



rainbow™  
**Dental Lab System**

**Dentium**  
For Dentists By Dentists

**Dentium**  
For Dentists By Dentists

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rainbow

**Block System**

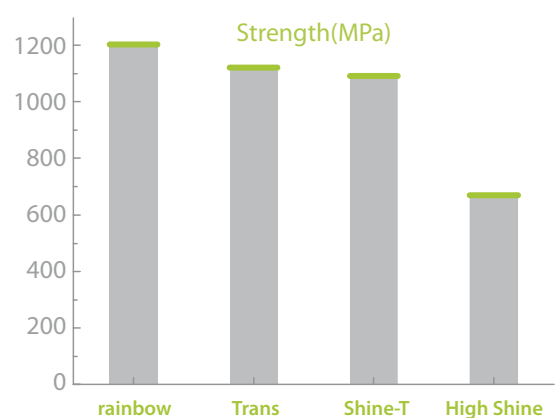
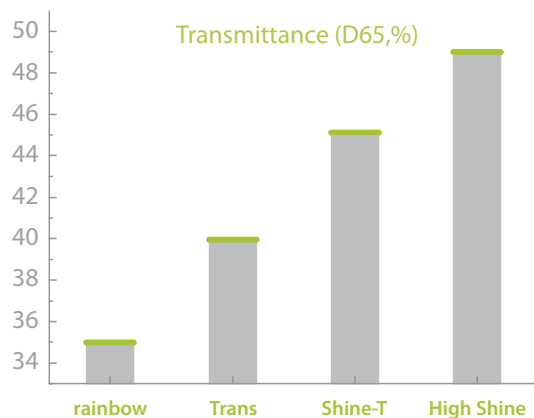
# rainbow™ Block Indication

Case	Single Crown		Bridge(3-unit-Bridge)		Bridge (≥ 4-unit Bridge)
	Anterior Crown	Posterior Crown	Anterior Bridge	Posterior Bridge	
Block					
High Shine	●	○			
Shine-T	●	●	●	●	○
Shade / Trans	○	●	○	●	●

● recommend ○ Possible

- In severe discoloration case, using rainbow™ block is recommended.
- In 4- and longer unit bridge case, using rainbow™ trans/shade block is recommended.

# rainbow™ Block Transmittance & Strength Test





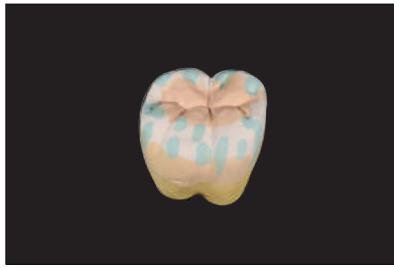
# rainbow™ Shine-T

Shine-T Block with superb aesthetics and high flexural strength

- Simultaneously securing transparency and strength similar to natural teeth
- Transparency rate (~45%, A0) enables aesthetic prosthetics on the anterior site



## rainbow™ Shine-T Block Clinical Case 1



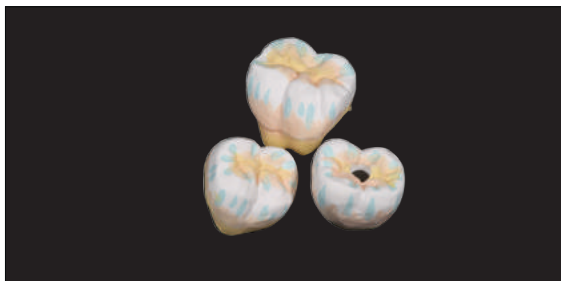
Brushing



Final prosthesis



## rainbow™ Shine-T Block Clinical Case 2



Brushing



Final prosthesis



## rainbow™ Shine-T Block Clinical Case 3



Brushing



Final prosthesis

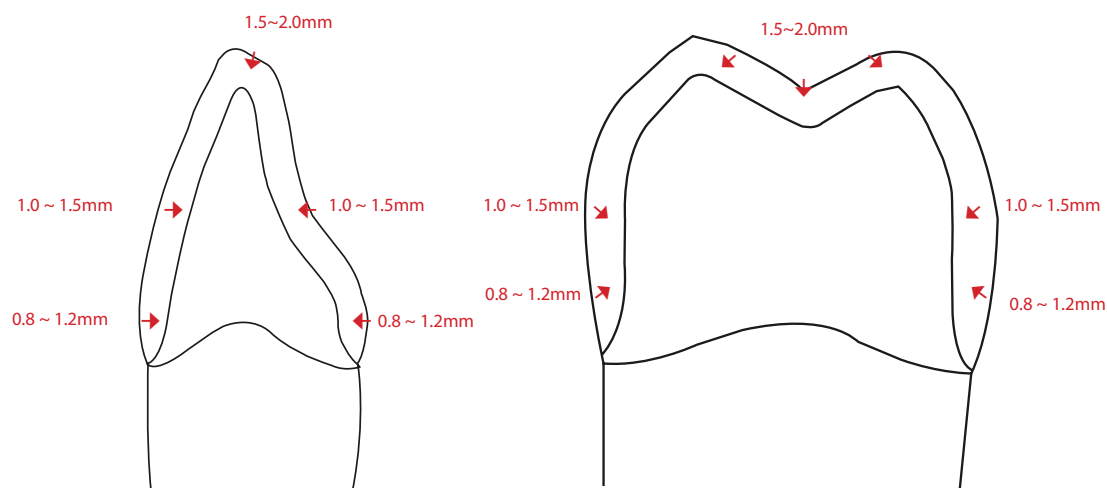


※ **Caution**

1. In order to experience more superior transparency and strength, sintering the crown at 1550°C is more recommended rather than 1500°C.
2. To have a shield effect, usage of Brushing Liquid-WO(White Opaque) is recommended.

## Shine-T Block Guideline

Natural teeth



- ① Undergo enough preparation over 1mm, and avoid undercut, knife edge, sharp cutting edge, and flat surface.
- ② If the block fixation part of milling device were all metal, placing the thin spacer with more flexible material would reduce chipping/crack by vibration due to increased fixation strength.
- ③ Effort should be made so that adjustment on the zirconia frame is done before sintering, and avoid excessive chairside adjustment.
- ④ In full-contour zirconia,, it is better to maintain the below recommended thickness and connector surface.

Indication	Wall Thickness(mm)	Connector Area(mm <sup>2</sup> )
Single~ 2 unit	0.5	-
3 ~ 4 unit (XOX, XOOX)*	0.8	Anterior ≥ 10 Posterior ≥ 13

\*X = abutment tooth, O = pontic

- ⑤ In PFZ (porcelain-fused to zirconia), the longer the length of the prosthesis and the thickness disparity between coping and pontic, the higher the possibility of cracking becomes. It is recommended that thickness disparity is reduced as much as it could on design and slowly cooled. ( Below 55°C/min).
- ⑥ In the case where the patient has severe bruxism/clenching or minimum tooth reduction or maximum durability is necessary, 3Y-Zirconia ( e.g. : rainbow Trans / Shade) block with higher toughness is recommended.



## rainbow™ Shine-T

Type	Diameter (mm)	Shade	Height (mm)	Art. No.	Type	Diameter (mm)	Shade	Height (mm)	Art. No.
Disk	Ø98	A0	10	SH9810AO	Step	Ø98	A0	12	SH9812WAO
			12	SH9812AO				14	SH9814WAO
			14	SH9814AO				16	SH9816WAO
			16	SH9816AO				18	SH9818WAO
			18	SH9818AO				20	SH9820WAO
			20	SH9820AO				22	SH9822WAO
			22	SH9822AO				24	SH9824WAO
			24	SH9824AO					
		A1	10	SH9810A1			A1	12	SH9812WA1
			12	SH9812A1				14	SH9814WA1
			14	SH9814A1				16	SH9816WA1
			16	SH9816A1				18	SH9818WA1
			18	SH9818A1				20	SH9820WA1
			20	SH9820A1				22	SH9822WA1
			22	SH9822A1				24	SH9824WA1
			24	SH9824A1					
		A2	10	SH9810A2			A2	12	SH9812WA2
			12	SH9812A2				14	SH9814WA2
			14	SH9814A2				16	SH9816WA2
			16	SH9816A2				18	SH9818WA2
			18	SH9818A2				20	SH9820WA2
			20	SH9820A2				22	SH9822WA2
			22	SH9822A2				24	SH9824WA2
			24	SH9824A2					

※ If you need Ø100 Block, please contact us for inquiry.



By Dr. Hyun-Du Won

## rainbow™ High Shine Block

### Semi-transparent block for anterior application for superior esthetics

Transparency is an important criterion when it comes to choosing the CAD/CAM block for anterior prosthesis. The main advantage of the rainbow™ High Shine is its transparency, making it a favorable material to use to achieve anterior esthetics. It is available in both disk and step type in commonly used shades of A0, A1 and A2.

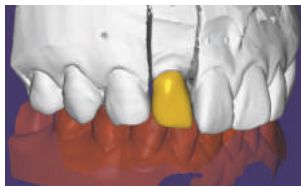


A0

A1

A2

rainbow™ High Shine Block Clinical Case 1 - Full Zirconia



CAD design



Brushing

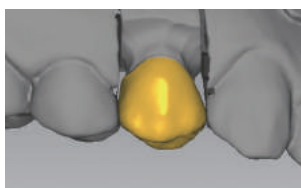


Sintering

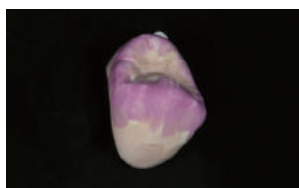


Final prosthesis

rainbow™ High Shine Block Clinical Case 2 - Full Zirconia



CAD design



Brushing

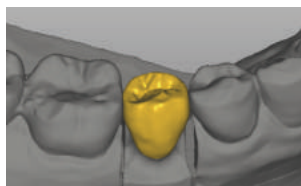


Sintering



Final prosthesis

rainbow™ High Shine Block Clinical Case 3 - Full Zirconia



CAD design



Brushing



Sintering



Final prosthesis

# rainbow™ High Shine Block

Type	Diameter (mm)	Shade	Height (mm)	Art. No.	Type	Diameter (mm)	Shade	Height (mm)	Art. No.
Disk	Ø98	A0	10	AT9810AO	Step	Ø98	A0	10	AT9810WAO
			12	AT9812AO				12	AT9812WAO
			14	AT9814AO				14	AT9814WAO
			16	AT9816AO				16	AT9816WAO
			18	AT9818AO				18	AT9818WAO
			20	AT9820AO				20	AT9820WAO
			22	AT9822AO				22	AT9822WAO
			24	AT9824AO				24	AT9824WAO
		A1	10	AT9810A1			A1	10	AT9810WA1
			12	AT9812A1				12	AT9812WA1
			14	AT9814A1				14	AT9814WA1
			16	AT9816A1				16	AT9816WA1
			18	AT9818A1				18	AT9818WA1
			20	AT9820A1				20	AT9820WA1
			22	AT9822A1				22	AT9822WA1
			24	AT9824A1				24	AT9824WA1
		A2	10	AT9810A2			A2	10	AT9810WA2
			12	AT9812A2				12	AT9812WA2
			14	AT9814A2				14	AT9814WA2
			16	AT9816A2				16	AT9816WA2
			18	AT9818A2				18	AT9818WA2
			20	AT9820A2				20	AT9820WA2
			22	AT9822A2				22	AT9822WA2
			24	AT9824A2				24	AT9824WA2



## rainbow™ Shade Block

- Original color of the blocks eliminates the need for additional dipping
- Uniform color tone is preserved even after occlusal articulation
- Entire "Vita A" shades are expressible with simplified constitution of A0.5 and A2 blocks



A0.5

A2

rainbow™ Shade Block Clinical Case 1 - Build-up



Coping



Liner & Stain



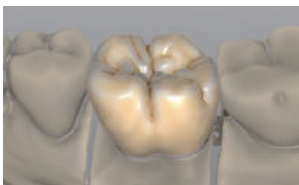
Porcelain Build-up



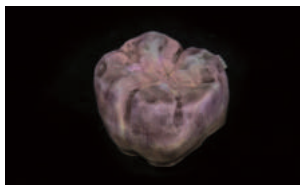
Final prosthesis



rainbow™ Shade Block Clinical Case 2 - Full Zirconia



CAD design



Brushing



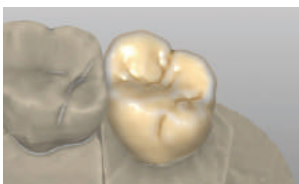
Sintering



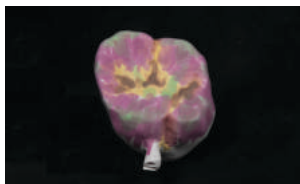
Final prosthesis



rainbow™ Shade Block Clinical Case 3 - Full Zirconia



CAD design



Brushing



Sintering



Final prosthesis



# rainbow™ Shade Block

Type	Diameter (mm)	Shade	Height (mm)	Art. No.	Type	Shade	Diameter (mm)	Height (mm)	Art. No.	
Disk	Ø98	A0.5	10	TS9810A05	Step		Ø98	12	TS9812WAO5	
			12	TS9812A05				14	TS9814WAO5	
			14	TS9814A05				16	TS9816WAO5	
			16	TS9816A05				18	TS9818WAO5	
			18	TS9818A05				20	TS9820WAO5	
			20	TS9820A05				22	TS9822WAO5	
			22	TS9822A05				24	TS9824WAO5	
			24	TS9824A05						
		A2	10	TS9810A2				A2	12	TS9812WA2
			12	TS9812A2					14	TS9814WA2
			14	TS9814A2					16	TS9816WA2
			16	TS9816A2					18	TS9818WA2
			18	TS9818A2					20	TS9820WA2
			20	TS9820A2					22	TS9822WA2
			22	TS9822A2					24	TS9824WA2
			24	TS9824A2						

※ If you need Ø100 Block, please contact us for inquiry.

