

HUGE Your Partner
in Prosthetic
Dentistry

Product Catalog **ZIRCONIA**

Provide you the ultimate aesthetic experience



HUGE
www.hugedental.com



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Company Introduction

HUGE Dental, Shandong Huge Dental Material Corporations, integrates R&D, manufacturing, and sales of dental products and services. Founded in 2006 in Rizhao Sandong China, as of 2021 there are three R&D centers functioning independently in Beijing, Qingdao, and Rizhao.

Implementing strict QC standards for the dental industry, HUGE Dental has passed the CE(EU), FDA(USA), MDL(Canada), ISO13485 and other quality system certifications and product registrations. Its products have been exported to nearly 100 countries/ regions all over the world.

HUGE Dental will continue to take independent innovation as the core motivity, to provide customers with integrated dental solutions. HUGE Dental has been committed to becoming one of the most influential dental medical brands in the world.

HUGE Dental stands out in production capacity with its impressive, automated production machinery. **Our machinery is able to achieve a mass production capacity of 700 zirconia discs per day.** This reflects our strength and enables us to greatly improve production, as well as shorten order and delivery time to our customers.



700+

Employees

31,000 m²

Manufacturing and
research plant

50

Million + users
More than 50 million
people are using HUGE products

112
Countries

Sales to 112 countries and regions

3000+
Dealerships

More than 3,000 dealerships

Zirconia Introduction

What is zirconia?

Why choose Zirconia?

What is the application of zirconia in dentistry?



Zirconia is the best material in restorative dentistry.

Common restorations:

- > Removable dentures
 - > **Fixed dentures**
 - > **Dental implants**
- } Ideal choice → **Zirconia Restorations**

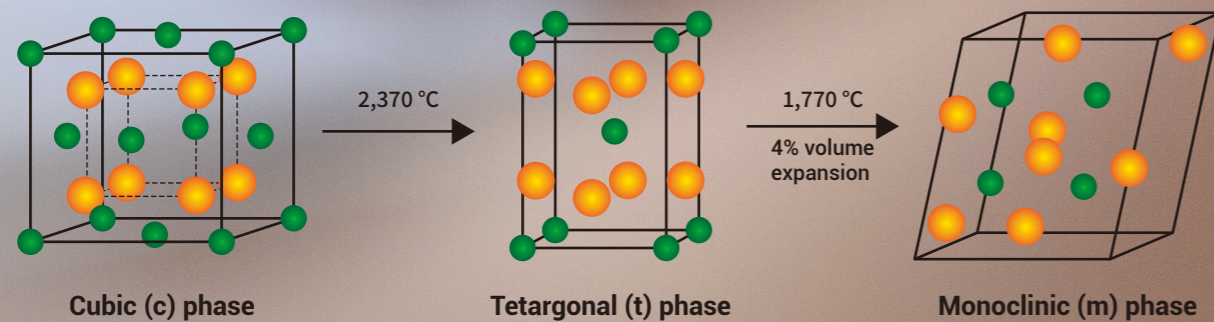
Reasons:

- > Similar aesthetics to natural teeth
- > Higher flexural strength compared to other ceramic materials
- > Low-solubility, high temperature resistance and corrosion resistance
- > Good biocompatibility
- > Produce minimal wear on enamel antagonists

Factors affecting zirconia properties:

Composition, grain size and shape of zirconia particles, type and amount of stabilising oxides such as yttrium oxide (content), processing, etc.

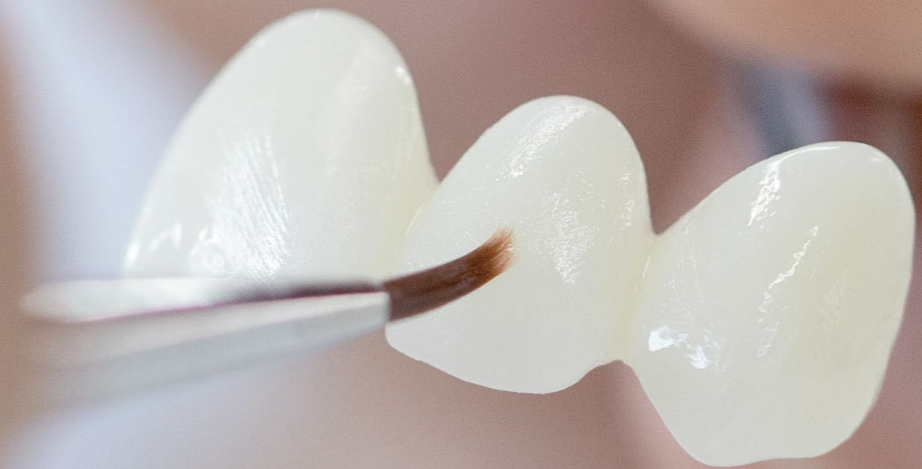
Phase transformation of zirconia:



Three generations of zirconia:

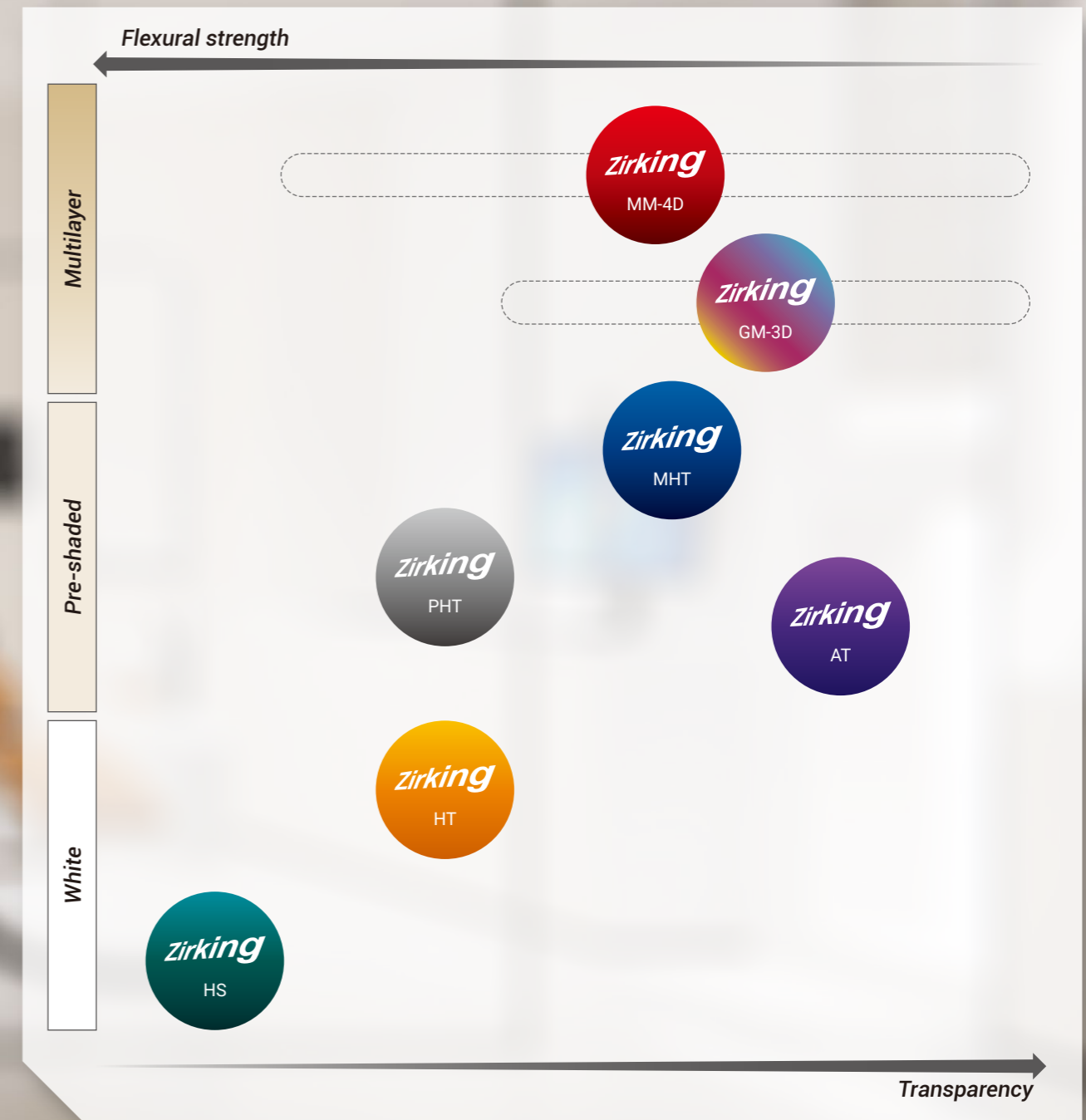
	3Y-TZP	4Y-TZP	5Y-TZP
Mechanical Properties	High	Medium	Low
Translucency	Low	Medium	High
Quadratic phase content	High	Medium	Low
Cubic phase content	Low	Medium	High

