Meril
Healthcare

Meril's Global Presence

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For more information about Latitud™ Please contact your local representative.

Please see the package insert for complete device description, product selection information, indications, contraindications, precautions, adverse effects, warning, materials, sterilization and patient guidance associated with the Latitud™ Hip System.

CAUTION: THIS DEVICE IS RESTRICTED TO SALE BY OR ON THE ORDER OF A LICENSED PHYSICIAN.

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LATITUD MONOMOD BROCHURE/MH/BRC/HS/012 Rev. 00

LATITUD™ | HIP SYSTEM
Freedom of Choice

Meril
Healthcare

World's First
Monobloc – Modular
Revision Stem System

MONOMOD

Acknowledgement

Meril Healthcare would like to acknowledge the contribution of Dr. Vijay C. Bose from the Asian Orthopaedic Institute, Chennai, India in the design of the MonoMod revision femoral stem.

Meril Orthopedics | HIP SYSTEM

Meril orthopedics, a venture of Meril in association with Maxx Ortho Inc (www.maxortho.com), is at the helm of developing and marketing innovative Orthopedic implants. Our joint replacement technologies and wide range of products make us valuable to healthcare institutions in more than 40 countries. At Meril, we have a guiding principle that the Physician-Patient-Product iteration is of utmost importance.

Philosophy And Design Rationale

Tapered Fluted Titanium (TFT) stems undoubtedly represent the future of femoral revision stems as they have been conclusively shown to have superior results in comparison to other designs. However, surgeons continue to have a dilemma in choosing between the monobloc option and the modular version TFT for a given clinical situation. Both types of TFT stems bring with them a unique set of advantages as well as disadvantages. Monobloc TFT stems are easy to insert and have no risk of breakage but have a higher incidence of subsidence added with an inability to restore soft tissue tension in some cases. In contrast, modular ones are more resistant to subsidence and has a better scope to achieve soft tissue balance. However, they are more cumbersome to insert and have an intrinsic risk of breakage at the trunion, especially if the proximal portion is left devoid of bone support. **The Meril MonoMod stem is the 1st stem in the world to combine the advantages of the monobloc and modular TFT stems while potentially eliminating their disadvantages.**

The key design philosophy of **MonoMod revision stem** is combining the advantages of **monobloc** and **modular** types of tapered titanium revision stems. The broad longitudinal ribs along the stem, supporting adhesion to the trochanter and is designed to be beneficial for both bony apposition and rotational stability.

Salient Features

- Combines the advantages of monobloc and modular types of tapered titanium revision stems, while eliminating their respective disadvantages
- Lateralised design with 2.5° taper geometry giving an enhanced zone of scratch fixation for a given segment of prepared bone
- 8-10 longitudinal ribs depending on size for additional rotational resistance and to increase the total host bone contact surface area
- HA coated neck to promote osteointegration with rounded shoulders to decrease soft tissue irritation.
- Availability of highly porous proximal femoral augments for the 1st time
- Two holes for wire attachment to trochanteric fragment
- Smaller sizes Ø12 & Ø13 to suit Narrow canal / Asian anatomy
- Expanded size matrix for all bone varieties and sizes
- Bevelled tip to accommodate bowed femoral bone

The MonoMod stem is monobloc without any junctions has 3 unique features which enable it to harvest the advantages of both types of TFT stems.

1. Shoulder Height level (SHL) and Bone Reference Mark (BRM):

The usage of these two technical concepts minimizes or completely eliminates the variation between the seating level of the trial stem during trialing and definitive prosthesis after final impaction, thereby reducing the need for modularity. The SHL is marked on the reamers for different lengths of stems and is indicative of where the shoulders of the trial and definitive prosthesis will seat. As the shoulder of the prosthesis is in close proximity to the bone, precise matching of the reamer SHL and the shoulders of the trial definitive stems to the desired Bone Reference Mark (BRM) is possible. All current revision stem designs use the head centre as the reference level for the reamer, trial, and final prosthesis. As the femoral head is spatially away from the bone, head height level in relation to bone cannot be estimated accurately giving rise to the need for modularity for precise soft tissue balancing.