# rainbow™ Trans Block

Natural shade expression is possible even with minimized porcelain build-up due to superior transparency

- Enhanced durability through increased fracture resistance
- Precise marginal fit due to the uniform shrinkage (x, y, z axis)
- More economically beneficial compared to gold or other translucent blocks



## rainbow™ Trans Block Clinical Case



Sintering



Build-up



Final



Final





# rainbow™ Trans Block

Type	Diameter (mm)	Height (mm)	Art. No.	Type	Diameter (mm)	Height (mm)	Art. No.
Disk	Ø98	10	TTCB9810	Step	Ø98	12	TTCB9812W
		12	TTCB9812			14	TTCB9814W
		14	TTCB9814			16	TTCB9816W
		16	TTCB9816			18	TTCB9818W
		18	TTCB9818			20	TTCB9820W
		20	TTCB9820			22	TTCB9822W
		22	TTCB9822			24	TTCB9824W
		24	TTCB9824				

# rainbow™ Block

- Precise marginal fit through the uniform shrinkage (20% shrinkage - x, y, z axis)
- Composed of Zirconia material similar in appearance to a natural tooth
- High flexural strength (1,200 MPa)
- Fracture resistant (10.2 MPa·m<sup>1/2</sup>)



## rainbow™ Block Clinical case



Sintering



Build-up



Final



Final



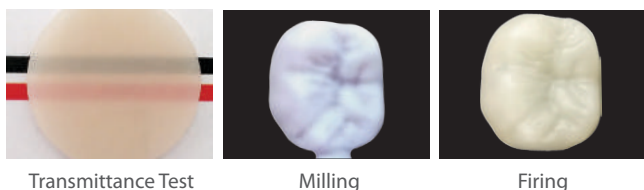
# rainbow™ Block

Type	Diameter (mm)	Height (mm)	Art. No.	Type	Diameter (mm)	Height (mm)	Art. No.
Disk	Ø98	10	CADM9810	Step	Ø98	12	W9812
		12	CADM9812			14	W9814
		14	CADM9814			16	W9816
		16	CADM9816			18	W9818
		18	CADM9818			20	W9820
		20	CADM9820			22	W9822
		22	CADM9822			24	W9824
		24	CADM9824				

# rainbow™ LS Block

## A lithium disilicate for CAD/CAM technique

- Excellent transparency and 9 shades (A1, A2, A3, A3.5, A4, B1, B2, B3, B4)
- Excellent flexural strength (>370MPa, 3-point)
- Various indications (Veneer, inlay, onlay, single crown and so on)
- Compatible mandrel-type block for milling machine



Type	Size	Shade	Art. No.
Mandrel type	10 x 12 x 15	A1, A2, A3, A3.5, A4	LBI12A1, LBI12A2, LBI12A3, LBI12A3.5, LBI12A4
		B1, B2, B3, B4	LBI12B1, LBI12B2, LBI12B3, LBI12B4
	12.5 x 15 x 18.5	A1, A2, A3, A3.5, A4	LBC14A1, LBC14A2, LBC14A3, LBC14A3.5, LBC14A4
		B1, B2, B3, B4	LBC14B1, LBC14B2, LBC14B3, LBC14B4

\* If you need other type of block, please contact us.

## rainbow™ LS Block Clinical Case



By Dr. Hyun-Sik Park \_ HEIM Dental Clinic

## rainbow™ LS Block Firing Parameter for Crystallization

Stand-by temperature B[°C]	Closing time S[min]	Heating rate t1[°C/min]	Firing temperature T1[°C]	Holding time H1[min]	Heating rate t2[°C/min]
403	6:00	90	820	0:10	30
Firing temperature T2[°C]	Holding time H2[min]	Vacuum1 1₁[°C]/1₂[°C]	Vacuum2 2₁[°C]/2₂[°C]	Long-term cooling L[°C]	Cooling rate tl[°C/min]
840	7:00	550/820	820/840	700	0

According to the condition of furnace, the firing temperature T2 can be adjusted. If excessive shrinkage occurs, please reduce the T2 by 5~10°C

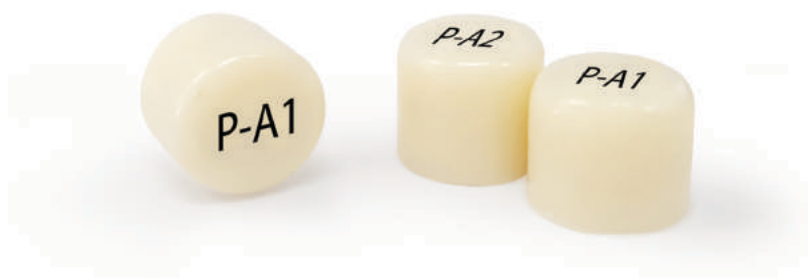
The above schedule is the manufacturer's recommendation for the optimum prosthesis fabrication.

Furthermore, the rate of heat acceleration and the temperature maxima must be adjusted according to the furnace specification and the size of the prosthesis.

# rainbow™ LS Pressing

## A lithium disilicate ingot for pressing technique

- Excellent esthetic results and flexural strength (>500MPa, 3-point)
- Applicable to diverse cases including veneers, inlays, onlays and single crowns
- Capable of precise marginal fit



Type	Diameter	Height	Shade	Art. No.
Ingot	Ø12.5mm	10mm	A1, A2, A3, A3.5, A4	PI A0.5, PI A1, PI A2, PI A3, PI A3.5, PI A4
			B1, B2, B3, B4	PI B1, PI B2, PI B3, PI B4, PI B5

## rainbow™ LS Pressing Guide

	Step 1	Step 2	Step 3	Step 4	Step 5
<b>PROCESS</b>	Coping create, connect inject line	Landfill buried material	Wax burn-out	Pressing	Remove buried material
<b>CONDITION</b>	-	350rpm/1~2.5min. Vacuum100% Dry more than 30min.	850°C 30 min.~60 min.	915~920°C	1~2bar(=15~30psi) Al <sub>2</sub> O <sub>3</sub> 50-100µm
<b>EQUIPMENT (MATERIAL)</b>	Wax block	Vacuum mixer, Buried material	Furnace	Furnace	Disk, Sand-blast (Al <sub>2</sub> O <sub>3</sub> , bar)

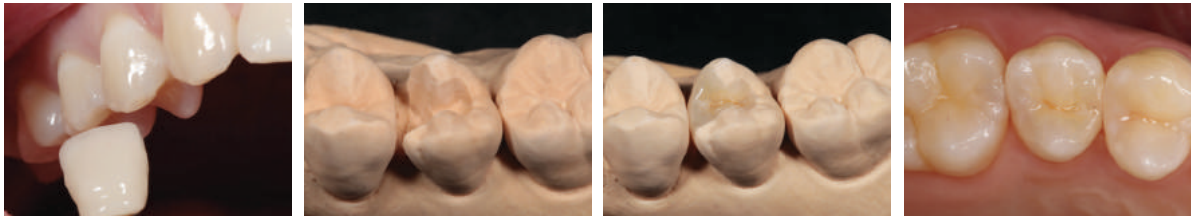
## rainbow™ LS Pressing Condition

Step	B (Stand by temp.)	t ↗ (The rate of heat acceleration)	T (Holding temp.)	H (Holding time)	E (Cutoff velocity)
<b>Detail Condition</b>	700°C	60°C/min.	915~920°C	15:00min	300µm/min

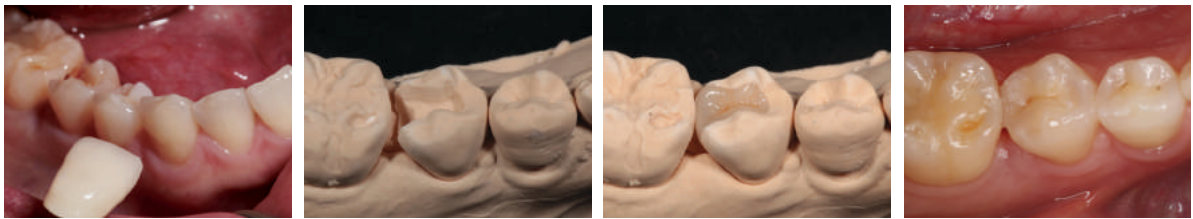
The above schedule is the manufacturer's recommendation for the optimum prosthesis fabrication.

Furthermore, the rate of heat acceleration and the temperature maxima must be adjusted according to the furnace specification and the size of the prosthesis.

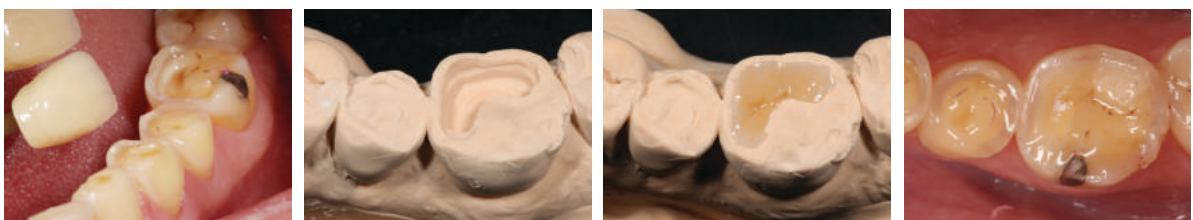
rainbow™ LS Pressing Clinical Case 1



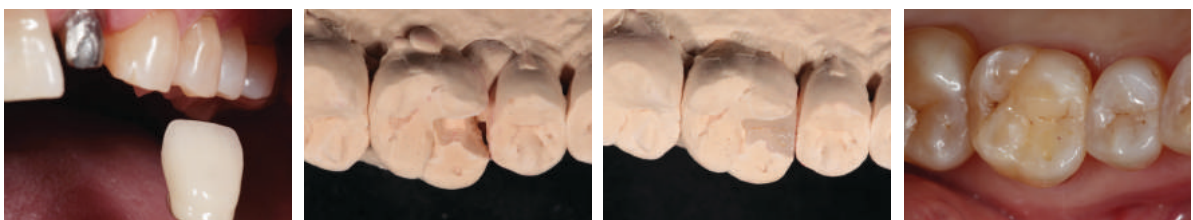
rainbow™ LS Pressing Clinical Case 2



rainbow™ LS Pressing Clinical Case 3



rainbow™ LS Pressing Clinical Case 4



**rainbow™**

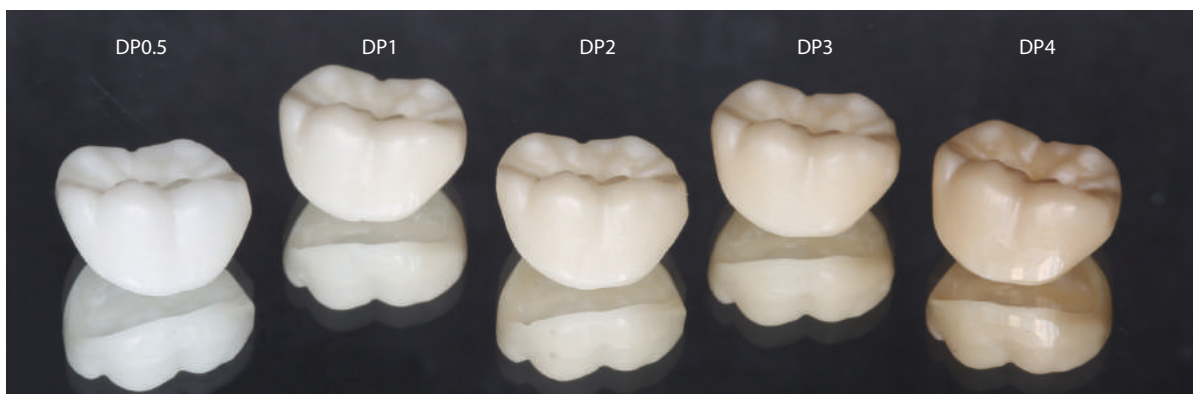
**Coloring & Brushing Material**





# rainbow™ Coloring Liquid

- Coloring liquid for zirconia prosthesis
- Comprised of the five most commonly used dipping colors
- Deep color penetration to express a natural esthetic



Type	Color	Art. No.
Bottle	5	<span style="display: inline-block; width: 10px; height: 10px; background-color: #fff9c4; border: 1px solid black; margin-right: 5px;"></span> DP0.5 <span style="display: inline-block; width: 10px; height: 10px; background-color: #fff176; border: 1px solid black; margin-left: 10px; margin-right: 5px;"></span> DP1 <span style="display: inline-block; width: 10px; height: 10px; background-color: #ffeb3b; border: 1px solid black; margin-left: 10px; margin-right: 5px;"></span> DP2 <span style="display: inline-block; width: 10px; height: 10px; background-color: #ffc107; border: 1px solid black; margin-left: 10px; margin-right: 5px;"></span> DP3 <span style="display: inline-block; width: 10px; height: 10px; background-color: #a0522d; border: 1px solid black; margin-left: 10px;"></span> DP4