Y-TZP is an abbreviation for yttrium oxide stabilised tetragonal zirconia polycrystals. The "Y" value indicates the molar percentage of yttrium oxide that has been added.










Zirconia Family —for ALL Indications

HUGE Zirconia Blocks are a high-performance dental material for making crowns and bridges. It is durable, strong and bio-compatible, making it an ideal choice for dental restorations.



INDICATION OVERVIEW

Give you a full range of options.

Indications	Venners	Inlays&onlays	Coping&abutment	Anatomically reduced crowns	Full anatomy anterior crown	Anterior dental bridge (less than 3 units)	Full anatomy posterior crown	Poterior 3-unit bridge	Poterior 3-unit to multi-unit bridge	Full-arch bridge
	×	⊗	✓	✓	×	×	✓	✓	✓	✓
	×	⊗	✓	✓	⊗	⊗	✓	✓	✓	✓
	⊗	⊗	✓	✓	✓	✓	✓	✓	✓	✓
	✓	⊗	×	×	✓	✓	⊗	⊗	×	×
	✓	✓	✓	✓	✓	✓	✓	✓	✓	×
	✓	✓	✓	✓	✓	✓	✓	✓	⊗	⊗
	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

✓ available ⊗ available but not recommend × unavailable

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Premium / Prime ZIRCONIA BLOCK

Two Series:

Premium zirconia block

Prime zirconia block



Premium Zirconia Block

100% Tosoh Material; Stable and efficient

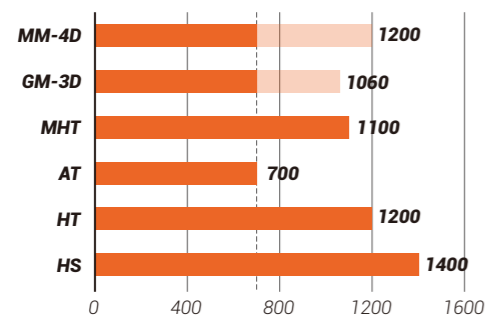


Product	HS	HT	MHT	AT	GM	MM-4D
Sample						
Type	3Y-TZP	3Y-TZP	3Y-TZP	5Y-TZP	Incisal: 5Y-TZP Dentin: 4Y-TZP	Incisal: 5Y-TZP Dentin: 4Y-TZP
Bending Strength	1400Mpa	1100Mpa	1100Mpa	700Mpa	Incisal: 700Mpa Dentin: 1060Mpa	Incisal: 700Mpa Dentin: 1200Mpa
Translucency	40%	43%	43%	49%	Incisal: 57% Dentin: 43%	Incisal: 57% Dentin: 43%
Fracture toughness [MPa·m ^{1/2}]	≥5	≥5	≥5(Dentin)	≥3.5	≥5(Dentin)	≥5(Dentin)
Shades	White	White A1,A2,A3,A3.5,A4 B1,B2,B3,B4 C1,C2,C3,C4 D2,D3,D4	A Light, A Dark	White A1,A2,A3,A3.5,A4 B1,B2,B3,B4 C1,C2,C3,C4 D2,D3,D4	Hollywood White A1,A2,A3,A3.5,A4 B1,B2,B3,B4 C1,C2,C3,C4 D2,D3,D4,Bleach	A1,A2,A3,A3.5,A4 B1,B2,B3,B4 C1,C2,C3,C4 D2,D3,D4,Bleach

Technical Data

Flexural Strength

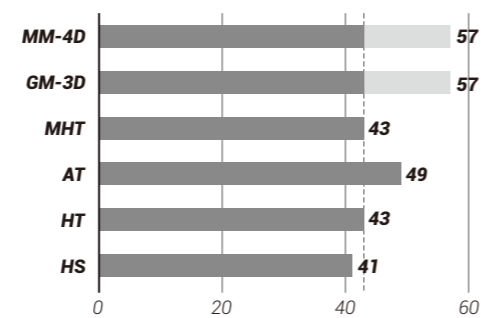
Zirconia has a higher flexural strength and therefore better stability during chewing.



Flexural strength(Mpa)
Translucency(%)

Translucency

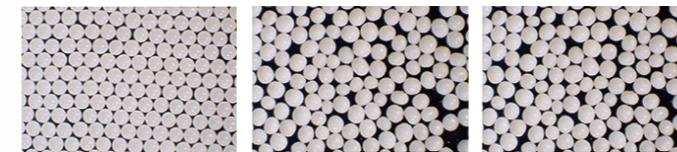
The higher the translucency, the better the permeability and the more aesthetic the prosthesis is.



100% TOSOH Powder

Perfect granular homogeneity

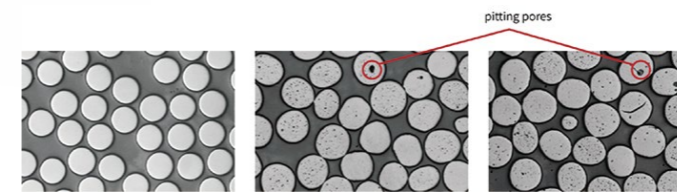
The uniformity ensures HUGE Premium Zirconia product has superior strength and the lowest fracture risk.



HUGE Premium C-1 C-2

Perfectly homogenous microstructure

The uniformity ensures HUGE Premium Zirconia product has superior strength and the lowest fracture risk.



HUGE Premium C-1 C-2

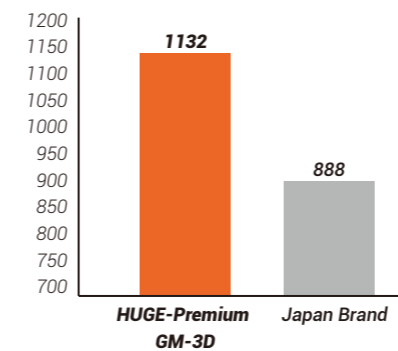
Purity

Purity makes sure that the material is strong due to no foreign bodies being present and also that it is healthy, with no negative elements that could affect a patient's health.

