CORAIL®
HIP SYSTEM

Revision Stem

CORAIL® REVISION STEM

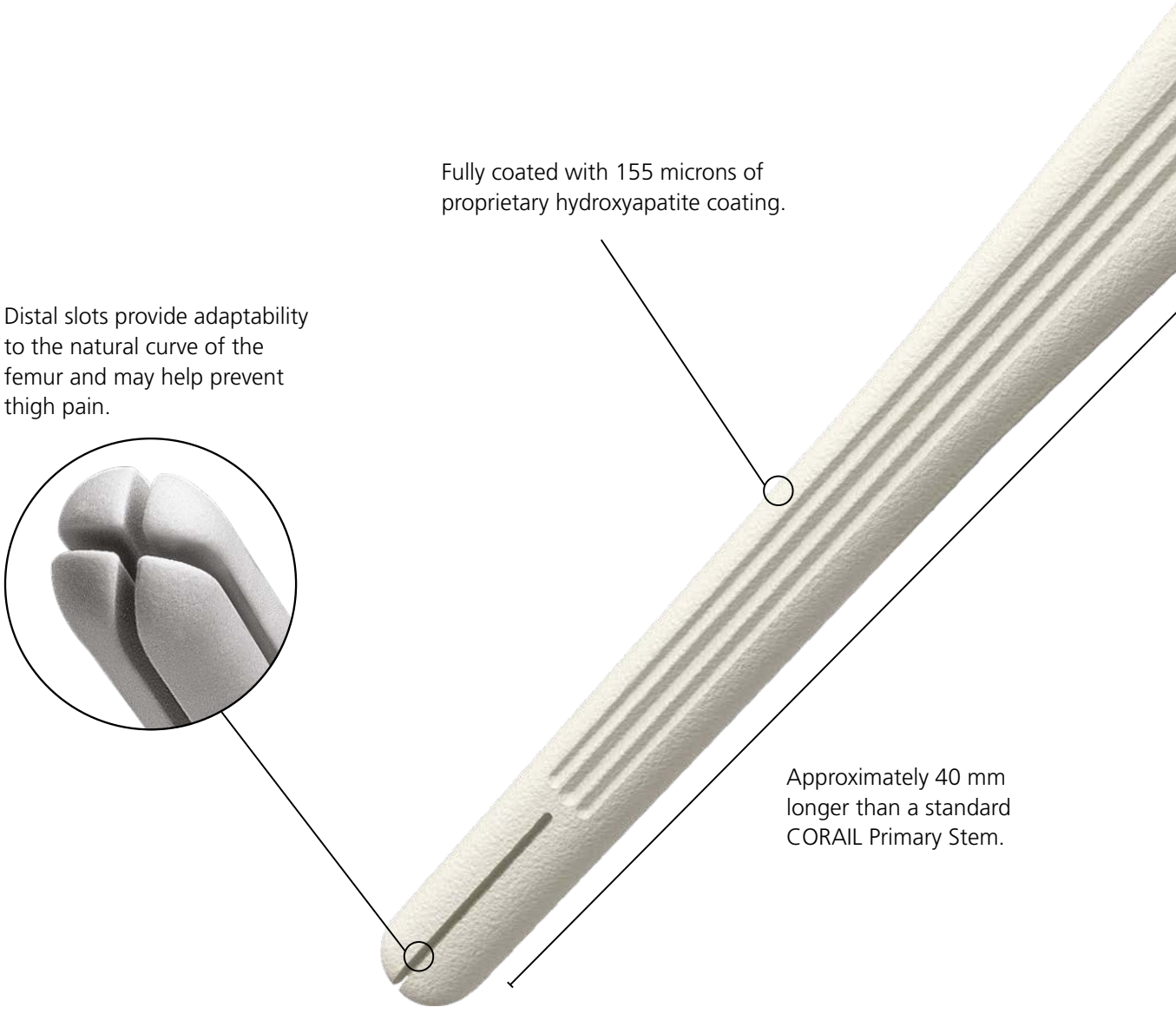
