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Introduction

Welcome to Dentium,

Since the establishment of Dentium Co., Ltd. in Korea in June 2000, we have been manufacturing high quality dental implant products. In collaboration with leading clinicians, research institutes, and universities, the Dentium R&D center has developed a series of state-of-the art dental implant systems, focusing on efficiency. Our systems, including fixtures, surgical components, prosthetic components, and synthetic bone grafting materials, assist our customers in performing quick, accurate, and esthetic dental implantation.

As the evidence of our quest for providing the highest quality products, we have attained ISO13485 and CE certification. We have also met the good manufacturing standards (GMP) set forth by many countries worldwide, including the United States FDA. Our ultimate event, Annual Dentium Symposium and Annual Clinical Case Presentation have been attended by many dental professionals from around the globe and serve as the benchmark educational events.

In addition to our ever popular line of implant products, we entered into the world of bone grafting and regeneration. The bio materials line includes bone graft material, membrane, and growth factor and tissue engineering products based on our extensive research and development. The bio materials line is proof that we are continuously seeking ways to enhance our product line and services in order to assist the dental professional in providing their patients with a beautiful and healthy smile.

We would appreciate your ongoing feedback, as this will assist us in providing you with the highest level of service in the future.

Sincerely yours,

Dentium Co., Ltd.
## History

<table>
<thead>
<tr>
<th>Month</th>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>July</td>
<td>2011</td>
<td>OSTEON™ Collagen on market</td>
</tr>
<tr>
<td>Apr</td>
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<td>rainbow™ Mill 2™ Edition on market</td>
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</tr>
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<tr>
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<td>Collagen Membrane on market</td>
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<tr>
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<td>SimpleLine II on market</td>
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<tr>
<td>Dec</td>
<td>2009</td>
<td>Awarded Prime Minister’s Citation by Korea National Health Industry &amp; Development Institute</td>
</tr>
<tr>
<td>Dec</td>
<td>2009</td>
<td>China SFDA acquired</td>
</tr>
<tr>
<td>Dec</td>
<td>2009</td>
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<tr>
<td>Oct</td>
<td>2008</td>
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<td>Jun</td>
<td>2007</td>
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<tr>
<td>Apr</td>
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<td>FDA for Osteon acquired</td>
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<tr>
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<td>2007</td>
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<td>Feb</td>
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<tr>
<td>Sep</td>
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<td>2006</td>
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<td>2006</td>
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<td>2006</td>
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<td>Feb</td>
<td>2005</td>
<td>Indian Certificate acquired</td>
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<tr>
<td>Jun</td>
<td>2004</td>
<td>Dentium China was established</td>
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<tr>
<td>May</td>
<td>2004</td>
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<tr>
<td>Feb</td>
<td>2004</td>
<td>Dentium USA was established</td>
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<tr>
<td>Feb</td>
<td>2003</td>
<td>ISO 13485 / CE Certificate acquired</td>
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<tr>
<td>Aug</td>
<td>2002</td>
<td>KFDA acquired</td>
</tr>
<tr>
<td>Aug</td>
<td>2002</td>
<td>Company name was changed from Biostech Co. to Dentium Co. Ltd.</td>
</tr>
<tr>
<td>Sep</td>
<td>2001</td>
<td>ISO 9001 approval was acquired from NOA in UK</td>
</tr>
<tr>
<td>Jun</td>
<td>2000</td>
<td>Biostech Co. was established in Korea to develop and manufacture dental implants.</td>
</tr>
</tbody>
</table>

**Products from Dentium**
Dentium Co., Ltd. is the leading company as an implant expert by letting its safety and efficiency be internationally proven by ISO 13485, CE, FDA, and so on.
Dentium Co., Ltd. has provided valuable information through scientific lectures in the annual Dentium Symposium and Case Presentation since its establishment in 2000.
Dentium currently has its own corporate and branch offices in the U.S. and China. Dentium exports its implant products to more than 60 countries through local distributors. Information on the local distributors and corporate offices of Dentium can be searched on our web page. (www.dentium.com)
Dentium Implant Institute

Dentium Implant Institute is the supportive education / training facility operated by Dentium co., Ltd.