# rainbow Brushing Liquid

- Fine detailing by implementing the brushing technique
- Solution type and pen type are available to accommodate user's preference
- Comprised of 12 color options (brown, orange, white, grey, pink, violet) to enhance the esthetics of the prosthesis and a diluting solution to adjust the color intensity
- Brushed area is easily distinguishable through the incorporated food dyes



Solution Type



Before



After

Type	Color	Art. No.		
Liquid	11	Brushing Liquid-B	Brushing Liquid-O	Brushing Liquid-W
		Brushing Liquid-G	Brushing Liquid-P	Brushing Liquid-V
		Brushing Liquid-BL	Brushing Liquid-DG	Brushing Liquid-DB
		Brushing Liquid-GV	Brushing Liquid-WO*	Brushing Liquid-T

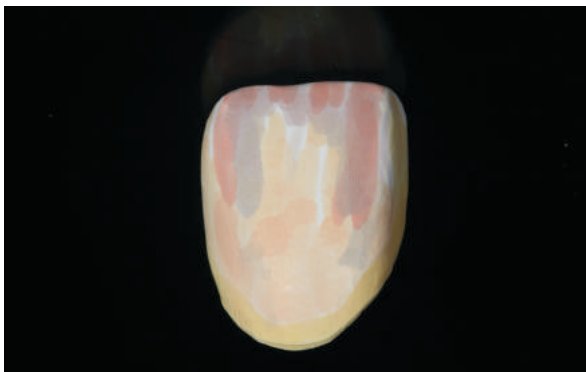
\* Brushing liquid- wo: Blocking discoloration/ thinner(liquid): Adjustment of solution concentration

# rainbow Brushing Liquid

- Fine detailing by implementing the brushing technique
- pen type are available to accommodate user's preference
- Comprised of 12 color options (brown, orange, white, grey, pink, violet) to enhance the esthetics of the prosthesis and a diluting solution to adjust the color intensity
- Brushed area is easily distinguishable through the incorporated food dyes














Pen Type



Before



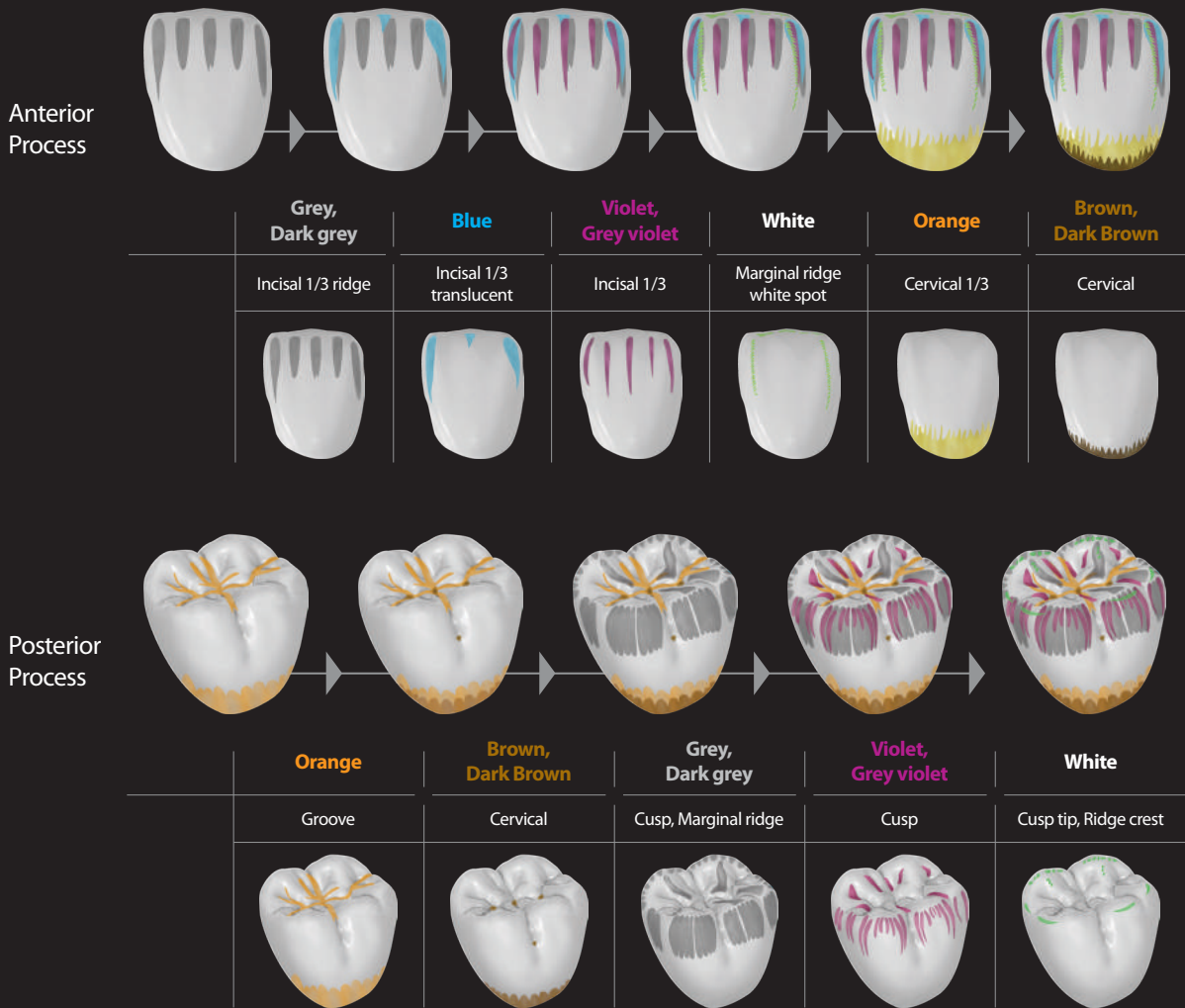
After

Type	Color	Art. No.		
Pen	10	 Brushing Pen-B	 Brushing Pen-O	 Brushing Pen-W
		 Brushing Pen-G	 Brushing Pen-P	 Brushing Pen-V
		 Brushing Pen-BL	 Brushing Pen-DG	 Brushing Pen-DB
		 Brushing Pen-GV	 Brushing Pen-WO	

**rainbow™**  
**Brushing Guide**

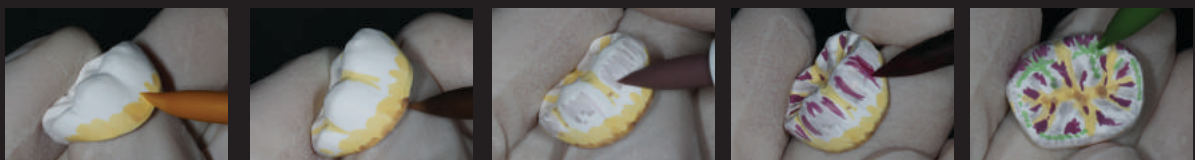


# Brushing Process



\* Dark brown = Brown x 3 / Dark grey = Grey x 3 / Grey Violet = Violet x 3

## Pen Type



## Solution Type



# rainbow™ Shine -T Block

## Shine-T A0

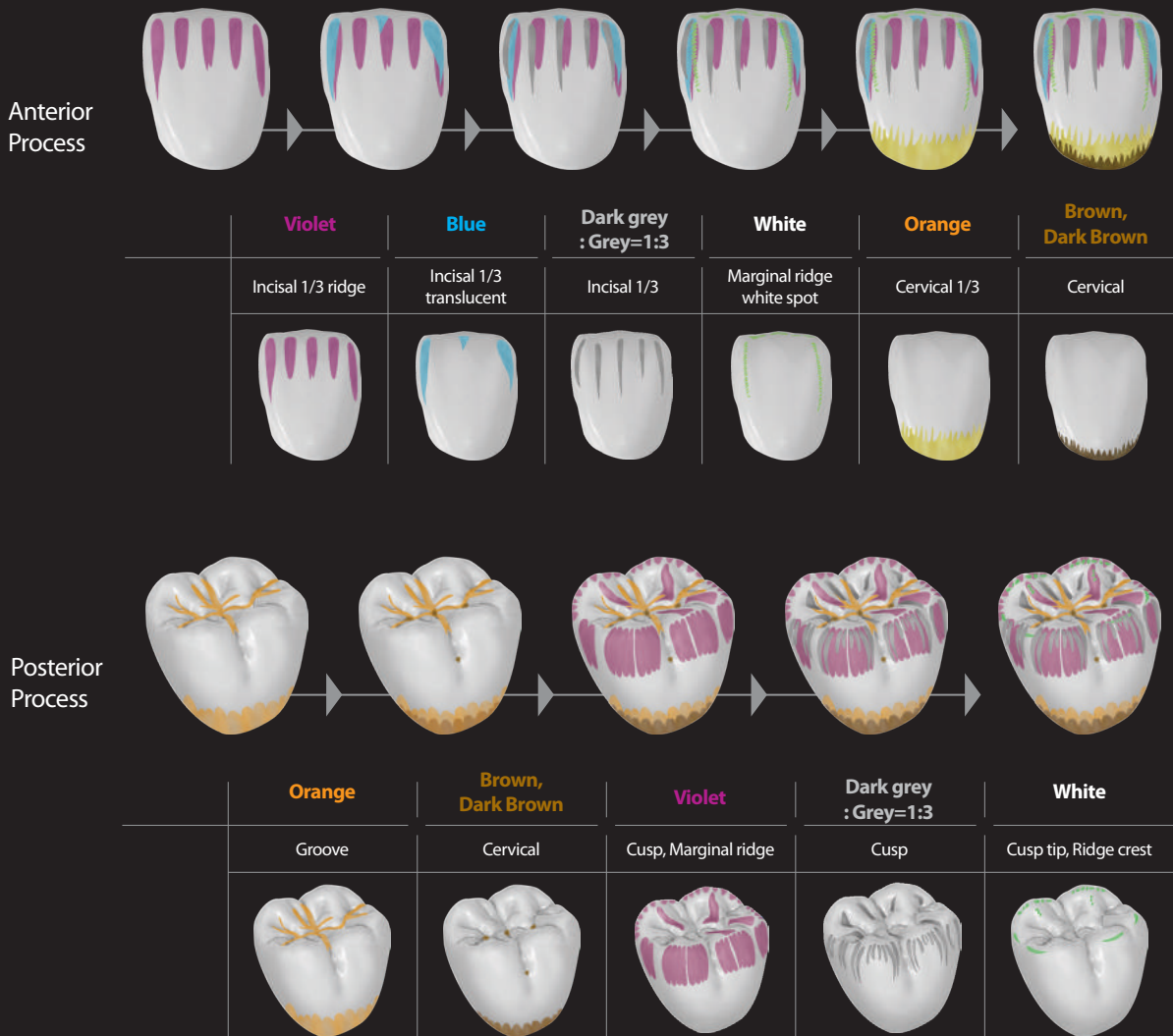
	A1	A2	A3
<b>Solution mixing</b>	① DP 3 : DP 4 (1:1)	② DP 3 : DP 4 (1:4) ③ DP 4 : Brown (1:1)	④ DP 4 : Brown (1:1) ⑤ DP 4 : Brown (1:3)
<b>Step 1</b>	① x2	② x1 ③ x1	④ x2
<b>Step 2</b>	① x1	③ x2	⑤ x2
<b>Sintering</b>			

\* In Shine-T A0 Block, A3.5/4 color expression is not recommended.

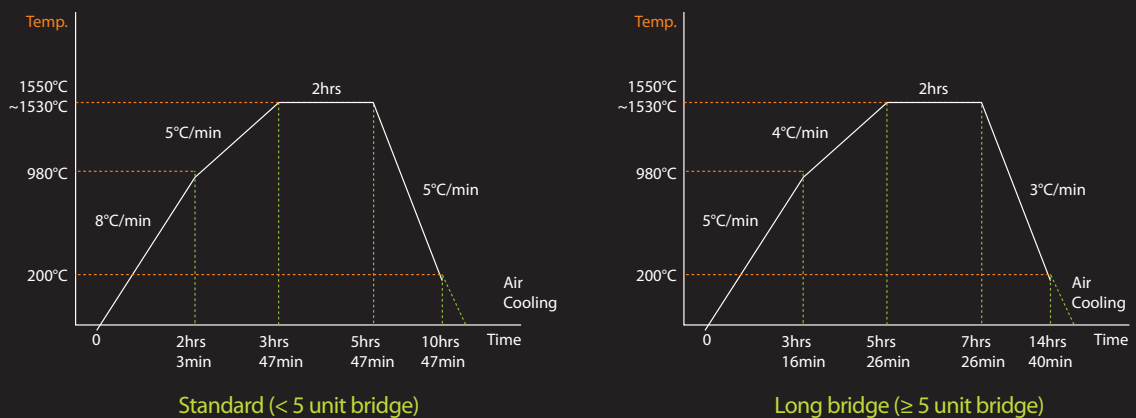
\* Accurate color will be gained after 50 minutes and more drying in the oven(App.120°C) after brushing.

