

# **KATANA™ Zirconia**

**YML** *Yttria Multi Layered*

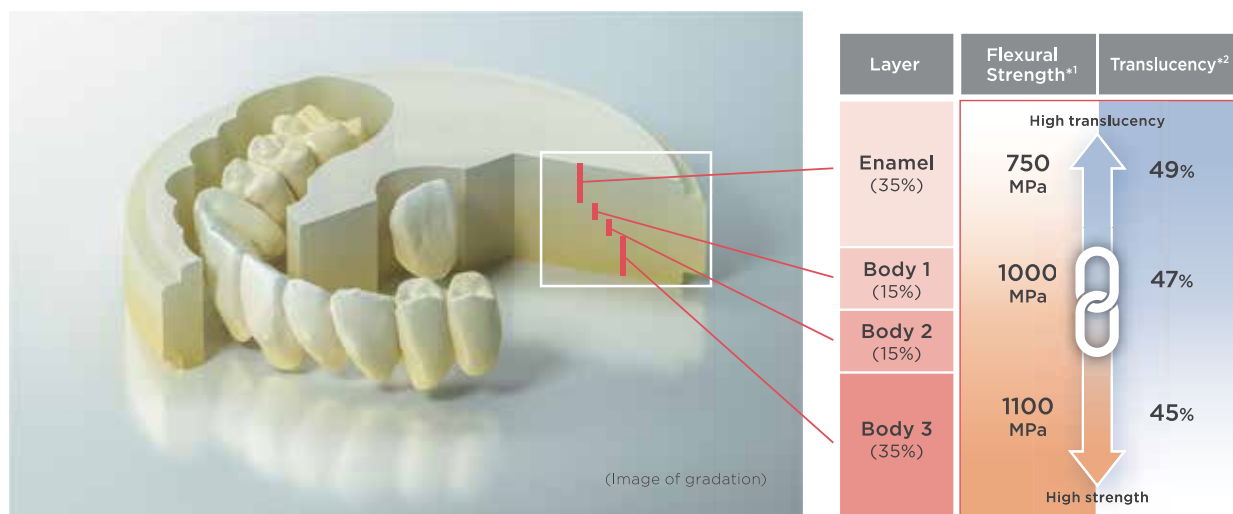
## TECHNICAL GUIDE



## Excellent Esthetic Potential for Zirconia Dental Restorations

Combining high translucency and strength, the best features of the well-known KATANA™ series are synergized in one disc: KATANA™ Zirconia YML. Ideal for highly esthetic anterior restorations that require high translucency and long-span bridges that require high strength - one single disc is now all you need.

This technical guide explains important aspects to achieve superior restorations with KATANA™ Zirconia YML.



Measurement Conditions: Evaluated by base material (white color)

\*1 According to ISO 6872: 2015, Sample Size: 3 x 4 x 40mm

\*2 All Light Transmittance, Illuminant: D65, Thickness of Sample: 1.0mm

Percentage is the thickness of each in a disc

Data Source: Kuraray Noritake Dental Inc.  
The numerical value varies according to the conditions.

### Restoration process



# 1

## Disc Selection, Shade and Thickness

Select the target shade and the correct disc thickness to achieve an appropriate gradation between crown length, enamel and body (dentin).

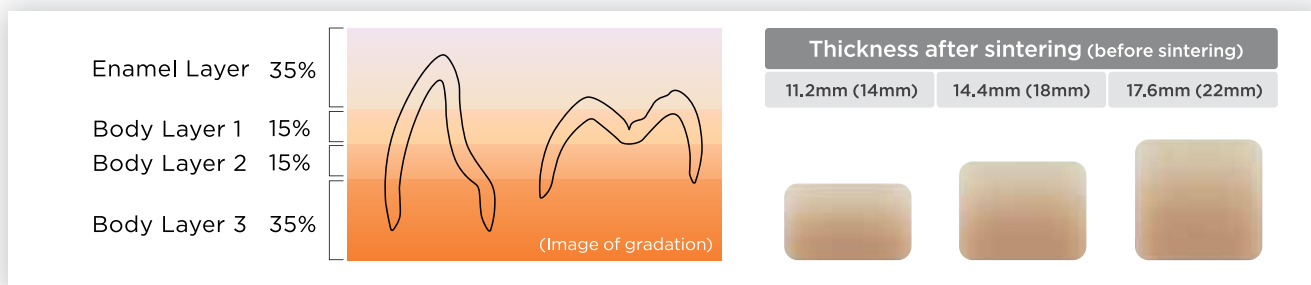
### Shade / Thickness Selection

Series	Shade								Size (Diameter/Thickness)
<b>YML</b>	A1	A2	A3	A3.5	A4	B1	B2	B3	98.5mm/14, 18, 22mm
	C1	C2	C3	D2	D3	NW			



KATANA™ Zirconia YML color should be set for glazing, and for polishing, it tends to become darker during the polishing procedure. Therefore, select lighter shade than the target shade color.

