

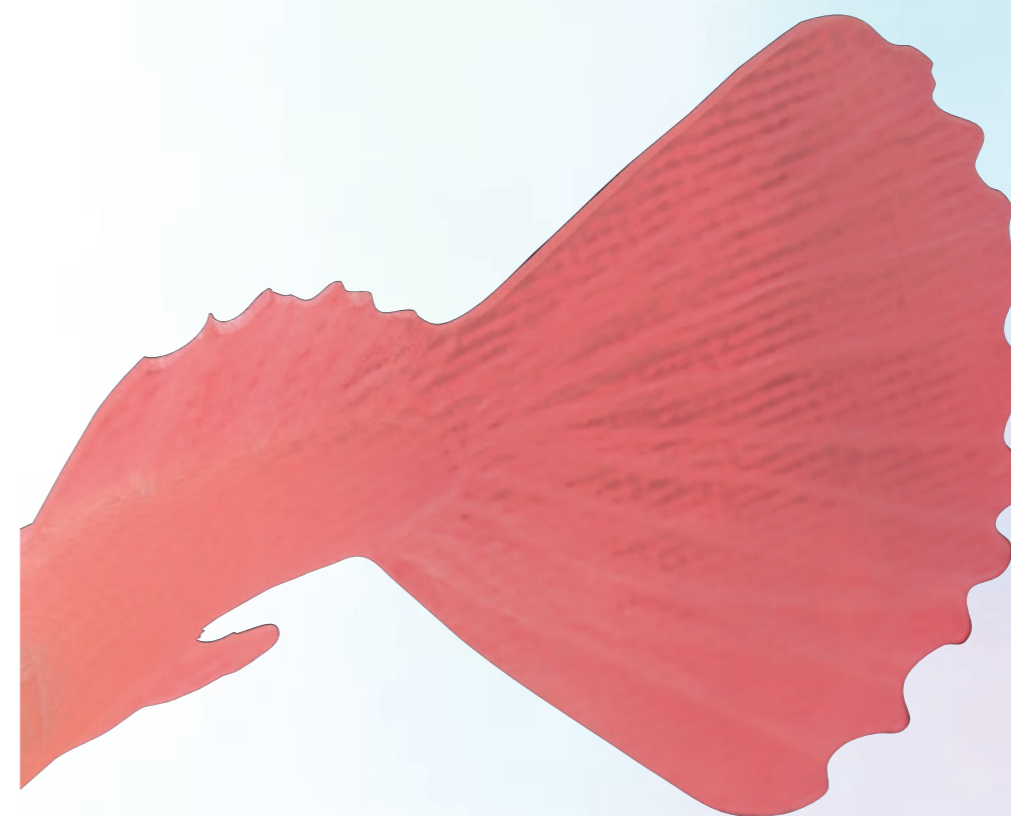
KZR-CAD Fiber Block Frame



KZR-CAD Fiber Block **Frame**

Aim to make a new era of metal free.

Glass fiber reinforced resin material for CAD/CAM



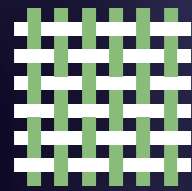
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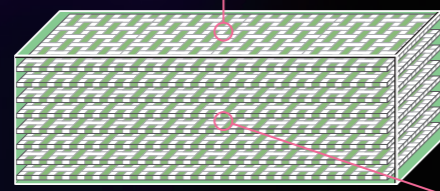
The structure of KZR-CAD Fiber Block Frame

Drawings of the structure of KZR-CAD Fiber Block Frame



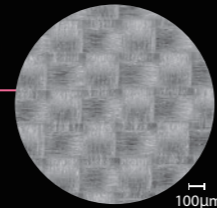
Glass fibres in sheet forms

Laminated and impregnated with resin, polymerized in a block form including glass fibres with high density.

