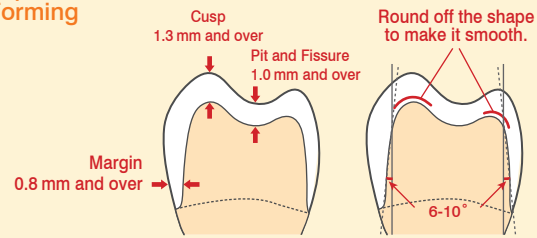


## Operations of KZR-CAD Hybrid Ceramics Block 2

### 1 Key Points of Forming Abutment Tooth

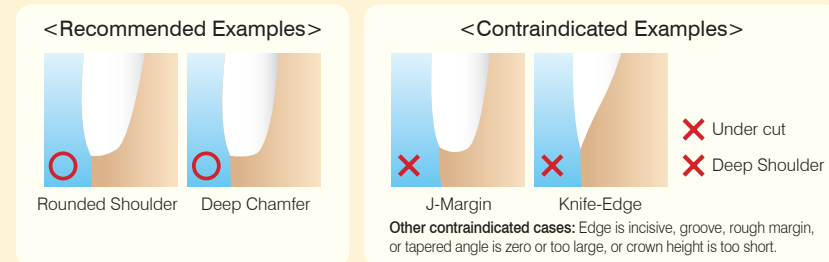
#### Important Note of Forming



Please prepare a sufficient thickness depending on the case.

Clearance and shape when forming an abutment are also important points for attention. Contraindicated cases should be avoided, as inaccurate or insufficient fitting increases the risk of detachment.

#### Forming Margin Area

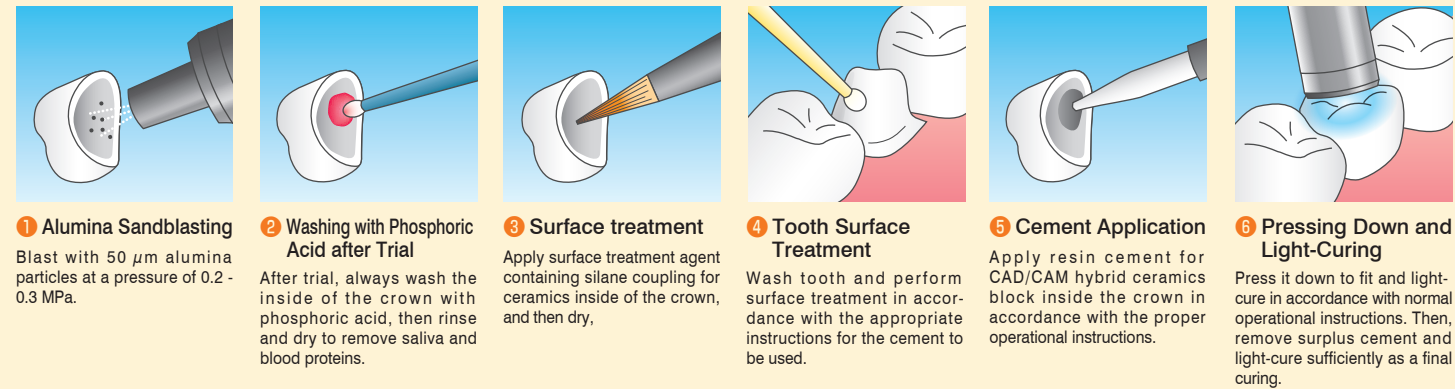


### 2 Flow of Making CAD/CAM Crowns



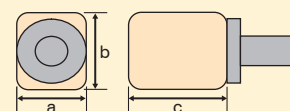
\*1 \*2  
Polishing of KZR-CAD HR 2 can be performed to a high level of glaze not only with diamond polisher for hybrid resin but also with general alumina polisher.

