Azure™ Implant C-System

ZIMMER BIOMET

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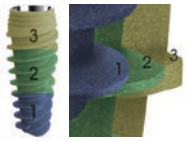
Azure Implant C-System Overview

Designed for ease of use and osseointegrative stability in providing treatment solutions for your implant patients.

C-System Features

Back-Tapered Microthread Collar

The back-tapered microthread collar design helps provide stress relief in cortical bone after implant placement and microthreads at the collar help reduce bone resorption.



3-Step Thread Design

Condenses bone and gradually widens the osteotomy to facilitate high initial stability.

Natural Tooth Look

The implant geometry mimics that of a natural tooth root to give the alveolar bone balanced biomechanics.

Self-Tapping

The self-cutting edge makes implant insertion easier by moving bone chips up the implant and leading with a thinner, more aggressive thread.

Built-in Platform Switch

Positions implant to abutment junction (IAJ) away from the bone to facilitate hard and soft tissue maintenance.

Conical Connection

11 degree conical connection design provides a tight seal at the implant to abutment interface with high mechanical strength.

Internal Double-Hexagon Interface

Provides esthetic options through more restorative positions, especially when utilizing an angled abutment.

Diameters			Lengths				
Implant	Platform	Endosteal	8.5 mm	10 mm	11.5 mm	13 mm	15 mm
3.5 mm	3.5 mm	3.4 mm	DI0FS03308	DI0FS03510	DI0FS03511	DI0FS03513	DI0FS03515
3.9 mm	3.5 mm	3.8 mm	DI0FS03908	DI0FS03910	DI0FS03911	DI0FS03913	DI0FS03915
4.3 mm	3.9 mm	4.2 mm	DI0FS04308	DI0FS04310	DI0FS04211	DI0FS04313	DI0FS04315
5.0 mm	4.6 mm	4.9 mm	DI0FS05008	DI0FS05010	DI0FS05011	DI0FS05013	DI0FS05015

● Small Implant-Abutment Interface
● Large Implant-Abutment Interface

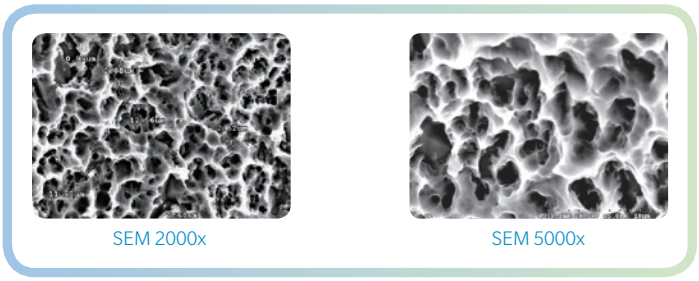
BSA Surface Treatment Technology

The Azure Implant System is designed to provide a high quality, easy to use system so that you can deliver effective implant treatment to your patients.

Biodegradable Sand Blasting and Acid-Etching (BSA) is applied to the Azure implants for the enhancement of osseointegration. The porosities are sequentially produced by HA + Beta - TCP grit blasting and then double acid-etching to increase surface area and create the right microtopography for Bone to Implant Contact (BIC). The blasting utilizes biocompatible and bioabsorbable media instead of traditional aluminum grit particles for long-term safety.

Porous Surface Texture

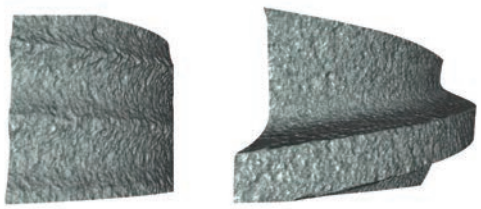
The average pore diameter of 1.5 µm facilitates osteoblast attachment, activation and proliferation.



Scanning Electron Micrographs (SEM) showing the macroporosity and microporosity of BSA-treated titanium surface

Topographic Studies

The roughness (Ra) value is one of the key factors in the mediation of osseointegration.[1] The average Ra value of the Azure Implant surface is 2.3-2.7 µm



BSA implant surface under magnification

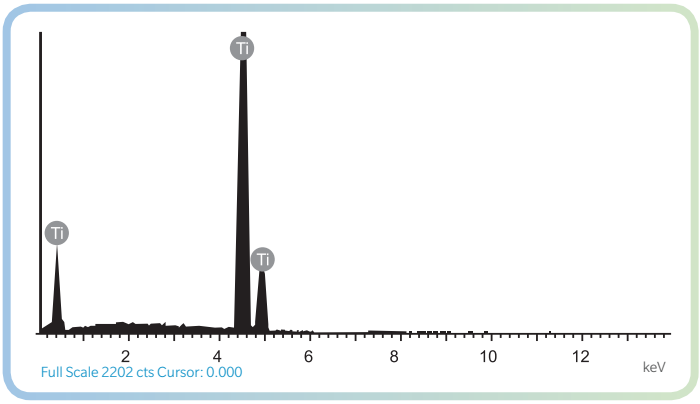
1. Bernal IMO, Risa I, Hiroki K, Ken-Ichiro T, Naoko Y, Toshi-Ichiro T, Kunteru N, Masahiko M. (2009). Dental implant surface roughness and topography: A review of the literature. J Gifu Dent Soc 35(3): 89-95.

