

DELTA-TT ACETABULAR CUP

 **Trabecular** *Titanium*<sup>™</sup>



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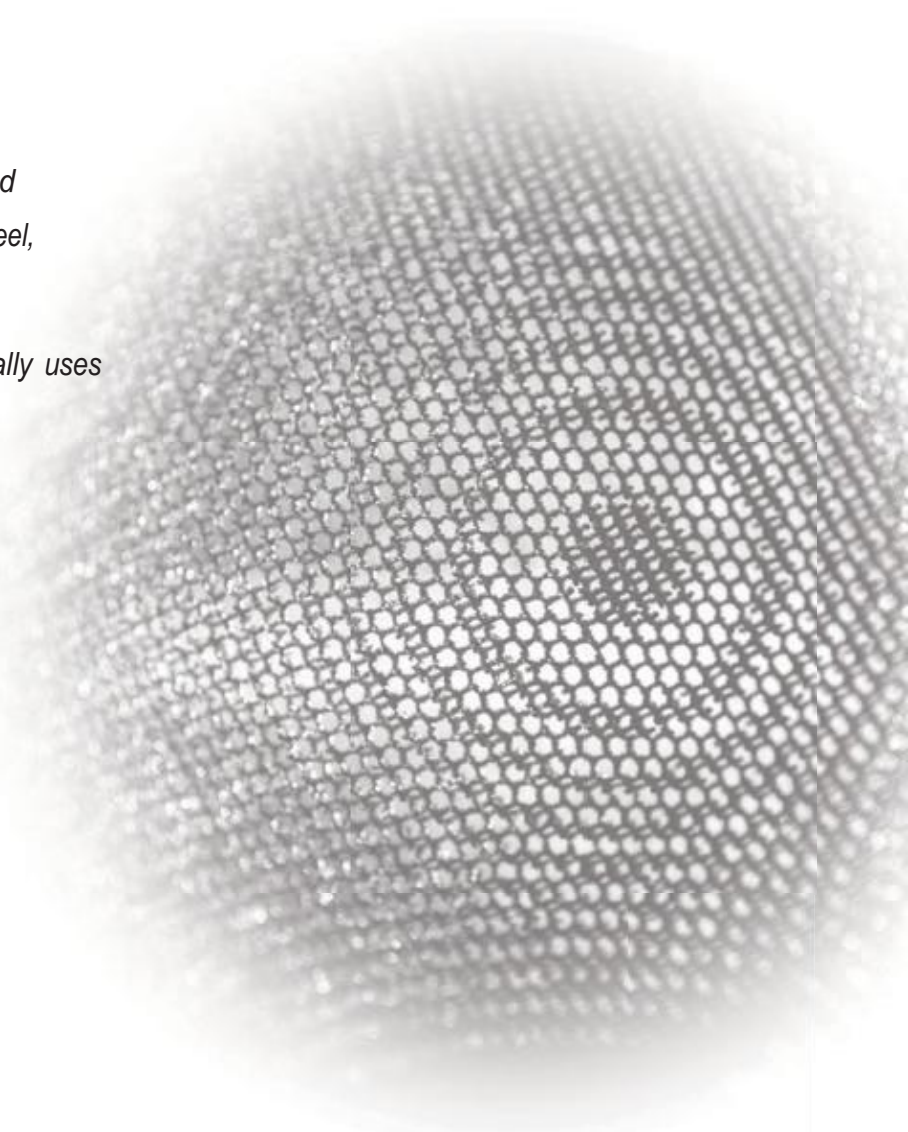
# Trabecular *Titanium*<sup>TM</sup>

“ *When modern man builds large load bearing structures, he uses dense solids steel, concrete, glass.*

*When nature does the same she generally uses cellular materials: wood, bone, coral.*

*There must be good reasons for it.* ”

*M. F. Ashby* <sup>[1]</sup>





# clinical RESULTS

**99% SURVIVORSHIP AT 5 YEAR FOLLOW-UP** <sup>[13]</sup>



“Excellent results were observed in terms of pain relief and functional recovery with significant increase observed in HHS, ROM and SF-36 in all patients independently from the primary diagnosis” <sup>[14]</sup>

