ACTIS™ TOTAL HIP SYSTEM
Approach Active Patients with Confidence

DESIGN RATIONALE
The ACTIS™ Total Hip System is the first DePuy Synthes Companies of Johnson & Johnson stem specifically designed to be utilized with tissue sparing approaches, such as the anterior approach, as well as traditional approaches. The implant and instrumentation are designed to balance ease-of-insertion and may provide improved implant stability, which allows the ACTIS Hip System to perform under the conditions created by early patient function.¹
A Triple Aim Solution

From potential for improved outcomes to better patient satisfaction to greater value, the ACTIS Total Hip System can help you achieve your surgery center’s Triple Aim goals.
**Improved Outcomes** Supported by Enhanced Initial Implant Stability$^{2,3}$

The ACTIS Hip System has proven innovative features, such as a medial collar and triple taper geometry, that have been shown to improve primary stability of the stem.

**Patient Satisfaction** Driven by a Surgical Technique that May Enable Early Patient Function$^4$

Although the ACTIS Hip System is compatible with patient positioning in many of the popularized surgical approaches, it was developed to be conducive to tissue sparing approaches such as the Anterior Approach to standardize the learning curve as more surgeons transition to this approach.

**Value** Created by One System to Serve More Patients

The ACTIS Hip System was designed to reduce the variety of hip stems needed to serve an increasingly diverse patient population while providing efficiencies that help streamline the surgical process.
The ACTIS Hip System has proven innovative features, such as a medial collar and triple taper geometry, that have been shown to improve primary stability of the stem while also offering a solutions for a broader range of patient anatomies. For example, the DePuy Synthes Companies primary collared stem portfolio has 30 years of clinical history with 96.3% survivorship at 25 years.5
Medial collar

Variable triple-tapered geometry

Proximal DUOFIX® Coating

Variable triple-tapered geometry
FEATURES THAT ENHANCE IMPLANT STABILITY

MEDIAL COLLAR

Reduced potential for subsidence leading to dislocation
The natural loading of the femur with a medial collar provides greater primary stability for immediate weight bearing within days of surgery, and reduces potential of subsidence. Subsidence has been shown to lead to other complications such as dislocation of the Hip joint.

May reduce likelihood of femur fracture
The amount of force necessary to cause a femur fracture was higher for the ACTIS Stem than that of a biomechanically similar test device without a collar in the study, which suggests the ACTIS Stem may reduce the occurrence of femur fractures in patients.

FIT-AND-FILL STEM

Variable triple-tapered geometry
The ACTIS Stem is tapered in three separate planes to aid in the short and long-term stability of the stem. It is tapered from proximal to distal in the anterior-posterior plane, proximal to distal in the medial lateral plane and lateral to medial in the transverse or axial plane.

The ACTIS Stem was designed to grow 1mm in the anterior-posterior thickness in the horizontal plane consistently between each size stem. Additionally, the ACTIS Anterior-Posterior Taper grows 1/4 degree per size to ensure a proper fit into the canal with the larger stem sizes.

Horizontal plane grows 1mm in the A/P per size
FEATURING DUOFIX HYDROXYAPATITE (HA) COATING

DUOFIX HA Coating is present on the proximal portion of the ACTIS Stem, including the underside of the collar.

- POROCOAT® Porous Coating (pictured below) has been on the market since 1977 and has over 30 years of clinical heritage.
- HA is a highly crystalline form of calcium phosphate, which is one of the mineral components of bone.
- 35 micron non-occluding plasma spray deposited HA coating.

DUOFIX HA Coating combines POROCOAT Porous Coating, which allows for biological fixation to bone, with the addition of a 35 micron layer of HA coating.⁶,⁷

BONE PRESERVING PHILOSOPHY

ACTIS Hybrid Broaches feature: compaction broach pattern on the anterior/posterior sides and extraction teeth on the medial/lateral sides of the broach.

Combining extraction and compaction broaching technology allows for preservation of patient anatomy while ensuring adequate fit in the canal.
Patient Satisfaction Driven by a Surgical Technique that Enables Early Patient Function

The ACTIS Hip System combines proven stem design features and biomechanics to deliver a total hip system that provides ease of use and stability to optimize a surgeon’s preferred surgical approach. The ACTIS Hip System was designed primarily for tissue sparing approaches such as the Anterior Approach to standardize the learning curve as more surgeons transition to this approach.
Traditionally, most THAs have been performed through the posterior or lateral approach. Even in “minimally-invasive” small-incision variations, these approaches require significant cutting and sectioning of both muscle and ligaments. In contrast, the Anterior Approach does not section any muscle or ligament, or release them from the bone. This increases stability of the joint immediately after surgery, decreasing dislocation rates that may be seen with the other surgical approaches. It may also prevents the limp caused by releasing the gluteal muscles in the lateral approach. The size of the incision has less impact on the outcome than the damage done to the soft tissue.