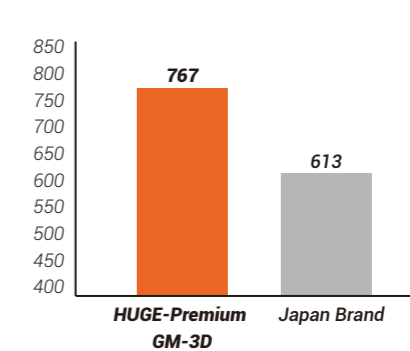
TOSOH
ZrO ₂ + HfO ₂ + Y ₂ O ₃ + Al ₂ O ₃ > 99.9%
C-4 Company
Mg, Si, S, Cr, Cu, Zn, Sn, Pb, CaCo ₃ , Talc, Mica

Excellent Performance in Strength Testing Compared to Competitors^[1]

The 3-point flexural strength in cervical part

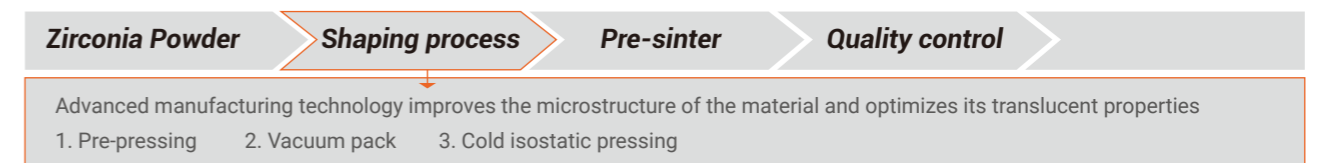


The 3-point flexural strength in incisal part



HUGE Advanced Manufacturing Technology

Manufactured at our in-house production site



- Diverse products in different types, shades, systems and thickness
- Comprehensive and in-depth research on sintering

[1]: Data from HUGE laboratory

Prime Zirconia Block

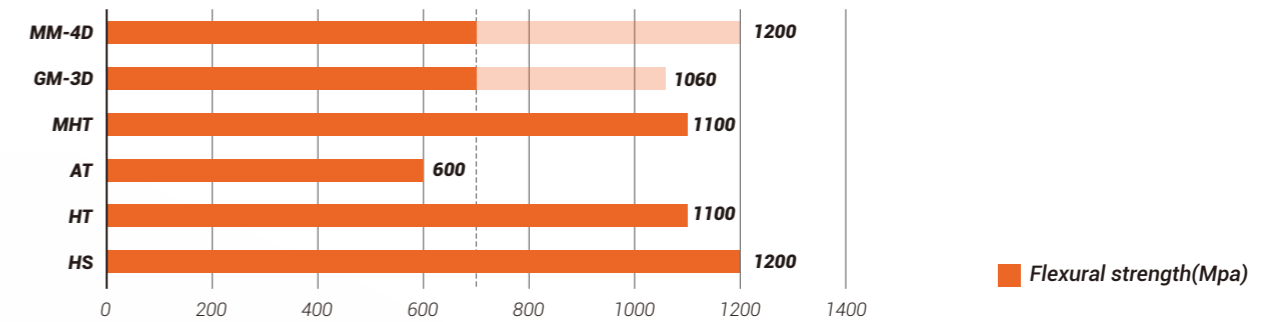
Aesthetic and reliable

Product	HS	HT	MHT	AT	GM	MM-4D
Sample						
Type	3Y-TZP	3Y-TZP	4Y-TZP	5Y-TZP	Incisal: 5Y-TZP Dentin: 4Y-TZP	Incisal: 5Y-TZP Dentin: 3Y-TZP
Bending Strength	1200Mpa	1100Mpa	1000Mpa	700Mpa	Incisal: 700Mpa Dentin: 1050Mpa	Incisal: 700Mpa Dentin: 1200Mpa
Translucency	40%	43%	46%	49%	Incisal: 57% Dentin: 43%	Incisal: 57% Dentin: 43%
Fracture	≥5	≥5	≥5	≥5	≥5(Dentin)	≥5(Dentin)
Shades	White	White A1,A2,A3,A3.5,A4 B1,B2,B3,B4 C1,C2,C3,C4 D2,D3,D4	A1,A2,A3,A3.5,A4 B1,B2,B3,B4 C1,C2,C3,C4 D2,D3,D4	White A1,A2,A3,A3.5,A4 B1,B2,B3,B4 C1,C2,C3,C4 D2,D3,D4	A1,A2,A3,A3.5,A4 B1,B2,B3,B4 C1,C2,C3,C4 D2,D3,D4 BL1,BL2,BL3	A1,A2,A3,A3.5,A4 B1,B2,B3,B4 C1,C2,C3,C4 D2,D3,D4 BL1,BL2,BL3,BL4

Technical Data

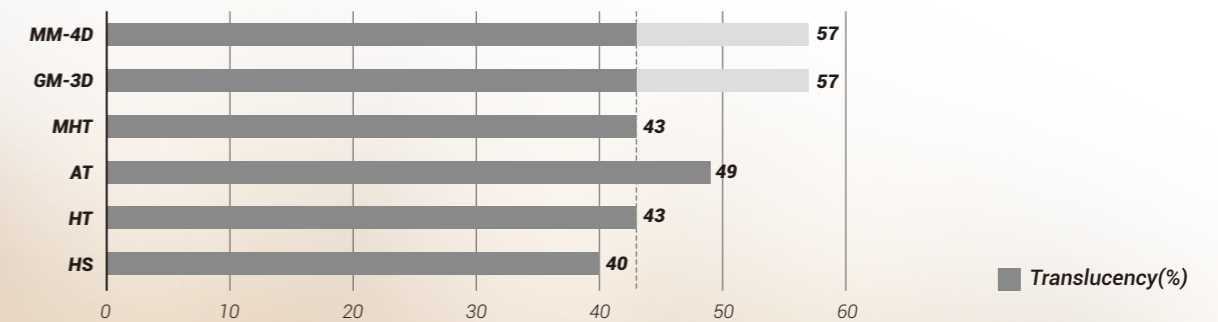
Flexural Strength

Zirconia has a higher flexural strength and therefore better stability during chewing.



Translucency

The higher the translucency, the better the permeability and the more aesthetic the prosthesis is.



Digital Solution

For different types of restorations, HUGE offers a wide range of digitized complete solutions with matching products for easy selection and greater convenience.

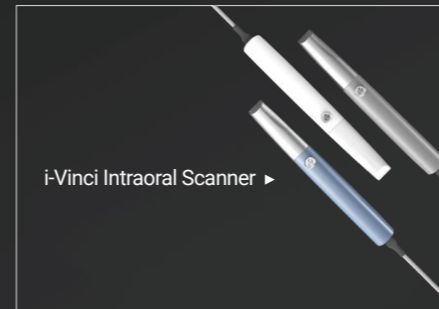


Full Arch Implant Solution

zirking

100%
TOSOH

zirking | MM-4D Zirconia Block



Milling Machine



MaxMultilayer MM-4D Zirconia Block



Gradient Multilayer GM-3D Zirconia Block



- The **All-in-one** Solution for dental restorations
- All areas of application: From single crown to full arch bridge



Stain & Glaze



Firing Paste



3D Printer

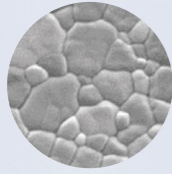


Product Features

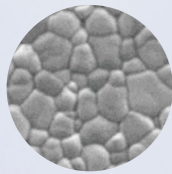
zirking | MM-4D Zirconia Block (Prime/ 100% TOSOH Premium)

Ideal for esthetic crowns, bridges and full-arch restorations

With 700-1200Mpa strength and a high translucency (up to 57%) optimized for esthetic crowns, bridges and even full-arch restorations, MM-4D zirconia solves almost all of the dental applications with more confidence. It is also qualified for cases with very limited space requiring ultimate strength.



