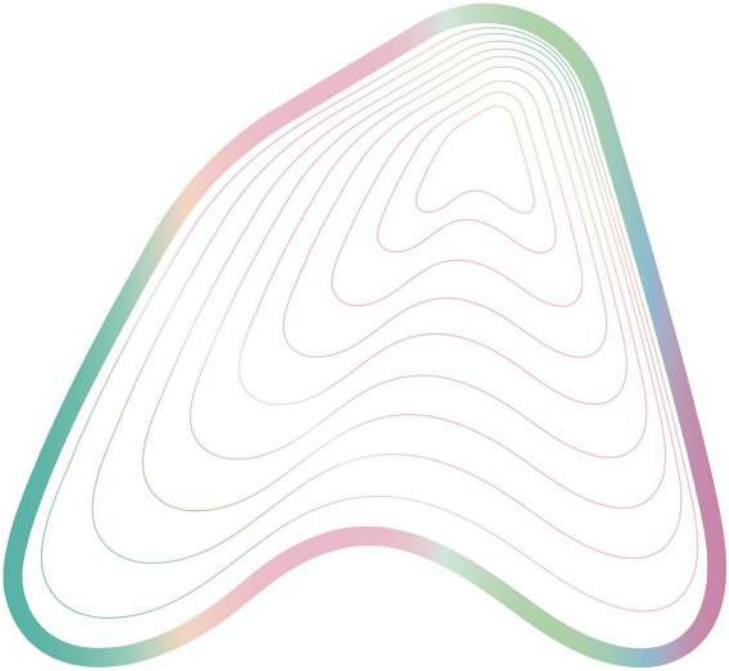

MOBIO™

Total Knee System

All in ONE

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The **MOBIO**™ Total Knee System is an evolution of the the most successful and clinically-proven prosthetic designs in primary total knee reconstruction. Inspired by the core motivation to develop an inclusive system with the best features to improve patient satisfaction, a team of renowned surgeons, top engineers, and accomplished scientists came together to develop the **MOBIO**™ ***All in ONE*** Total Knee System.

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MOBIO™ is the result of many years of clinical and engineering experience throughout the world. I strongly believe this system will represent the new "standard of care" in total knee reconstruction. The system incorporates the single radius design, which has proven its merits in the Rothman Institute and elsewhere over the past decade.

It will achieve a knee that provides enhanced stability, good range of motion, and superb function. In my experience, this knee design will have a "natural feel" and good longevity.

The manufacturing processes and standards have incorporated the highest level of quality control. The instruments are carefully designed and surgeon-friendly.

This should result in superior outcome for our patients, which is our universal goal.

Richard Rothman, M.D., Ph.D.
Founder, The Rothman Institute

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The **MOBIO**™ Total Knee System was designed by partnering experienced engineers with input from international surgeons. It is an evolution of the best features from the state of the art prosthetic systems available today. We listened to surgeons and patients to design a knee system that is versatile, easy to use, and will exceed patient needs.