Biosafety Inspection

Energy Dispersive Spectroscopy (EDS) analysis of the titanium surface post-ultrasonic cleaning with ultra pure water shows the implant surface does not contain any residual elements.*

Element	Weight %	Atomic %
Ti	100	100
Others	0	0
Total	100	100

*Data on file with INTAI



EDS analysis of the BSA surface post-cleaning

Osseointegration Evidence

Histologic Evidence

The postoperative canine histological jawbone sections at 8 & 12 weeks and Backscattered Electron Image (BEI) show a significant change in the amount of osseointegration over time. A significant increase in the BIC ratio from 31.87% (8 weeks) to 74.6% (12 weeks) was observed.

Fig. A
Figure A the histological cross-section of the Azure C-System Implant with new bone formation.

Fig. B
Figure B the BEI.

The Implant Stability Quotient (ISQ) values were measured with an overall average of 70 ISQ during healing time (see below ISQ chart). An ISQ value greater than or equal to 70 is an indicator of high primary stability. Results showed an inverse relationship between the observed micromotion and the ISQ values, indicating that micromotion decreased with increasing ISQ values.[2]

2. Trisi P, Carlesi T, Colagiovanni M, Perfetti G (2010). Implant Stability Quotient (ISQ) vs direct in vitro measurement of primary stability (micromotion) : effect of bone density and insertion torque. J of Osteology and Biomaterials. 1(3): 141-149

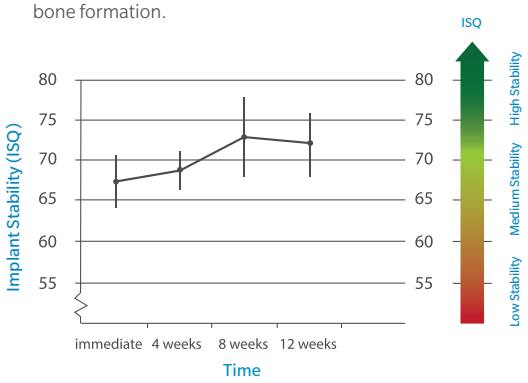


Fig. C
Graph showing implant stability over time

Long-Term Mechanical Stability

Fatigue tests were conducted on the Azure C-System Implants with straight and angled abutments. A cyclical load was applied vertically downward to the hemispherical contact cap and transferred in an off-axis orientation for 5 million cycles in accordance with ISO 14801 [Figure D]. The ratio of minimum and maximum force, R value, was set as 0.1 and the load frequency was set as 15 Hz in a sine wave.

Results show that the Azure C-System Implants with straight abutments demonstrated high fatigue strength. [Figure E]. The implant system with angled abutments showed survivorship at the same 5 million cycle loading.

Fig. D

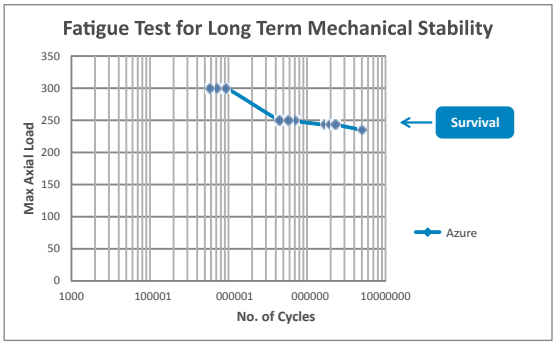
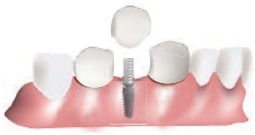
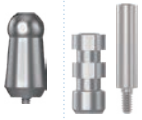


Fig. E

Prosthetic System Flow Chart

C-System Implant  Cover Screw 

	Temporary Abutment	Cement-Retained Abutment		Screw-Retained Abutment		Ball Attachment
Dental Prosthesis						
Types Of Abutments						
	Temporary Cylinder	Straight	Angled	Straight	Angled	Ball Abutment and Attachment
Replica/Analog						
		Implant Analog		Abutment Analog	Abutment Analog	Abutment Analog
Impression/Coping						
		Transfer	Pick-up	Transfer	Pick-up	Pick-up	Pick-up
Healing						
		Healing Screw		Straight	Angled	Healing Screw

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