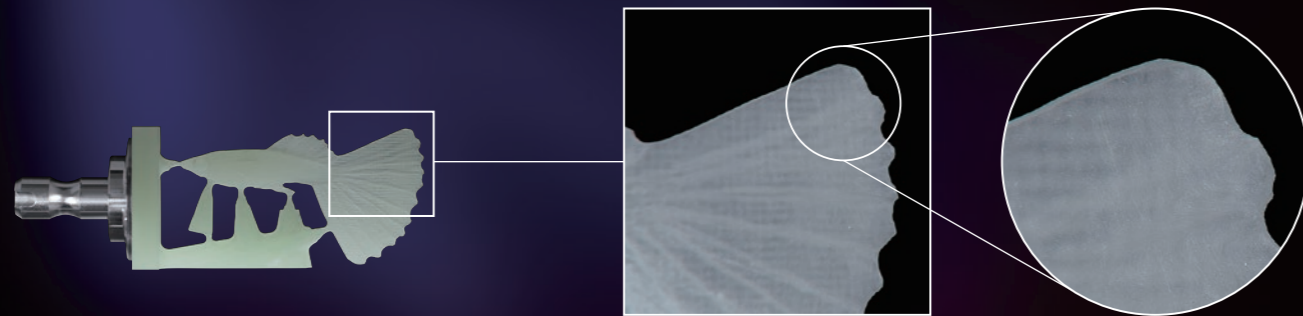
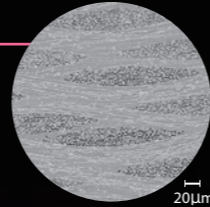
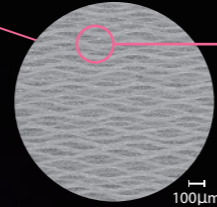


Glass fiber reinforced resin material for CAD/CAM, "Fiber Block"

Horizontal surface
(before resin impregnation)
Glass fiber structure before resin impregnation that is easily observed.



Vertical surface
(after resin impregnation)

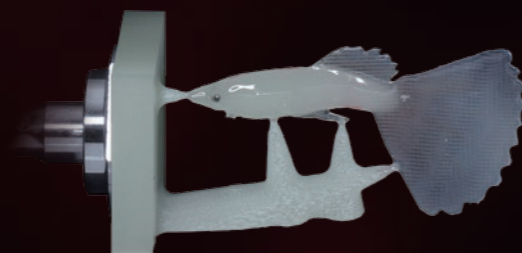


Milled a guppy model from KZR-CAD Fiber Block Frame that has a tail fin with 0.3mm thickness.

The tail fin can be processed thinly and in high definitions, with a smooth surface finish without fluffed glass fiber.

Fiber Block
Guppy Project

A guppy was milled from KZR-CAD Fiber Block Frame to verify machinability and accuracy. Even though the tail fin is very thin, it could be reproduced realistically without any chipping.



Nule Coat is applied to characterize the model.