### Reduced Readmission Rate due to dislocations

Low incidence of dislocation after primary THA in absence of early postoperative restrictions.

<table>
<thead>
<tr>
<th>DISLOCATION RATE</th>
<th>Anterior Approach</th>
<th>Traditional Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;0.33%</td>
<td>1%</td>
<td></td>
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### Anterior Approach may offer an early return to function

Studies suggest potential for more rapid recovery of overall hip function with the Anterior Approach.

<table>
<thead>
<tr>
<th>Anterior Approach</th>
<th>Traditional Approach</th>
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<tbody>
<tr>
<td>2–3 WEEKS</td>
<td>4–5 WEEKS</td>
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</table>

### Reduced Length of Hospital Stay

Anterior Approach may offer reduced hospital stays relative to popular surgical approaches.

<table>
<thead>
<tr>
<th>Anterior Approach</th>
<th>Lateral Approach</th>
<th>Posterior Approach</th>
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<tbody>
<tr>
<td>4.3 DAYS</td>
<td>6.4 DAYS</td>
<td>8.4 DAYS</td>
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ANTERIOR APPROACH ENABLING FEATURES OF THE ACTIS HIP SYSTEM

Reduced lateral shoulder

To enable tissue-sparing approaches, such as the Anterior Approach, the ACTIS Stem was designed with a reduced lateral shoulder to aid in stem insertion by helping avoid the Obturator Externus muscle and other short external rotators that attach to the medial aspect of the greater trochanter.

Appropriate length

The ACTIS Stem comes in 12 sizes ranging from size 1 to size 12 with both standard and high offset. Consistent with other DePuy Synthes Companies broach-only systems, ACTIS offers sizes (from 97mm–119mm stem lengths) to accommodate a larger range of patient anatomies.13
Angled insertion feature for improved access

The ACTIS Stem was designed with a new patented 12 degree insertion feature (as shown) to facilitate easier instrument access around soft tissue and bony structures encountered with the Anterior Approach, for example.

Neck resection guide designed for use with fluoroscopy

The ACTIS Hip System also offers a new neck resection guide that can be used with fluoroscopy to more accurately establish the angle of resection at a proper 50 degrees from the femoral axis.
Value Created by One Efficient System Serving More Patients
The ACTIS Hip System was designed to reduce the variety of hip stems needed to serve a broader patient population while providing efficiencies that streamline the surgical process and reduce OR footprint.

**ONE SYSTEM TO SERVE MORE PATIENTS**

**Improved Anatomical Fit**
The ACTIS Hip System will enable access to more patients with unique design features and instrumentation that help ensure a precise fit.

**Extended Size Range**
The ACTIS Stem features 12 sizes, allowing the surgeon to address the full patient population. Consistent intervals between each stem size help achieve proper fit within the femur. Component sizing can also be used to fine tune seating height and adjust leg length.

**Progressive Dual Offset**
Stem offset is proportional to stem size. Each stem size offers a standard and high offset option. The high offset option lateralizes the stem 6–8 mm depending on size. By maintaining a constant 130° neck angle, tissue tension can be increased without affecting leg length.

**Reduced distal thickness**
With a reduce distal tip of the stem, the ACTIS Hip System will enable bone preservation and work well with various femoral morphologies. The triple taper proximal geometry is meant provide adequate support so that more distal cancellous bone can be preserved.

**Flexible Distal Reamers for Type A Femurs**
When unique femoral morphologies are encountered, such as Dorr Type A femora, flexible distal reamers are available to help ensure proper stem fit and stability. These reamers have a flexible shaft and a Hudson attachment to connect to power or a T-Handle. With the exception of the largest size 12 reamer, all of them have depth markings for two size ACTIS Stems that reference the medial calcar.

*Compared to SUMMIT DUOFIX Hip Stem*
References

1. Pentlow AK, Heal JS. "Subsidence of collarless uncemented femoral stems in total hips replacements performed for trauma." Injury, 2012 43(6), pp. 882-885
13. See Surgical Technique for sizing information.

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