Ultra translucent zirconia: up to 57% translucency for high aesthetics in incisal areas



High strength zirconia: achieve 1200Mpa strength for exceptional stability

HUGE MM-4D Zirconia A2 full-arch implant-supported monolithic zirconia bridge



MaxMultilayer Structure

– 15 layers zirconia: 8 layers are superimposed and 15 layers are gradient

Flexural Strength	Translucency	Layer
≥700Mpa	High translucency	1-15%
≥750Mpa		57%
≥820Mpa		56%
≥890Mpa		54%
≥960Mpa		52%
≥1030Mpa	High strength	2-10%
≥1100Mpa		4-12%
≥1200Mpa		5-12%
≥1100Mpa		6-12%
≥1200Mpa		7-12%
≥1200Mpa	8-15%	43%

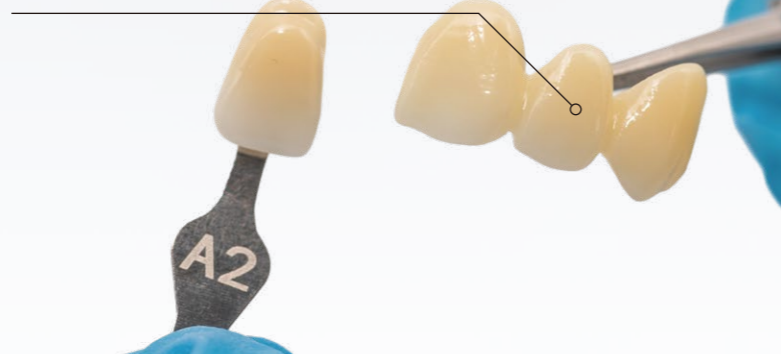


Natural color match to VITA Classic shades

Available shades



HUGE MM-4D Zirconia A2 dental bridge – sintered and glazed



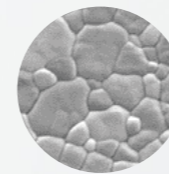
Product Features

zirking | GM-3D Zirconia Block (Prime/ 100% TOSOH Premium)

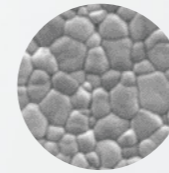
Gradient Multilayer provide you the ultimate aesthetic experience

Seamless transition in 3 dimensions:

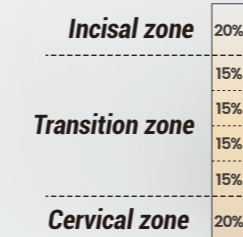
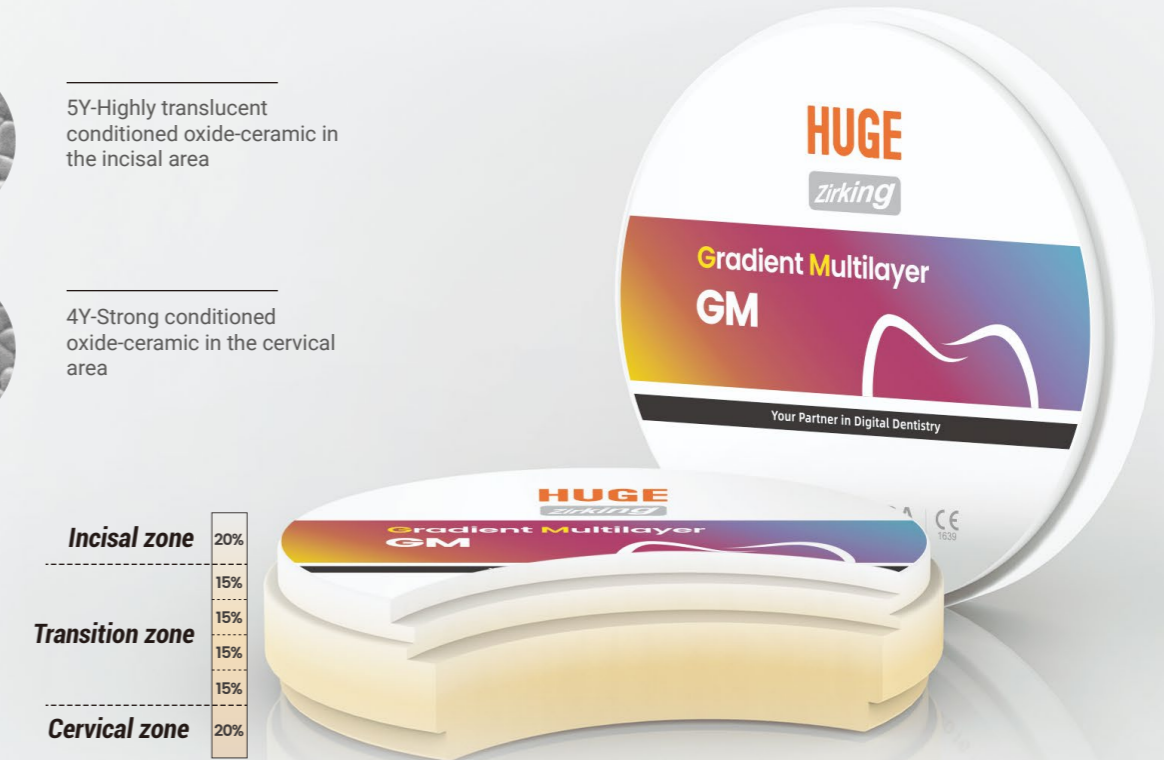
Natural color transition matches the natural color gradient of the tooth from cervical to incisal. Translucency from 43% incisal to 57% cervical. Strength gradient from 700 Mpa to greater than 1050 Mpa



5Y-Highly translucent conditioned oxide-ceramic in the incisal area



4Y-Strong conditioned oxide-ceramic in the cervical area



1. Outstanding filling technology

The special filling technology allows NOBILCAM GM-3D Zirconia to offer seamless transition from dentin to enamel in color, translucency and strength. The premium esthetics and exceptional strength provides a "All-in-one Solution", eliminating the needs to carry multiple materials.

2. Professional conditioning

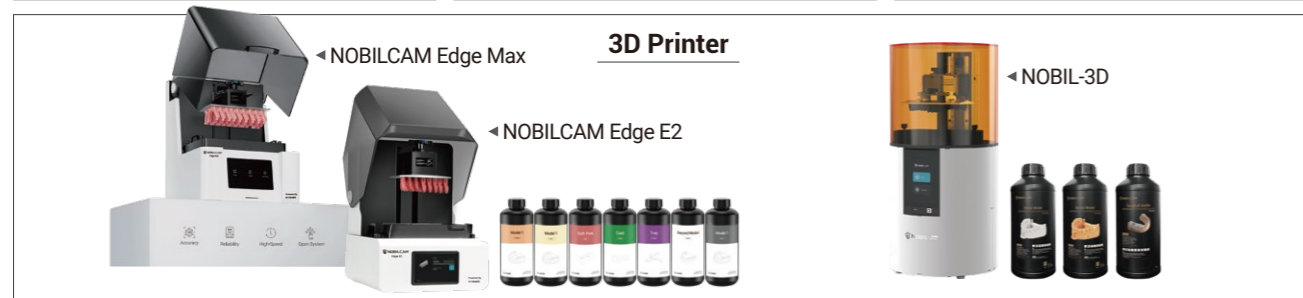
To ensure outstanding accuracy of fit and no distortion, we are concerned about the shrinkage of the raw 4Y and 5Y oxide-ceramic materials. During manufacturing process, the powder conditioning adjusts the sintering kinetics and make the materials combined optimally.

3. High-quality manufacturing

Advanced manufacturing process improves the quality of the product. Before pre-sintering process, every zirconia blanks would be sealed into a vacuum bag and pressed isostatically, which improves the microstructure of the material.