### 3 Key Points of Setting



#### Lineup

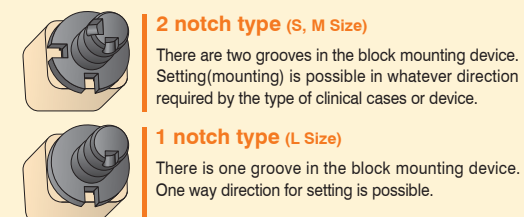
The product Line-Up has 3 sizes, S, M and L.



Shade	Quantity	Size		
		2 notch type	1 notch type	
A2	5 pcs	S	M	L
A3		a10, b12, c15	a12, b14, c18	a14.5, b14.5, c18
A3.5				

The mounting jig comes with two notch, for S and M size and with one notch for L size.

#### The Features of Mounting Device



Manufactured by  
**YAMAKIN CO., LTD.**  
1090-3 Otani, Kamibun, Kagami-cho,  
Konan-shi, Kochi, 781-5451 Japan  
<http://www.yamakin-global.com>

Head Office: 3-7 Sanadayama-cho Tennoji-ku Osaka 543-0015, Japan  
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E: [contact@yamakin-gold.co.jp](mailto:contact@yamakin-gold.co.jp)

ISO 9001/13485  
ISO 14001  
CERTIFIED  
TUV  
SCOPE: Headquarters and Kochi Plant  
QA/JP/0455  
SCOPE: Kochi Plant  
**CE 0123**  
INTERNATIONAL20170710

## Hybrid Ceramics Block for CAD/CAM Use KZR-CAD HR 2

Shades: A2, A3, A3.5

*Yamakin's new Block has been improved even more!  
A Blend of Outstanding Physical Properties,  
High-Speed Polishing and  
Fluoride Sustained Release.*



Made in  
**JAPAN**

Yamakin's new BLOCK became one of Japan's best selling CAD/CAM Hybrid Ceramics/Resin blocks.



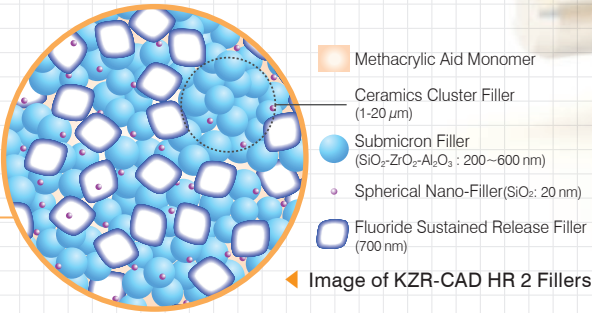


# Hybrid Ceramics Block for CAD/CAM Use

# KZR-CAD HR 2

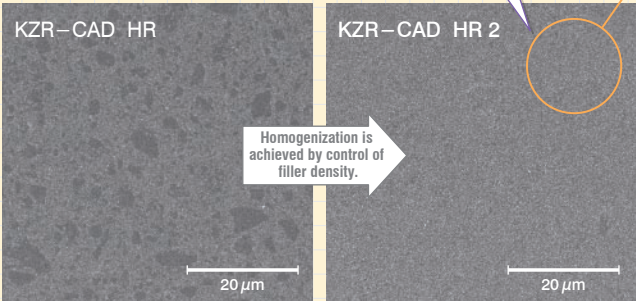
Yamakin has improved our unique materials technology even further and developed an even better CAD/CAM Block.

At Yamakin, we have been pushing forward to evolve our in-house-developed Ceramics Cluster Filler even further, to expand its range with new functions. As a result, we have completed KZR-CAD HR Block 2 (HR 2) which has outstanding strength and durability. At the same time, it also has excellent processability and polishability and fluoride sustained release. KZR-CAD HR Block 2 helps to streamline operations not only in the laboratory but also at the clinic, to make polishing operations go smoothly after occlusal adjustment. It is less likely to wear natural teeth and maintains glaze. KZR-CAD HR 2 is the CAD/CAM block that perfectly meets user's needs.