Mark Kester, Ph.D.
Chief Scientific Officer

Imants Liepins
Vice President of Innovation Center

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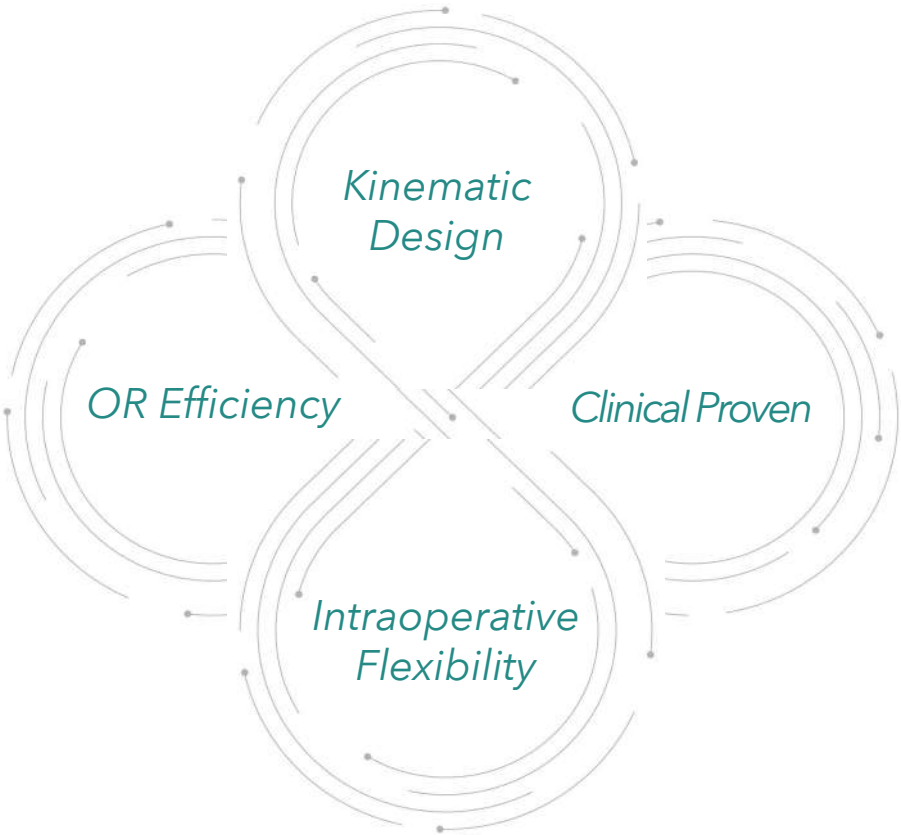
MOBIO™ Total Knee System
Design Goals



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MOBIO™ Total Knee System

Key Design Features

BalanSEE™ single radius design

Fretella™ patellofemoral articulation

Bone-conserving PS box

Robust tibial locking mechanism

Extensive tibiofemoral compatibility

Efficient instrumentation

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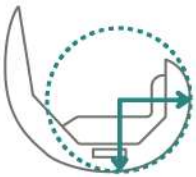
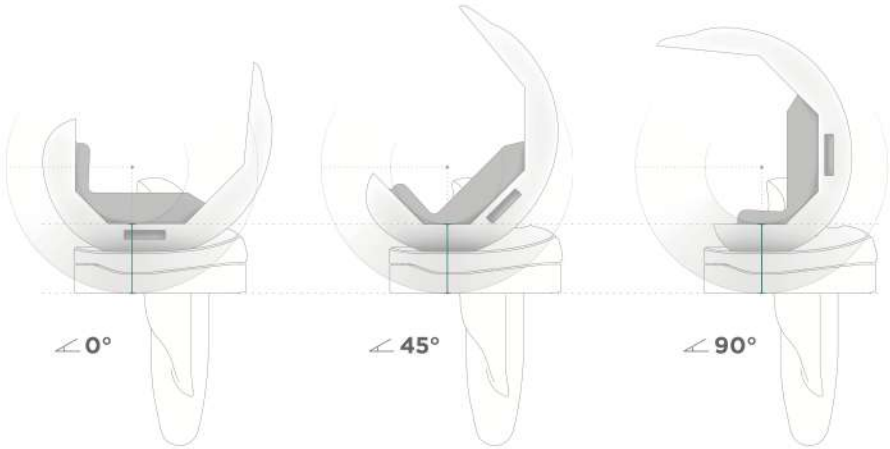
MOBIO™ Total Knee System

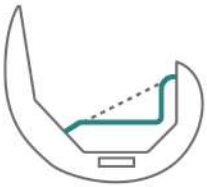
Kinematic Design Features



BalanSEE™ single radius design

- Single radius femoral design about the flexion-extension axis creates ligament isometry throughout the arc of motion.
- Equal distal and posterior resection means predictable and balanced resurfacing.