2. Using offset specific trials and a two step reaming/ trialing process with a constant force stem applicator.

A two step preparation process has been described namely the PP reaming trialing and SS reaming /trialing. MonoMod trials are designed to provide exact offset as that of the definitive implant over the entire size range. As a first step, primary provisional (PP) reaming & trialing is done followed by secondary scratch fit (SS) reaming trialing.(Table 1). This two step process is essential to eliminate the need for modularity in the last minute. The precision is further aided by the use of specially designed constant force stem applicators. Two stem applicators are provided, with the larger one designed for dense sclerotic bone and smaller one for weak osteoporotic bone. The constant force stem applicators deliver a constant, identical force at every application which is independent of surgeon related factors and is used for both the SS trial and definitive stems.

Table 1

Primary Provisional (PP) reaming & trialing	Secondary Scratch fit (SS) reaming & trialing
☐ Reaming by hand ☐ Reamer reference is the centre of head ☐ Trial with offset different from the final prosthesis (1- 2 sizes lower) ☐ Trial impaction with light mallet ☐ Provisional stability obtained ***Aim is to establish soft tissue balance and Bone Reference Mark (BRM)***	☐ Reaming by hand and power ☐ Reamer reference is shoulder of prosthesis (SHL) ☐ Trial with same stem size /offset of the final prosthesis used ☐ Trial impaction with constant force applicator ☐ Rigid scratch fit stability obtained ***Aim is to establish adequate scratch fit and fine tune balance making modularity redundant***

3. Use of proximal femoral highly porous 3D printed augments:

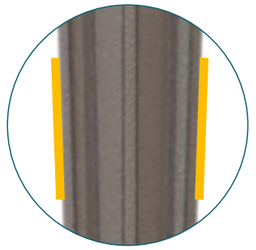
The proximal femoral augment is inserted after bone preparation done with the dedicated instruments provided. It is crucial that the augment is fixed to the implant only after rigid impaction of the definitive prosthesis. The highly porous augment acts as a safety belt in cases for which the surgeon perceives a potential risk of subsidence which is anticipated to be required in about 30 of cases. The highly porous material of the augment has the same macrostructure as bone and this will achieve quick osteointegration, providing secondary resistance against subsidence. The highly porous augment will also offer additional help to unitize the trochanteric fragment with the stem if the trochanteric bone is of poor quality or fractured.

MonoMod Specification & Features

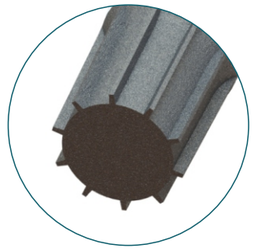
MONOMOD

Guided Insertion
Quick instrument connection with rotational control

Proximal Coating
Promotes osteo-integration



Uncemented and conical implant design
2.5° taper body enhances zone of scratch fit fixation for a given segment of prepared bone

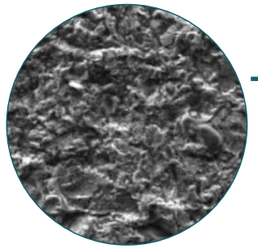


Circular cross-section with 8 & 10 broad taper ribs
Circular profile for intra-operative flexibility and ribs anticipates rotational resistance and increase total host bone contact area

Smooth rounded shoulder with Polished Neck
To avoid tissue irritation

Wire Holes
Ø3mm wire holes for bone flap fixation

Polished Distal tip
Reduces stress between implant tip and femoral bone



Coarse Blasted
For scratch fixation and offers topography for bony apposition

MonoMod Revision Stem constructed from Forged Titanium Alloy [Ti-6Al-4V-ELI] is lateralized design for optimum bio-mechanical construction.

MonoMod Revision Stem has 2 Trays Revision System, which reduces the instruments compared to other competitive systems.

Meril MonoMod size matrix

Meril's MonoMod Revision Stems are available in 4 different length variants with uniform 135° CCD angle:

Diametrical Sizes	Horizontal Offset with *+0mm* Head	Length			
		L1 190 mm	L2 225 mm	L3 265 mm	L4 305 mm
Ø12	40 mm	✓	*	N / A	
Ø13		✓	*		
Ø14	42 mm	✓	✓	✓	✓
Ø15		✓	✓	✓	✓
Ø16		✓	✓	✓	✓
Ø17		✓	✓	✓	✓
Ø18	44 mm	✓	✓	✓	✓
Ø19		✓	✓	✓	✓
Ø20		✓	✓	✓	✓
Ø21		N / A	✓	✓	✓
Ø22	46 mm		*	*	*
Ø23			N / A	*	*
Ø24				*	*
Ø25				*	*

Available variants for Meril's Revision Stem are marked with "✓ "

" * " Marked sizes are available on special request

Notes :