesive to achieve a positive bond between the restoration and the tooth substance. This way a mutual "retaining effect" is created which is a decisive factor for lasting clinical success. The ultrasonic insertion technique or preheated composite can be used for stronger composite materials.

Basically, there are no differences in the protocols for adhesive cementation of inlays, crowns and veneers. However, a few special aspects should be considered:

- Crowns and inlays should preferably be cemented with a dual-curing, highly flowable composite.
- Dual-curing composites should not be used for thin veneers since these composites may cause a slight change in color (yellow shade) after curing. Therefore a light-curing composite should be preferred.
- A microbrush glued to the veneer using a light-curing bonding material can be used as a retention tool.
- Fixing the veneer with the finger allows more uniform distribution of pressure during the adhesive cementation.

4.2 Investing VITABLOCS® Mark II

The following products should be used for investing:

- IPS e.max CAD C14 (**Mat.-No. 1.004.0193**) for VITABLOC® Mark II size I14
- IPS e.max CAD I12 (**Mat.-No. 1.005.9808**) for VITABLOC® Mark II size I12

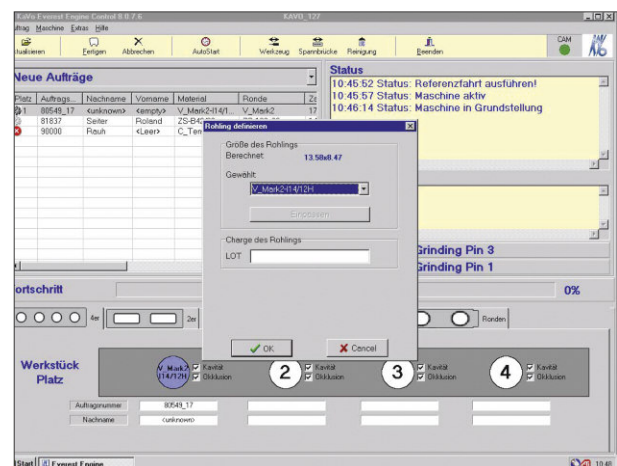


The blanks can be invested in three positions.

- Avoid premature investing of the required VITABLOCS® Mark II.
- Apply a small quantity of Vaseline to the positioning tool and insert the blank in accordance with the CAM process suggested.

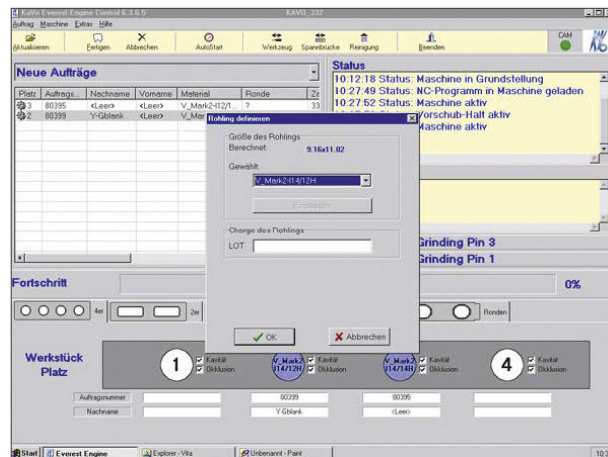
Suggestion: CAM process I14 / 14H (I12 = 12H)

Blank is invested with the narrow side facing downward.



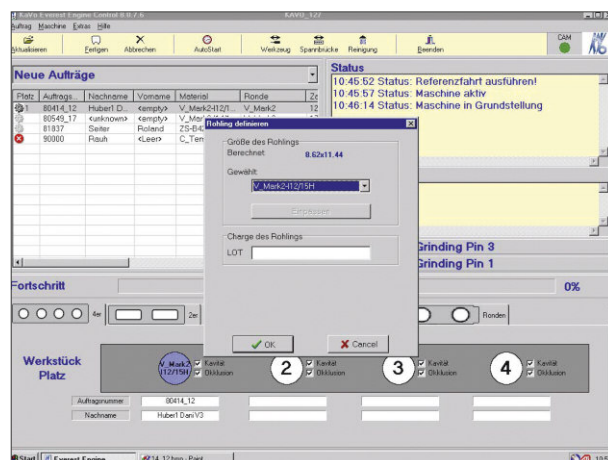
Suggestion: CAM process I14 / 12H (I12 = 10H)

Blank is invested with the wide side facing downward.



Suggestion: CAM process I14 / 19H (I12 = 15H)

Blank is invested with the oval side facing upward.



- Everest Universal Inplast components are mixed in a mixing cup in equal proportions. A mixing ratio of 1:1 must be strictly adhere to.
- Shake the container with the components to be mixed well.



Note

If the Universal Inplast components are not thoroughly mixed, differences in the homogeneity of the composite may result so that uniform hardening of the composite is no longer ensured.

- Fill the mixed resin into the Everest insert up to the upper edge of the rim.
The retentions of the insert must be covered with Everest Universal Inplast.