- Open shallow PS box tiered to femoral size to conserve bone.
- Accommodates both PS and PS Plus tibial inserts without the need for additional bony resection.
- Up to 30% more bone conserved when compared to leading competitive designs.

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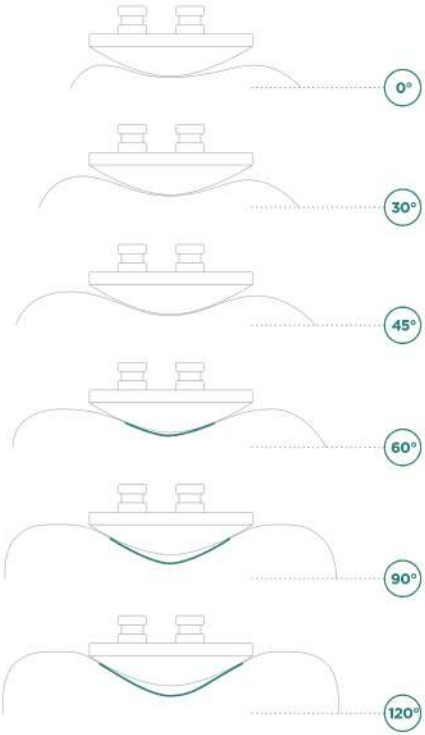
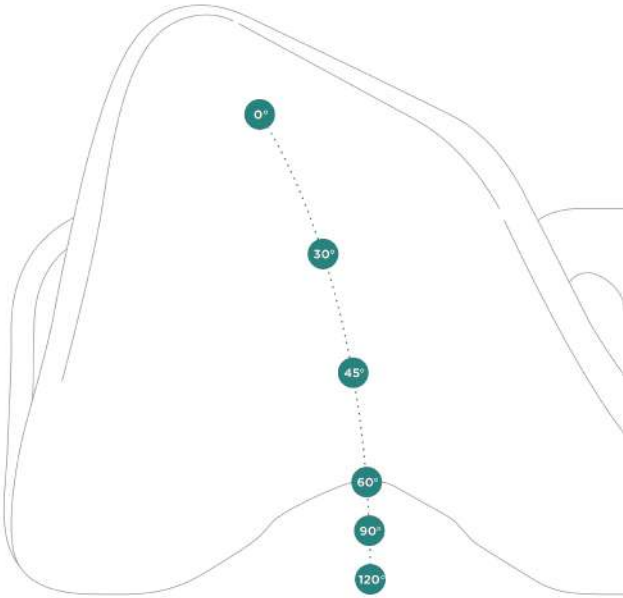
MOBIO™ Total Knee System

Kinematic Design Features

Fretella™ patellofemoral articulation

- Thin anterior flange with size-specific patella thicknesses help recreate native patellofemoral kinematics.
- Deepened transition zone from the trochlea to the intercondylar notch for smooth range of motion.





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MOBIO™ Total Knee System

Performance Features

Robust tibial locking mechanism

- Full anterior, posterior, and central island locking fixation maximizes locking area and minimizes micromotion.
- Shortened central island allows for bearing placement at greater insertion angles.
- Unique peripheral ramp feature guides tibial insert into locking track of baseplate for ease of insertion.

Highly crosslinked polyethylene

Demonstrates better wear characteristics than standard polyethylene bearings.