- Practical Implant Course
- GBR & Sinus Intensive Course
- Perio Surgery Course
- Advanced Prosthesis Course
- Monthly Special Lectures

Products from Dentium
Dentium R&D center in Korea consists of specialized researchers with the most advanced facilities for innovation. Also we precede the international technical development of implantology by diverse basic and clinical researches with the cooperation of the Governments, universities and hospitals.
Dental Implant

1) S.L.A. Surface
2) Implants
   SuperLine
   Implantium
   SuperLine & Implantium Prosthetic
   SimpleLine II
   SlimLine
S.L.A. Surface

S.L.A. (Sandblasting with large grit and acid etching)
- Higher bone-to-implant contact
- Superior Osseointegration

Human osteoblast
- Well attached and proliferated human osteoblasts

In vivo test
Fast new bone formation inside the threads.

Cell number $3 \times 10^6$; After 7 days of cell culture
**SuperLine**

"Immediate Implantation with Excellent Bone Response"

- Tapered design for faster primary stabilization in extraction socket
- Early loading in upper posterior with self tapping
- Harmony with anatomy
- Platform switching

**Internal Connection**

- The exquisite conical hex connection between implant and abutment interface ensures hermetic sealing.
- The biologic connection distributes load to the fixture evenly. Therefore it helps minimize micro-movement and marginal bone loss.
- Implant fixtures with all kinds of diameters share the same internal hex design.
Implantium

Micro threads

Optimal Fixation Threads

- Synchronized double threads for easier installation.
- Initial stability & maximum sealing between the cortical bone and fixture owing to the micro threads.
- Optimal fixation threads reduce stress of neighboring cortical bone and minimize marginal bone loss.

Biological Thread

- Thread platform design creates excellent bone to implant contact.
- Threads charge the bone with ease.
- Self tapping function.
SimpleLine II

- S.L.A. surface and tap drills for exquisite surgery enable early loading
- Multiple choices of the fixture's gingiva height (1.6 or 2.2 mm) and S-Line shape enable esthetical prosthetics conveniently
- Wide range of fixtures and prosthetic components line up for diverse clinical cases
- Compatibility by 8° Morse taper and internal octagon design

One Stage System Advantages

- Internal 8° Morse Taper Octagon
  - Screw loosening is well prevented owing to the cold welding mechanism for solid abutment application
- Dual abutment’s good depth of octa makes an easy affirmation of assembly.
  - Increment in abutment size decreases the chance of prosthesis fall outs.

Tap Drills

- Fine and exquisite surgery with tap drills in D1 bone (Size 3.4, 3.8, 4.3, 4.8)

Improved thread design

- Sharp edge, high density threads to secure successful osseointegration in short time
- Double threads design reduces chair time

Products from Dentium
SlimLine

- One-piece implant design
- S.L.A. surface and torque adjustable ridge spreader enable immediate or early loading
- Mini ball (Ø 1.8) & metal socket make denture creation easy
- Wide choice range of prosthetic options

**Denture System**

<table>
<thead>
<tr>
<th>Ø</th>
<th>Retention Force (gf)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.05</td>
<td>2.9</td>
</tr>
<tr>
<td>4.85</td>
<td>3.3</td>
</tr>
</tbody>
</table>

**Mini O-Ring Retention Force**

Tilting Angle
You can use it up to ±30 degrees of angle tilted for path way of implant. (15° + 15°)

Angled Abutment
- Slanted installation is possible with combination of angled abutment (15°, 25°).
- Cement the final restoration onto the abutment.