DESIGN RATIONALE / SURGICAL TECHNIQUE

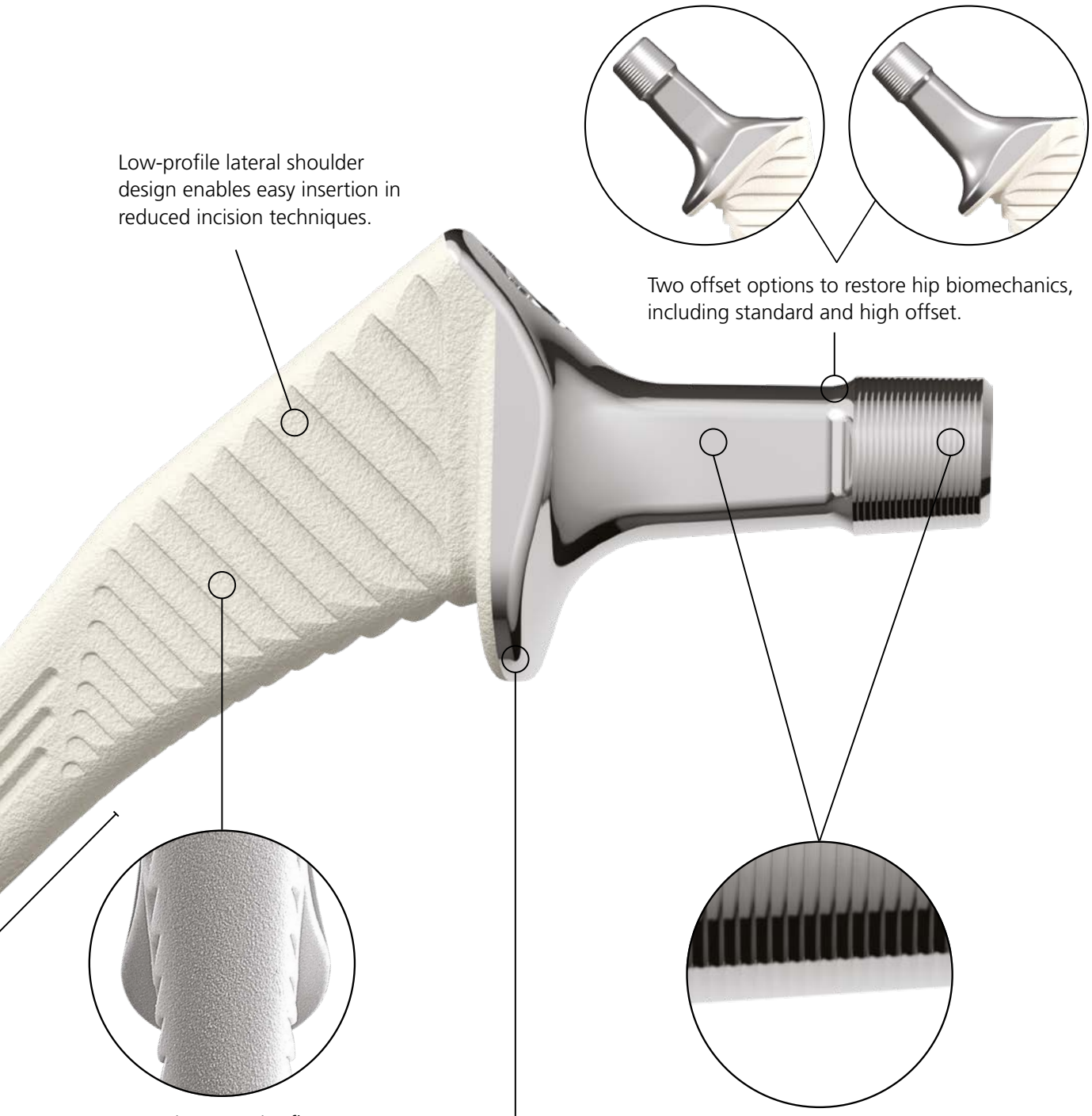
DePuy Synthes
COMPANIES OF Johnson&Johnson

