

SMR

MODULAR SHOULDER REPLACEMENT

 **Lima**Corporate
Orthopaedic  motion

PRO **MADE**

CONTINUUM OF CARE in Glenoid Reconstruction for RSA



PRIMARY GLENOID RECONSTRUCTIONS

A **BALANCED** shoulder replacement should empower surgeons to offer the optimal solution to their patients. That is why LimaCorporate aims at providing a continuum of care in glenoid replacements.

SMR glenoid solutions are designed to support easy-primary as well as glenoid erosion cases.



SMR

MODULAR SHOULDER REPLACEMENT

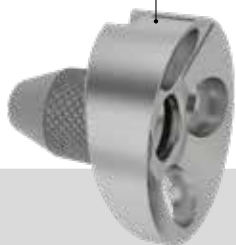
MINIMAL GLENOID EROSION

COMPLEX REVISIONS

SMR TT Augmented 360 MB and **TT Metal Back** with **Bone Graft** aim at supporting glenoid defect compensation and difficult revision cases.

When a balanced shoulder replacement can not be obtained with off-the-shelf products, **ProMade Bespoke Solutions** can be utilized to match each patient's requirements.

SMR TT Augmented 360 MB (Full-Wedge)



SMR TT Metal Back with Bone Graft



ProMade Custom Glenoid



COMPLEX GLENOID RECONSTRUCTION

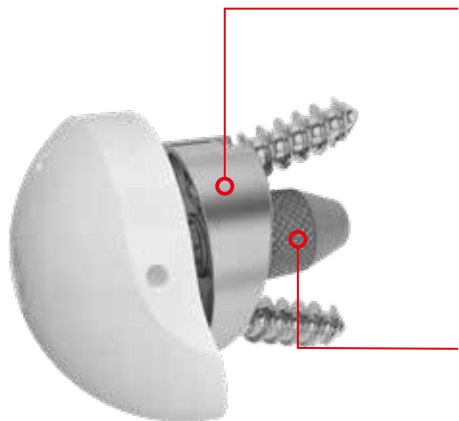
PRO **MADE**

AUGMENT YOUR OPTIONS

SMR **TT** AUGMENTED
360^{MB}

Evolved MODULARITY

A dialable, defect filling solution, aiming at optimizing peripheral screws placement with any glenoid defect.



Full-Wedge
7°, 15°, 19°*
15°X, 19°X*



Lateralized
+2mm
+4mm

Reliable FIXATION

Modular 3D printed TT Peg, aiming to a reliable primary fixation and secondary bone ingrowth.^[1-3]

Wide choice of cortical or cancellous screws to maximize implantation through versatile implant orientation.

Streamlined PREPARATION

Intraoperative experience does matter. The ASAP system has been designed for a streamlined on-axis glenoid preparation through user-friendly instrumentation.

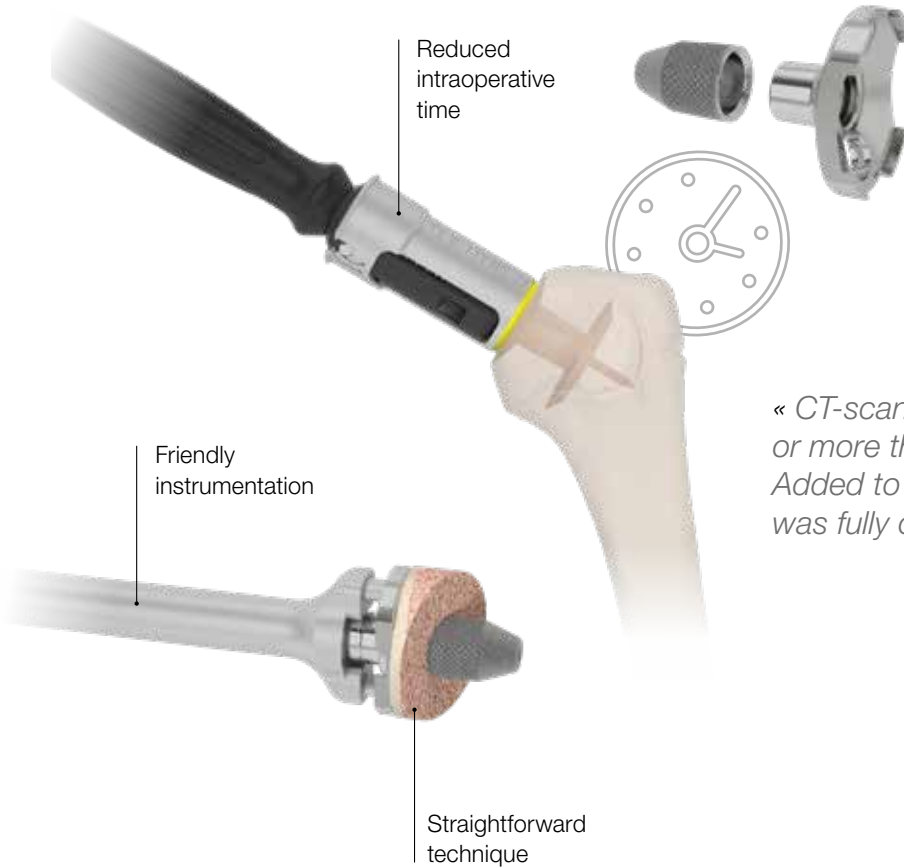


asap
system

* Upon request only

TT METAL BACK

3D PRINTED MODULAR GLENOID WITH BONE GRAFTING OPTION



Based on the established heritage of the SMR System the SMR TT Metal Back implant has been designed to achieve strong primary fixation and osseointegration.^[1-3]