## The Evolution of Ceramics Cluster Filler

SEM Image (×1,000)



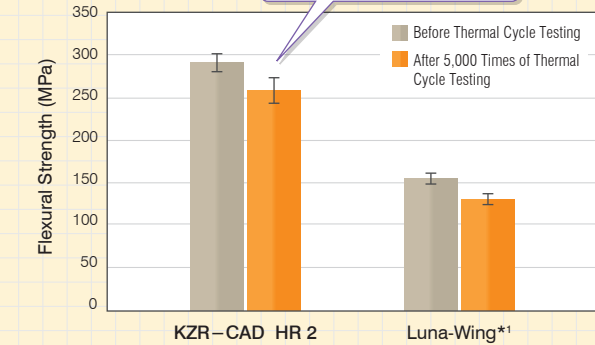
Polishability and abrasion resistance are improved by homogenization.

Homogenization is achieved by control of filler density.

The particle density of the ceramics cluster filler used for KZR-CAD HR 2 is controlled to be 1 to 20 μm and have almost the same density as the matrix area shown in the picture on the right. As a result, the surface is so homogenized that the filler cannot be recognized even under 1,000 magnification. While it maintains outstanding strength and durability, it also succeeds in dramatically improving polishability and abrasion resistance.

## Outstanding Strength and Durability

Flexural Strength

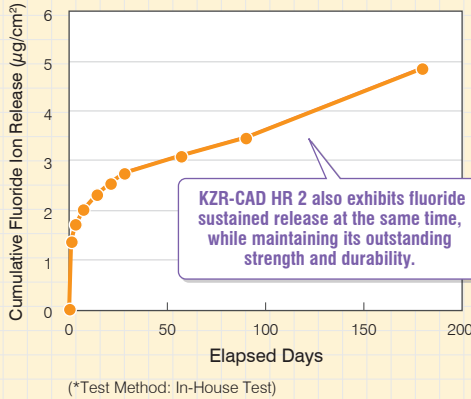


KZR-CAD HR 2 has maintained high flexural strength of over 250 MPa and it has the excellent durability even after thermal cycle testing (5,000 times at 4-60 °C, equivalent to about 1 year and a half \*2).

\*2) Assuming 10 thermal changes a day.

## Long-term Sustained Release of Fluoride

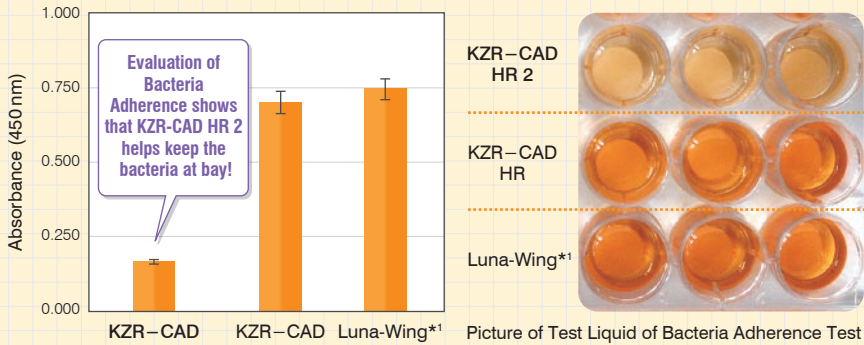
Fluoride Sustained Release



KZR-CAD HR 2 continuously releases fluoride ion securely, and stably maintains its strength by optimization of the surface-treatment conditions of fluoride ion release filler.

## Combatting Bacteria Adherence

Evaluation of Bacteria Adherence



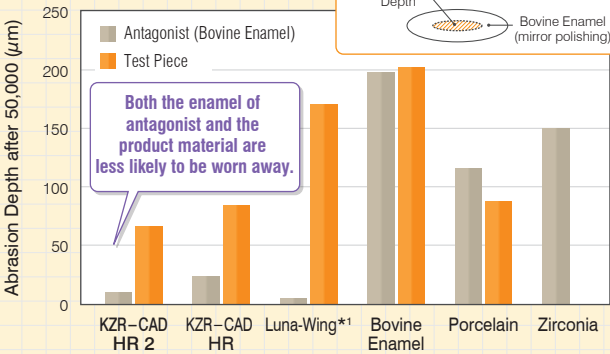
(\*1: Indirect Composite Resin) It has been demonstrated that bacteria adherence is less where absorbance values are lower and where the color is fainter, as in the picture.