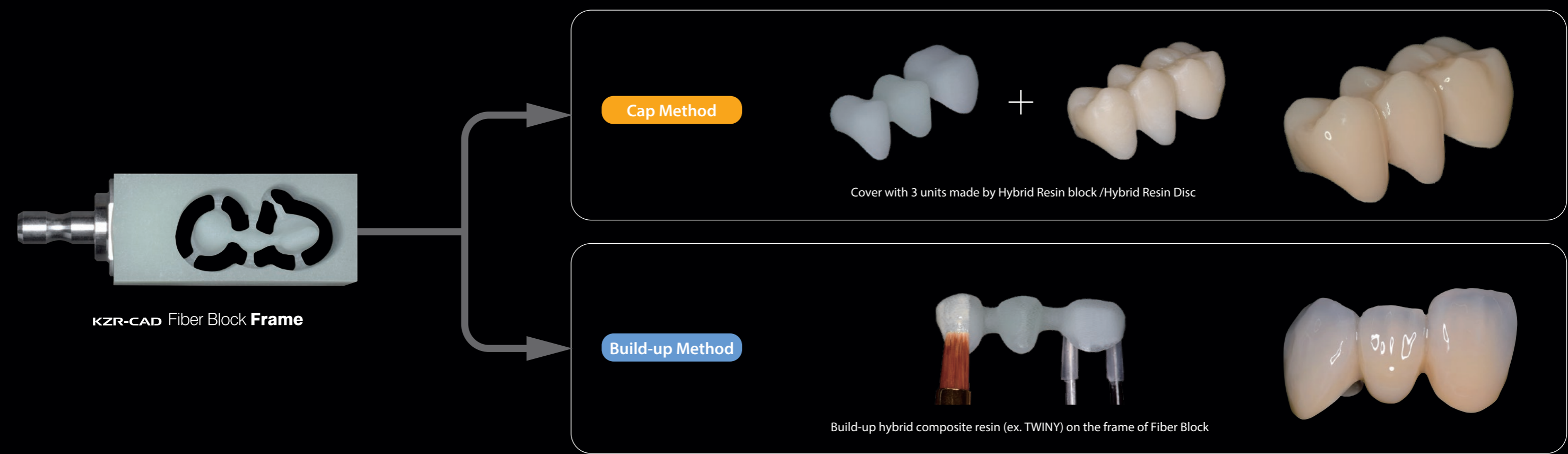
3 Unit Bridge Case

Right maxilla ① 2 ③ and ④ 5 ⑥ / Left maxilla ① 2 ③ and ④ 5 ⑥

*Right maxilla is older teeth and left maxilla is younger teeth.



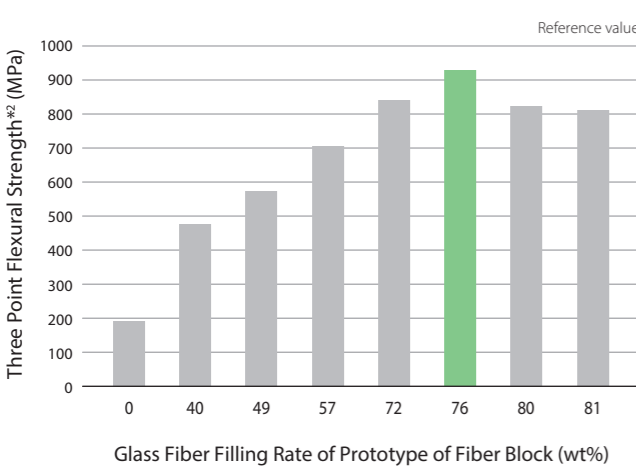
Fusion of Master Techniques and Digital Technology to Aim Metal Free



A Frame Material for CAD/CAM Use that Realized Flexural Strength 800 MPa

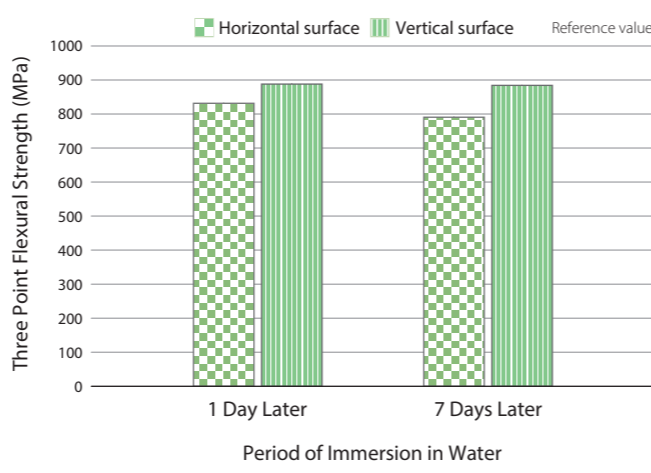
Glass Fiber Filling Rate

KZR-CAD Fiber Block Frame is designed for the glass fiber filling rate approximately 76 wt% which gives the highest flexural strength. (flexural strength when load is applied to a vertical surface*)



Flexural Strength

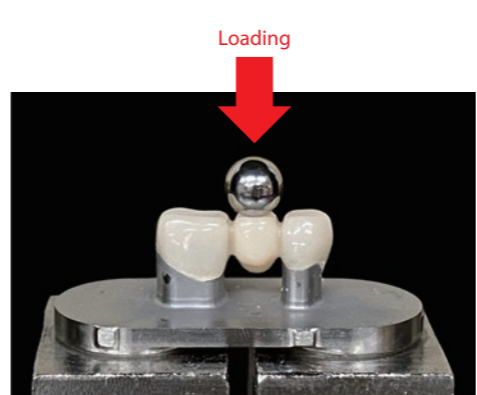
Load tests on the horizontal and vertical surfaces*1 of KZR-CAD Fiber Block Frame specimens*3 show a high flexural strength of approximately 800 MPa in both surfaces, with little loss of strength even after 7 days of immersion in water.