## Shine-T A2

	A1	A2	A3	A3.5	A4
<b>Cervical 1/3</b>		DP 3(x1)	DP 4(x1)		
<b>Middle 1/2</b>				DBr(x1)	
<b>Middle 2/3</b>					DBr(x1)
<b>Incisal 4/5</b>		DP 2(x1)	DP 3(x1)	DP 3(x1)	DP 4(x1)
<b>Incisal 1/5</b>		DP 1(x1)	DP 2(x1)	DP 2(x1)	DP 3(x1)
<b>Sintering</b>					



\* Dark brown = Brown x 3 / Dark grey = Grey x 3 / Grey Violet = Violet x 3



\* DP3 : Coloring Liquid DP 3 / Brown: Brushing Liquid - B

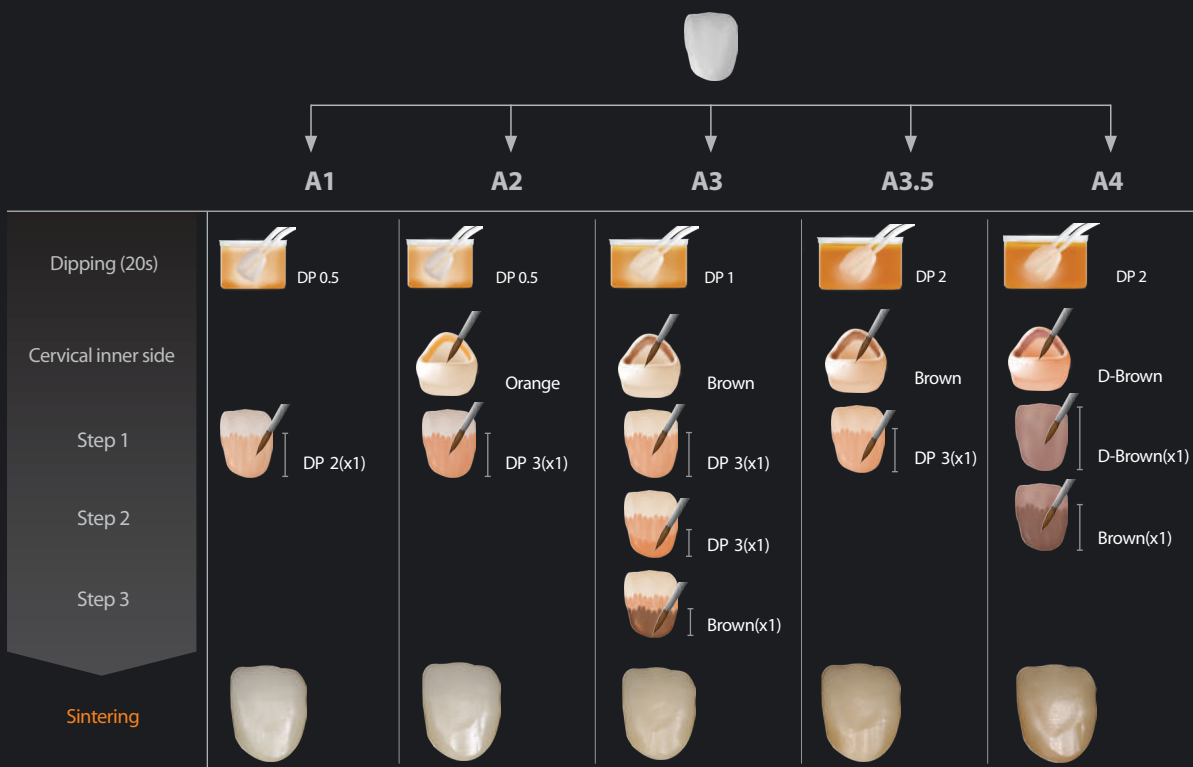
\* Accurate color will be gained after 50 minutes and more drying in the oven(App.120°C) after brushing.

# rainbow™ High Shine Block

## High Shine A0

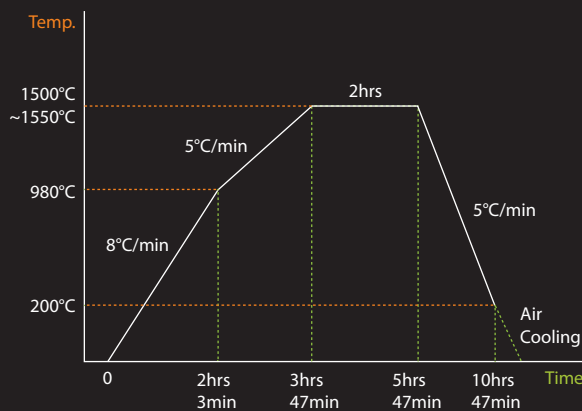
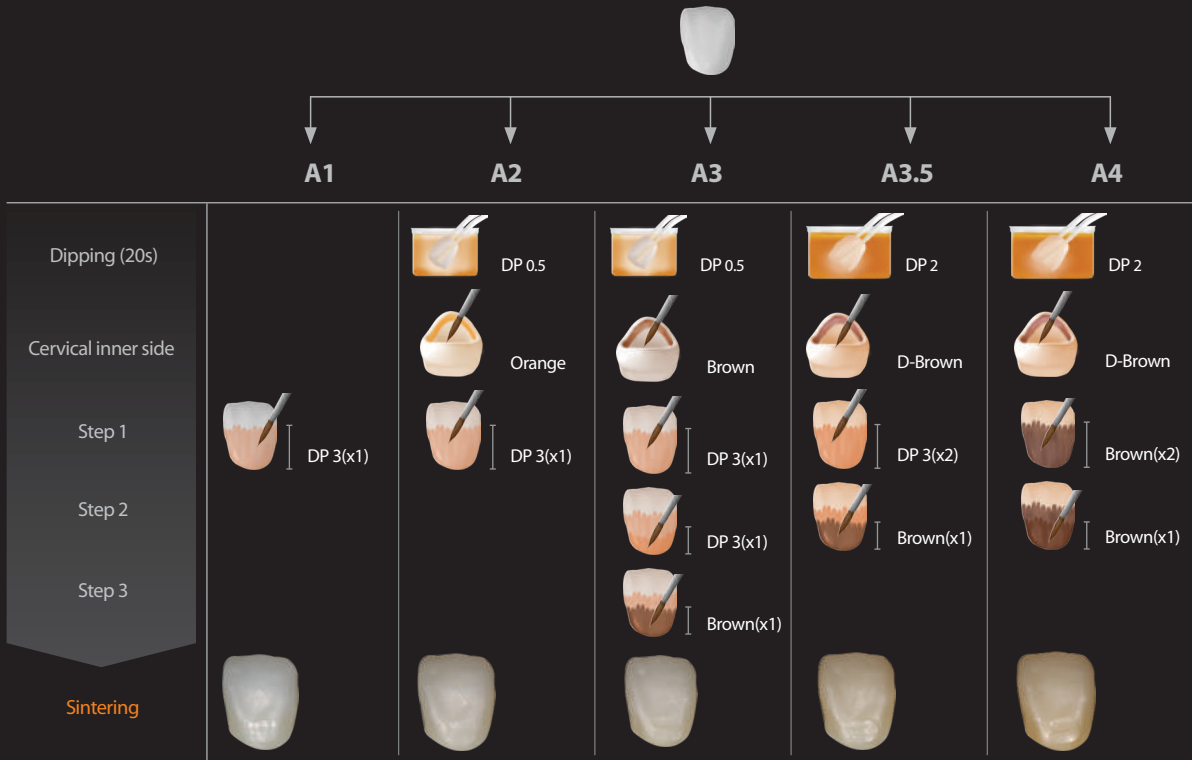


## High Shine A1

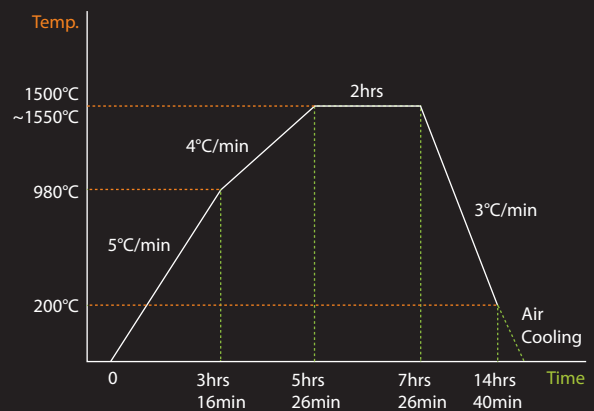




## High Shine A2



Standard (< 5 unit bridge)









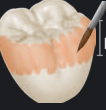


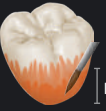
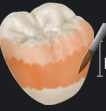
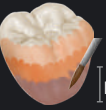







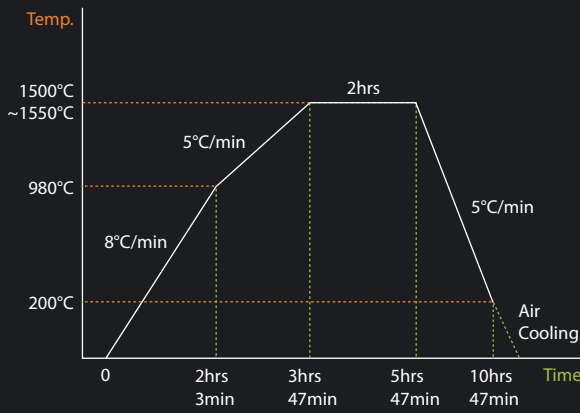
Long bridge (≥ 5 unit bridge)

\* DP3 : Coloring Liquid DP 3 / Brown: Brushing Liquid - B

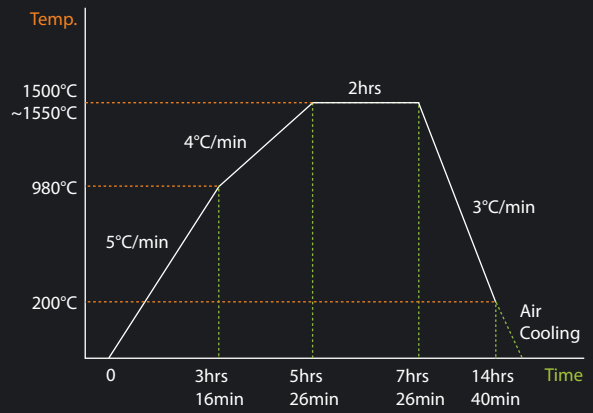
\* Accurate color will be gained after 50 minutes and more drying in the oven(App.120°C) after brushing.

# rainbow™ Shade Block

	A1	A2	A3	A3.5	A4
Shade Block	 Shade A0.5	 Shade A2	 Shade A2	 Shade A2	 Shade A2
Step 1	 DP 2(x1)		 DP 2(x1)	 DP (x2)	 DP 2(x1)
Step 2	 DP 2(x1)		 DP 2(x1)	 DP (x1)	 DP 3(x2)
Step 3					 D-Brown(x1)
Sintering					



Standard (< 5 unit bridge)



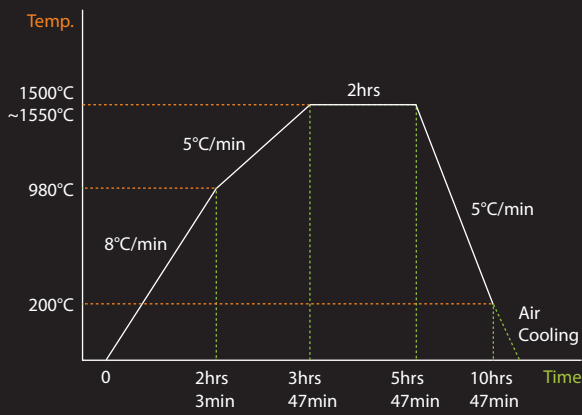
Long bridge (≥ 5 unit bridge)

\* DP3 : Coloring Liquid DP 3 / Brown: Brushing Liquid - B

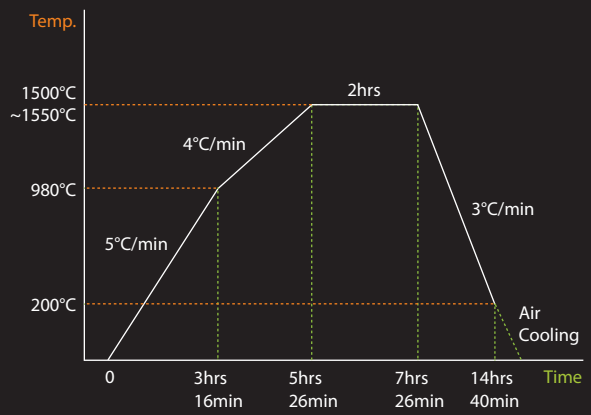
\* Accurate color will be gained after 50 minutes and more drying in the oven(App.120°C) after brushing.

# rainbow™ Trans Block

	A1	A2	A3	A3.5	A4
Trans Block					
Dipping (20s)	DP 0.5	DP 1	DP 2	DP 2	DP 2
Cervical inner side					
Step 1	DP 3(x2)	DP 3(x1)	DP 3(x2)	DP 3(x1)	Brown(x2)
Step 2	DP 3(x1)	DP 3(x1)	DP 3(x1)	DP 3(x1)	Brown(x1)
Step 3		D-Brown(x1)		D-Brown(x1)	D-Brown(x1)
Sintering					



Standard (< 5 unit bridge)



Long bridge (≥ 5 unit bridge)

\* DP3 : Coloring Liquid DP 3 / Brown: Brushing Liquid - B

\* Accurate color will be gained after 50 minutes and more drying in the oven(App.120°C) after brushing.

