

Related Products

Hybrid Ceramics Block for CAD/CAM

KZR-CAD HR2

Achieved Outstanding Physical Properties,
High-Speed Polishing and Fluoride Sustained Release



Shade	QTY per box	Size		
		S	M	L
		2 notch		1 notch
A1	5 pcs	✓	-	✓
A2			✓	
A3			-	
A3-LT			-	
A3.5			✓	
A4			-	

Material Property (Reference Value)

Flexural Strength(MPa)		Vickers hardness* (HV0.2)	Radiopacity and Fluorescence	Fluoride Sustained Release
Three-point flexural test*1	Biaxial flexure test*2			
235	290	85	✓	✓

*1: Three-point bending test: JIS T 6517

*2: Biaxial flexure test: ISO6872 (Diameter of supporting disc: 12 mm)

Note: The figures given are for reference purposes and are not specification.

Hybrid Ceramics Block for CAD/CAM

KZR-CAD HR2 GR

Multi-Layered Hybrid Ceramics Block with Natural Gradation for Higher Aesthetics



Shade	QTY per box	Size		
		S	M	L
		1 notch		1 notch
A2-GR	3 pcs	✓		✓
A3-GR				
A3.5-GR				

Related Products



Polisher containing diamond particles
C&B DIAMOND POLISHER
NET. 8g



Polisher containing diamond particles
C&B NANO DIAMOND POLISHER
NET. 5g

Recommended for use of
KZR-CAD HR BLOCK 3, GAMMATHETA

The actual color of the product, model and package may differ from the photographs due to printing ink and shooting conditions.

YAMAKIN's Block for Molars



Hybrid Ceramics Block for CAD/CAM

KZR-CAD HR3 GAMMATHETA



Hybrid Ceramics Block for CAD/CAM

KZR-CAD HR 3 GAMMATHETA

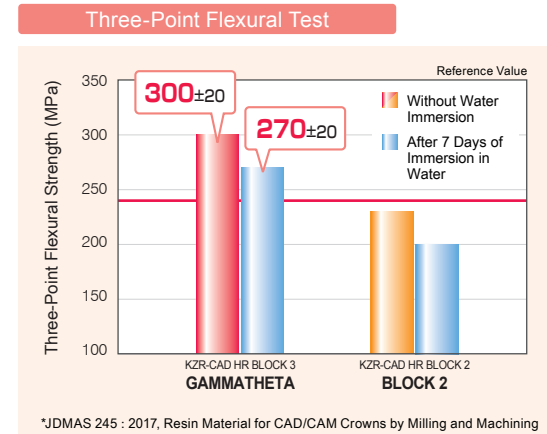


Clinical case: Lower first molar (Onlay → Jacket Crown: KZR-CAD HR BLOCK 3 GAMMATHETA)
(Contributed by: YAMAKITA DENTAL OFFICE (Kochi, Japan); Dr. Jun Kunito)

High Strength Suitable for Molars with Fluoride Sustained-Release Property

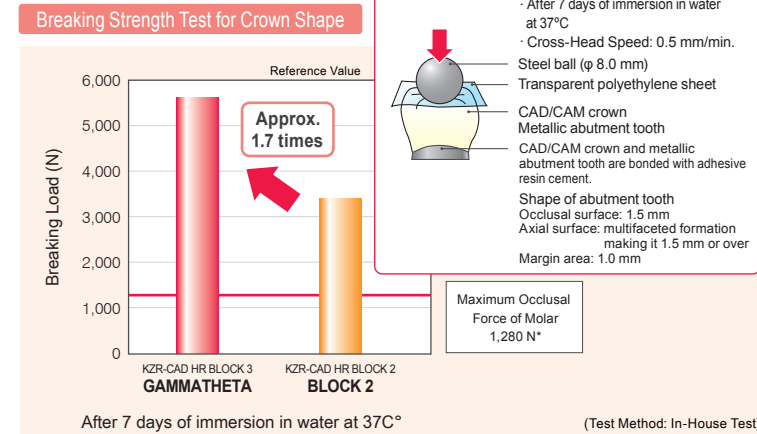
The KZR-CAD HR Series is the Fruit of YAMAKIN's Research and Development

Flexural Strength



It has been confirmed that the value of three-point flexural strength after 7 days of immersion in water at 37°C is 240 MPa and over, conforming to the standard JDMAS 245:2017.