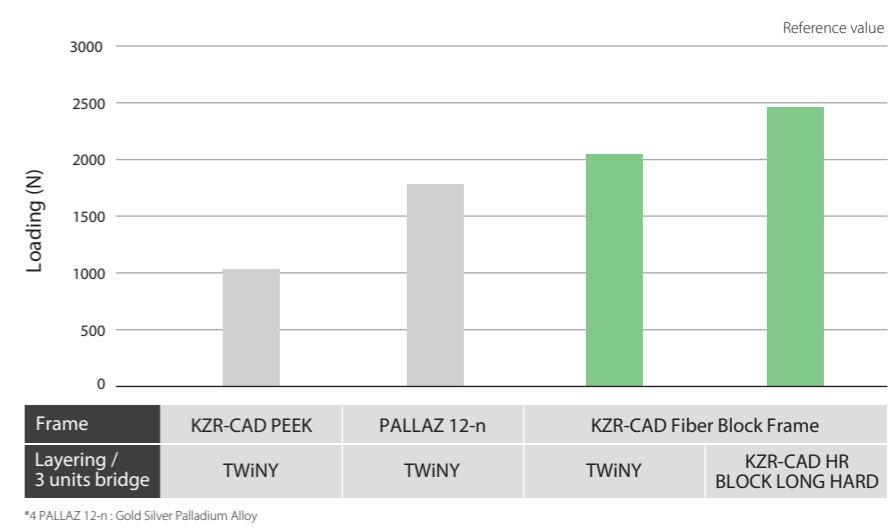
*1 Please refer "Drawings of the structure of KZR-CAD Fiber Block Frame" on page 2.
*2 JIS T 6517: 2011 Dental synthetic resins for crown and bridge
*3 Made a measurement with the shape of specimens of JDMAS 245; 2020 Resin Material for Dental Milling and Machining

Breaking Strength (3 units bridge shape)

Bridges whose frame with KZR-CAD Fiber Block Frame are as strong as or stronger than those with PALLAZ 12-n**4 in both cases of layering with TWiNY or 3 units bridge of KZR-CAD HR BLOCK LONG HARD. The breaking strength of bridges whose frame is made with KZR-CAD Fiber Block Frame is higher than that of made with KZR-CAD PEEK (over 1,000 N).



