Trabecular Metal™ Primary Hip Prosthesis

The Best Thing Next To Bone™
Trabecular Metal™ material provides for a high-friction bone interface for excellent scratch fit and initial implant stability. In addition, its highly porous, strut configuration enables extensive in-growth and strong long-term fixation.\(^1\)

**Compared to Sintered Beads**

Trabecular Metal material addresses the need for initial and long-term implant stability. Its coefficient of friction against cancellous bone is substantially higher than sintered beads.\(^2\) This facilitates direct bone apposition,\(^3,4\) creating a scratch fit that maximizes initial stability at implantation. Moreover, it has a higher bone interface shear strength than sintered beads (MPa).\(^5\)
Trabecular Metal Technology

The best thing next to bone

Bone Ingrowth
Micrograph shows the majority of Trabecular Metal material void spaces filled with bone at 8 weeks after surgery. (The Trabecular Metal material appears white on the image.)

Soft Tissue Ingrowth
The high-volume porosity and interconnected cellular structure of Trabecular Metal material supports rapid, vascularized tissue ingrowth. (The Trabecular Metal material appears black on the image.)

Stable Biological Fixation
The cellular structure of Trabecular Metal material resembles that of cancellous bone. Its solid but highly porous three-dimensional architecture (80% porosity) is conducive to bone formation, and its interconnected pores enable rapid and extensive tissue infiltration to facilitate strong attachment and long-term implant stability.

Biocompatibility of Tantalum
Trabecular Metal material is made of tantalum, one of the most inert elemental metal biomaterials available. This material is not only biocompatible, but has a modulus of elasticity that is close to that of cancellous bone.

Tivanium® Ti-6Al-4V Alloy Substrate
Tivanium Alloy provides excellent biocompatibility and strength without excessive stiffness.

Diffusion Bonding Provides Secure Interface
A proprietary diffusion bonding process provides a secure metallurgical bond between the Trabecular Metal material and the Tivanium substrate.
Forces are distributed to a greater area across the proximal bone with a 14° taper.

**Efficient Proximal Load Transfer**
The 14° proximal A/P taper (7° per side) optimizes proximal load transfer by distributing more compressive forces in the proximal region of the femur to minimize stress shielding.\(^6\),\(^7\)

**Resistance to Subsidence**
The proximal geometry of the stem, coupled with the scratch fit and ingrowth characteristics of the *Trabecular Metal* material enhances stability, helps resist stem subsidence, and, in turn, reduces femoral hoop stress.\(^1\),\(^6\),\(^7\)

**Additional Proximal Loading and Eased Stem Insertion**
The smooth distal 3° taper helps to encourage proximal loading and prevents impingement during stem insertion.

**Wide Range of Patient Anatomies**
The *Trabecular Metal* Primary Hip Prosthesis is proportionally sized to meet a wider range of patient anatomies.
The *Trabecular Metal* Primary Hip Prosthesis brings the distinctive properties and clinically proven benefits of *Trabecular Metal* Technology to a bone conserving and proximal loading stem design.
This results in an optimal combination of initial stability, enhanced, long-term biological fixation and efficient proximal load transfer.\textsuperscript{1,7}

The features and benefits of the Trabecular Metal Primary Hip Prosthesis proves that collaborative relationships and innovative solutions benefiting surgeons and patients alike is truly “confidence in your hands”.
Increased Rotational Stability
The 23.5° neck resection angle helps retain proximal bone, which increases surface area contact with the Trabecular Metal material. This increases initial and rotational stability, as well as long-term biological fixation.  

Optimized Soft Tissue Balance
Standard and Extended offsets are offered to facilitate optimal anatomic soft tissue restoration. Extended offsets are achieved through a parallel neck shift of 5mm without changing neck angle so leg length will not be affected.

Full Range of Femoral Head Options
A 12/14 neck taper accommodates a complete selection of metal and ceramic femoral heads.

Improved Range of Motion
A reduced neck geometry below the 12/14 taper helps increase range of motion.

Zimmer® Minimally Invasive Solutions™ Compatible Instrumentation
Instrumentation is compatible with a variety of approaches and surgical techniques, including both minimally invasive and standard open procedures.

Acetabular Options
Zimmer provides a complete line of acetabular options with the proven stability and fixation benefits of Trabecular Metal material.
Trabecular Metal Primary Hip Prosthesis


Contact your Zimmer representative or visit us at www.zimmer.com