The anatomic solution for bone matching™
**APR Anatomical Hip System**

The anatomic solution for bone matching

Zimmer’s APR Total Hip Arthroplasty System is designed to enable surgeons to perform a complete anatomic restoration regardless of the patient’s bone type.

- **Proven Clinical Performance**—The APR Hip System has been successfully implanted in thousands of patients and has years of successful clinical results.\(^1\)\(^-\)\(^4\)

- **Anatomic Design Advantages**—Optimal design offers an anatomic solution that addresses a variety of demand levels and bone types, including extreme metaphyseal-to-diaphyseal mismatch, “Type A” Bone.\(^1\)\(^,\)\(^17\)

- **Extensive Product Range, Fast, Precise Instrumentation and Complete Compatibility with Multiple Acetabular Options**
APR Hip Clinical Experience

Proven Clinical Success: 100 Consecutive Hips and 10-Year Follow-up

The Mid-Term Study

The clinical results of 99 primary total hip arthroplasties performed at a single institution support the claim that the APR Hip design provides excellent results:

- Complete relief of thigh pain
- Zero stem loosenings, zero stem revisions
- No measurable subsidence or migration
- No osteolysis
- 100% bone-to-stem apposition

The 10-Year Follow-Up

The follow-up study showed continued, long-term success:

- No revisions for femoral loosening
- No radiographic evidence of femoral loosening
- 100% of Harris Hip Scores were good–excellent
- 100% survivorship at 10 years

Excellent Harris Hip Score Averages

- 98.9% good–excellent results
- 1% fair results

Harris Thigh Pain Score Averages

- 98% no pain
  (440 points on the Harris Thigh Pain Scale) Average Harris Pain Score is 42.3
- 2% mild-to-moderate pain
  (440 points on the Harris Thigh Pain Scale) Four patients with mild thigh pain at 2 years, but disappearing completely at 3 years

Radiographic Evaluation

A  No radiolucencies, lines at tip in zone 4 (IA)–94%
B  Radiolucencies in zone 3–5 (IB)–6%
C  Complete radiolucent line around stem, but no prosthetic migration (II)–0%
D  Divergent radiolucentencies with obvious migration (III)–0%
APR Anatomical Hip System
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Anatomic Design Advantages

- **10° Anteversion**—Normal 10° anteversion is restored with the APR Hip
- **3-Dimensional Proximal Wedge**—Promotes proximal cortical loading for immediate rotational stability and excellent press-fit fixation
- **12° Proximal Anatomic Bow**—Approximates the contours of bone, providing anterior cortical contact for a more natural loading of the proximal femur
- **Round Distal Stem**—For maximum congruent fit
- **Left and Right Configurations**

Cancellous-Structured Titanium™ Porous Coating

An optimal structure for biological ingrowth and fixation

**Cancellous-Structured Titanium Porous Coating**

CSTi™ Porous Coating—offered on APR Porous-Coated Stems—has over 15 years of clinically demonstrated success. This porous coating mimics human cancellous bone with optimally sized, interconnected pores that allow biological ingrowth and a fine micro-roughness for secondary fixation. Circumferential CSTi reinforces the flow barrier between the metaphysis and the diaphysis to potentially prevent osteolytic conditions and permit optimal fixation.

**Plasma-Sprayed Hydroxyapatite (HA) over CSTi Porous Coating**

Porous HA-coated surfaces enhance the Cancellous-Structured Titanium surface by encouraging an effective fill of the proximal metaphysis. The proximal HA coating allows for early fixation of the femoral stem, which accelerates femoral bone remodeling, increased bone density and apposition.
**APR Universal Instrumentation**

**Streamlined instrumentation for reproducible results**

**Fast, Precise Instrumentation**

*APR* Hip instruments are fully compatible with the *CARE™ MIS™* Instrumentation System, designed to streamline virtually any press-fit or cemented clinical procedure and provide accurate, reproducible results. These instruments allow for intraoperative flexibility and easier handling by the surgical team, while minimizing operative inventory requirements.

**Required Instrument Kits**

- **APRH 0100**—Straight and trochanteric reamers
- **APRH 0200**—“Standard” broaches and “large” punches
- **APRH 0300**—Broach holder and head/neck adapters
- **APRH 0400**—General instruments
- **APRH 0500**—Head trials and trochanteric burr
- **APRH 0700**—“Oversized” broaches
## APR Anatomical System Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>APR Porous Coated Stems</th>
<th>CSTi Porous Coating with HA</th>
<th>APR Nonporous Fully Textured Stem</th>
</tr>
</thead>
<tbody>
<tr>
<td>12° Proximal Anatomic Bow</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>10° Anteverted Neck</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>130° Neck Shaft Angle</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>12/14 Morse Taper</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Lefts and Rights</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Circumferential CSTi Porous Coating</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Biocompatible Titanium Alloy (Ti-6Al-4V)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Grit-Blasted Distal Surface</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Distal Hollowing for Reduced Stem Stiffness (size 1.5 and larger)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>+2mm Anterior Build-up Between Different Body Options (large, oversized)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Nonporous Stem</td>
<td></td>
<td></td>
<td>✓</td>
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<tr>
<td>Forged CoCr Alloy</td>
<td></td>
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<tr>
<td>Proximal and Distal Centralizers</td>
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<tr>
<td>Cobra Flange</td>
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<tr>
<td>Proximal Collar Aids in Cement Compression and Proximal Loading</td>
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</tbody>
</table>

## APR Anatomical System Sizing Options

Multiple proximal body and sizing options offer maximum metaphyseal fill and stability for all bone types.

<table>
<thead>
<tr>
<th>Option</th>
<th>APR Porous Coated Stem</th>
<th>CSTi Porous Coating with HA</th>
<th>APR Nonporous Fully Textured Stem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Body—Collared</td>
<td>10.5–18</td>
<td>10.5–18</td>
<td></td>
</tr>
<tr>
<td>Standard Body—Collarless</td>
<td>10.5–18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large Body—Collared</td>
<td>10.5–18</td>
<td>10.5–18</td>
<td>10.5–18</td>
</tr>
<tr>
<td>Large Body—Collarless</td>
<td>10.5–18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oversize Body—Collared Only</td>
<td>10.5–16.5</td>
<td>10.5–16.5</td>
<td>10.5–16.5</td>
</tr>
</tbody>
</table>

Sizing is in 1.5mm increments.
The APR Nonporous Fully Textured Stem can be used with CoCr Bipolar and Unipolar components, available in sizes 38mm to 70mm. Variable neck options allow for optimal recreation of the patient’s anatomy.

**12-Degree Proximal Anatomic Bow**

- Standard
- Large
- Oversized
Acetabular cups

Zimmer’s APR Anatomical Hip System is complemented by an entire line of fully compatible acetabular cups, liners and femoral head products.

- **Trabecular Metal™ Acetabular Systems**
- **Trilogy® Acetabular System**
  - *Longevity®* Highly Crosslinked Polyethylene
- **Converge® Porous Acetabular Cup System**
  - *Metasul®* Metal-on-Metal Tribological Solution
- **Durasul®** Highly Crosslinked Polyethylene

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### Proven clinical performance


10. Data on file at Zimmer Austin.