A step-by-step technique allows surgeons to produce different sizes of bone graft with the aim of addressing a wide range of bone defects.^[1-2]

« CT-scans at 2 years revealed **98% complete** or more than 50% **peg osseointegration**. Added to that in 95% of cases bone grafts was fully or partially incorporated.^[2] »

+ Straight graft
5, 10 or 15mm

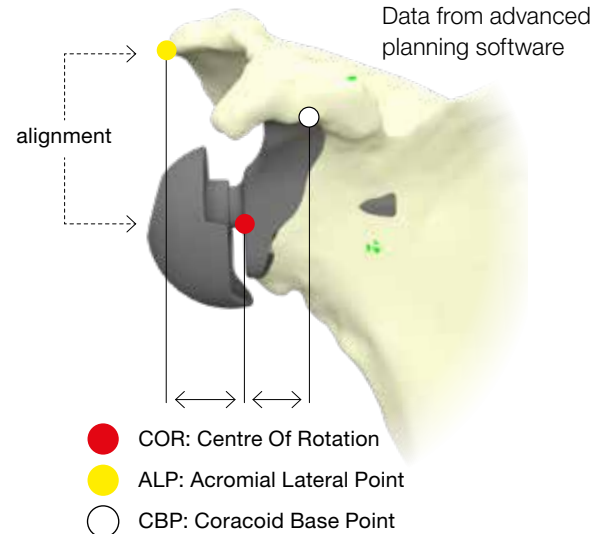
+ Sloped graft
15° or 20°

A DEDICATED ENGINEERING DESIGN SERVICE TO DEVELOP TRULY BESPOKE SOLUTIONS FOR COMPLEX GLENOID RECONSTRUCTIONS

PRO^{MADE}

Leveraging proprietary technologies and Surgeon collaboration aiming at:

- + **Providing Confidence**
through Primary Stability.^[3,11]
- + **Providing Longevity**
through Natural Load Transfer.^[9-11]
- + Allowing a fully planned
Biomechanical Restoration.^[11,12]



Stability with defect,
matching shapes.

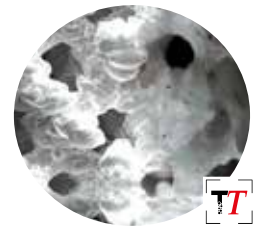


Coracoid and acromial
stabilizers.



Engineered modulus
for natural load transfer.^[9-11]

Scratch fit with
macro/micro roughness.

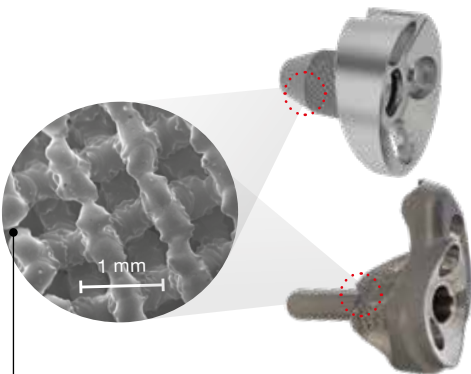
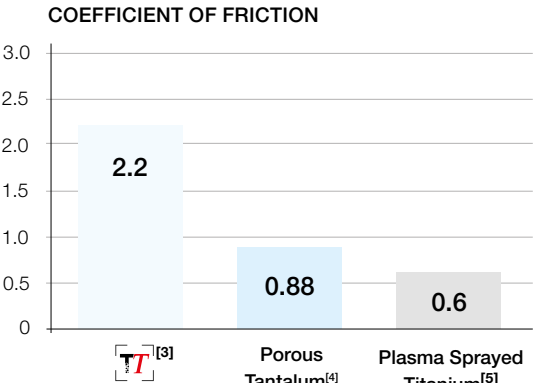
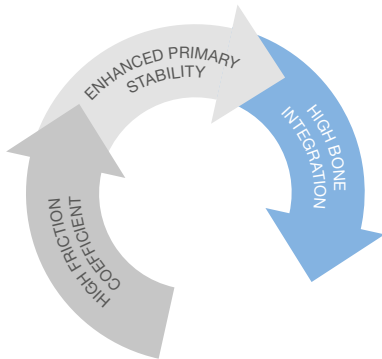



Proven osteoconductivity and
osteoinductivity.^[6-8]

RELIABLE FIXATION OF TT

Enhanced Initial Stability

Trabecular Titanium technology maximises component stability thanks to the high friction coefficient with trabecular bone.^[3]



«It was demonstrated that  stimulates osteoblast proliferation and differentiation, and reduces apoptosis.^[6]»