A fracture specimen and the direction of loading

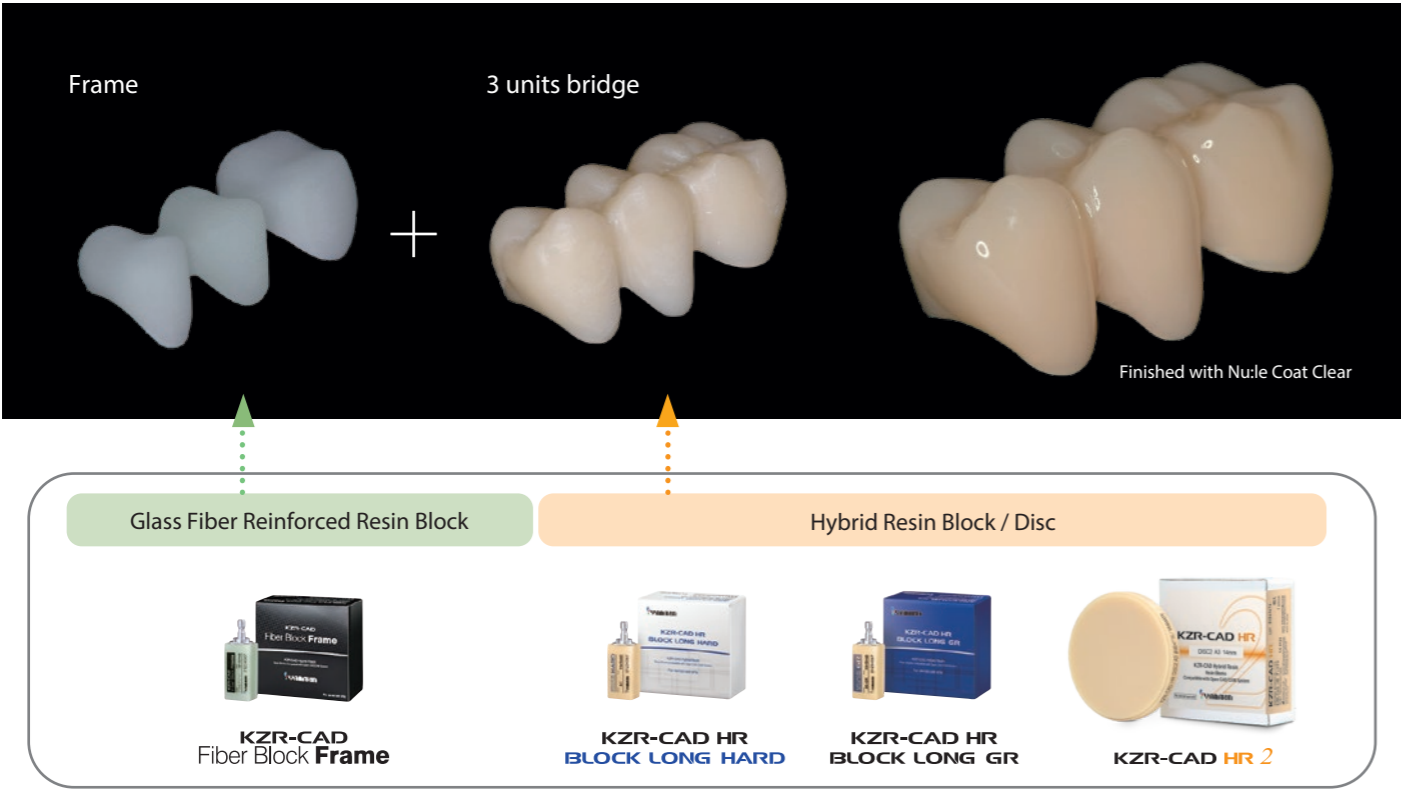


*4 PALLAZ 12-n : Gold Silver Palladium Alloy

Cap Method

Further Digitalization of Bridge Making

This is a method of cementing a frame and a 3 units bridge that are both CAD/CAM processed.



Flow of Cap Method

1

Scanning the model and CAD design of the frame.

2

Milling the frame from KZR-CAD Fiber Block Frame. (After milling, cut it out using a carbide bar or similar tool and adjust)

3

Alumina sandblasting (0.2-0.3MPa) on the surface of the frame, cleaning and drying. Then, apply a surface treatment agent including silane coupling agent.

4

Apply Opaque of hybrid composite resin (ex.TWINY) and light curing. Then, remove unpolymerized layer of the surface.

5

Set the frame on the model and rescan, and CAD design of 3 units bridge.

NOTE : Please design the bridge not to expose the frame in the surface of the bridge.

6

Milling a 3 unit bridge from KZR-CAD HR BLOCK LONG HARD / GR / HR Disc 2. (After milling, cut it out using a carbide bar or similar tool and adjust)

7

Alumina sandblasting (0.2-0.3MPa) on the inside of the bridge, cleaning and drying. Then, apply a surface treatment agent including silane coupling agent.

8

Apply the surface treatment agent including silane coupling agent on the frame of 4. Filling a resin cement, or flow type of hybrid composite resin (ex. TWINY Flow) into inside the bridge, and placing and pushing on the frame. Remove the exceed resin and curing.