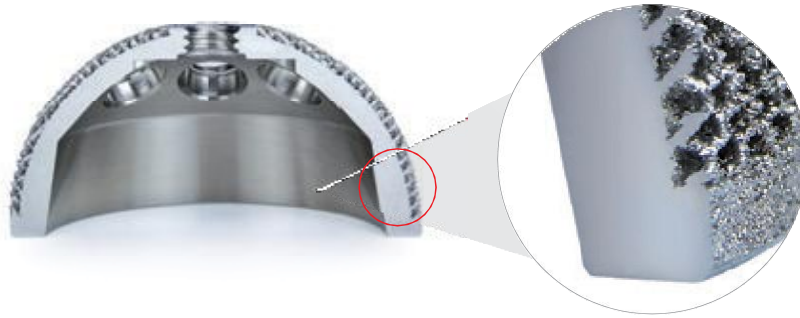
“DELTA-TT were used both for young and elderly patients, displaying an effective primary fixation even in patients with poor bone quality, thanks to the extremely high friction coefficient at the contact with the cancellous bone” <sup>[15]</sup>

“Densitometric analysis and radiographic evaluation demonstrated that **Trabecular Titanium** can provide an effective osseointegration and bone remodeling around the DELTA-TT cups at 24 months” <sup>[16]</sup>

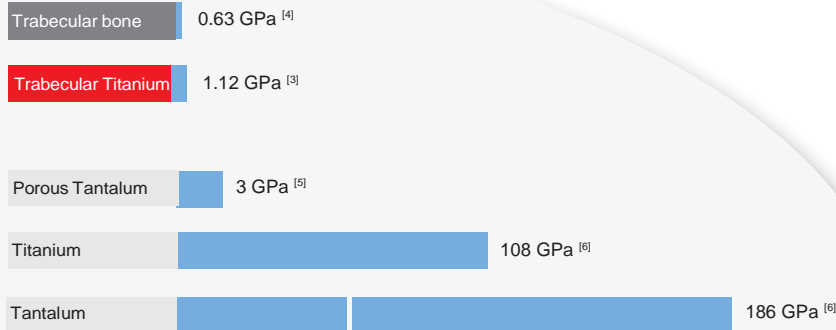


# leading TECHNOLOGIES

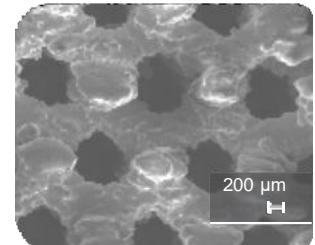
Unique Titanium alloy component, continuity from core to dome, replicating the bone structure in order to optimise mechanical resistance<sup>[2,3]</sup>



## ▼ ELASTIC MODULUS



## TOTALLY CONTROLLED POROSITY ▼

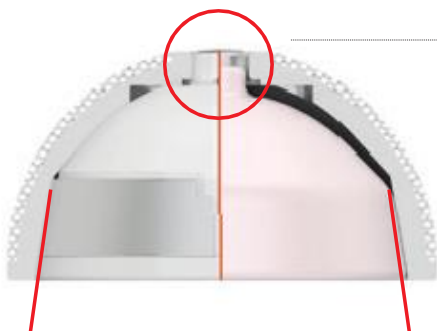


The uniformity of the structure ensures that the chosen characteristics will be replicated over the entire trabecular portion, cell by cell.



# cup FEATURES

Since 1977 Lima Corporate has adopted a taper connection between liners and cups for a more **stable connection**, almost 20° angle coupling for a **self locking** system.



## POLAR PEG

- Facilitates the correct insertion of the liners into the acetabular cups (and correct self locking);
- Avoids risks of rim chipping.

## › A WIDE RANGE OF COMBINATIONS ‹

DELTA-TT primary cup allows the widest range of combinations:

