



SAT Inc.

RESTORING MOBILITY, IMPROVING LIVES.

CLINICAL HISTORY
MEETS INNOVATION



DURANIOM™

The First US-Made, US FDA Cleared TiNbN Coated Knee in India.

Backed by 32+ years of clinical history and a commitment to ever-evolving patient needs, introducing the traditional J-curve design with innovative TiNbN-infused surface.

SMARTER SURFACE | STRONGER PERFORMANCE | SAFER OUTCOMES.

DURANIOM™

The Duraniom takes the original **Consensus Knee design rationale** and elevates it with a revolutionary **Titanium Niobium Nitride (TiNbN)** infused surface for improved performance.



What is TiNbN Coating?

Engineered with **Bioinert materials** Titanium (Ti) and Niobium (Nb), the TiNbN coating offers exceptional biocompatibility and wear resistance, making it an ideal choice for patients with metal sensitivity. The TiNbN coating presents a metallic, light golden yellow appearance, whereby the coating forms an extremely strong bond with the implant.

Applied through a precise **Physical Vapor Deposition (PVD)** process at the DOT America; the Duraniom™ TiNbN coating reflects premium quality and advanced surface technology, ensuring long-term stability and durability. This advanced additive technique securely anchors the coating onto the implant without altering its biomechanical functionality.

Properties Of TiNbN - INFUSED BONDING

TiNbN coating changes the surface properties however the biomechanical functionality remain unchanged. Optimally realized PVD coatings allow surface qualities to be achieved thereby complying with DIN EN ISO 21534.

COATING THICKNESS	4.5 +/- 1.5 µm	ADHESION STRENGTH	Min. HF 2
ROUGHNESS	Ra ≤ 0.05 µm	COATING HARDNESS	2400 +/- 400 HV



Why Choose TiNbN? The Next Generation of Implant Coating Technology

1 Allergy Protective Effect:

TiNbN-coated implants significantly reduce the release of metal ions such as nickel, chromium, cobalt, and molybdenum into the body, minimizing inflammation and lowering the risk of early implant loosening.^{1,2,3}

3 Reduced Coefficient of Friction(COF)

TiNbN exhibits a much lower coefficient of friction (approximately 0.04–0.07) compared to CoCr (around 0.08), resulting in smoother articulation, reduced wear, and enhanced implant longevity.

5 Reduced risk of Adverse Local Tissue Reactions

Mitigate any risks associated with higher ALVAL values using TiNbN coated implants.⁶

2 Reduced Wear and Improved Biocompatibility

TiNbN-coated components enhance biocompatibility while significantly reducing implant wear, ensuring long-term durability and smoother joint performance.^{4,5}

4 Four Times Harder than Conventional CoCr Alloys

Hardness of 24 GPa in TiNbN Coating further increases wear and corrosion resistance.

6 Improved Wettability with Synovial Fluid

Coating with TiNbN reduces the wetting angle by 20°, resulting in improved wettability (greater hydrophilicity) of the implant surface for body fluids and thereby improving biocompatibility.⁷

Reference

1. <https://www.intechopen.com/chapters/82486>

2. <https://pubmed.ncbi.nlm.nih.gov/31273538/>

3. Bader R, Bergschmidt P, Fritsche A, Ansorge S, Thomas P, Mittelmeier W. Alternative materials and solutions in total knee arthroplasty for patients with metal allergy. *Orthopäde*. 2008 Feb;37(2):136-42.

4. Wear simulator study of TiN-coated femoral components of a bicondylar knee endoprosthesis in worst-case situations BIOMECHANICS AND IMPLANT TECHNOLOGY RESEARCH LABORATORY | DEPARTMENT OF ORTHOPAEDICS | UNIVERSITY MEDICINE ROSTOCK Rebecca Schubert, Carmen Zietz, Christian Fabry, Rainer Bader

5. Galetz MC, Seiferth SH, Theile B, Glatzel U. Potential for adhesive wear in friction couples of UHMWPE running against oxidized zirconium, titanium nitride coatings, and cobalt-chromium alloys. *J Biomed Mater Res B*. 2010 May;93(2):468-75.

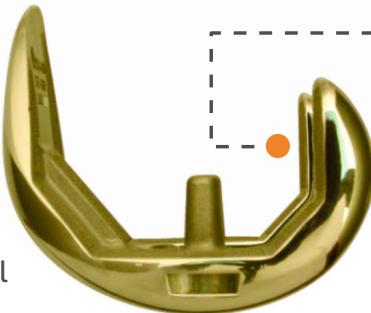
6. Ann R Coll Surg Engl. 2021 May;103(5):e148-e150. doi: 10.1308/rcsann.2020.7098 Aseptic lymphocytic vasculitis-associated lesion in a well-fixed total knee arthroplasty: a case report.

7. DA M. Retzlaff - (<https://pubmed.ncbi.nlm.nih.gov/articles/PMC3923952/>)

RESTORING MOBILITY & IMPROVING LIVES

Anatomical Patella Tracking

Deepened patella track with 6 degree "Q" angle



Reduced Lateral Profile

Appropriate sizing reduces hangover

Anatomical Patella

Provides dome medialization and optimal bony coverage

Congruent & PCL Substituting Insert Options

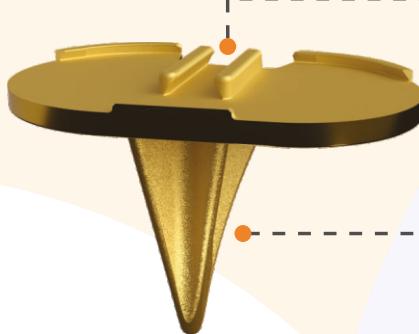


VitalitE™ Inserts

Vitamin E Blended Congruent & PCL Substituting Inserts

The Anatomic Tibial

Component minimizes soft tissue impingement while providing optimal peripheral fit



"Locks" In

Dovetail locking mechanism features a four point locking system

Optimal Coverage

Patented medialized & anterior stem location

For additional information, please contact your local Shalby MedTech distributor, or reach our customer service team at **+9163570 07339** or **infomedtech@shalby.org**.

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