9

Apply hybrid composite resin (ex.TWINY) on the bottom of pontic, lower part of the connection point and the margin part if it is short margin no to expose the frame.

Nu:le Coat can be used for glazing or characterizing.

A Molar 3 Units Bridge of Cap Method

Right maxilla ④⑤⑥

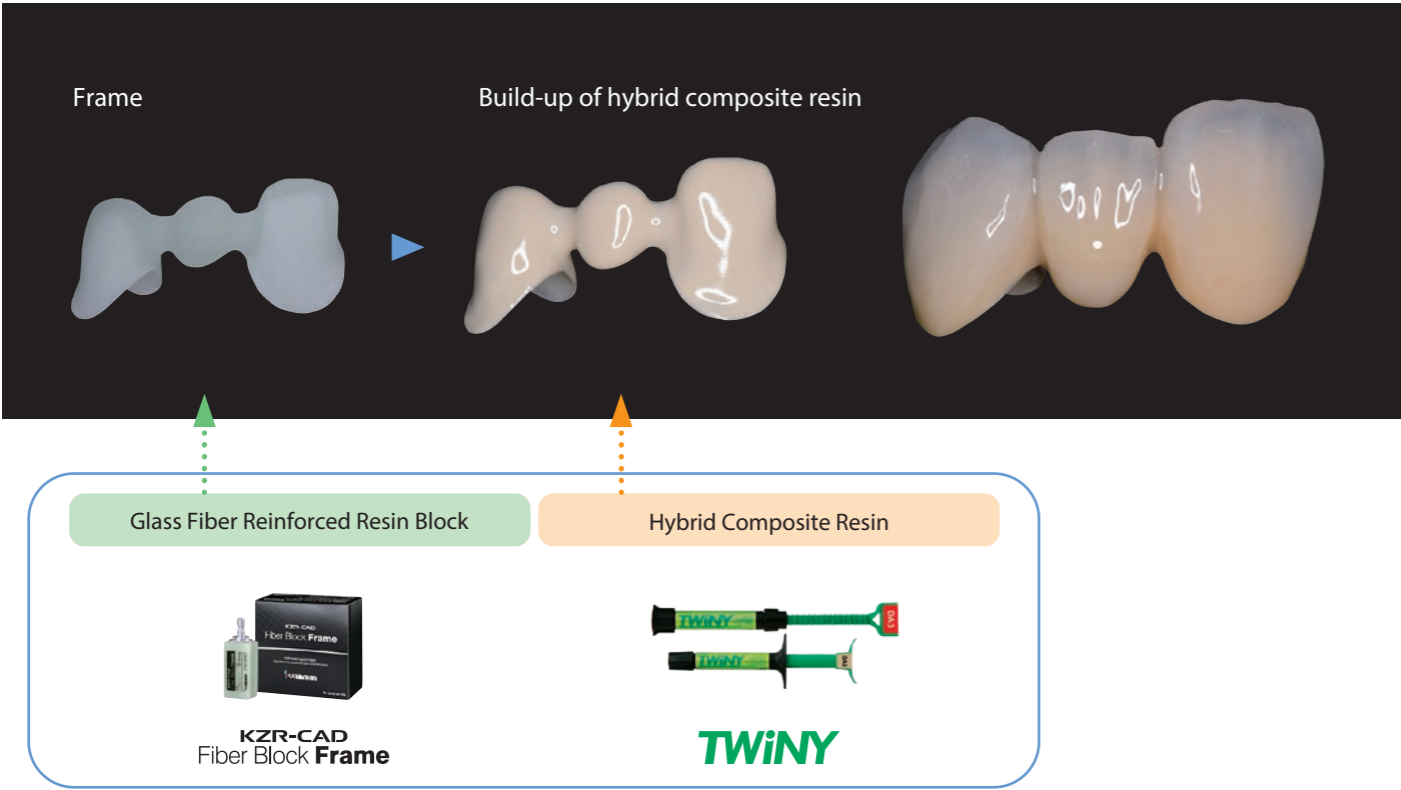


Image

Build-up Method

Fusion of Master Techniques and Digital Technology

This is a method of build-up hybrid composite resin (ex.TWiNY) on the frame milled from KZR-CAD Fiber Block Frame.