CERAMIC | POLYETHYLENE X-LIMA | POLYETHYLENE LimaVit™ | DUAL MOBILIT

CER CER:  
32-36-40 mm

DUAL MOBILITY:  
MET PE 40-42 mm

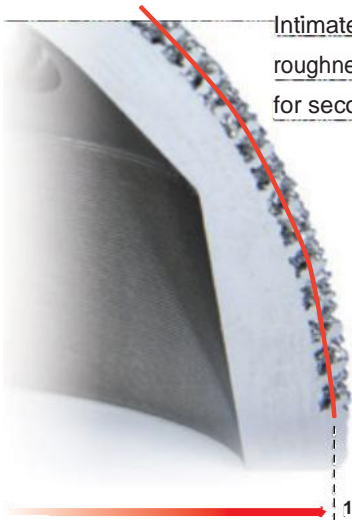
PE X-LIMA:  
28-32-36 mm

PE LimaVit™:  
28-32-36 mm

DUAL MOBILITY:  
CER PE 40 mm



# enhanced **FIXATION**



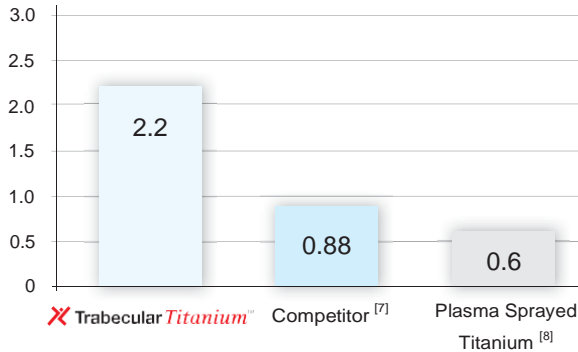
Intimate contact between bone and **X** Trabecular *Titanium*<sup>™</sup>: macro and micro roughness contribute to achieve extreme stable primary stability laying the foundation for secondary fixation

## MACRO ROUGHNESS

Extremely high friction with bone maximises primary stability  
enhancing bone integration

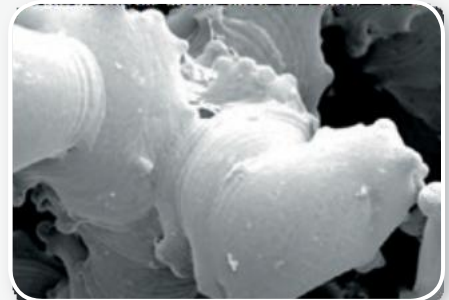
1 mm DIAMETRAL PRESS-FIT

## HIGH FRICTION WITH BONE



## MICRO ROUGHNESS

Struts surface roughness encourages attachment, proliferation and differentiation of anchorage-dependent bone forming cells<sup>[9]</sup>

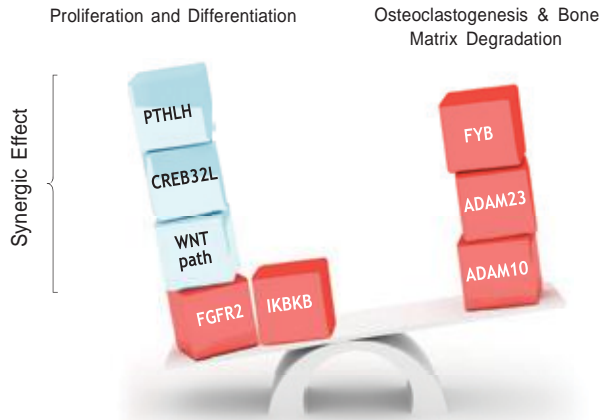




# OSTEOINTEGRATION

The 3D titanium alloy structure with its hexagonal cells imitates bone morphology creating an ideal environment for the cell colonization, vascularization and new bone formation.

✗ **Trabecular Titanium™** enhances osteoblasts activity, while reducing osteoclastogenesis<sup>[10]</sup>.



## ↓ DOWN-REGULATED GENES RELATED TO:

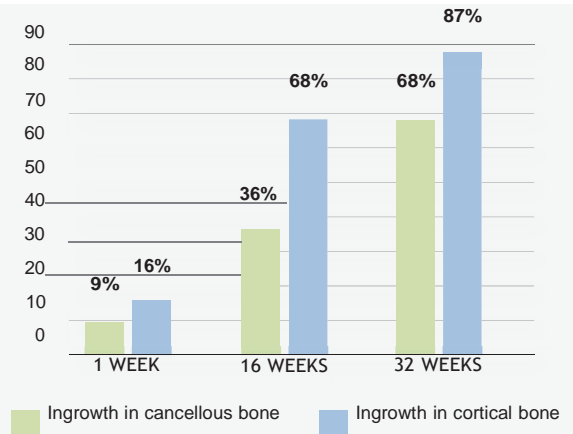
- Osteoclastogenesis (FYB)
- Bone resorption (IKKB)
- Extracellular bone matrix degradation (ADAM10, ADAM23)
- Inhibitor of osteoblast differentiation (FGFR2)

## ↑ UP-REGULATED GENES RELATED TO:

- Bone formation (PTHLH)
- Proliferation (CREB32L)
- Differentiation (WNT path)

The repeated hexagonal cell structure, the optimal porosity and pore size facilitate vascularization needed for new bone formation<sup>[11]</sup>

✗ **Trabecular Titanium™** has up to **87%** bone in-growth in cortical bone and **68%** in cancellous bone<sup>[12]</sup>.







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