**T3® Implant**

A Contemporary Hybrid Implant

**Primary Stability**

The specifications of the T3 Implant are held to rigorous tolerances aiming to provide a closely integrated implant-to-osseointomy fit, creating a dental implant system that is designed to help the clinician achieve primary stability. Initial bone to implant contact is a major contributor to the implant’s stability.¹

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**Osseointegration**

In a preclinical study, the T3 with the DCD® Surface demonstrated increased integration strength throughout the healing phase as compared to blast and acid-etched, acid-etched only and turned only surfaces.²

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**SUB-MICRON TOPOGRAPHY**

The DCD Discrete Crystalline Deposition of calcium phosphate nanoparticles establishes a Bone Bonding® surface via the interlocking of the cement line matrix of bone with the implant surface.³

0.01 - 0.1 Micron Features

**FINE-MICRON TOPOGRAPHY**

Dual acid-etched fine-micron topography features have been shown to support osteoconduction mechanisms, including the promotion of fibrin blood clot retention and modulation of platelet activity.⁴

1 - 3 Micron Features

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**COARSE-MICRON TOPOGRAPHY**

Pre-clinical studies on surfaces including moderate surface roughness (1.0 ≤ Sa ≤ 2.0 microns) have shown stronger bone response as compared to smoother (turned) or rougher (plasma spray) surfaces.⁵

10+ Micron Features

Threaded implant body surface roughness value = 1.4 µm⁶

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**No Increased Peri-implantitis Risk**

The T3 Implant utilizes the proven Osseotite® Surface technology at the coronal aspect of the implant. In a five-year study,⁷ the dual acid-etched surface of the Osseotite implant presented no increased risk of peri-implantitis or soft tissue complications versus a machined surface.⁸

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**Multicenter, Randomized Controlled 5-Year Study Of Hybrid And Fully-Etched Implants For The Incidence Of Peri-implantitis**

Jentzer, L.†; Feldman S; Rotter B; Vincenzo G; Wenzel, J.*; Chierico A, Stach WA* and Kennedy, P.††. Anti-Perio: Multicenter, Randomized Controlled 5-Year Study Of Hybrid And Fully-Etched Implants For The Incidence Of Peri-implantitis. [Poster Presentation]. Presented at the 5th Annual Meeting of the Academy of Osseointegration, 26th Annual Meeting; March 2011; Washington, DC.

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**Preservation by Design®**

The T3 implant is also available in a non-DCD version.

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**References**


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**Definition Of SA**

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### Surface Needs:

Implant surface topographies influence the osseointegration process\(^*\), as well as help to mitigate potential risks associated with peri-implantitis\(^*\). Studies have shown that implant topographies play a role in both osteoconduction and the subsequent de novo bone to implant interface strength\(^*\). The prevalence of implants experiencing peri-implantitis has been reported in excess of 12%\(^*\). Studies have shown that minimally rough implants\(^*\) are less likely to develop peri-implantitis than rough implants\(^*\) once exposed to the oral environment\(^*\).

### Attributes

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Zimmer Biomet T3 With DCD Surface</th>
<th>Competitor 1 Surface</th>
<th>Competitor 2 Surface</th>
<th>Competitor 3 Surface</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Process</strong></td>
<td>• Grit blasting with Calcium Phosphate media (threaded area only on T3) • Dual-acid-etching • DCD Discrete Crystalline Deposition</td>
<td>• Anodic oxidation • Acid-etching</td>
<td>• Grit blasting with TiO(_2) media • Acid-etching</td>
<td>• Grit blasting with alumina oxide media • Acid-etching in nitrogen atmospheres</td>
</tr>
<tr>
<td><strong>Sub-Micron Surface Features (~30,000x)</strong></td>
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<tr>
<td>+ 10-100 nm HA Crystals</td>
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<tr>
<td>+ Limited micron scale tubular pores</td>
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<tr>
<td>+ Limited micron scale angular facets</td>
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<tr>
<td>+ 0-20 nm rod shaped features</td>
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<td><strong>Micron Surface Features (~2,000x)</strong></td>
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<tr>
<td>+ 1-3 micron pitting</td>
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<tr>
<td>+ 3-15 micron tubular pores</td>
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<tr>
<td>+ 1-50 micron angular facets</td>
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<tr>
<td>+ 1-3 micron pitting</td>
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<tr>
<td><strong>Micron Surface Features (~300x)</strong></td>
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<tr>
<td>– Collar Region</td>
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<tr>
<td>+ S(_a)≈ 0.5 microns</td>
<td>S(_a)≈ 1.1 microns</td>
<td>S(_a)≈ 1.5 microns</td>
<td>S(_a)≈ 1.6 microns</td>
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<tr>
<td><strong>Coarse-Micron Surface Features (~300x)</strong></td>
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<tr>
<td>– Threaded Region</td>
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<tr>
<td>+ S(_a)≈ 1.4 microns</td>
<td>S(_a)≈ 1.1 microns</td>
<td>S(_a)≈ 1.5 microns</td>
<td>S(_a)≈ 1.6 microns</td>
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</tr>
</tbody>
</table>

For More Information, Please Contact Your Local Zimmer Biomet Dental Sales Representative.

\(^*\) Results may vary depending on test methodology. Testing conducted with Osseotite 2 Implants and Biomet 3i blasted and dual acid-etched implants.

### References