Breaking Strength

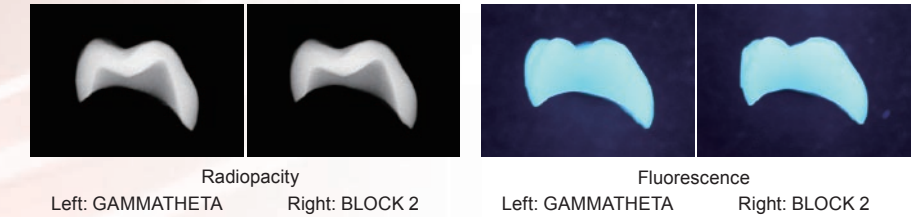


Breaking strength of a crown shape was tested assuming use on a molar. GAMMATHETA has a breaking strength approx. 1.7 times that of BLOCK 2. Moreover, it has been confirmed that the value significantly exceeds the assumed value for the maximum occlusal force of molars, 1280 N, approx. 130 Kg. *Braun S, et al.: A study of bite force, part 1: Relationship to various physical characteristics. Angle Orthod, 65, 367-372, 1995.

Succession of Features from BLOCK 2 for Clinical Cases

Radiopacity and Fluorescence

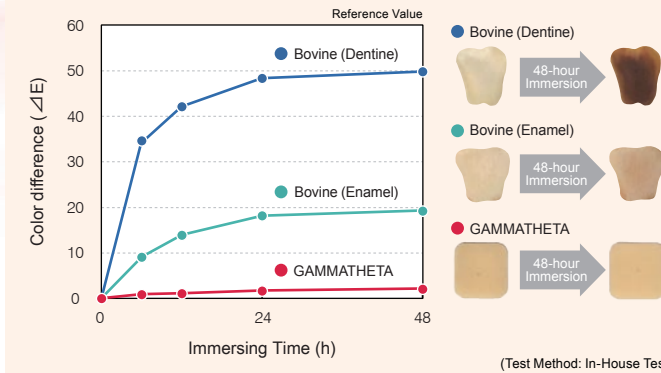
GAMMATHETA's radiopacity and fluorescence are equivalent to BLOCK 2.



Staining Resistance

Evaluation of Staining Resistance by Coffee

Immersion liquid: 5% instant coffee in aqueous solution (at 37°C)

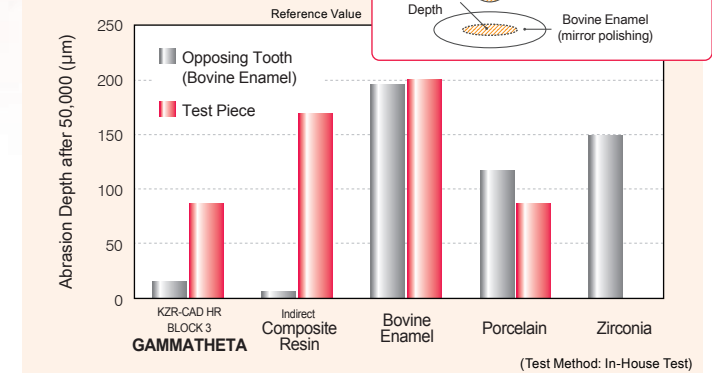


Since GAMMATHETA is polymerized to a high degree by heat processing, its excellent staining resistance is confirmed; it is hard to discolor in the long term and long-term endurance of aesthetic quality can be expected. This has been confirmed by studies comparing extracted teeth of bovine (Enamel and Dentine).

Abrasion Resistance

Abrasion Test of Opposing Tooth

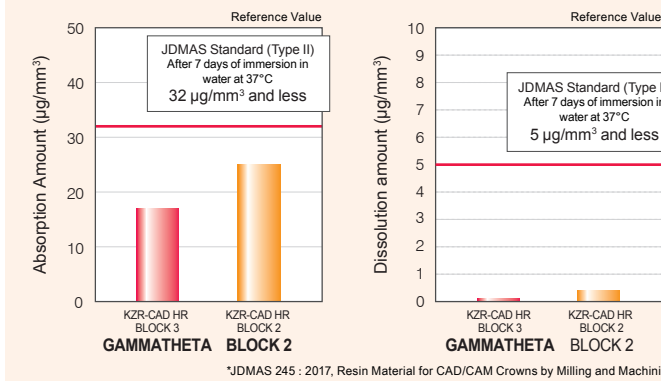
Test Method
 - Load Weight: Approx. 2 kg
 - Abrasion Distance: 4mm
 - Speed: 1.7Hz
 - Test Piece (mirror polishing)
 - In Water at 37°C
 - Abrasion Depth
 - Bovine Enamel (mirror polishing)



GAMMATHETA is less likely to be worn away. At the same time, it is less likely to damage the opposing tooth, and the problems caused by losing occlusion balance are rendered less likely to occur.