Fixed Repair Solution



zirking | HS Zirconia Block (Prime/ 100% TOSOH Premium)

Product Features

- Suitable option for coping & abutment
- Highest strength up to 1400Mpa
- Good fracture resistance
- Mills and polishes easily



zirking | HT Zirconia Block (Prime/ 100% TOSOH Premium)

Product Features

- Reproduce shades perfect
- Full contour restoration for anterior and posterior areas
- High strength with attractive translucency
- Adaptation to natural teeth



zirking | MHT Zirconia Block (Prime/ 100% TOSOH Premium)

Product Features

- Natural tooth esthetic
- Excellent shade transitions and translucency
- Time-saving and easy processing



Technical Data

Translucency	41%
Flexural Strength (3-point)	1400Mpa
Density	>3.27 g/cm ³
Sintered Density	6.08 g/cm ³
Chemical Solubility	<100 µg/cm ²
Radioactivity	0.019 Bq/g
CTE	(10.5±0.5)×10 ⁻⁶ K ⁻¹
Vickers Hardness HV 10	1250 HV10

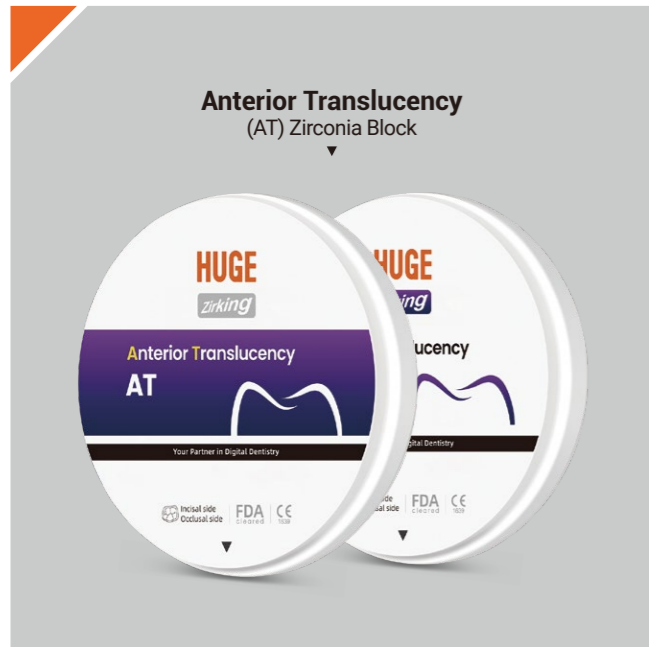
Technical Data

Translucency	43%
Flexural Strength (3-point)	1200Mpa
Density	>3.27 g/cm ³
Sintered Density	6.08 g/cm ³
Chemical Solubility	<100 µg/cm ²
Radioactivity	0.019 Bq/g
CTE	(10.5±0.5)×10 ⁻⁶ K ⁻¹
Vickers Hardness HV 10	1250 HV10

Technical Data

Translucency	41%
Flexural Strength (3-point)	1100Mpa
Density	>3.3 g/cm ³
Sintered Density	6.08 g/cm ³
Chemical Solubility	<100 µg/cm ²
Radioactivity	0.019 Bq/g
CTE	(10.5±0.5)×10 ⁻⁶ K ⁻¹
Vickers Hardness HV 10	1250 HV10

Anterior Aesthetic Solution



zirking | AT Zirconia Block (Prime/ 100% TOSOH Premium)

Product Features

- Extremely high translucent
- High aesthetics, natural look of teeth
- Excellent alternative to lithium disilicate with double strength

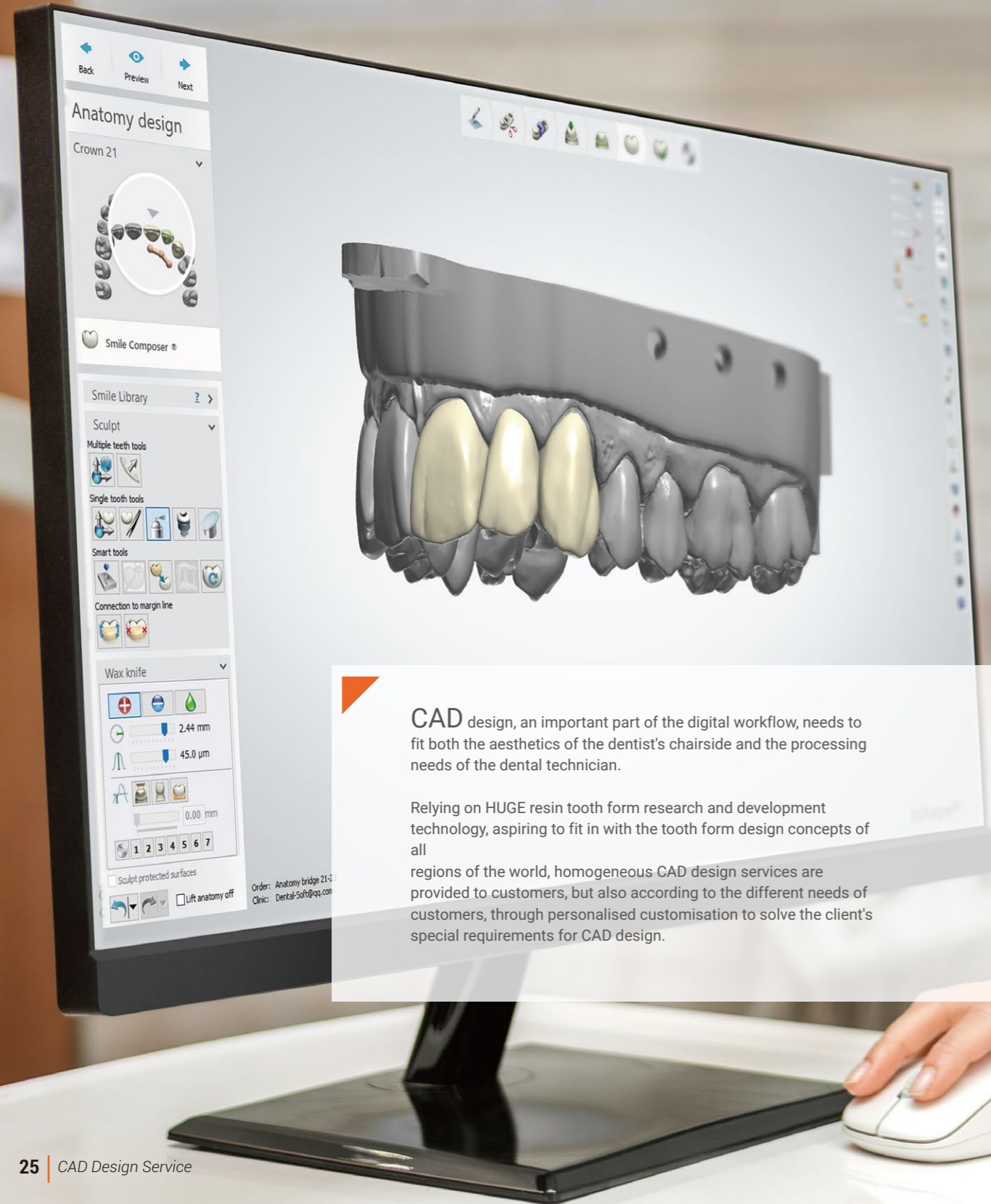


Technical Data

Translucency	49%
Flexural Strength (3-point)	700Mpa
Density	>3.27 g/cm ³
Sintered Density	6.05 g/cm ³
Chemical Solubility	<100 μg/cm ²
Radioactivity	0.019 Bq/g
CTE	(10.5±0.5)×10 ⁻⁶ K ⁻¹
Vickers Hardness HV 10	1250 HV10

Fits The Global Tooth Pattern

— CAD Design Service by HUGE

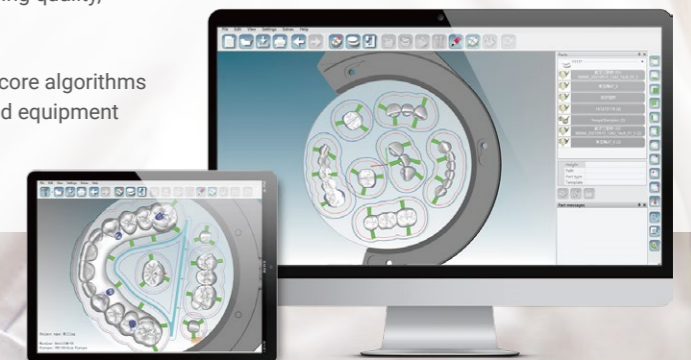


CAD design, an important part of the digital workflow, needs to fit both the aesthetics of the dentist's chairside and the processing needs of the dental technician.