# rainbow™ Paste Stain

## Enhanced uniform application and ease of use

- The paste-like consistency of the product allows for ease of use and makes uniform application possible
- The sintering temperature requirement was lowered to under 800°C to allow application on diverse materials including zirconia and lithium disilicate
- Available in 16 most commonly used shades



### rainbow™ Paste Stain Clinical Case 1



Sintering



Glazing



Final prosthesis

### rainbow™ Paste Stain Clinical Case 2



Sintering



Glazing



Final prosthesis

Start temp	Dry time	The rate of heat acceleration	Firing temp	Mooring time	Vacuum
450°C	8 min	45°C/min	790°C	1min	—

The above schedule is the manufacturer’s recommendation for the optimum prosthesis fabrication. Furthermore, the rate of heat acceleration and the temperature maxima must be adjusted according to the furnace specification and the size of the prosthesis.



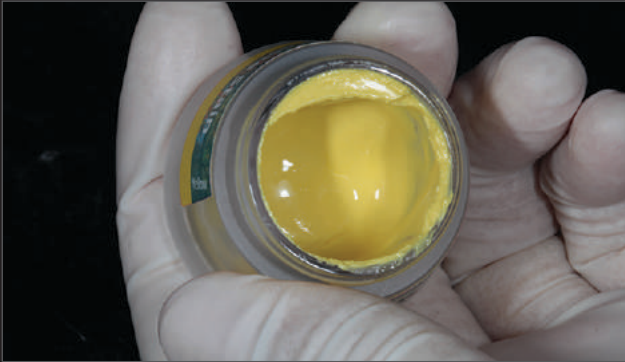
Type	Art. No.
<b>Paste 16 shade</b>	PS-Glaze, PS-Yellow, PS-Orange, PS-Ocher, PS-Brown, PS-yBrown, PS-rBrown, PS-dBrown, PS-Pink, PS-sBlue, PS-cBlue, PS-White, PS-Body(A)P, PS-Body(B), PS-Body(C)P, PS-Grey
<b>Kit</b>	Paste Stain Kit-S/ Paste Stain Kit-M/ Paste Stain Kit-L (S/3g,M/5g,L/7g) PS-Yellow PS-Orange PS-yBrown PS-dBrown PS-sBlue PS-White PS-Ocher PS-Brown PS-rBrown PS-Pink PS-cBlue PS-glaze
	Paste Stain Body Kit-S/ Paste Stain Body Kit-M/ Paste Stain Body Kit-L (S/3g,M/5g,L/7g) PS-Ocher PS-rBrown PS-Pink PS-White PS-Body(A) PS-Body(C) PS-yBrown PS-dBrown PS-cBlue PS-glaze PS-Body(B) PS-Grey
	Paste Stain Advanced Kit-S/ Paste Stain Advanced Kit-M/ Paste Stain Advanced Kit-L (S/3g,M/5g,L/7g) PS-Yellow PS-Orange PS-yBrown PS-dBrwon PS-sBlue PS-White PS-Ocher PS-Brown PS-rBrown PS-Pink PS-cBlue PS-glaze PS-Body(A) PS-Body(B) PS-Body(C) PS-Grey



rainbow™  
Paste Stain Guide



## Method of rainbow™ Paste Stain



**1**

In order to use the porcelain of your color choice of, open the container lid and take out an adequate amount of the product on clean glass slab or exclusive mixing plate by using a clean spatula.



**2**

If adjustment of viscosity for each purposes is necessary, you may add an adequate amount of exclusive liquid on the taken out product.



**3**

If liquid of the paste shows separation phenomenon partially, stir it with the spatula and then take out the necessary amount.



**4**

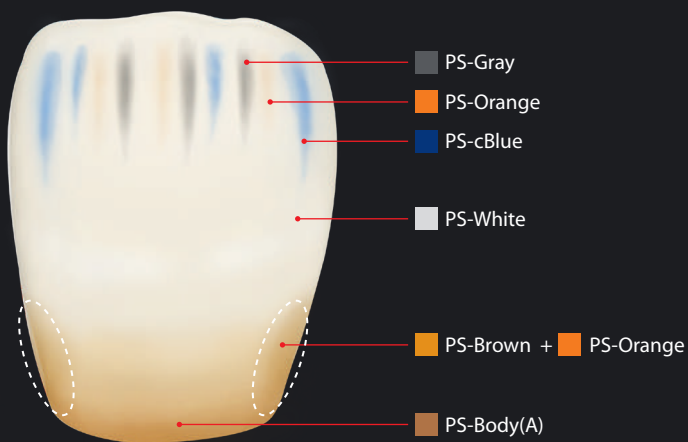
By applying the paste on zirconium prosthesis thinly and then sintering it by using brush, you will be able to gain color adjustment and polished surface of the prosthesis.

## Use example of rainbow™ Paste Stain

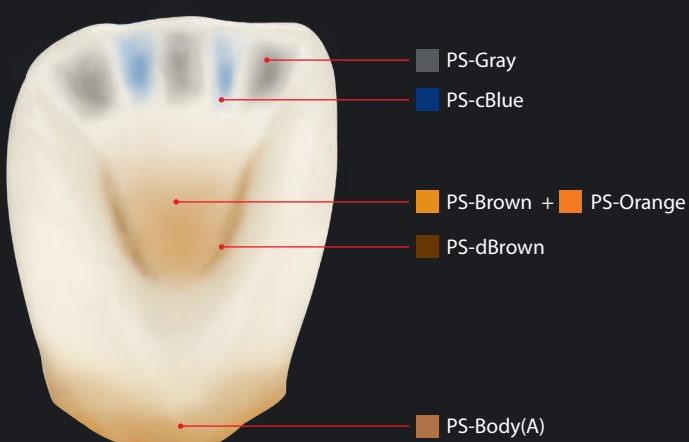
Anterior teeth in young patients



Labial



Lingual



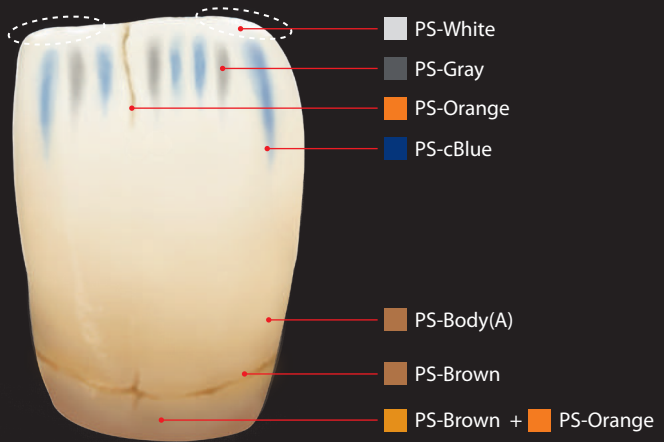


## Use example of rainbow™ Paste Stain

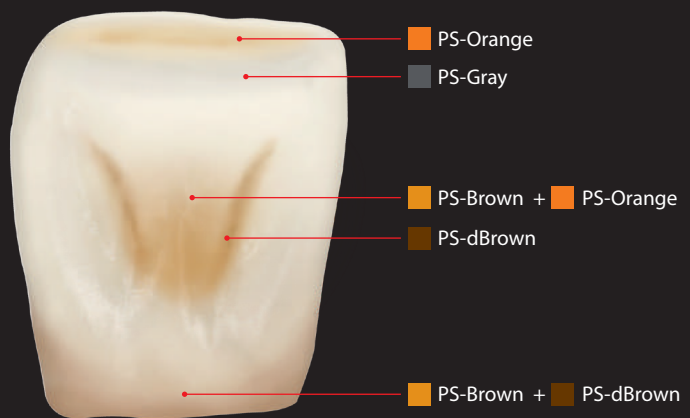
Anterior teeth in elderly patients



Labial

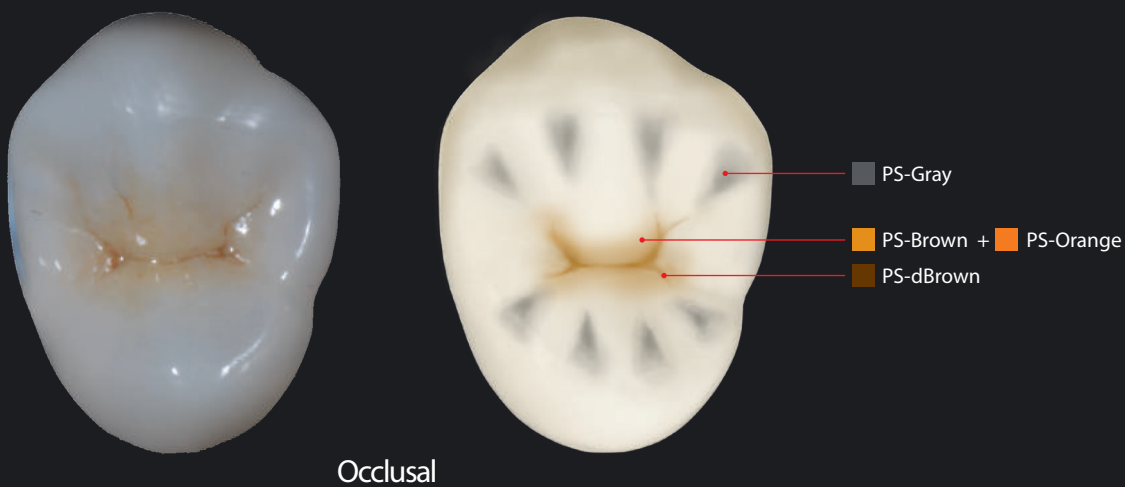
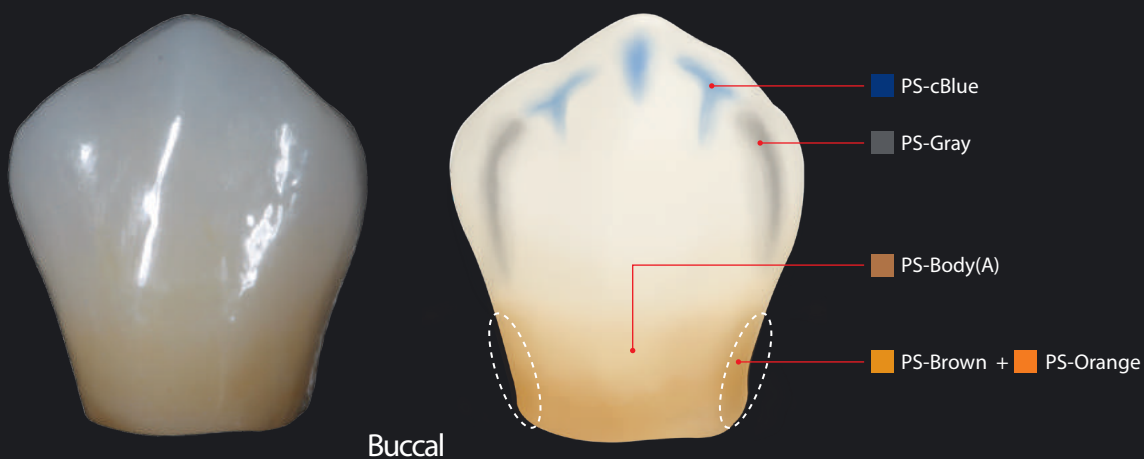


Lingual



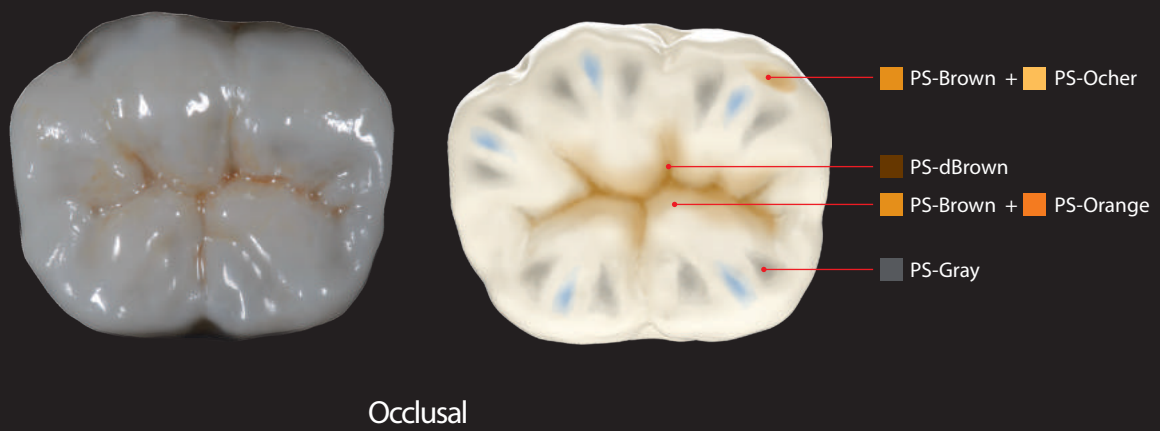
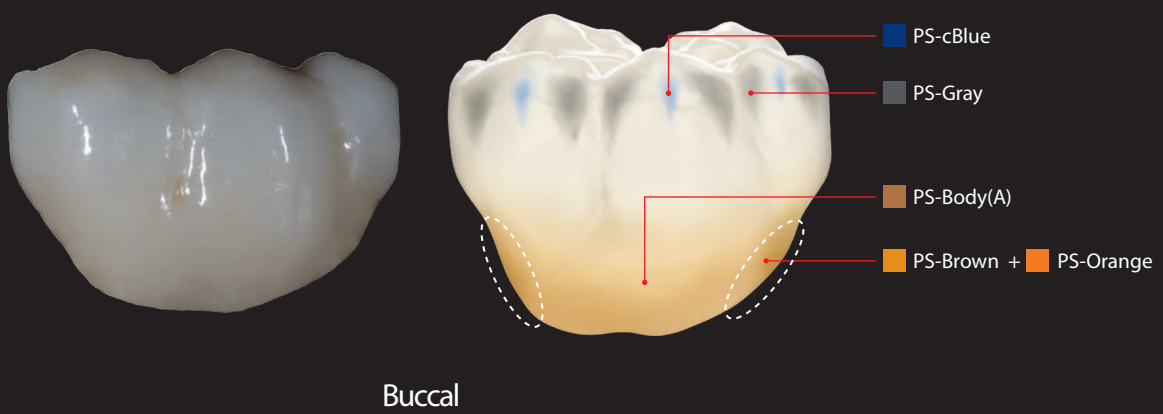
## Use example of rainbow™ Paste Stain