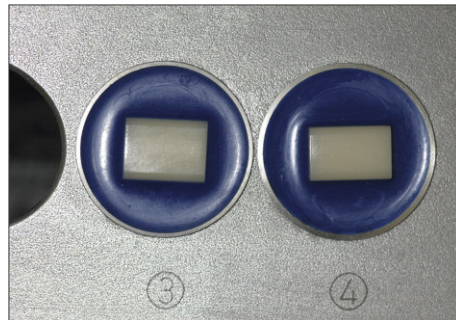
- Once Everest Universal Inplast has hardened, a wax knife is used to remove the Everest positioning tool from the insert.

4.3 Placing inserts into the KaVo Everest engine

Use the following pins for grinding:

- KaVo Everest® Diamond Grinding Pin 1 (**Mat.-No. 1.001.6000**)
- KaVo Everest® Diamond Grinding Pin 3 (**Mat.-No. 1.001.6001**)

► Fix the insert in the KaVo Everest clamping bridge.



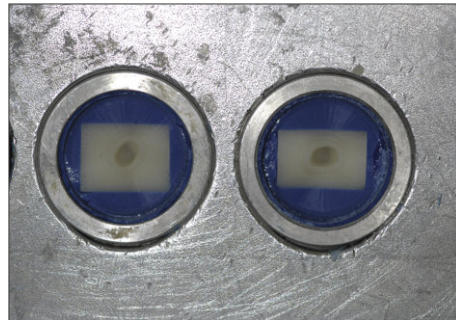
► Start the program.

See also: OA KaVo Everest® engine 4140 (**Mat.-No. 1.002.3165**)

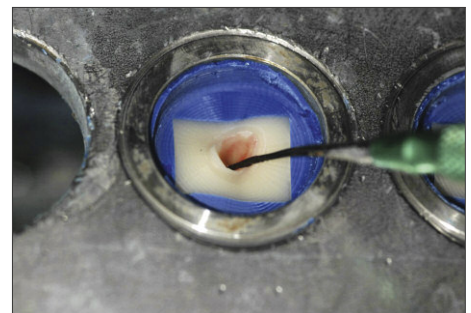
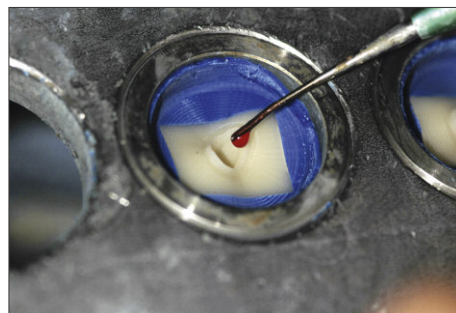
4.4 Filling the cavity

Once the cavity has been ground, the program is automatically aborted to be able to fill the inner side.

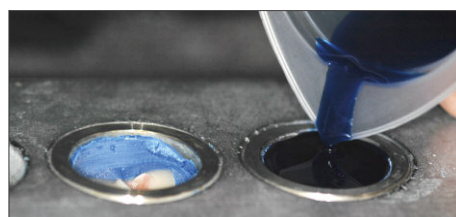
- ▶ Do not remove the clamping bridge or the insert from the Everest® engine.
- ▶ Rinse thoroughly with water (room temperature) to remove cooling lubricant and grinding residues. A spray bottle is perfectly suited for this purpose.



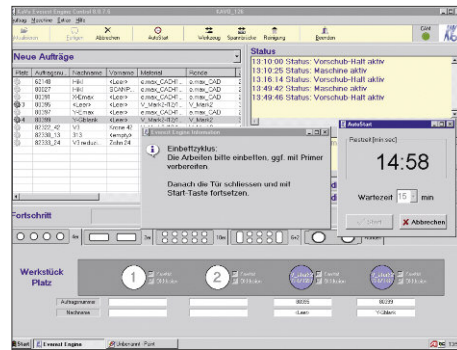
- ▶ Then dry the cavity carefully with oil-free compressed air.
- ▶ Spray a very thin coat of Acmos into the cavity.
- ▶ Use an instrument to apply a thin layer of Pattern Resin into the cavity. Make sure to avoid an excessively thick layer.



- ▶ Everest® Universal Inplast components are mixed in a mixing cup in equal proportions. An accurate mixing ratio (1 : 1) of the components A and B must be ensured.
- ▶ Shake the container with the components to be mixed well.
- ▶ Fill the mixed resin into the Everest® insert up to the upper edge of the rim.
- ▶ Fill the cavities with Everest® Universal Inplast.



- After filling the cavities, set "Autostart" with a delay of 15 minutes.
After 15 minutes Everest® engine starts grinding the occlusion.



4.5 Devesting VITABLOCS® Mark II



Do not use a preheating furnace!

The restoration may be damaged.

- For devesting, VITABLOCS® Mark II restorations must not be heated in a preheating furnace. The expansion of the composite may cause cracks in the ceramic material.



- After completing the grinding process, remove the Everest® insert from the clamping bridge.
- Use hot air (hair dryer) to heat the ground restoration carefully and remove the restoration with heated tweezers.



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