Relying on HUGE resin tooth form research and development technology, aspiring to fit in with the tooth form design concepts of all regions of the world, homogeneous CAD design services are provided to customers, but also according to the different needs of customers, through personalised customisation to solve the client's special requirements for CAD design.

CAM design, a key step in converting a CAD design model into a toolpath that can be recognised by a CNC machine. We provide a complete CAM design solution for our customers using our equipment, which includes but is not limited to providing customers with a wealth of machining strategies and technical support to meet the different needs of customers for machining quality, efficiency and costs.

This is all based on Hyperdent software's leading core algorithms and our repeated testing of material properties and equipment parameters.



EternalArt

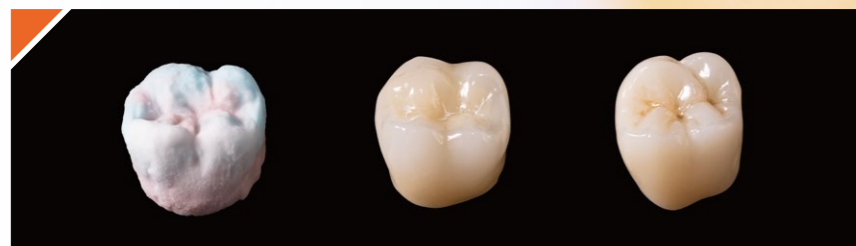
Porcelain Powders

Made of all zirconia, porcelain-fused zirconia, and lithium disilicate glass ceramic elements, Artamic Stain/Glaze was created to replicate restorations that are true to nature. Thanks to its extensive color system, vibrant fluorescence, and natural gloss, it gives you the flexibility to effortlessly achieve the appropriate individualization and characterization outcomes as well as realistic restoration aesthetics that equal those of natural teeth.

EternalArt Shade Solutions



The desired appearance of characterization is provided by an easy-to-control paste-type externally stain, and the amazing gloss is provided by the clear glaze with a minimal layer thickness.



Full shade spectrum to increase translucency and to exhibit the natural luster and fluorescense:

4 classic dentine shade materials for efficient customization ✓

2 complement incial shade materials for great translucency ✓

2 vivid gingival shade materials for reproducing natural gingival effect ✓

8 adjustment shade materials for desirable individualization and characterization ✓



Zirconia Workflow

Mastering the art of precision and aesthetics in modern dentistry.

Zirconia Crown&Bridges Workflow :

Efficiency, convenience and esthetic restorations



Teeth Preparation



Take Impression



Scan & CAD Design



Select Zirconia Disc



Milling Process



First & Second Sinter



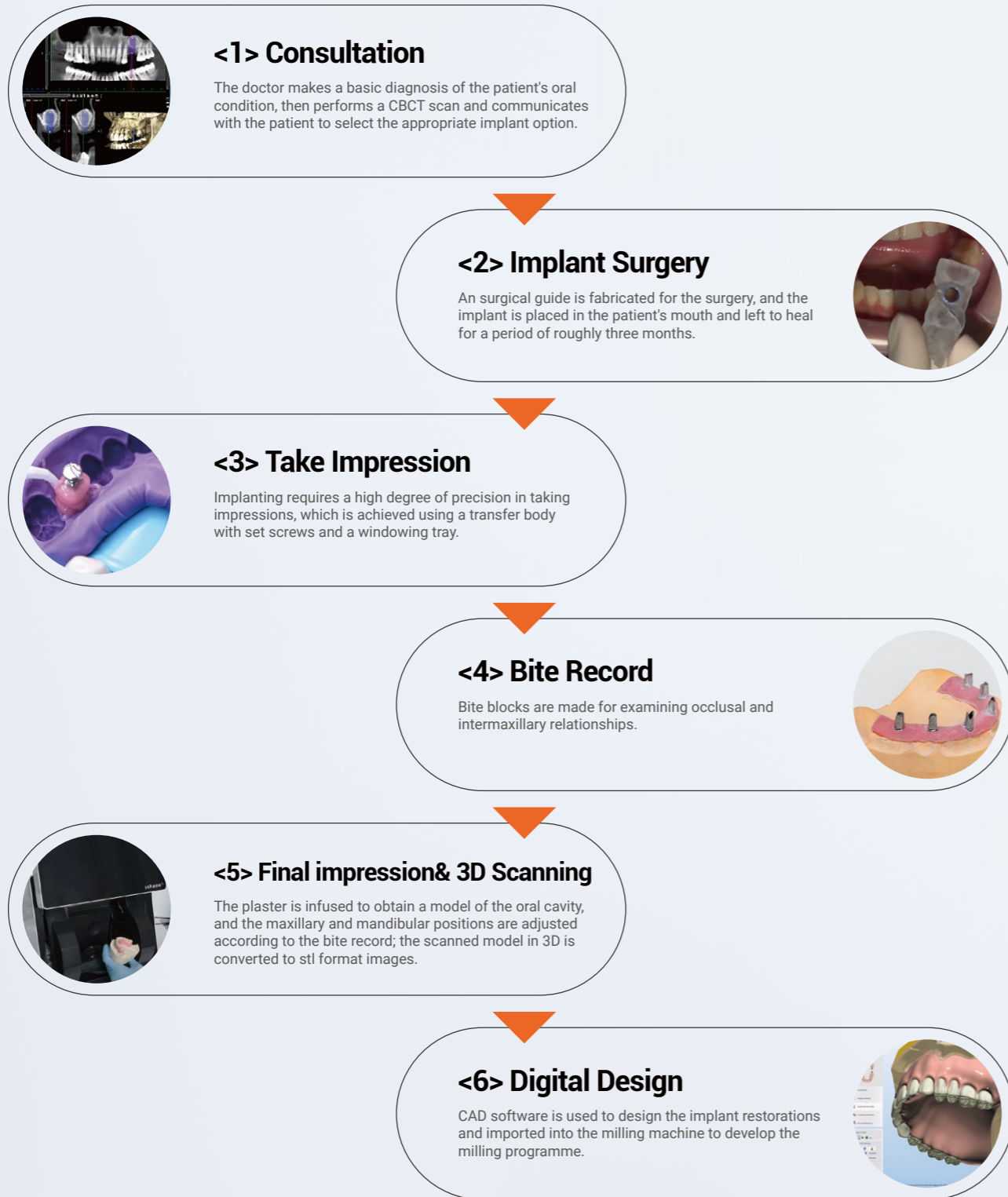
Grinding & Polishing



Cement & Finish

Zirconia Dental Implants Workflow :

Efficiency, convenience and esthetic restorations



Operation Guide

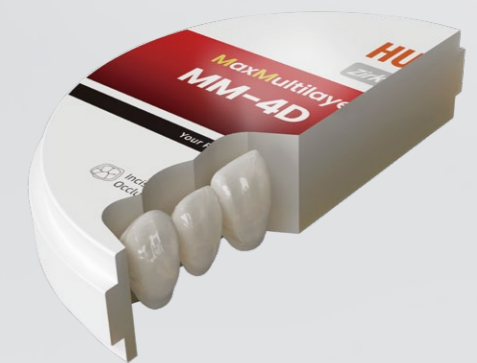
Due to various zirconia block thicknesses & types, problems (e.g. shade differences post-sintering) may arise without following standard operation instructions. So, select the proper procedure based on restoration needs in accordance with nesting instruction & sintering programmes.