Selecting direction is easy thanks to the Octa 45° rotation angles.
Dental Implant

03) **Overdenture System**
Positioner
Ball Attachment
Magnetic Attachment (Sunken / Flat Type)
Overdenture System

Positioner

- Self aligning: Self aligning mechanism allows easy and convenient denture placement
- Three different retention options: 200gf, 500gf and 1,000gf
- Minimized height: 2.3mm height for easier overdenture

Ball Attachment

- Mini ball size (Ø 1.8)
- O-ring type denture socket
- Small size denture socket
- Mini o-ring can be replaced.

Magnetic Attachment

- Horizontal stability
- Lowest vertical height
- Easy insertion

Retention Force: 350gf
Retention Force: 450gf
Retention Force: 700gf
Retention Force: 750gf

Ø 5.2
2.3
Retention Force 200gf 500gf 1,000gf

Ø 4.05
2.9
(BFS3) (300~500gf)

Ø 4.85
3.3
(BFS2) (500~700gf) Mini O-ring
04) **Instruments Kits**

- Surgical Kit
- Drill Stopper Kit / Prosthetics Kit
- Planning Kit / Starter Kit
- DASK (Dentium Advanced Sinus Kit)
- Sinus Bur Kit / Sinus kit
- Osteotome Kit / Trephine Kit
- Help Kit
Surgical Kit (Full)  
for Implantium & SuperLine

Surgical Kit (Standard)  
for SuperLine & Implantium

Surgical Kit  
for SimpleLine II

Surgical Kit  
for SlimLine
Drill Stopper Kit

Prosthetics Kit

Products from Dentium
Planning Kit
for SuperLine & Implantium

Starter Kit
for SuperLine & Implantium

Starter Kit
for SimpleLine II
DASK (Dentium Advanced Sinus Kit)

- Simple & easy access to sinus cavity
- Minimal risk of membrane perforation
- Broad exposure of bony walls with special tools

Crestal Approach (Sinus Lifting)
Lateral Approach (Sinus Elevation)
Sinus Elevation Instruments

Products from Dentium
DASK (Dentium Advanced Sinus Kit)

Sinus Bur Kit

Sinus Kit
Type A
(Convex)

Type B
(Concave)

Osteotome Kit

Trephine Kit

Products from Dentium
Help kit

- Easy solution for critical problems which might occur in the prosthetics process
- 5 tools in 1 kit (Screw Remover / Abutment Hex Remover / Screw Tap Repair / Fixture Remover / Cover & Abutment Screw Remover)
- Compatible with most dental implant products globally available now
- Heavy duty with robust design and proven material
Bone Graft Material

1) OSTEON™ II
2) OSTEON™ Collagen
3) OSTEON™
   - OSTEON™ Vial
   - OSTEON™ Sinus / Lifting
4) Membrane
   - Ti-Mesh Membrane
   - Collagen Membrane
OSTEON™ II

Application of OSTEON™ II

- Ridge augmentation
- Extraction site & osteotomy
- Cystic cavities
- Sinus lift
- Periodontal defect

Composition of OSTEON™ II

Osteoconductive biphasic calcium phosphate with higher $\beta$-TCP

$\text{OSTEON}^\text{TM II} = \text{HA 30% + $\beta$-TCP 70%}$

Characteristics of OSTEON™ II

- Highly resorbable owing to higher $\beta$-TCP content
- Easy manipulation
- Excellent wettability
- Osteoconductive synthetic bone graft
- Pore size: 200~300 $\mu$m
- Porosity: 70%

Animal test

12-weeks follow up in rabbit calvaria model

In vitro dissolution test

Cell adhesion test

Osteoblasts attached & spreaded well

Degradation

OSTEON™

OSTEON™ II
OSTEON™ Collagen

Application of OSTEON™ Collagen

• Ridge augmentation
• Extraction site & osteotomy
• Cystic cavities
• Sinus lift
• Periodontal defect

Description

OSTEON™ Collagen is a bone void filler composed of synthetic bone, (OSTEON™) and natural Type I collagen.