Water Resistance

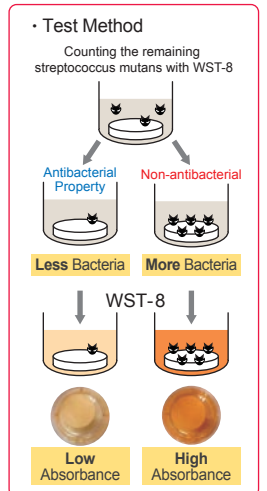
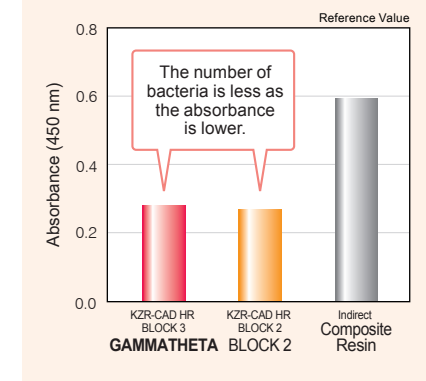
Water Absorption Test and Dissolution Test (After 7 days of immersion in water at 37°C)



Since GAMMATHETA is more highly filled with inorganic fillers than BLOCK 2, it has high stability against water; also absorption and dissolution amounts are greatly reduced.

Combating Bacteria Adherence

Evaluation of Bacteria Adherence



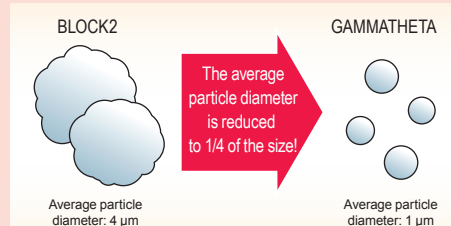
GAMMATHETA maintains its outstanding strength and durability; moreover, it has an anti-bacteria-adherence property which is equivalent to BLOCK 2, thanks to optimization of the amount of fluoride sustained release filler added.

WST-8 : Colorimetric indicator for bacterial cell detection

Exhibits Both High Strength and Fluoride Sustained Release Property

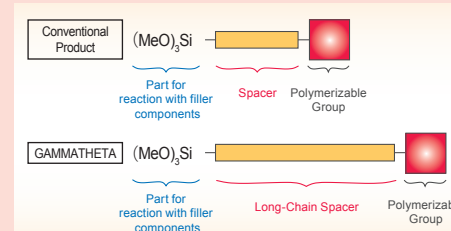
Filler technology

While the average particle diameter of inorganic fillers contained in BLOCK 2 is approx. 4 μm, the particle diameter of inorganic filler for GAMMATHETA is approx. 1 μm. The mechanical strength of GAMMATHETA is enhanced by highly filled fine fillers. It also contains fluoride sustained release filler, the same as BLOCK 2.

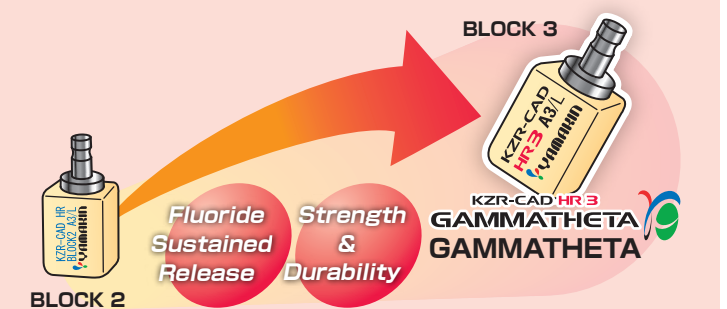


Surface treatment

Long-Chain Spacer Silane Coupling Agent, with outstanding water resistance, is used for the surface treatment of the inorganic fillers for GAMMATHETA. This helps fillers stay highly filled and enhances integration with the resin; as a result, its strength as a hybrid material is greatly improved.

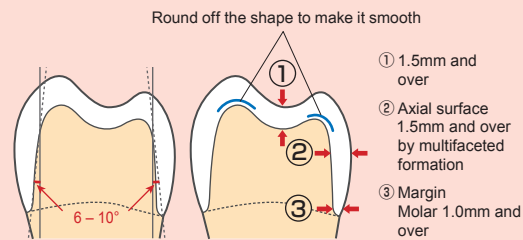


Since elution of components from a material has an impact on the degradation of its strength, GAMMATHETA is designed to exhibit maximum function with the minimum amount of fluoride sustained release. GAMMATHETA has higher strength and durability than BLOCK 2 and exhibits anti-bacteria-adherence properties equivalent to BLOCK 2 at the same time.