Nesting Instructions

Instructions for layering of different thicknesses of zirconia blocks:

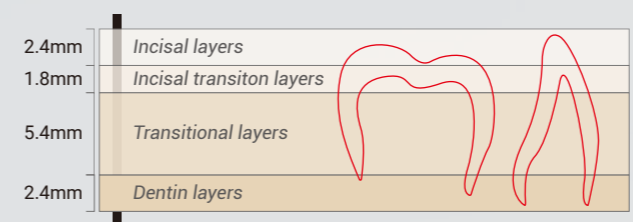
zirking GM-3D	12mm	14mm	16mm	18mm	20mm	22mm	25mm
Incisal Layers	2.4mm	2.8mm	3.2mm	3.6mm	4mm	4.2mm	5mm
Incisal transition layers	1.8mm	2.1mm	2.4mm	2.7mm	3mm	3.3mm	3.75mm
Transitional layers	5.4mm	6.3mm	7.2mm	8.1mm	9mm	9.9mm	11.25mm
Dentin layers	2.4mm	2.8mm	3.2mm	3.6mm	4mm	4.2mm	5mm

zirking MM-4D	12mm	14mm	16mm	18mm	20mm	22mm	25mm
Incisal Layers	2.4mm	2.8mm	3.2mm	3.6mm	4mm	4.2mm	5mm
Incisal transition layers	1.8mm	2.1mm	2.4mm <td 2.7mm	3mm	3.3mm	3.75mm	
Transitional layers	5.4mm	6.3mm	7.2mm	8.1mm	9mm	9.9mm	11.25mm
Dentin layers	2.4mm	2.8mm	3.2mm	3.6mm	4mm	4.2mm	5mm



Note: Select the appropriate thickness of zirconia block according to the height of the restoration, line up the teeth with the middle of the block, and leave 0.5mm-1mm for each of the incisal end and cervical edge.

Take 12mm zirconia block as an example:

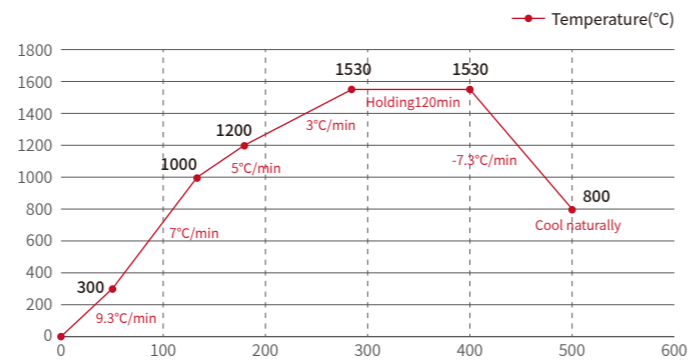


Thickness of Zirconia	Hight of Resteration	Thickness of Zirconia	Hight of Resteration
10mm	7-8mm	18mm	13-14mm
12mm	8-9mm	20mm	14-15mm
14mm	10-11mm	22mm	16-17mm
16mm	11-12mm	25mm	19-20mm

Prime Zirconia Sintering Programme

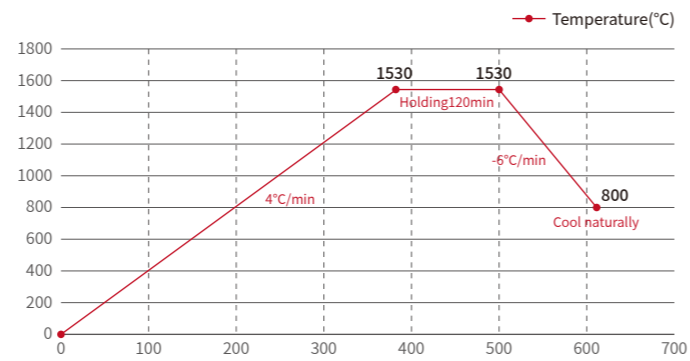
Crowns and bridges(≤5 units)(HS,HT)

STEP	Start temperature(°C)	End temperature(°C)	Time(min)	Rate of Climb(°C/min)
Step1	20	300	30	9.3
Step2	300	1000	100	7
Step3	1000	1200	40	5
Step4	1200	1530	110	3
Step5	1530	1530	120	Holding
Step6	1530	800	100	7.3
Step7	800	Room temperature	Cool naturally	/



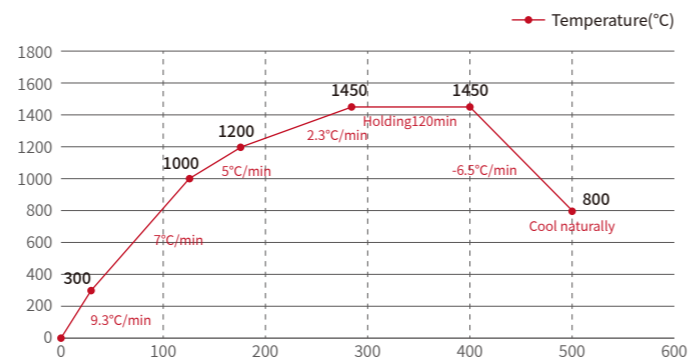
Bridges(>5 units)(HS,HT)

STEP	Start temperature(°C)	End temperature(°C)	Time(min)	Rate of Climb(°C/min)
Step1	20	1530	378	4
Step2	1530	1530	120	Holding
Step3	1530	800	122	6
Step4	800	Room temperature	Cool naturally	/



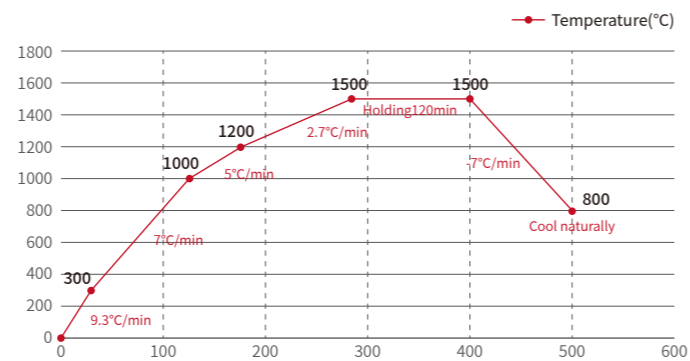
Crowns and bridges(≤3 units)(AT)

STEP	Start temperature(°C)	End temperature(°C)	Time(min)	Rate of Climb(°C/min)
Step1	20	300	30	9.3
Step2	300	1000	100	7
Step3	1000	1200	40	5
Step4	1200	1450	110	2.3
Step5	1450	1450	120	Holding
Step6	1450	800	100	6.5
Step7	800	Room temperature	Cool naturally	/



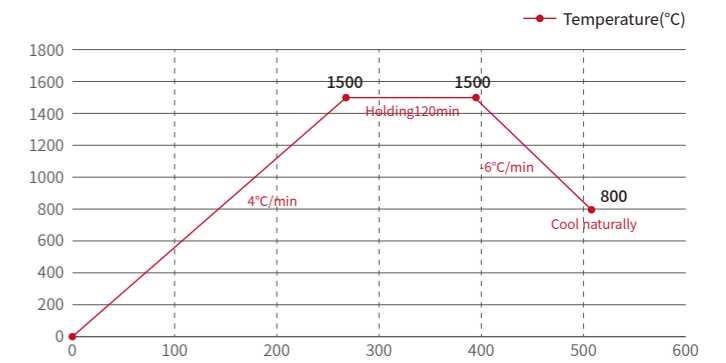
Crowns and bridges(≤5 units)(MHT,GM,MM-4D)