Premolar teeth



## Use example of rainbow™ Paste Stain

Molar teeth



rainbow™

# Veneering & Staining Material

By Nam-Hyun Park



# rainbow™ Porcelain

## Veneering porcelain for zirconia substructure

- Harmonized coefficient of thermal expansion with zirconia minimizes the possibility of cracking
- Can express a huge diversity of color shade while delivering an excellent esthetic due to the superb opalescent and fluorescent effect
- Natural-looking prosthesis production is possible with such a simple build-up procedure
- The special treatment to the powder creates high viscosity even when mixed with just distilled water, offering high user convenience

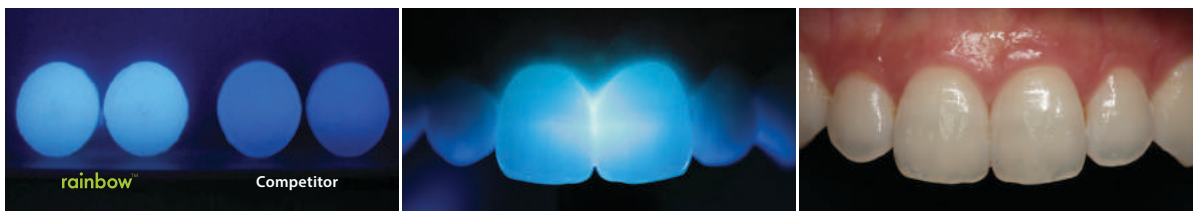


## Opal Effect



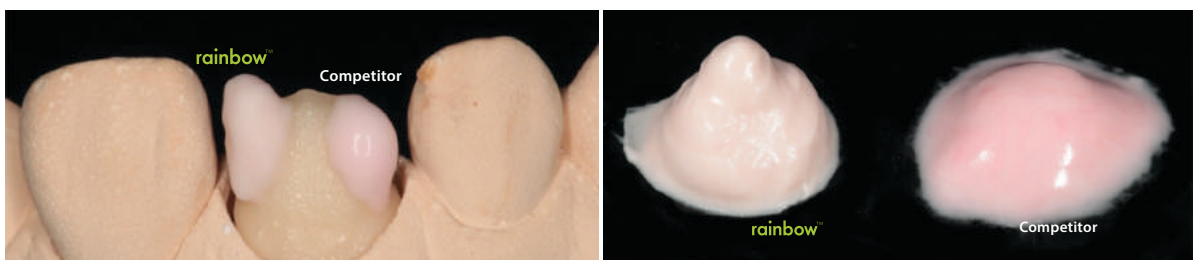
The dental enamel reflects the short wavelength blue portion of light, transmits warm, long wavelength orange-colored light, and glows in the transmitted light almost like amber. This phenomenon is caused by tiny water inclusions and impurities. Opal porcelain of rainbow™ Porcelain shows excellent opalescence effect by nano-crystal precipitated in porcelain.

## Fluor Effect

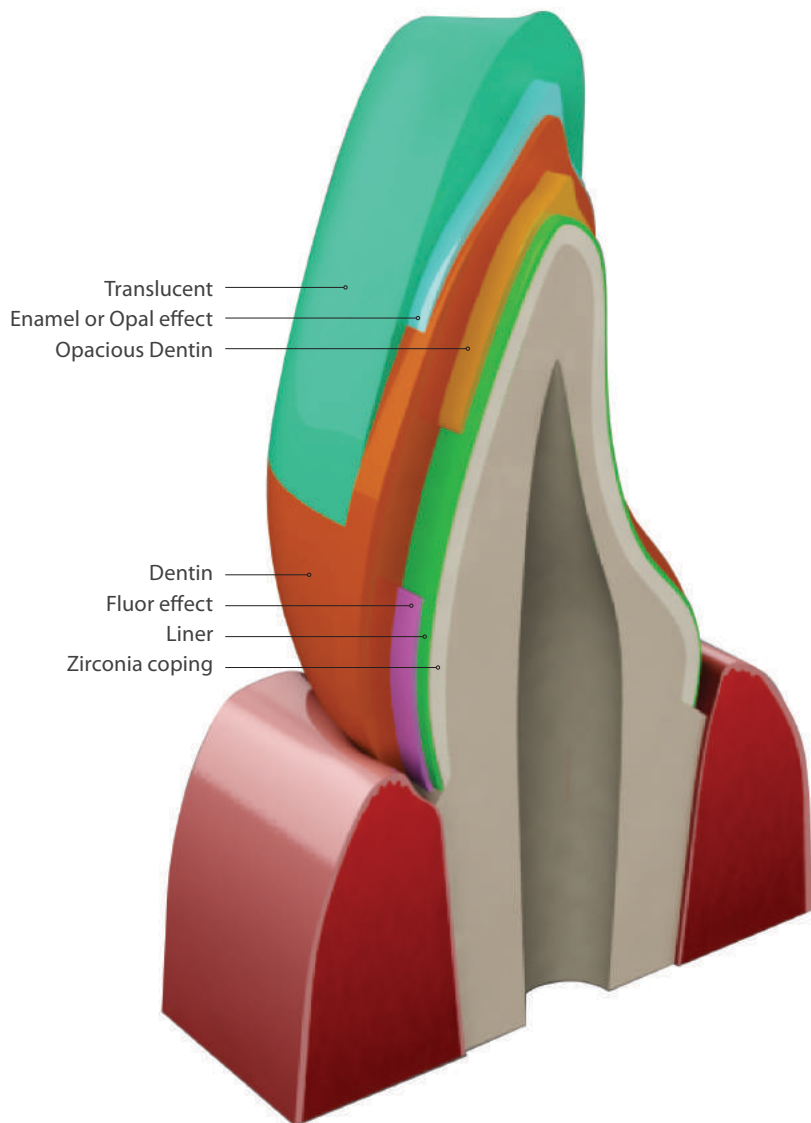


The natural fluorescence emanate from deep inside of the tooth. Ultraviolet light, as electromagnetic radiation from the non-visible spectrum of daylight, stimulates this particular form of luminescence. The ceramic compound that is built up in the inside of the crown is also dosed with additional fluorescing material. By adding special fluor-pigment, rainbow™ Porcelain provides an excellent fluorescence effect and in order to achieve strong fluorescence effect, special porcelains such as Fluor-W and Fluor-T are available.

## Excellent Workability



Thanks to special treatment of rainbow™ Porcelain powder using our own technique; it is easy and convenient for build-up fabrication.



## Physical & Chemical Properties of rainbow™ Porcelain

The results of physical and chemical properties of rainbow™ Porcelain are measured in accordance with ISO and KFPA standard, and suitable to all of these standards.

Properties	Unit	Results	ISO standard
CTE <sup>1)</sup> (25~500°C)	10 <sup>-6</sup> /°C	9.3	± 0.5
Glass Transition Temperature	°C	570	± 20
Chemical Solubility	μg/cm <sup>2</sup>	1.5	≤ 100
Radioactivity	Bq/g	0.0003	≤ 1.0
Average Particle Size	μm	30±3	-

1) CTE : coefficient of thermal expansion

## Firing Schedule

Firing	Start Temp.	Dry Time	Heating Rate	High Temp.	Holding Time	Vacuum	
Liner Firing	500°C	8 min	45°C/min	930°C	1 min	Full	
Margin Firing	500°C	6 min	45°C/min	940°C	1 min	Full	
1 <sup>st</sup> Body Firing	500°C	8 min	45°C/min	910°C	1 min	Full	
2 <sup>nd</sup> Body Firing	500°C	6 min	45°C/min	890°C	1 min	Full	
Add-on Firing	500°C	6 min	50°C/min	840°C	1 min	-	
Glazing	Powder	500°C	6 min	50°C/min	860°C	1 min	-
	Self	500°C	6 min	50°C/min	860°C	1 min	-

### NOTICE

1. This firing schedule is just recommended conditions to obtain a good firing result.
2. The firing temperature and holding time should be changed according to the condition of your porcelain furnace, and the design and number of bridges.
3. The firing temperature of Liner-LNB is 940°C, and it is 10°C higher than Liner-shade.
4. It is recommended to heat slowly due to low thermal conductivity of zirconia.





C1	C2	C3	C4	D2	D3	D4	A00	A0	B00	B0
LN1	LN3	LN5	LN5	LN2	LN4	LN4	LNB	LNB+LN1 (1:1)	LNB	LNB+LN1 (1:1)
MG1	MG3	MG5	MG5	MG2	MG4	MG4	MG1	MG1	MG1	MG1
ODC1	ODC2	ODC3	ODC4	ODD2	ODD3	ODD4	ODW	ODW	ODW	ODW
-	CVC+DC2 (1:2)	CVC+DC3 (1:1)	CVC	CVD+DD2 (1:2)	CVD+DD3 (1:1)	CVD	-	-	-	-
DC1	DC2	DC3	DC4	DD2	DD3	DD4	DA00	DA0	DB00	DB0
EN2	EN3	EN3	EN3	EN2	EN3	EN3	EN1	EN1	EN1	EN1
OE2	OE3	OE3	OE3	OE2	OE3	OE3	OTR	OE1	OTR	OE1

Shade	Light Pink	Normal Pink	Dark Pink
<b>Gum</b>	GLP	GNP	GDP

Shade	White	Trans
<b>Fluor Effect</b>	FLUOR-W	FLUOR-T

Shade	Body	Trans
<b>Add-on</b>	ADD-B	ADD-T



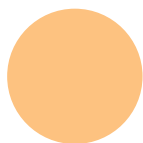
## Products of rainbow™ Porcelain

Dipping (20 Seconds)



### **Liner**

Represents basic shading and enhances the bond strength. Includes most fluorescent pigment to increase the fluor effect like natural teeth.



### **Opacious Dentin**

Fills up the insufficient area of pontic or core controls transparency if thickness of dentin is not enough.



### **Dentin**

It is used to make the shape and represent the shade of prosthesis.



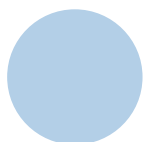
### **Enamel**

Porcelain to express the translucent incisal part of teeth.



### **Translucent**

Porcelain to express the more translucency of incisal part.



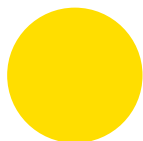
### **Opal Effect**

Porcelain to express the translucent incisal part of teeth.



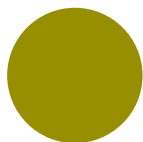
### **Fluor Effect**

Porcelain added more fluorescent materials to increase fluor effect.



### **Cervical**

Porcelain to express the deep color of cervical part and sometimes darker shade of dentin porcelain is used.



### **Margin**

Porcelain to fit precisely with margin adaptation. Controls translucency of margin to enhance esthetics.



### **Gum**

Porcelain to express the color of gum.