Flow of build-up method



1 Milling the frame from KZR-CAD Fiber Block Frame. (After milling, cut it out using a carbide bar or similar tool and adjust)



2 Alumina sandblasting (0.2-0.3MPa) on the surface of the frame, cleaning and drying. Then, apply a surface treatment agent including silane coupling agent.



3 Apply Opaque of hybrid composite resin (ex.TWiNY) and light curing.



4 Apply hybrid composite resin on the whole surface and light curing.



5 Correct and adjust the shape and heat curing.



6 Polishing then completion.

Curing Time		
Step	LED CURE Master	Other General Light Curing Machines
Light curing of Multi Primer Repair Liquid One	About 10 sec.	About 60 sec.
Light curing of TWiNY Opaque	About 30 sec.	About 180 sec.
Light curing of body resin of TWiNY	About 10 sec.	About 60 sec.
Light curing of body resin of TWiNY Flow	About 10 sec.	About 60 sec.
Final light curing of TWiNY	About 90 sec.	About 180 sec.
Heat curing of TWiNY	About 110°C, 15 min.	

Clinical Case

Left maxilla ④⑤⑥



Before treatment



After removal



After treatment



Photos provided by : HARA Dental Clinic (Tokorozawa, Saitama Prefecture, Japan); Dr. Tomoki Hara)

Formation of Abutment tooth and Restoration Design

Please cover whole surface not to expose this product using hybrid composite resin (ex. TWiNY)

	Occlusal surface・Incisal edge	Axial surface	Margin area	Connection parts
Frame	0.5 mm or more	0.5 mm or more	0.5 mm or more	Height : 2 mm or more Cross-sectional area of anterior teeth : 7 mm ² or more Cross-sectional area of posterior teeth : 8 mm ² or more
3 units bridge (Cap Method)	1.0 mm or more	0.8 mm or more	0.5 mm or more	1.0 mm or more Build-up hybrid composite resin 1.0 mm or more for the lower parts of connection parts.
Hybrid Composite Resin (Build-up Method)	1.0 mm or more	0.8 mm or more	0.5 mm or more	Build-up hybrid composite resin 1.0 mm or more around the connection parts.

NOTE 1 : The frame should be thicker if sufficient thickness can be obtained, except in areas of direct occlusal pressure on the occlusal and lingual surfaces.

NOTE 2 : Corner radius at the connection parts of the crown and the pontic shall be 0.4 mm or more.

Please read the instruction of use of this product and related materials carefully before use.

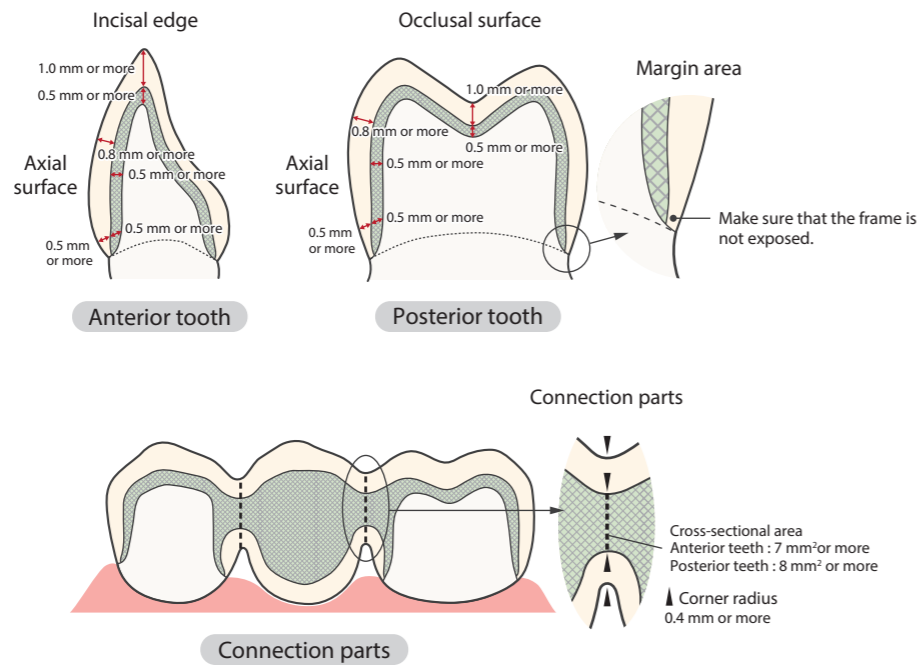
• The abutment teeth should be formed to ensure a thickness of at least 1.5 mm or more at the occlusal surface and incisal edge, 1.3 mm or more at the axial surface, 1.0 mm or more at the margin parts and 4 mm or more at the height of the connection parts, so that the restoration shown in the table on the left can be designed.

