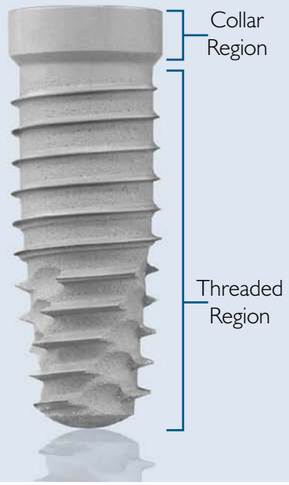
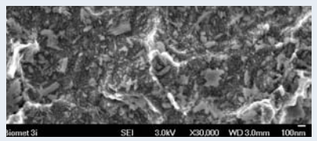
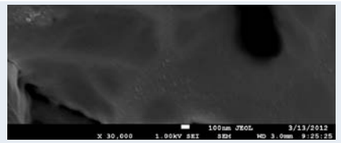
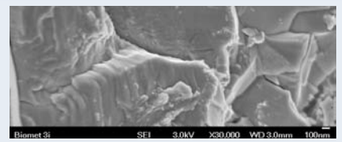
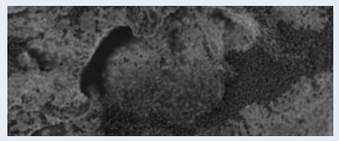
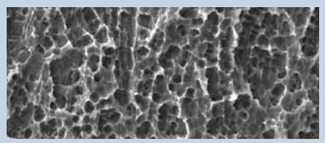
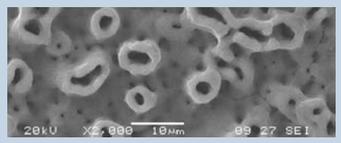
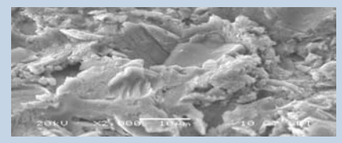
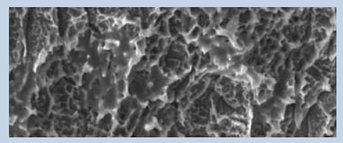
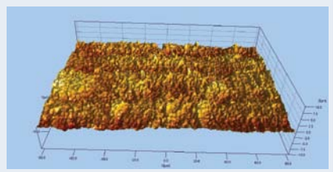
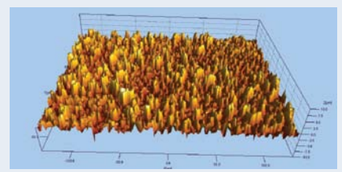
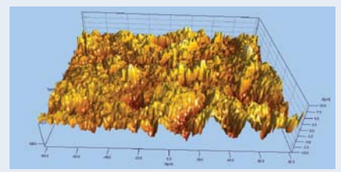
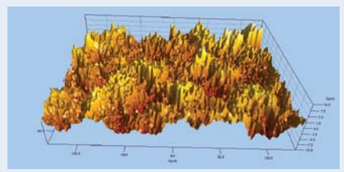
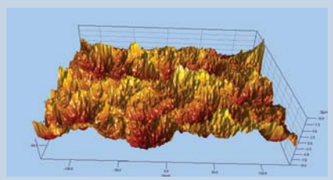
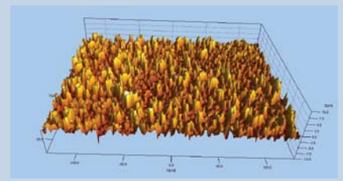
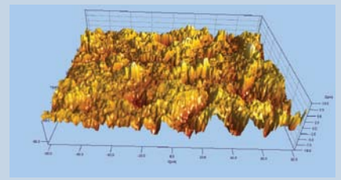
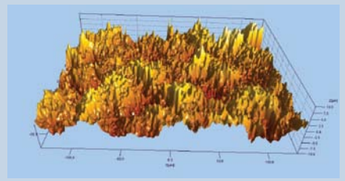
Surface Needs

Implant surface topographies influence the osseointegration process[2], as well as help to mitigate potential risks associated with peri-implantitis[3].

- Studies have shown that implant topographies play a role in both osteoconduction and the subsequent de novo bone to implant interface strength[2].
- The prevalence of implants experiencing peri-implantitis has been reported in excess of 12%[4,5]. Studies have shown that minimally rough implants[6] are less likely to develop peri-implantitis than rough implants[6] once exposed to the oral environment[3].