Under evaluation of bacteria adherence, it is recognized that the *streptococcus mutans* bacteria, which forms plaque in the mouth, tends to adhere less to KZR-CAD HR 2. Moreover, Yamakin has carried out a wide range of safety evaluations on cells under simulated oral conditions, in collaboration with the Department of Oral and Maxillofacial Surgery, Kochi Medical School, Kochi University.

Reference: Hybrid Indirect Composite Resin Safety Evaluation Report Biological Evaluation of "TWINY" (Safety Reports No.8)

## High Abrasion Resistance

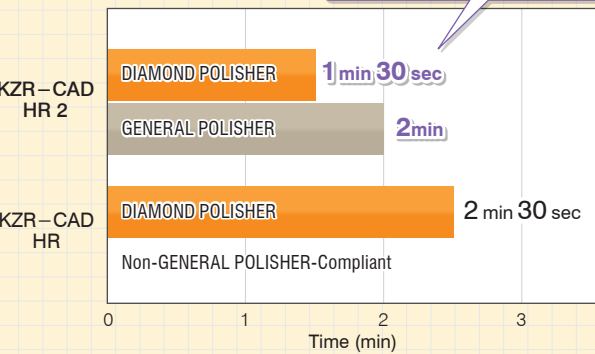
Abrasion Test of Opposing Tooth



KZR-CAD HR 2 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 by the way the product keeps a moderate level of abrasiveness.

## Excellent Processability

Polishing Time for Glazing

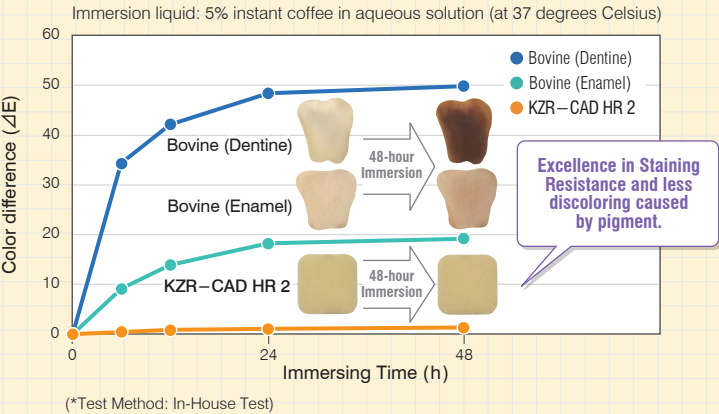


Polisher: C&B DIAMOND POLISHER, C&B NANO DIAMOND POLISHER, manufactured by Yamakin. The data below has been gathered following Yamakin's set procedures, and values may vary depending on the conditions prevailing. The figure shows data for a case in which an S-size block is used for a premolar.

KZR-CAD HR 2 is the new block for CAD/CAM. It has excellent processability and polishability, while maintaining outstanding strength and durability. This is achieved by adding homogenization technology of our ceramics cluster filler.

## Excellent Discoloring Resistance and Staining Resistance

Evaluation of Staining Resistance by Coffee



Since KZR-CAD HR 2 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).



KZR-CAD HR 2 achieves new levels of performance while maintaining the excellent properties of Yamakin's previous KZR-CAD HR products.

## Properties (reference value)

			HR 2
Flexural Strength	Three Point Flexural Test*1)	MPa	235
	Double-Axis Flexural Test*2)	MPa	290
Vickers Hardness		HV0.2	85
X-Ray Imaging Characteristic/Fluorescence			Yes
Fluoride Sustained Release			Yes
Combatting Bacteria Adherence			Yes

The figures given are for reference purposes and are not specifications.

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

\*2 Two-point bending test: ISO6872 (Diameter of supporting disc: 12 mm)