## Contents of rainbow™ Porcelain

Type	Color	Unit	Contents
Liner	7	50g	LNB, LNT, LN1, LN2, LN3, LN4, LN5
Opacious Dentin	17	50g	ODA1, ODA2, ODA3, ODA3.5, ODA4, ODB1, ODB2, ODB3, ODB4, ODC1, ODC2, ODC3, ODC4, ODD2, ODD3, ODD4, ODW
Dentin	20	50g	DA1, DA2, DA3, DA3.5, DA4, DB1, DB2, DB3, DB4, DC1, DC2, DC3, DC4, DD2, DD3, DD4, DA00, DA0, DB00, DB0
Enamel	3	50g	EN1, EN2, EN3
Translucent	8	50g	TNT, TYL, TOR, TBR, TPK, TBL, TGR, TML
Opal & Fluor Effect	6	50g	OTR, OE1, OE2, OE3, FLUOR-W, FLUOR-T
Dentin Modifier	7	50g	DM-YL, DM-OR, DM-BR, DM-PK, DM-BL, DM-GR, DM-WT
Cervical	4	50g	CVA, CVB, CVC, CVD
Margin	5	50g	MG1, MG2, MG3, MG4, MG5
Gum	3	50g	GLP, GNP, GDP
Add-on	2	50g	ADD-B, ADD-T
Glaze & Stain	18	3g	GLAZE, ST-Yellow, ST-Ocher, ST-Orange, ST-Brown, ST-yBrown, ST-rBrown, ST-dBrown, ST-Pink, ST-Lilac, ST-sBlue, ST-cBlue, ST-Black, ST-Grey, ST-White, ST-A, ST-B, ST-C

## Special Liquids of rainbow™ Porcelain

Liquid	Unit	Description
Liner Liquid	10ml, 100ml	Liquid for painting Liner porcelain uniformly on zirconia coping
Build-Up Liquid	10ml, 100ml	Liquid for Body build-up
Margin Liquid	10ml, 100ml	Liquid for making sharp edge of Margin
Glazing Liquid	10ml, 100ml	Liquid for painting Glaze and Stain uniformly

## Kit of rainbow™ Porcelain

### Professional Kit

Type	Color	Unit	Contents
Liner	7	10g	LNB, LNT, LN1, LN2, LN3, LN4, LN5
Opacious Dentin	17	10g	ODA1, ODA2, ODA3, ODA3.5, ODA4, ODB1, ODB2, ODB3, ODB4, ODC1, ODC2, ODC3, ODC4, ODD2, ODD3, ODD4, ODW
Dentin	20	10g	DA1, DA2, DA3, DA3.5, DA4, DB1, DB2, DB3, DB4, DC1, DC2, DC3, DC4, DD2, DD3, DD4, DA00, DA0, DB00, DB0
Enamel	3	10g	EN1, EN2, EN3
Translucent	8	10g	TNT, TYL, TOR, TBR, TPK, TBL, TGR, TML
Opal & Fluor Effect	6	10g	OTR, OE1, OE2, OE3, FLUOR-W, FLUOR-T
Dentin Modifier	7	10g	DM-YL, DM-OR, DM-BR, DM-PK, DM-BL, DM-GR, DM-WT
Cervical	4	10g	CVA, CVB, CVC, CVD
Margin	5	10g	MG1, MG2, MG3, MG4, MG5
Gum	3	10g	GLP, GNP, GDP
Add-on	2	10g	ADD-B, ADD-T
Liquid	4	10ml	Liner Liquid (1), Build-Up Liquid (2), Margin Liquid (1)

### Advanced Kit

Type	Color	Unit	Contents
Liner	4	10g	LNB, LN1, LN2, LN3
Opacious Dentin	4	10g	ODA2, ODA3, ODB2, ODB3
Dentin	4	10g	DA2, DA3, DB2, DB3
Enamel	4	10g	EN2, EN3, OE2, OE3
Translucent	4	10g	TNT, TOR, TBL, TML
Cervical	2	10g	CVA, CVB
Margin	2	10g	MG2, MG3
Glaze & Stain	1	3g	Glaze
Liquid	4	10ml	Liner Liquid (1), Build-Up Liquid (1), Margin Liquid (1), Glazing Liquid (1)

## Intro Kit

Type	Color	Unit	Contents
Liner	2	10g	LNB, LN2
Opacious Dentin	1	10g	ODA2
Dentin	1	10g	DA2
Enamel	2	10g	EN2, OE2
Translucent	2	10g	TNT, TOR
Glaze & Stain	1	3g	GLAZE
Liquid	2	10ml	Liner Liquid, Build-Up Liquid

## Stain Kit

Type	Color	Unit	Contents
Glaze & Stain	18	3g	GLAZE, ST-Yellow, ST-Ocher, ST-Orange, ST-Brown, ST-yBrown, ST-rBrown, ST-dBrown, ST-Pink, ST-Lilac, ST-sBlue, ST-cBlue, ST-Black, ST-Grey, ST-White, ST-A, ST-B, ST-C
Liquid	1	10ml	Glazing Liquid



Final

rainbow™

# Porcelain Guide



Labial



Lingual



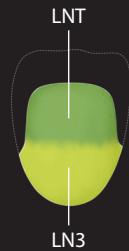
Lateral

## Use example of rainbow™ Porcelain

### Pre-Liner



### Liner : LN3, LNT



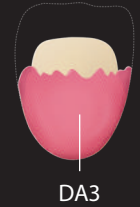
Applying as thin as possible  
but avoiding flow into Coping inside

### Fluor-T



Applying thin layer on cervical for expressing  
Natural Tooth's Fluorescence effect

### Dentin : DA3



Giving natural tooth's structure & color

### Dentin : DA2



Giving natural tooth's structure & color

### Translucent : TOR

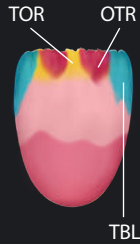


Partially applying on Light's reflected area

## Use example of rainbow™ Porcelain

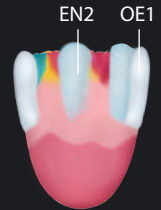
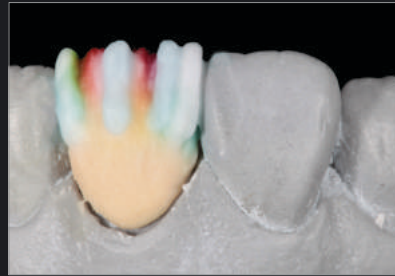
Translucent : TOR, TBL

Opal Effect : OTR



TOR : Partially applying on Light's reflected area  
TBL : Giving Transparent Effect  
OTR : Providing Opal Effect

Opal Effect : OE1, Enamel : EN2



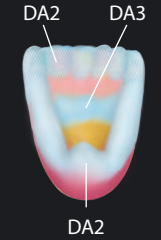
OE1 : Improving Opal Effect & Brightness  
EN2 : Expressing Translucent Effect on Incisal

Enamel : EN3



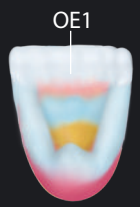
EN3 : Expressing Translucent Effect on Incisal

Dentin : DA2, DA3



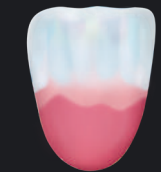
EN2, EN3 : Expressing Translucent Effect on Incisal

Opal Effect : OE1



OE1 : Improving Opal Effect & Brightness

Final



Partially applying on Light's reflected area



## Use example of rainbow™ Porcelain

After Firing



Contouring



After Glazing



rainbow<sup>TM</sup>

**CAD/CAM System**





Scan QR Code to  
You can see Video



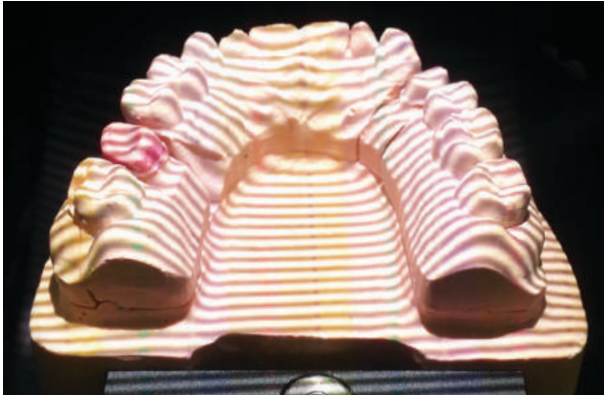
## rainbow™ Scanner Prime

- Structured light tech (Accuracy <math><10\mu\text{m}</math>)
- Wide scan area & Deep depth of scan field
- Convenient scan jig accessory
- 2MP camera resolution & USB 3.0 interface

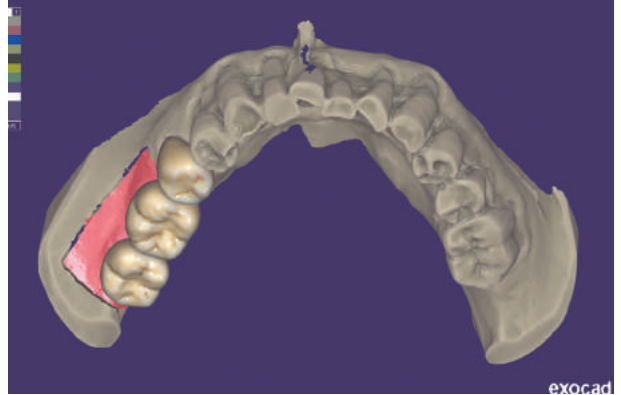
Scan type	White light technology
Camera resolution	2.0 Mega pixels (Twin-Camera)
Scan time	Single: 29 sec, 4-Bridge: 103 sec
Accuracy	$\leq 10\mu\text{m}$
Interface	USB 3.0
File format	Open STL
Scan area (W X D X H)	80 X 60 X 60 mm
Dimensions	28 X 40 X 45 cm
Weight	15 kg



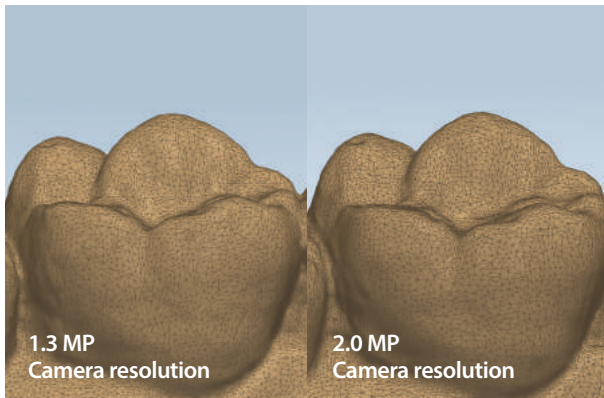
White light scanning



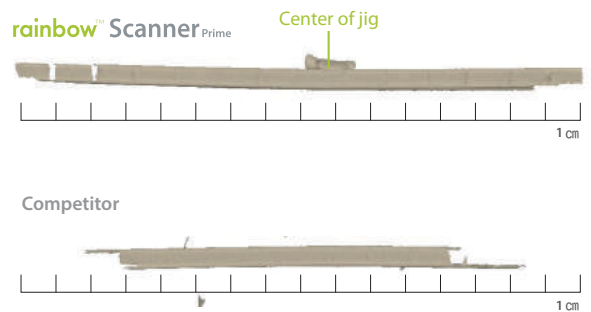
EXOCAD (CAD software)



2.0 MP Camera resolution



Wide scan area & Deep depth of scan field



rainbow™ Scanner offers precise and accurate scanning capability and reliable performance. The doorless entry accessibility makes the setting up of the scan-jig fast and easy. The open STL file format enables compatibility of various CAD software. Increased speed and highly accurate scanning of 3D data are possible due to the perfect synchronization between cameras and pattern projection device, and data processing technology.

Dentium's diverse implant system library, as well as other implant systems' library provides convenience of prosthetic design.



Scan QR Code to  
You can see Video



## rainbow™ Mill - Metal

Material	Titanium, PMMA, Glass ceramic, Wax
Control axis	4 Axis
Spindle	50,000rpm / 0.45kw
Motion drives	All servo motors
Tool Posts	8 Posts (Automatic tool change)
Ti Blank holder	10
Milling type	Wet processing
Dimensions	51 x 71 x 64 cm
Weight	150kg

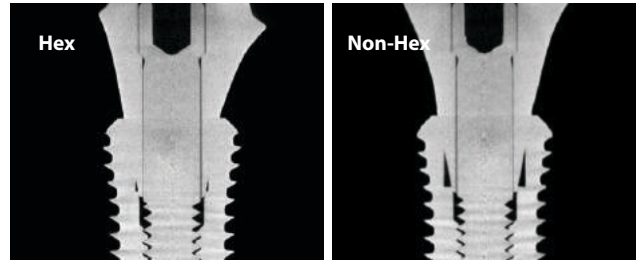
- Optimized for titanium abutment milling
- High speed and steady quality in milling
- Multi NC data loading system
- Stable water cooling control system
- Easy control and user friendly interface



Optimized for implant products from Dentium



**Dentium Ti Blank**

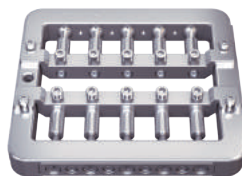


*Cross section of Dentium customized titanium abutment & SuperLine FX4510W*

Optimized for Glass ceramic, Zirconia, PMMA



Link type



Link-Less type



Bar type



Disc type



Ti-blank



Ti-blank

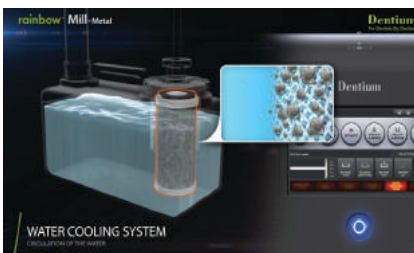


Glass Ceramic

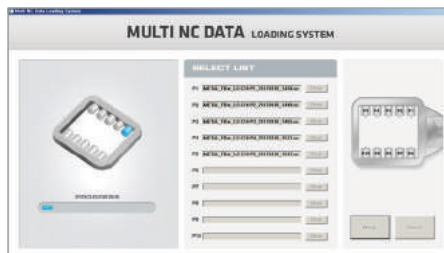


PMMA, WAX

Water-cooling system



MNLS (Multi NC data load system)



hyperDENT (CAM Software)



rainbow™ Mill-Metal is a 4-axis, wet processing machine optimized for titanium abutment. It provides jigs for processing of various materials. In the case of abutment processing, you can increase the process efficiency by using the link-less jig. Intuitive and easy to use with a simple GUI with convenient functions.