Implant Surface Characterization Comparison As Conducted By BIOMET *3i*[*1]

ATTRIBUTES	BIOMET *3i* T3® Implant with DCD® Surface	NOBEL BIOCARE® TiUnite® Surface	Dentsply OSSEOSPEED™ Surface	STRAUMANN® SLACTIVE® Surface
Process	• Grit blasting with calcium phosphate media (Threaded area only on *3i* T3) • Dual acid-etching • Discrete Crystalline Deposition (DCD)	• Anodic oxidation	• Grit blasting with TiO2 media • Acid-etching	• Grit blasting with alumina oxide media • Acid-etching in nitrogen atmosphere
Sub-Micron Surface Features (~30,000x) *DCD Version Only	 10-100nm HA Crystals	 Limited sub-micron scale tubular pores	 Limited sub-micron scale angular facets	 0-20nm rod shaped features
Micron Surface Features (~2,000x)	 1-3 micron pitting	 3-15 micron tubular pores	 1-50 micron angular facets	 1-3 micron pitting
Micron Surface Features (~300x) – Collar Region	 Sa≈0.5 microns	 Sa≈1.1 microns	 Sa≈1.5 microns	 Sa≈1.6 microns
Coarse Micron Surface Features (~300x) – Threaded Region	 Sa≈1.4 microns	 Sa≈1.1 microns	 Sa≈1.5 microns	 Sa≈1.6 microns

For More Information, Please Contact Your Local BIOMET *3i* Sales Representative.

*Results may vary depending on test methodology. Testing conducted with OSSEOTITE® 2 Implants and BIOMET *3i* blasted and dual acid-etched implants. A single representative sample from each surface type was evaluated.

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†Dr. Gubbi and Mr. Towse contributed to the above research while employed by BIOMET *3i*.

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Contemporary Hybrid Design

Primary stability[1,2,3]

Initial Bone-to-Implant Contact is a major contributor to the implant's stability.[4] The specifications of the ***3i*** T3® Implant are held to rigorous tolerances to provide a closely integrated implant-to-osteotomy fit, creating a dental implant system that helps achieve primary stability.

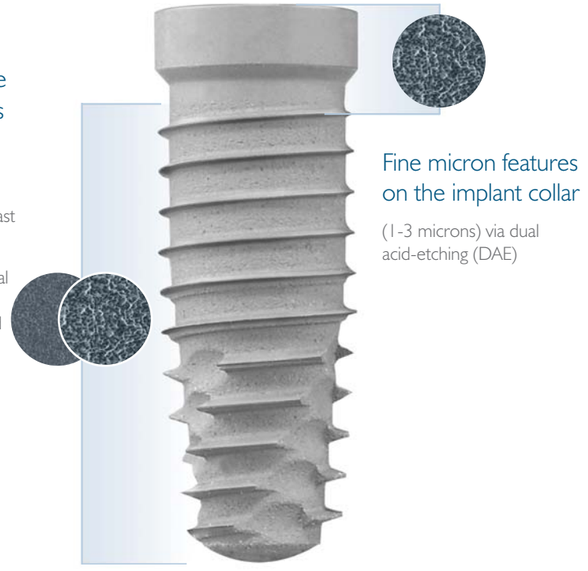
Osseointegration[5,6]

In preclinical studies*, the ***3i*** T3 with DCD® Surface demonstrated increased integration strength throughout the healing phase as compared to less complex surface topographies.[6]

Peri-implantitis risk mitigation[7,8]

The ***3i*** 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.[7]

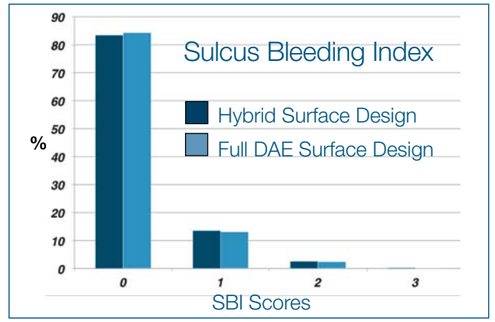
Coarse and fine micron surface features create an average mean surface roughness value of 1.4µm



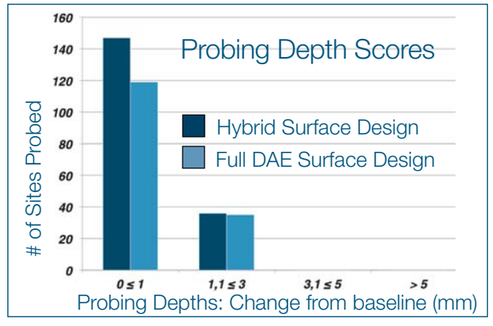
Option for nano-scale features along the full length of the implant

via Discrete Crystalline Deposition (DCD) of calcium phosphate

Multicenter, randomized controlled 5-year study of hybrid and fully etched implants for the incidence of peri-implantitis[7]:



84% of all SBI scores were "0" (absence of bleeding); 13% of scores were "1" - isolated bleeding spot.



No implant (test or control) showed changes in probing depths greater than 3.0mm.

One hundred twelve patients who were enrolled at seven centers received 139 control and 165 test implants (total: 304 implants)[7].

References:

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References 1–3 discuss the BIOMET ***3i*** Tapered Implant macrodesign, which is incorporated into the ***3i*** T3® Implant. Reference 6 discusses the BIOMET ***3i*** OSSEOTITE® and/or NanoTite Implant dual acid-etched or DCD® technology, which is incorporated into the ***3i*** T3 Implant.

†Dr. Block, Dr. Meltzer, Dr. Nevins and Dr. Östman have financial relationships with BIOMET ***3i*** LLC resulting from speaking engagements, consulting engagements and other retained services.

*Preclinical studies are not necessarily indicative of clinical performance.