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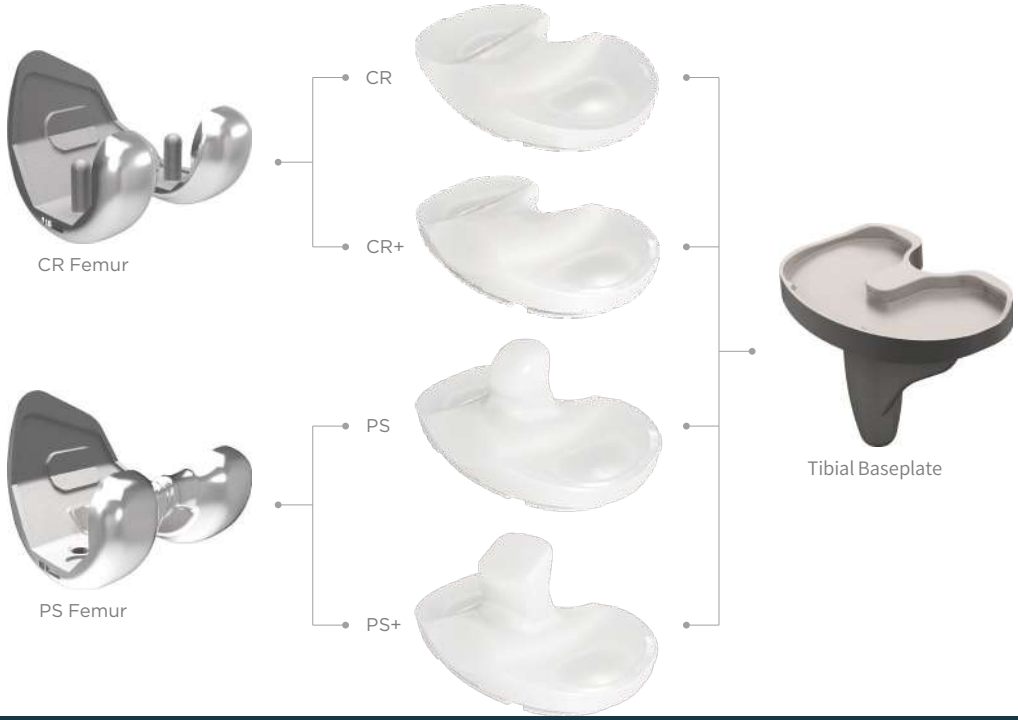
MOBIO™ Total Knee System

Intraoperative Flexibility

Wide range of implant sizes and constraint options allows for optimized component fit and soft tissue balancing.

- 13 femoral component sizes and 7 tibial component sizes.
- PS and PS PLUS Tibial Inserts in 5 thicknesses ranging from 9 to 16 mm.
- CR insert Provides ±15° of I/E rotation without V/V constraint whereas CR Plus insert provides ±6° to ±10° of I/E rotation without V/V constraint.
- CR Tibial Inserts preserves PCL which has important proprioceptive functions, allows for more natural rollback.
- CR Plus Provides more AP constraint and stability, substitutes for poorly balanced PCL, allows for preserving and substituting PCL.



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Metaphyseal extension rod*(Improve tibial side fixation stability)*

The use of a metaphyseal extension rod (Diaphyseal Stem, short extension rod) to improve the fixation effect of the tibial prosthesis in the metaphysis has been widely used in revision surgery and has achieved good clinical results.

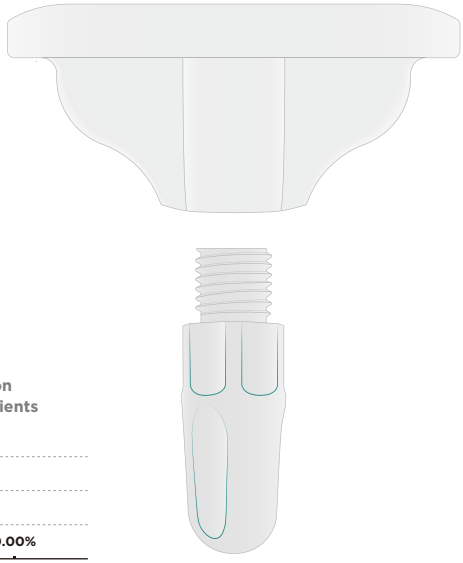
In recent years, as aseptic loosening has become the number one reason for knee revision, the research focus has shifted to how to rationally use extension rods to improve the efficiency of metaphyseal fixation, thereby reducing the incidence of aseptic loosening of the tibial tray.