• Margin areas shall be formed with a deep chamfer or a rounded shoulder to avoid rough margins.

• Restorations should strictly adhere to the thicknesses and precautions in the table on the left and be designed so that the frame should be thicker if sufficient thickness can be obtained, except in areas of direct occlusal pressure on the occlusal and lingual surfaces.

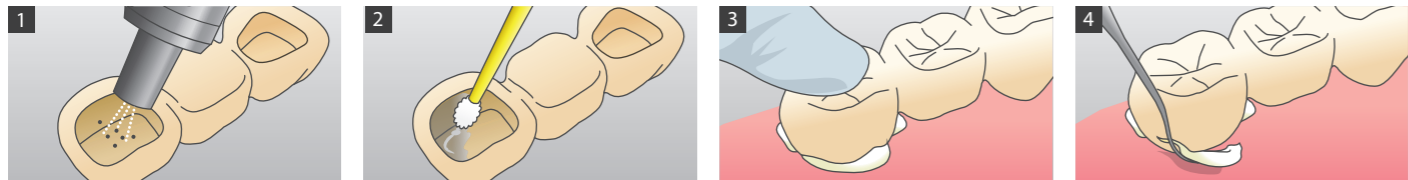
• In the case of cap method, the lower part of the connection parts and the bottom surface of the pontic should be covered with hybrid composite resin, so that the frame is not exposed.

• In the case of build-up method, hybrid composite resin should be used and should cover whole surface so that the frame is not exposed on the gingival side of the pontic part or on the occlusal surface.



Intraoral Setting

Set intraorally using dual-cure or chemically-cured dental adhesive resin cements. Follow the instruction for use for the material used.



1 Almina sandblasting with 50μm (about 0.2-0.3MPa) on the adhered surface, rinsing with water and drying.

2 After try-in, the adhered surface is coated with phosphoric acid etching material, rinsed with water and dried. Then, the adhered surface is surface treated with a primer including a silane coupling agent.

If sandblasting is carried out after try-in, application of phosphoric acid etching material is not required.

3 Apply dental adhesive resin cement and press hard for setting the restoration.

4 Remove the excess cement.

Line-up

KZR-CAD Fiber Block Frame



Block Size

Size	a	b	c
15×19×40	15.5	19	40

Ivory is the same size as Glassgreen. (mm)

Color : Glassgreen
Ivory

Contents
• 1 pcs
• 3 pcs

Related Products

KZR-CAD HR BLOCK LONG HARD



KZR-CAD HR BLOCK LONG GR



Line-up

Product	Shade	Size (mm)
KZR-CAD HR BLOCK LONG HARD	A2	15×19×40
	A3	
KZR-CAD HR BLOCK LONG GR	A2-GR	15.5 19 40
	A3-GR	

Contents
• 1 pcs
• 3 pcs

Twiny



Indirect composite resin

Multi Primer



Bonding material for dental metal, dental ceramics and composite resin

LED CURE Master



LED light cure apparatus

Nu+le Coat



Characterization material for resin
Pre-treatment for PEEK

KZR-CAD HR 2



Hybrid Ceramics Disc for CAD/CAM Use