Scan QR Code to  
You can see Video



## rainbow™ Mill - Clinic

- Optimized for glass ceramic milling by stable water-cooling control system
- Simultaneous 5-axis milling system optimized for variety of designs
- High speed and steady quality in milling
- Tool load and broken detection system
- Multi NC data loading system
- Easy control and User-friendly interface
- Simple and elegant design for dental clinic

Material	Glass ceramic, Zirconia, PMMA, Wax
Control axis	Simultaneous 5-axis
Spindle	60,000 rpm, 250W
Motion drives	All servo motors
Tool posts	7 posts (Automatic tool change)
Milling type	Wet processing
Dimensions	45 x 71 x 71 cm
Weight	100 kg





Optimized for Glass ceramic, Zirconia, PMMA

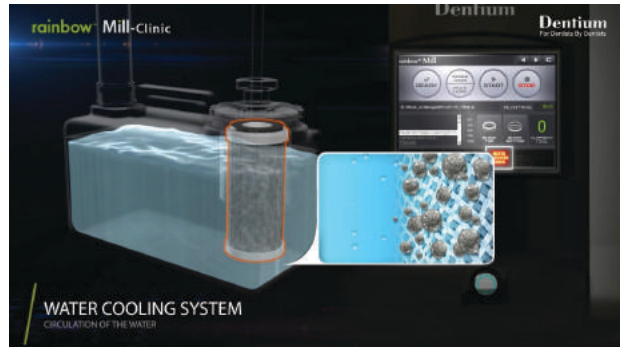


Glass ceramic

Zirconia

PMMA

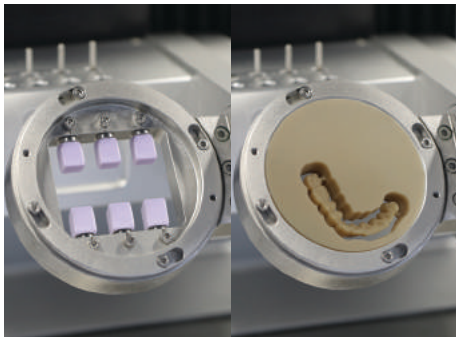
Water-cooling system



Double layered filter, grinding oil insufficiency and filter replacement alarm



Bar & disk type block can be applied



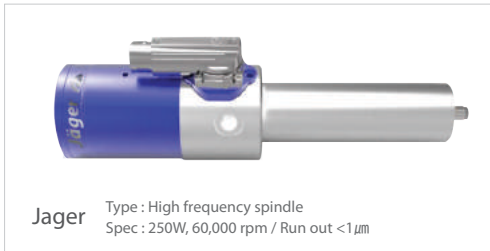
MNLS function applied (Multi NC data loading system)



7 Tool posts (Automatic change)



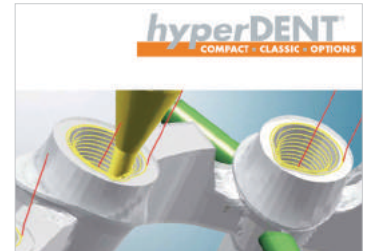
High-precision spindle



User friendly touch interface



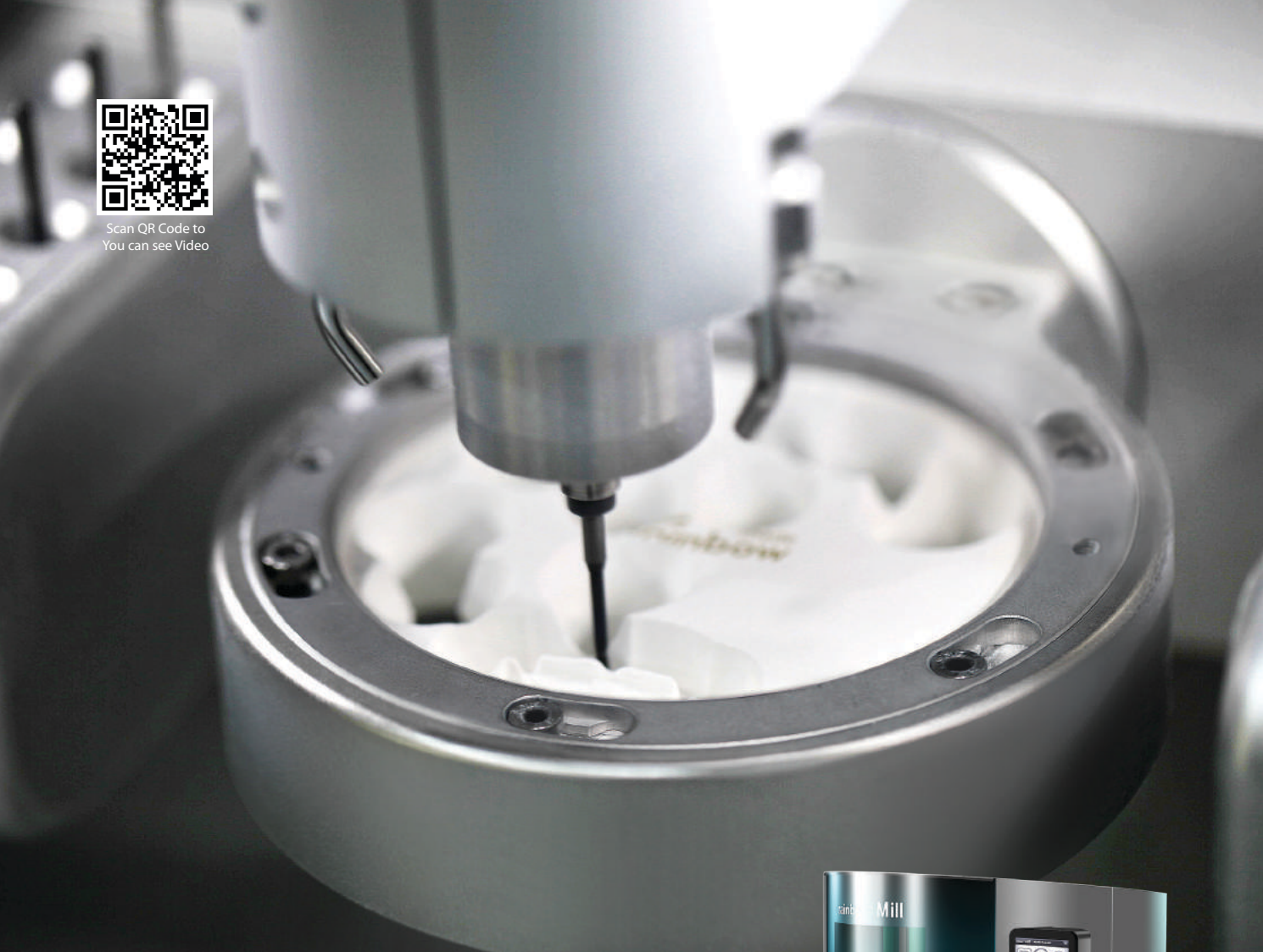
hyperDENT (CAM Software)



rainbow™ Mill - Clinic is a 5-axis, wet processing machine optimized for glass ceramic. Clinic It provides a compact design optimized for the environment and a jig for processing various materials. Intuitive and easy to use with a simple GUI with convenient functions.



Scan QR Code to  
You can see Video



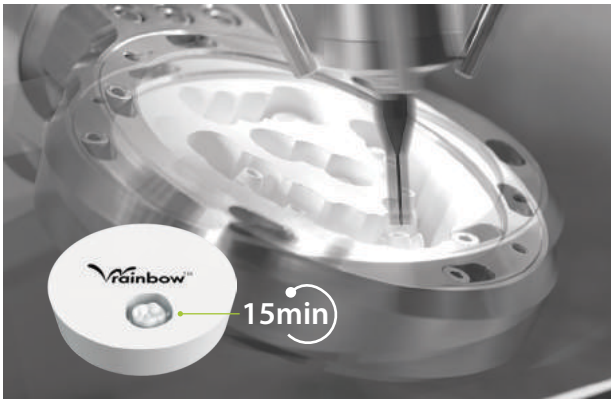
## rainbow™ Mill - Zr

- Diverse design and precise production with simultaneous 5-axis milling system
- Equipped with a spindle, allowing highly precise and fine machining
- Enhanced convenience with user-focused interface
- Provides space-efficient by integrated design dust collector

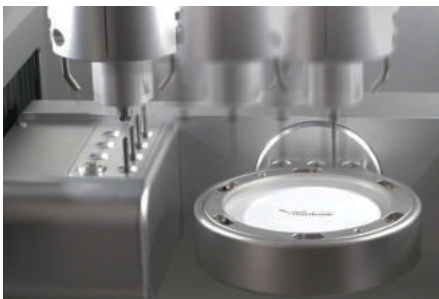


Material	Zirconia, PMMA, Wax
Milling time	Single : 15 Min, 3Br : 45 Min
Control axis	Simultaneous 5-axis
Spindle	60,000 rpm, 250W
Motion drives	All servo motors
Tool posts	7 posts (Automatic changes)
Milling type	Dry processing
Dimensions (W x D x H)	71 x 81 x 170 cm
Weight	280 kg

Fast milling speed & Stable milling quality



Automatic tool change & Broken tool detection system



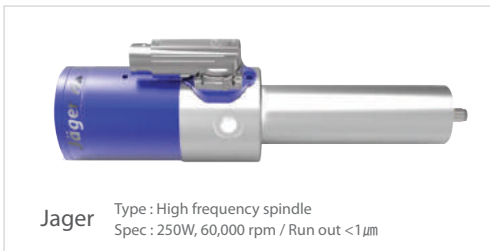
User friendly touch interface



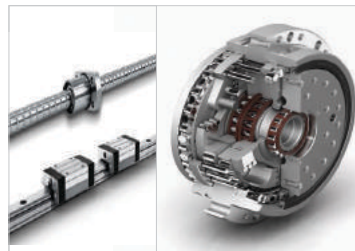
Built-in dust collector



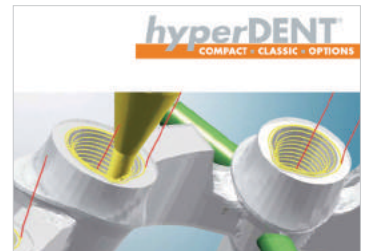
High-precision spindle



High precision & stiffness parts for maximum durability












hyperDENT (CAM Software)



rainbow™ Mill-Zr is a 5-axis, dry-type machine optimized for zirconia. Various types of jigs are available to use disc(with step) blocks of various thicknesses. Intuitive and easy to use with a simple GUI with convenient functions.



# rainbow™ Mill Bur List

rainbow™ Mill - Zr & Clinic

Design	Art. No.	Type	Shank diameter	Diameter	Material
	<b>BE3D2-D</b>	ENDMILL	Ø 3	Ø 2	ZIRCONIA
	<b>BE3D1-D</b>	ENDMILL	Ø 3	Ø 1	ZIRCONIA
	<b>BE3D0.5-D</b>	ENDMILL	Ø 3	Ø 0.5	ZIRCONIA
	<b>BE3D2-N</b>	ENDMILL	Ø 3	Ø 2	PMMA / WAX
	<b>BE3D1-N</b>	ENDMILL	Ø 3	Ø 1	PMMA / WAX
	<b>FE3D2-N</b>	FLAT ENDMILL	Ø 3	Ø 2	CALIBRATION
	<b>GT3D2-ED</b>	GRINDING	Ø 3	Ø 2	GLASS CERAMIC / COMPOSITE RESIN
	<b>GT3D1-ED</b>	GRINDING	Ø 3	Ø 1	GLASS CERAMIC / COMPOSITE RESIN
	<b>GT3D0.6-ED</b>	GRINDING	Ø 3	Ø 0.6	GLASS CERAMIC / COMPOSITE RESIN

# rainbow™ Mill Bur List

## rainbow™ Mill - Metal

Design	Art. No.	Type	Shank diameter	Diameter	Material
	BE6D3-T	ENDMILL	Ø 6	Ø 3	TITANIUM
	BE6D2-T	ENDMILL	Ø 6	Ø 2	TITANIUM
	BE6D1.5-T	ENDMILL	Ø 6	Ø 1.5	TITANIUM
	BE6D2-N	ENDMILL	Ø 6	Ø 2	PMMA / WAX
	BE6D1-N	ENDMILL	Ø 6	Ø 1	PMMA / WAX
	GT6D2-ED	GRINDING	Ø 6	Ø 2	GLASS CERAMIC / COMPOSITE RESIN
	GT6D1-ED	GRINDING	Ø 6	Ø 1	GLASS CERAMIC / COMPOSITE RESIN
	GT6D0.6-ED	GRINDING	Ø 6	Ø 0.6	GLASS CERAMIC / COMPOSITE RESIN



**Dentium**  
For Dentists By Dentists

rainbow™  
**Dental Lab System**

**Dentium**  
For Dentists By Dentists

Specifications are subject to change without any notice.  
Some products listed in this catalog are not available in the market due to pending approval.

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