- **Reduce shin pain and avoid osteolysis**
- **Extension rod reduces fretting and conducts stress more evenly**
- **No need to change the surgical form**

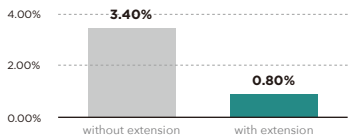
Metaphyseal extension rod significantly reduces the rate of tibial tray loosening

A study based on data from the American Joint Registry showed that during 10 years of follow-up, patients in the experimental group using metaphyseal extension rods had more severe preoperative symptoms. The revision rate due to aseptic loosening was significantly lower than that of the normal knee replacement case group.

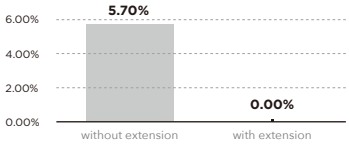
Park et al. followed up and compared 88 pairs of metaphyseal extension rods and common primary patients. During more than 8 years of follow-up, a group of patients who used metaphyseal extension rods did not have aseptic loosening of the tibial tray, while the control group was caused by aseptic loosening. The revision rate is close to 6%.



American Joint Registry Study, Comparison of Revision Rates at 10-Year Follow-up



Comparison of revision rates in 88 deformity patients



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MOBIO™ Total Knee System

Efficient Instrumentation

The **MOBIO™** Total Knee System instrumentation is an intuitive platform that supports surgical efficiency with:

- Unique features that can eliminate extra surgical steps;
- Precise, robust cutting guides;
- Intuitive instrument kitting to accommodate differences in technical preferences;
- Sterilization trays that are rigid container compatible for easy wrap-to-rigid interchangeability.

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References

1. Baker PN, van der Meulen JH, et Al. The Role of Pain and Function in Determining Patient Satisfaction After Total Knee Replacement. *JBJS-Br*. 2007; 89(7):893-900.
2. Robert B. Bourne MD. "Patient Satisfaction after Total Knee Arthroplasty, Who is Satisfied and Who is Not?" *Clin Orthop Relat Res.* 2010;468:57–63.
3. Fukanaga K, Kobayashi A, et. Al. The Incidence of the Patellar Clunk Syndrome in a Recently Designed Mobile-Bearing Posteriorly Stabilized Total Knee Replacement. *JBJS (Br).* 2009;91-B(4): 463-8.
4. Frankel V, Burstein A, Brooks D. "Biomechanics of Internal Derangement of the Knee." *J Bone Joint Surg Am*. 1971;53:945-977 .
5. Clary, C.W., Fitzpatrick, C.K., Maletsky, L.P., Rullkoetter, P.J. The influence of total knee arthroplasty geometry on mid-flexion stability: an experimental and finite element study. *Journal of Biomechanics*. 2013;46:1351-1357.
6. Hollister, Kester et Al. Knee Axes of Rotation: Determination and Implications. *Orthopaedic Research Society*, p 383, 1986.
7. Hollister AM, Jatana S, et. Al. The Axes of Rotation of the Knee. *Clin Orthop*. 1993;290:259.
8. Ostermeier S, Stukenborg-Colsman C. Quadriceps force after TKA with femoral single radius. *Acta Orthop*. 2011;82(3):339-343.
9. Hamilton D, Gaston P, Simpson A. "Single radius of curvature implant design enhances power output following total knee arthroplasty." *Orthopaedic Proceedings*. 2012;94: 67-67.
10. Mahoney OM, McClung CD, et al. The effect of total knee arthroplasty design on extensor mechanism function. *The Journal of arthroplasty.* 2002;17(4):416-421.
11. Mahoney OM, Kinsey T L, et al. Laboratory demonstration of mechanical and functional advantages of a single-radius TKA design. *Proceedings of the 69th AAOS*. 2002;442.
12. Dennis DA, Kim RH, Johnson DR, Springer BD, Fehring TK, Sharma A. Control-matched Evaluation of Painful Patellar Crepitus After Total Knee Arthroplasty. *CORR*. 2011;469(1):10-7.

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