1 Tips for Forming Abutment Tooth

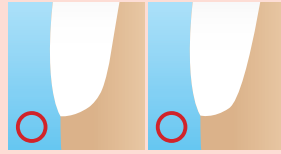
Important Note of Forming



Note: Please prepare a sufficient thickness depending on the case.

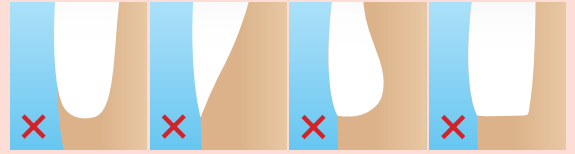
Forming Margin Area

<Recommended Examples>



Rounded Shoulder Deep Chamfer

<Contraindicated Examples>

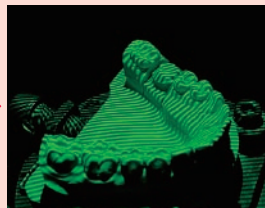


J-Margin Knife-Edge Under Cut Deep Shoulder

2 Flow of Making CAD/CAM Crowns

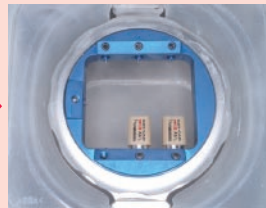


1 Making a Model



2 Scanning the Model

*Delcam Japan Co., Ltd
(iMetric D102)



3 Setting GAMMATHETA

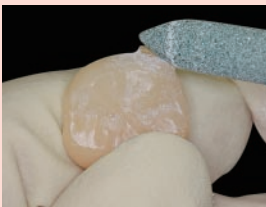
*Roland DGA Corporation
(Dental Milling Machine DWX-50)



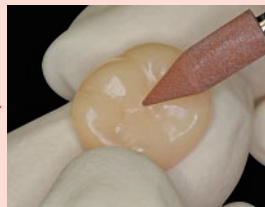
4 Completion of Milling
(L size)



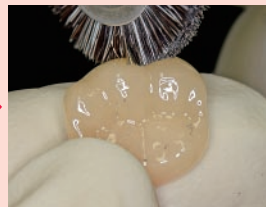
5 Cutting Sprue



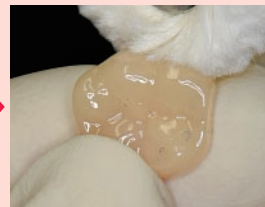
6 Remove Sprue Mark with a
Carborundum Point



7 Removing Scratches with a
Silicone Point



8 Polishing with a Robinson
Brush

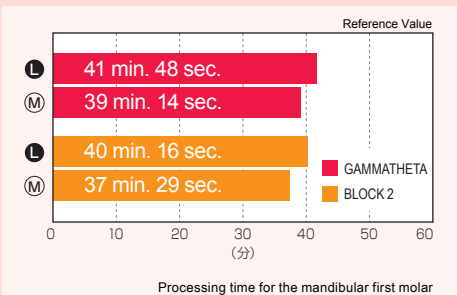


9 Polishing with a Cotton Buff
to Finish

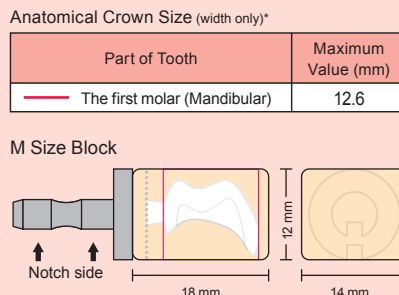


10 Completion

Processing time



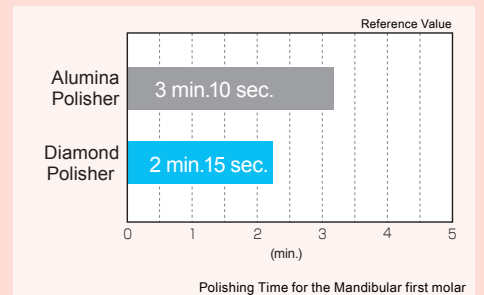
Size of Block and Crown



Even though the size of the mandibular first teeth is the maximum value, M size block is available. Select the size of block considering the milling time and use of milling bur.

