Signature™ Hip Technology
Personalized Patient Care
Over 1 million times per year, Biomet helps one surgeon provide personalized care to one patient.

The science and art of medical care is to provide the right solution for each individual patient. This requires clinical mastery, a human connection between the surgeon and the patient, and the right tools for each situation.

At Biomet, we strive to view our work through the eyes of one surgeon and one patient. We treat every solution we provide as if it’s meant for a family member.

Our approach to innovation creates real solutions that assist each surgeon in the delivery of durable personalized care to each patient, whether that solution requires a minimally invasive surgical technique, advanced biomaterials or a patient-matched implant.

When one surgeon connects with one patient to provide personalized care, the promise of medicine is fulfilled.
**Signature™ Hip Technology**

**Personalized Patient Care**

**Signature™ Acetabular Technology** allows the surgeon to accurately position cup placement based on the patient’s unique anatomy.

- Preoperative planning software
- Based on MRI technology
- Visual guide
- Not dependent on patient position

**Problem:** 50% of acetabular cup placement is outside the acceptable range for both abduction and version.

快要訳

尽管许多技术可以稳定并定位患者的骨盆，大多数医生承认很难准确地知道患者的骨盆在手术中如何定位。

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"Despite many techniques of stabilizing and positioning the patient’s pelvis, most surgeons admit that it is difficult to know precisely how the patient’s pelvis is orientated during surgery."^4
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"Acetabular component orientation is a significant factor in the short term and long term outcomes of total hip arthroplasty (THA). Improper orientation negatively impacts dislocation rates, component impingement, bearing surface wear, survivorship, and revisions in the long term."^5-8
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"Instability/dislocation was the most common reason for acetabular revision (33.0%)"^10
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"Survivorship and complications have been shown to be directly related to component positioning during THA."^9, 10
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**Solution:** Signature™ Acetabular Technology allows the surgeon to accurately position cup placement based on the patient’s unique anatomy.
**Signature™ Hip Technology**

**The Signature™ Workflow**

**Plan**

The Signature™ Planning Software utilizes MRI imaging to provide a consistent three-dimensional data set and visualization of the patient’s anatomy to enhance efficiency. The intuitive layout of the software provides a multitude of preoperative visualization options to fine-tune implant size and position and generate Signature™ positioning guides.

- Intuitive user interface and functionality
- Implant library to meet surgeons’ implant preferences
- Transparent bone and/or implant views
- Allows for fine-tuning of cup implant sizing and positioning
- Surgeon-approved plan values dictate positioning guide design

**Position**

Bone models, available for each case, represent the patient’s distinct acetabular anatomy and provide the following preoperative and intraoperative features:

- Bone landmarks identified on model
- Guide registration lines (representing correct guide orientation in the acetabulum)

“All figures shown are for a right hip

“Preoperative planning is of significant value for the successful performance of THR.”13

“Rolling motions of the pelvis forward or backward can easily occur in lateral decubitus positioning, and can directly lead to undesirable variances in cup anteversion.”11

“Preoperative planning is of significant value for the successful performance of THR.”13
Pin

Pins are placed using the patient-specific guides to register the preoperative plan to the patient.

- Selective Laser Sintered manufacturing optimizes patient-specific guide configuration and fit
- Bone models accompany positioning guides for preoperative surgeon evaluation and intraoperative verification

Place

The Signature™ acetabular guides are designed and produced to replicate the preoperative surgical plan. Final component orientation and placement can be determined intraoperatively.

- Incorporation of standard instrumentation for intraoperative visualization to the Signature™ alignment pin

“Such intraoperative pelvic motion has been reported to be one of the critical factors in poor acetabular component orientation using manual technique.”11
**Signature™ Hip Technology**

**System Competencies**

**Signature™ Online Management System**

The Signature™ Online Management system is the comprehensive Signature™ case management site.

- Case management
- Imaging center interface
- Imaging protocols and reference tools
- Process status
- Surgeon planning preferences
- Access to Signature™ Planning Suite case plans

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**Economic Cost of Revision Hip Surgery**

Signature™ allows the surgeon to place the cup based on the patient's unique anatomy.

Revision total hip replacement surgeries impose a burden on the health care system costing the system over **one billion dollars annually**. With revision surgery frequently come additional complications further associated with worse functional outcomes than a primary total hip replacement.

The acetabular component orientation placed by the surgeon during total hip arthroplasty has **critically important effects** on dislocation, range of motion and polyethylene wear. Survivorship and complications have been shown to be directly related to component positioning.
**E1® Antioxidant Infused Technology**

*E1® Antioxidant Infused Technology is the only bearing option that utilizes a proprietary diffusion process to maximize strength, wear resistance and prevent oxidative degradation of the polyethylene.*

- Biomet pioneered the first and only antioxidant infused hip, knee and shoulder bearings that actually prevent oxidative degradation of the polyethylene.
- *E1® acetabular liner configurations are available to be used with large femoral heads for optimal joint stability and range of motion.
- Patients are presenting earlier, living longer and have higher expectations than ever before.

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**RingLoc® + Acetabular Shells**

- Locking mechanism provides low micromotion and unparalleled push-out/lever-out forces
- Un-lock/re-lock feature allows for easy disassembly without damaging liner
- Extended rim to prevent soft tissue entrapment between liner and shell
- Designed to accommodate E1™ Antioxidant Infused and Arcom®/Arcom XL® polyethylene liners

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**Active Articulation™ Dual Mobility Hip System**

The Active Articulation™ E1® Hip System defines the next generation of dual mobility constructs as it is specifically indicated for patients at risk for dislocation and the only dual mobility system to utilize Antioxidant Infused Technology.

- Dislocation Resistance
- Ultra-Low Wear - 95% less wear than traditional THA, even when cup is at 60 degrees inclination
- Large Range of Motion - Provides up to 165 degrees
- Oxidative Stability - *E1® Antioxidant Infused Technology prevents oxidative degradation of polyethylene.*
- Clinically Proven Cup - The fully-hemispheric M2a-Magnum™ cup contains clinically proven PPS® coating and fins to provide fixation and stability
References


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