Trabecular Titanium has been shown to promote a more physiological load transfer from implant to bone while reducing stress shielding and the associated bone resorption.^[9-10]

Technology Supporting Osseointegration

Trabecular Titanium provides significant osseointegration with significantly high bone ingrowth percentages, both in cancellous and cortical bone.^[7,8]

- [1] Malhas AM, Granville-Chapman J, Robinson PM, Brookes-Fazakerley S, Walton M, Monga P, Bale S, Trail I. Reconstruction of the glenoid using autologous bone-graft and the SMR Axioma TT metal-backed prosthesis: the first 45 sequential cases at a minimum of two years' follow-up. *Bone Joint J.* 2018 Dec;100-B(12):1609-1617.
- [2] Singh J, Odak S, Neelakandan K, Walton MJ, Monga P, Bale S, Trail I. Survivorship of autologous structural bone graft at a minimum of 2 years when used to address significant glenoid bone loss in primary and revision shoulder arthroplasty: a computed tomographic and clinical review. *J Shoulder Elbow Surg.* 2021 Mar;30(3):668-678.
- [3]* (a) Marin E, Fedrizzi L, Regis M, Pressacco M, Zagra L, Fusi S. Stability Enhancement Of Prosthetic Implants: Friction Analysis Of Trabecular Titanium. *Hip Int.* 2012;403:427-8; *(b) Dalla Pria P, Pressacco M, Veronesi E. Nuove frontiere nell'osteointegrazione: il Trabecular TitaniumTM. *Sphera Med J.* 2008;7:46-50. Italian.
- [4] Levine B. A New Era in Porous Metals: Applications in Orthopaedics. *Adv. Eng. Mat.* 2008;10(9):788-92.
- [5] Grant JA, Bishop NE, Gotzen N, Sprecher C, Honl M, Morlock MM. Artificial composite bone as a model of human trabecular bone: The implant-bone interface. *J Biomech.* 2007;40(5):1158-64.
- [6]* (a) Sollazzo V, Massari L, Pezzetti F, Girardi A, Farinella F, Lorusso V, Burelli S, Bloch HR, Carinci F. Genetic effects of Trabecular TitaniumTM on MG-63 cell line: a genetic profiling evaluation. *ISRN Mater Sci.* 2011:392763; *(b) Asti A, Gastaldi G, Dorati R, Saino E, Conti B, Visai L, Benazzo F. Stem Cells Grown in Osteogenic Medium on PLGA, PLGA/HA, and Titanium Scaffolds for Surgical Applications. *Bioinorg Chem Appl.* 2010:831031. *(c) Gastaldi G, Asti A, Scaffino MF, Visai L, Saino E, Cometa AM, Benazzo F. Human adipose-derived stem cells (hASCs) proliferate and differentiate in osteoblast-like cells on trabecular titanium scaffolds. *J Biomed Mater Res A.* 2010;94(3):790-9.
- [7]* (a) Devine D, Arens D, Burelli S, Bloch HR, Boure L. In vivo evaluation of the osteointegration of new highly porous Trabecular TitaniumTM. *J Bone Joint Surg Br.* 2012;94-B (Suppl XXXVII):201; (b) Bloch HR. The SMR® Shoulder System of Lima Corporate. In: Frankle M, Marberry S, Pupello D, editors. *Reverse Shoulder Arthroplasty. Biomechanics, Clinical Techniques, and Current Technologies.* Heidelberg (Germany): Springer; 2015. p. 417-24.
- [8]* Bondarenko S, Dedukh N, Filipenko V, Akonjom M, Badnaoui AA, Schwarzkopf R. Comparative analysis of osseointegration in various types of acetabular implant materials. *Hip Int.* 2018 Nov;28(6):622-628.
- [9]* Marin E, Fusi S, Pressacco M, Pausa L, Fedrizzi L. Characterization of cellular solids in Ti6Al4V for orthopaedic implant applications: Trabecular titanium. *J Mech Behav Biomed Mater.* 2010 Jul;3(5):373-81.
- [10] Massari L, Bistolfi A, Grillo PP, Borré A, Gigliofiorito G, Pari C, Francescotto A, Tosco P, Deledda D, Ravera L, Causero A. Periacetabular Bone Densitometry After Total Hip Arthroplasty with Highly Porous Titanium Cups: A Two-Year Follow-Up Prospective Study. *Hip Int.* 2017;27(6):551-7.
- [11] Porcellini G, Micheloni GM, Tarallo L, Paladini P, Merolla G, Catani F. Custom-made reverse shoulder arthroplasty for severe glenoid bone loss: review of the literature and our preliminary results. *J Orthop Traumatol.* 2021 Jan 19;22(1):2.
- [12] Grossi S, D'Arienzo A, Sacchetti F, Ceccoli M, Cosseddu F, Neri E, Colangeli S, Parchi PD, Andreani L, Capanna R. One-Step Reconstruction with Custom-made 3D-printed Scapular Prosthesis After Partial or Total Scapulectomy. *Surg Technol Int.* 2020 May 28;36:341-346.

* results from pre-clinical studies only.

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