### Gradation Image and Thickness



To fabricate an anterior crown of 11 mm in length, we recommend using an 18mm disc with a better color gradation for restorations (14.4 mm after sintering), to fabricate a 7 mm posterior crown, use a 14 mm disc (11.2 mm after sintering) to cover and exploit the enamel layer up to the body (dentin) layer in the best possible way.

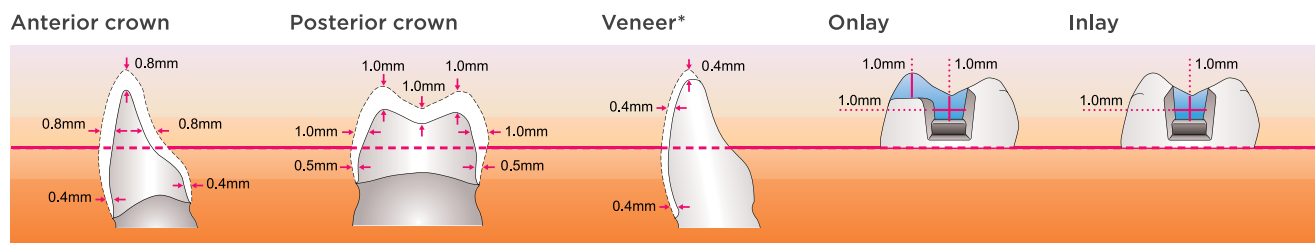
# 2

## Framework Design and Milling Process

### Anterior Crown, Veneer, Posterior Crown, Inlay, Onlay

For successful fabrication of a restoration, it is essential to observe the minimum wall thicknesses\*. Please keep in mind the following:

### Minimum Wall Thickness of Zirconia



- \*1 The thickness specifications apply to full zirconia restorations. The thickness of build-up porcelain is not included.
- \*2 The minimum wall thicknesses apply to full zirconia restoration or to frame-work for build-up porcelain restoration. In these cases, 0.4 mm (anterior) or 0.5 mm (posterior) should be kept for the area located in the bottom (lower) half of the disc.
- \*3 If full zirconia veneer restoration is used in combination with the porcelain, 0.8 mm or more should be kept for the area located in the upper half of the disc.

## Connector Cross-Section Guidelines

Please observe the following guidelines of applicable cross-section wall thickness:

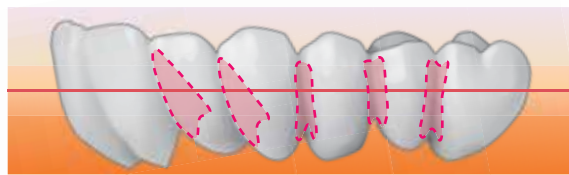
Location and Indication	Connector Cross Section*
<b>Anterior 2-3 units</b>	7mm <sup>2</sup> or more
<b>Anterior 4 units or more</b>	9mm <sup>2</sup> or more
<b>Posterior 2-3 units</b>	9mm <sup>2</sup> or more
<b>Posterior 4 units or more</b>	9mm <sup>2</sup> or more



Minimum size if more than half of the cross-section areas are in the bottom half of disc (up to 50% height from the bottom [lower]).

## Setting Position Relative To Cross-Section

Enamel Layer 35%  
Body Layer 1 15%  
Body Layer 2 15%  
Body Layer 3 35%



	3 units or less	4 units or more
<b>a</b>	Anterior 12mm <sup>2</sup> ≥ Posterior 16mm <sup>2</sup> ≥	N/A
<b>b</b>	Anterior 7mm <sup>2</sup> ≥ Posterior 9mm <sup>2</sup> ≥	Anterior 9mm <sup>2</sup> ≥ Posterior 9mm <sup>2</sup> ≥



### 3 units or less

Connector cross-section area can be placed in any layer.

**a** [The maximum number of pontics is one. Not suitable for a cantilevered bridge.]

### 4 units or more

At least 50% of the connector cross-section should be positioned in the bottom (lower) half of the disc.

**b** [The maximum number of pontics between two abutments (teeth) should not exceed two. For cantilever bridges, keep the number of pontics at one. In this case, the connector cross-section must be at least 12 mm<sup>2</sup>.]

## 3

## Sintering and Adjusting

Please follow the sintering schedule. After the sintering process, corrections of the framework and the marginal areas can be made.

	Temp.1	Rate of Temp. Increase °C/°F min	Temp.2	Rate of Temp. Increase °C/°F min	Temp.3	Rate of Temp. Increase °C/°F min	Temp.4	Hold Time	Rate of Temp. Decrease °C/°F min	Temp.5
<b>90-minute</b>	Room Temp.	50°C/90°F	1400°C/2552°F	4°C/7°F	1500°C/2732°F	10°C/18°F	1560°C/2840°F	16-min.	-50°C/90°F	800°C/1472°F
<b>7-hour</b>	Room Temp.	10°C/18°F	1550°C/2822°F	-	-	-	-	2-hour	-10°C/18°F	RT.



The above sintering recommendations represent only a guideline; depending on each individual furnace and condition, some adjustments might be necessary. If the 54-or 90-minute sintering program is not programmable in your furnace, it is not possible to set the furnace according to one of these schedules.