*HANIHARA, K., and KOIZUMI, K. (1979). Sexing from Crown Diameters in the Permanent Teeth by Discriminant Function Method. Journal of the Anthropological Society of Nippon, 87(4), 445-456.

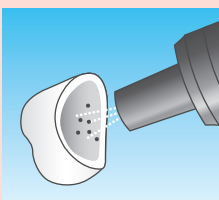
Polishing Time



GAMMATHETA can be polished with an alumina polisher, but C&B DIAMOND POLISHER or C&B NANO DIAMOND POLISHER, which contain diamond particles, are recommended for smooth, quick polishing

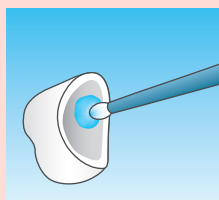


3 Tips for Setting



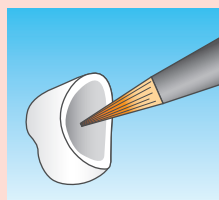
1 Sandblasting with
Alumina

Blast with 50µm alumina particles at a pressure of 0.2 - 0.3 MPa.



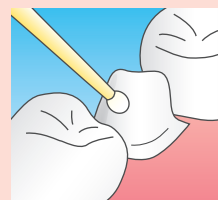
2 Washing with
Phosphoric Acid or cleaner

After trial, always wash the inside of the crown with phosphoric acid or cleaner (Multi Etchant and etc.), then rinse and dry to remove saliva and blood proteins.



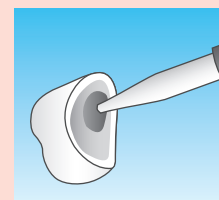
3 Surface treatment

Apply surface treatment agent containing silane coupling for ceramics inside of the crown, and then dry



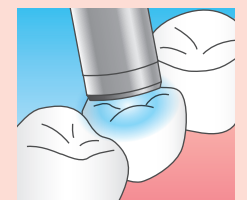
4 Tooth Surface
Treatment

Wash tooth and perform surface treatment in accordance with the appropriate instructions for the cement to be used.



5 Cement Application

Apply resin cement for CAD/CAM hybrid ceramics block inside the crown in accordance with the proper operational instructions.



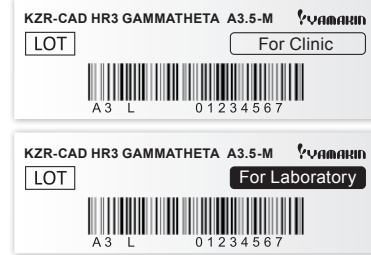
6 Pressing Down and
Light-Curing

Press it down to fit and light-cure in accordance with normal operational instructions. Then, remove surplus cement and light-cure sufficiently as a final curing.

Traceability Sticker

Traceability stickers for each clinic and laboratory are enclosed with each block.

Lot number, shade, and size are indicated on the sticker.



The traceability sticker, actual size

Certification Sticker for CAD/CAM crowns by JDMAS

Certification Sticker for CAD/CAM crowns by JDMAS
The certification sticker is attached to product which is confirmed to conform with the standard JDMAS 245:2017 and confirmed as suitable for use on molars by the Japan Dental Materials Manufacturers Association. A rectangular sticker is attached on a box of one. A round sticker is attached on a box of five.

Note: Flexural strength testing is required to be done by a third-party testing body which is assigned by the Japan Dental Materials Manufacturers Association, using test jigs and protocols prescribed by the Japan Dental Materials Manufacturers Association.



1 pc

5 pcs



Hybrid Ceramics Block for CAD/CAM

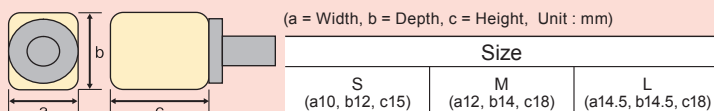
Hybrid Ceramics Block for CAD/CAM

KZR-CAD HR3 GAMMATHETA



Shade	QTY per box	Size		
		S	M	L
A2	1 pc	1 notch		
A3		✓	✓	
A3.5				
A2	5 pcs		✓	✓
A3		✓		
A3.5				

Size



Material Properties (Reference Value)

Three-Point Flexural Strength(MPa)		Vickers hardness* (HV0.2)	Radiopacity and Fluorescence	Fluoride Sustained Release
Without Water Immersion	After 7 Days of Immersion* in Water			
300 ± 20	270 ± 20	90 ± 5	✓	✓

*JDMAS 245: 2017
Note: The figures given are for reference purposes and are not specifications.