STEP	Start temperature(°C)	End temperature(°C)	Time(min)	Rate of Climb(°C/min)
Step1	20	300	30	9.3
Step2	300	1000	100	7
Step3	1000	1200	40	5
Step4	1200	1500	110	2.7
Step5	1500	1500	120	Holding
Step6	1500	800	100	7
Step7	800	Room temperature	Cool naturally	/



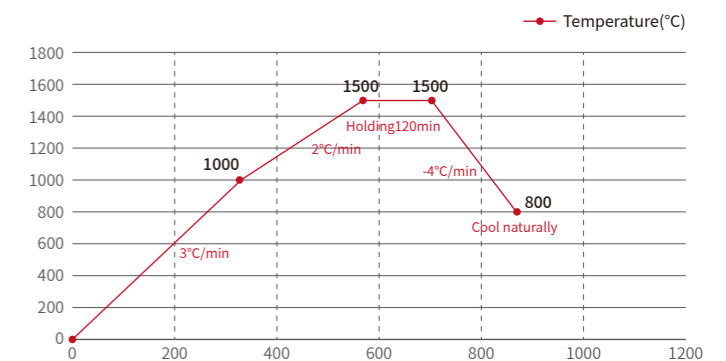
Bridges(>5 units)(MHT)

STEP	Start temperature(°C)	End temperature(°C)	Time(min)	Rate of Climb(°C/min)
Step1	20	1500	370	4
Step2	1500	1500	120	Holding
Step3	1500	800	117	6
Step4	800	Room temperature	Cool naturally	/



Bridges(>5 units)(MM-4D)

STEP	Start temperature(°C)	End temperature(°C)	Time(min)	Rate of Climb(°C/min)
Step1	20	1000	326	3
Step2	1000	1500	250	2
Step3	1500	1500	120	Holding
Step4	1500	800	175	-4
Step5	800	Room temperature	Cool naturally	/

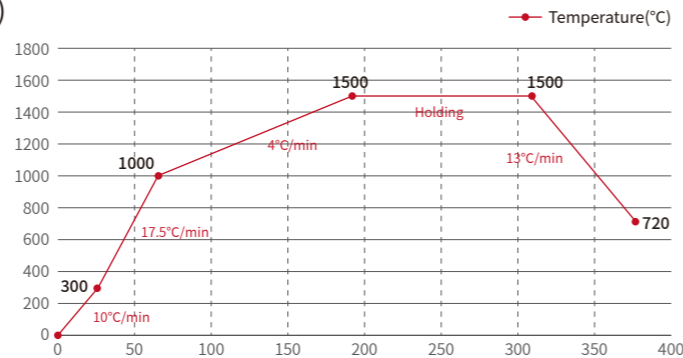


Wall and edge thickness

Type	Anterior Thickness	Connector cross section	Posterior Thickness	Connector cross section
Single crown	≥0.7mm	≥9mm ²	≥1.0mm	≥12mm ²
3 unit bridges	≥0.8mm			
Long bridges	≥1.2mm			

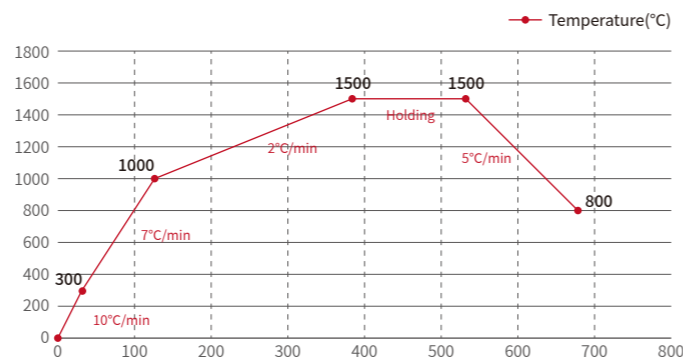
Crowns and bridges(≤5 units)(HS,HT PLUS,GM,MM-4D)

STEP	Start temperature(°C)	End temperature(°C)	Time(min)	Rate of Climb(°C/min)
Step1	0	300	30	10
Step2	300	1000	40	17.5
Step3	1000	1500	125	4
Step4	1500	1500	120	Holding
Step5	1500	720	60	13
Step6	720	Room temperature	Cool naturally	/



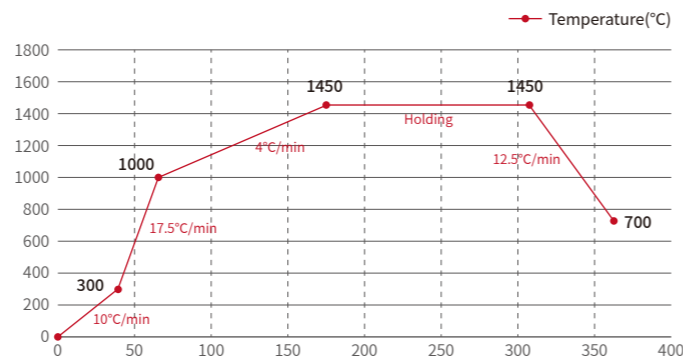
Bridges(>5 units)(HS,HT PLUS,MM-4D)

STEP	Start temperature(°C)	End temperature(°C)	Time(min)	Rate of Climb(°C/min)
Step1	0	300	30	10
Step2	300	1000	100	7
Step3	1000	1500	250	2
Step4	1500	1500	150	Holding
Step5	1500	800	140	5
Step6	800	Room temperature	Cool naturally	/



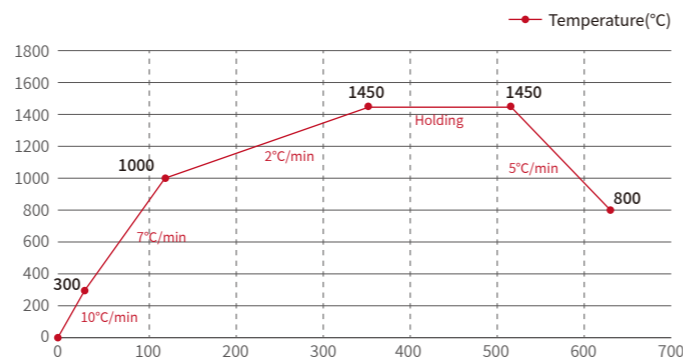
Crowns and bridges(≤5 units)(HT,AT,MHT)

STEP	Start temperature(°C)	End temperature(°C)	Time(min)	Rate of Climb(°C/min)
Step1	0	300	30	10
Step2	300	1000	40	17.5
Step3	1000	1450	112.5	4
Step4	1450	1450	120	Holding
Step5	1450	700	60	12.5
Step6	700	Room temperature	Cool naturally	/



Bridges(>5 units)(HT,MHT)

STEP	Start temperature(°C)	End temperature(°C)	Time(min)	Rate of Climb(°C/min)
Step1	0	300	30	10
Step2	300	1000	100	7
Step3	1000	1450	225	2
Step4	1450	1450	150	Holding
Step5	1450	800	130	5
Step6	800	Room temperature	Cool naturally	/



Wall and edge thickness

Wall thickness should be no less than 0.7mm and connectors no thinner than 9mm².

*ATTENTION:

Program the furnace according to the instruction manual and follow the sintering chart. Do not remove sintered framework until it completely cools down. Examine wall thickness, margin fit and seat fit of the sintered framework. If necessary, make minor adjustments with a water-cooling diamond tool.

Global Marketing Network

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Products Registration & Certification