- 1) Be sure that material is fully cooled to avoid cracking.
- 2) Do not use excess force or work under running water for inside and/or margin adjustment of the sintered restoration.

**Compatible Materials****CERABIEN™ ZR**

FC Paste Stain, FL Glaze, VC Glaze,  
External Stain, Internal Stain, Luster

**CZR Press LF**

LF External Stain, LF Internal Stain,  
LF Luster



Do not mix CERABIEN™ ZR and CZR Press LF powder for build-up.  
Do not use CZR Press (H-Ingot, L-Ingot, Esthetic White Ingot)

**Technical points of finishing**

- 1) Polish the contact surface with opposing tooth and clean the restoration with an ultrasonic cleaner for maximum benefits.
- 2) Always use a standing support pin for glazing, staining and baking porcelain. The baking schedules vary depending on the product, therefore please refer to the corresponding technical instructions.
- 3) Do not continue fabricate until cool down to avoid possible cracks.

## 4-1

## Glazing

## 4-2

## Glazing and Staining

With an integrated translucency, color, and strength gradient, KATANA™ Zirconia YML is designed to achieve highly esthetic results by using a single glazing technique. In case of additional color adjustments or if characterization or individualization are desired, the unique FC Paste Stain can be used to achieve final esthetic results.



After sintering



Create surface details as needed and smoothen of surface (Pre-Polish)



The lingual surfaces contacting the opposing teeth should be polished using PEARL SURFACE™ Z (polishing paste) and a brush.



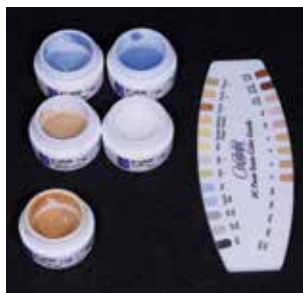
Application of FC Paste Stain Clear Glaze or Glaze

### Glazing



After Bake Glaze

### Staining



FC Paste Stain



After Bake  
FC Paste Stain

## 4-2

## Baking Schedule

### FC Paste Stain Glaze and Stain Baking Schedule (Product used as Zirconia)

Product	Dry-out Time min.	Low Temperature °C/°F	Start Vacuum °C/°F	Heat Rate °C/°F min.	Vacuum Level kPa	Release Vacuum °C/°F	Hold Time in the air min.	High Temperature °C/°F	Cooling Time min.
<b>CERABIEN™ ZR</b> FC Paste Stain Clear Glaze, Glaze Grayish Blue, A+	5	500/932	600/1112	45/81	96	750/1382	1	750/1382	4

### CERABIEN™ ZR Baking Schedule

Baking Schedule	Dry-out Time min.	Low Temperature °C/°F	Start Vacuum °C/°F	Heat Rate °C/°F min.	Vacuum Level kPa	Release Vacuum °C/°F	Hold Time in the air min.	High Temperature °C/°F	Cooling Time min.
<b>Wash Baking</b>	5	600/1112	600/1112	45/81	96	930/1706	1	930/1706	4
<b>Internal Stain*1</b> (After Wash Baking)	5	600/1112	—	50/90	—	—	—	900/1652	4
<b>Translucent Luster</b>	7	600/1112	600/1112	45/81	96	930/1706	1	930/1706	4
<b>External Stain Glaze/ Blue, A+</b>	5	600/1112	—	45/81	—	—	—	930/1706	4
<b>FC Paste Stain*2</b> Glaze/ Blue, A+	5	600/1112	—	45/81	96	—	—	910/1670	4

\*1 If the internal stain is baked directly on the zirconia, it is baked on the same schedule as Wash Baking.

\*2 Product used as CERABIEN™ ZR porcelain.

### CZR Press LF Baking Schedule

Baking Schedule	Dry-out Time min.	Low Temperature °C/°F	Start Vacuum °C/°F	Heat Rate °C/°F min.	Vacuum Level kPa	Release Vacuum °C/°F	Hold Time in the air min.	High Temperature °C/°F	Cooling Time min.
<b>Wash Baking</b>	5	600/1112	600/1112	45/81	96	840/1544	1	840/1544	4
<b>Internal Stain*1</b> (After Wash Baking)	5	600/1112	—	45/81	—	—	—	840/1544	4
<b>Translucent Luster</b>	7	600/1112	600/1112	45/81	96	840/1544	1	840/1544	4
<b>External Stain Glaze/ Blue, A+</b>	5	600/1112	—	45/81	—	—	0.5	840/1544	4
<b>FC Paste Stain*2</b> Glaze/ Blue, A+	5	600/1112	—	45/81	96	—	—	840/1544	4

\*1 If the internal stain is baked directly on the zirconia, it is baked on the same schedule as Wash Baking.

\*2 Product used as CZR PRESS LF Porcelain.

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Before using this product, read the Instructions For Use supplied.  
The specifications and appearance of the product are subject to  
change without notice. Printed color can be slightly different from  
actual shades.

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