Characteristics of OSTEON™ Collagen

• Collagen coating enables easy handling, and thus shortened operation time
• Moldable to various defect shape after being wet
• Collagen dissolves after helping the initial handling
• Excellent new bone formation and space maintenance
• Hemostatic function
Cell adhesion test

*In vitro cell test*

Osteoblasts spread well on the OSTEON® Collagen

*In vitro test*

1. Animals: New Zealand white rabbit
2. Implantation Area: Calvaria
3. Period: 8 weeks
4. Staining method: Goldner Trichrome

8 weeks

Clinical Case

Clinical Case 1

Clinical Case 2
**OSTEON™**

### Application of OSTEON™
- Ridge augmentation
- Extraction site
- Cystic cavities
- Sinus lift
- Periodontal defect

### Composition of OSTEON™
100% Synthetic bone graft: HA scaffold coated with $\beta$-TCP

$$\text{OSTEON™} = \text{HA 70% + } \beta\text{-TCP 30%}$$

### Characteristics of OSTEON™
- 100% Synthetic bone graft
- Interconnected porous structure similar to that of human bone
- Osteoconductive material as a bone growth scaffold

*In vitro* test of OSTEON™

Osteoblast was well attached and spreaded on OSTEON™ surface.

### Vial Type
- Ridge Augmentation
- Extraction Site
- Cystic Cavities
- Sinus Lifts
- Periodontal Defect

### Syringe Type
- Easy & Simple bone grafting
- Syringe type bone graft
- Crestal approach & Lateral approach

Products from Dentium
Ti-Mesh Membrane

A flexible titanium mesh membrane assists in maintaining a predetermined volume for bone regeneration during healing. It controls the growth of epithelioid cells into a site with or without graft material.
Collagen Membrane

- Thinner membrane (300 μm) with multiple layers for easy manipulation and sufficient mechanical strength in surgery.
- Resorption period of 4-6 months to provide enough time for stabilizing graft materials and supporting bone growth.
- Multiple-layered structure enables more effective bone regeneration by sparing enough space for hard tissue formation and facilitates proliferation of osteoblast.

Easy manipulation

Dual-sided usage

Barrier function lasts 4-6 months

Products from Dentium
Lab Product System

1) rainbow™ CAD/CAM System
   rainbow™ CAD/CAM Mill
   rainbow™ CAD/CAM Scanner
   rainbow™ CAD/CAM Block

2) rainbow™ MAD/MAM System
   rainbow™ Mill 2nd Edition
   rainbow™ Block
   rainbow™ Special Bur
   Miscellaneous
rainbow™ CAD/CAM System

rainbow™ CAD/CAM Mill

- 5-axis orbital fast milling system
- Open system for compatibility
- Simple & easy-to-use interface with touch screen
- 98mm disk block milling
- Automatic bur change & application of various burs

rainbow™ CAD/CAM Scanner

- White light scanning technology
- Twin-camera technology (accuracy < 10μm)
- Fast 3D scanning speed
- Sharp marginal line
- Compact size (0.032 m³)
- Various scanning jigs

Products from Dentium
White Light Scanning Technology

The state-of-the-art white light scanning technology allows user to obtain data that are much clearer than the conventional laser type scanners. This feature realizes virtually noise-free 3D data.

rainbow™ CAD/CAM Block

- Excellent marginal fitness owing to uniform shrinkage rate (20%-x,y,z axis)
- Zirconia block with natural translucency
- High flexural strength
- Excellent fracture toughness
- 98mm diameter with 10, 12, 14, 16, 18, 20, 22, 24, 25, 26mm thickness.

<table>
<thead>
<tr>
<th>rainbow™ block</th>
<th>Sintering Temp</th>
<th>Sintering dentisy</th>
<th>Flexural Strength</th>
<th>Average grain size</th>
<th>Surface monoclinic after accelerated aging</th>
<th>Radioactivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,500°C</td>
<td>6.04g/cm³</td>
<td>1,170MPa</td>
<td>0.4 µm</td>
<td>6.51% (130°C, 10h)</td>
<td></td>
<td>238U: 0.00 Bq/g 226Ra: 0.01 Bq/g</td>
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<tr>
<td>1,500°C (Sintering condition: ~8°C/min, 2h holding)</td>
<td></td>
<td></td>
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</tbody>
</table>

| ISO 13356      | N/A            | ≥6.0g/cm³        | ≥800MPa           | Intercept distance ≤0.4 µm | ≤25% | ≤200 Bq/kg a |
| ISO 6872       | N/A            | N/A              | ≥800MPa           | N/D                | ≤25% | 238U≤1.0 Bq/g |

Reference

ISO 13356 Implants for surgery – Ceramic materials based on yttria-stabilized tetragonal zirconia (Y-TZP) (2nd edition)
ISO 6872 Dentistry - Ceramic materials (3rd edition)
a The radioactivity, defined as the sum of the mass activity of 238U, 226Ra, 232Th and determined by gamma spectroscopy on the ready-to-use powder, should be equal or less than 200Bq/Kg
rainbow™ MAD/MAM System

rainbow™ Mill 2nd Edition

- Accurate handling with better visibility
- Easy for long span milling
- Special burs for screw type milling with speed and precision

- Exquisite milling based on 5(3+2) axis system
- One-step internal form fabrication of prosthesis using Special burs for implant case
- Bonding & clamping types for zirconia block setting

<table>
<thead>
<tr>
<th>Bonding Plate</th>
<th>Block No.</th>
<th>#9</th>
<th>#12</th>
<th>#16</th>
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<tbody>
<tr>
<td>Block no. #1, 3, 5, 7</td>
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<tr>
<td>Block no. #1, 3, 5, 7</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

*Option(Payment): Block No. #9, 12, 16

rainbow™ Special Bur

It is possible to make cement & screw retained zirconia restoration composed of various type of shapes by one step processing.

Applicable to any brand of MAD/MAM System.

Products from Dentium
rainbow™ Block

- Excellent marginal fitness owing to uniform shrinkage rate (20%-x,y,z axis)
- Natural translucency
- High flexural strength
- Excellent fracture toughness
- Thickness of 12, 16 and 22mm for 1, 3, 5, 7, 9, 12, 16 bridges.

<table>
<thead>
<tr>
<th></th>
<th>Sintering Temp</th>
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<tr>
<td>ISO 13356</td>
<td>N/A</td>
<td>≥6.0g/cm³</td>
<td>≥800MPa</td>
<td>Intercept</td>
<td>≤25% distance ≤0.4μm</td>
<td>≤200 Bq/kg^a</td>
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ISO 6872  Dentistry - Ceramic materials (3rd edition)
^a The radioactivity, defined as the sum of the mass activity of ^238U, ^226Ra, ^232Th and determined by gamma spectroscopy on the ready-to-use powder, should be equal or less than 200 Bq/kg.
Miscellaneous

rainbow™ Coloring Liquid

- For coloring of milled zirconia before sintering
- Natural teeth color & Uniform shade
- Composed of the most essential 4 different colors
- Applicable to any brand of pre-sintered zirconia framework

rainbow™ Coping Resin & Bond

- Higher work efficiency by keeping proper fluidity for resin coping.
- Minimal curing time for fast and exquisite work.
- Easy adjustment of copying thickness owing to semi-transparent material.
- Excellent hardness and flexural strength.

rainbow™ Gum

For Laboratory

- Scanable by the CAD/CAM system
- Convenient to handle
- Proper setting time to work
- Similar color to natural gums
- Excellent durability

Products from Dentium
iCT Motor
iCT Motor

**Strong power - Maximum torque 70 N-cm**

- Accurate RPM and stable torque
- Real-time PID for automatic adjustment of RPM and torque without calibration
- LCD graphic display with clearly legible typography
- Slim design with easy foot control manipulation
- Compatible with almost all types of contra-angles

Products from Dentium
Products from Dentium

*Not all products listed in this catalog are available in all countries.