THE SCIENCE OF SIMPLICITY IN CORAIL® REVISION

Based on the CORAIL® and KAR® Hip Systems' clinical history, the CORAIL Revision Hip System is a taper wedge revision stem that offers a bone-conserving option compared to modular revision systems. CORAIL Revision Hip System offers a simplistic technique and efficient instruments. It is a unique option for today's revision patients.

CORAIL Revision provides the science of simplicity for today's revision scenarios as well as primary patients.





Low-profile lateral shoulder design enables easy insertion in reduced incision techniques.

Two offset options to restore hip biomechanics, including standard and high offset.

Anterior/posterior flare resists axial/torsional stresses and promotes initial stability.

Tapered neck geometry and ARTICUL/EZE® Taper designed to increase range of motion.

Collar provides additional axial support and assists in achieving proximal loading.

A FAMILY OF SOLUTIONS ... CORAIL HIP STEMS

The CORAIL Family of Stems share a heritage of design. Each CORAIL Stem is fully coated with 155 microns of hydroxyapatite. Providing options for primary and revision cases, the CORAIL Family of Stems enables surgeons to treat a broad range of patients within one portfolio.

The CORAIL Stems provide options for primary and revision cases, enabling surgeons to treat a broad range of patients within one portfolio.

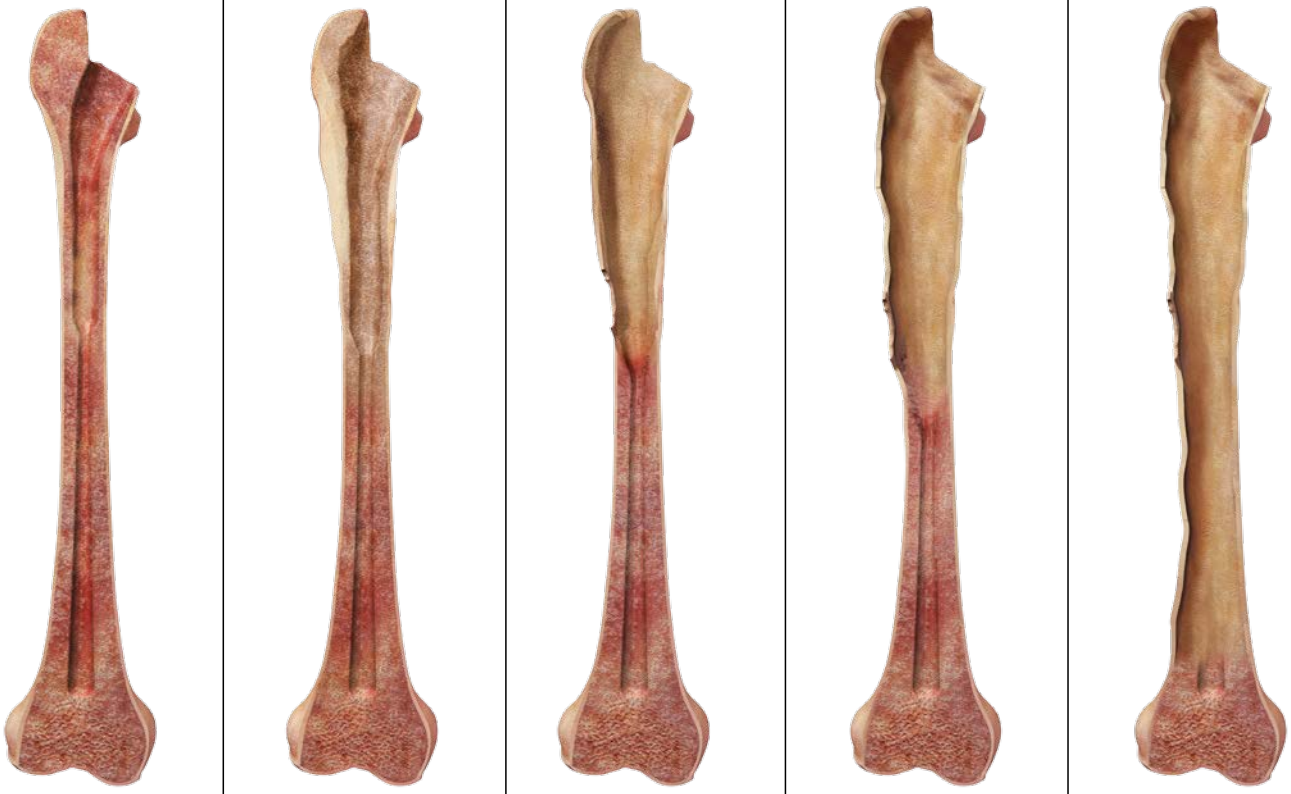
CORAIL
SIZE 6 STEM

CORAIL
PRIMARY STEM

CORAIL
REVISION STEM

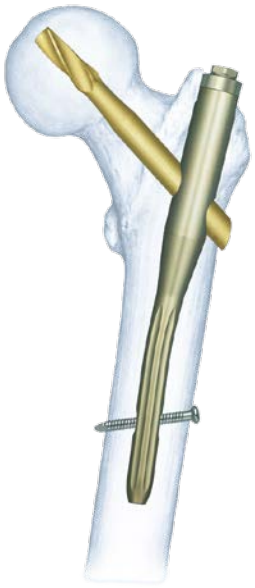
89% OF DEFECTS IN HIP REVISIONS ARE TYPE I, II AND IIIA.

Paprosky's Classification[1]



Type I | **Type II** | **Type IIIA** | **Type IIIB** | **Type IV**

CORAIL REVISION STEM
TREATING MULTIPLE REVISION SCENARIOS



Hardware: TFN

Hardware: DHS

Primary

PROSTALAC® Hip System

The CORAIL Revision Stem has been engineered to provide these three key advancements:

PROVEN FIXATION

Geometry features the dual-taper flare, collared option and horizontal grooves.

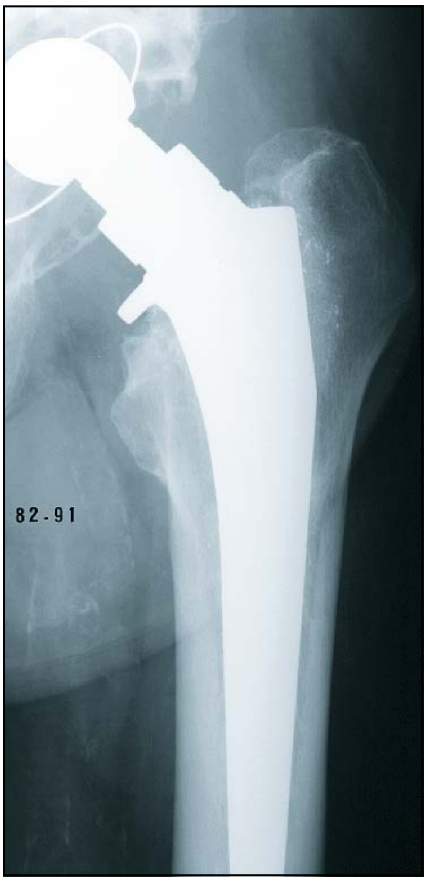
SIMPLISTIC TECHNIQUE

Four simple surgical steps include a ream, broach, trial and implant technique.

EFFICIENT INSTRUMENTATION

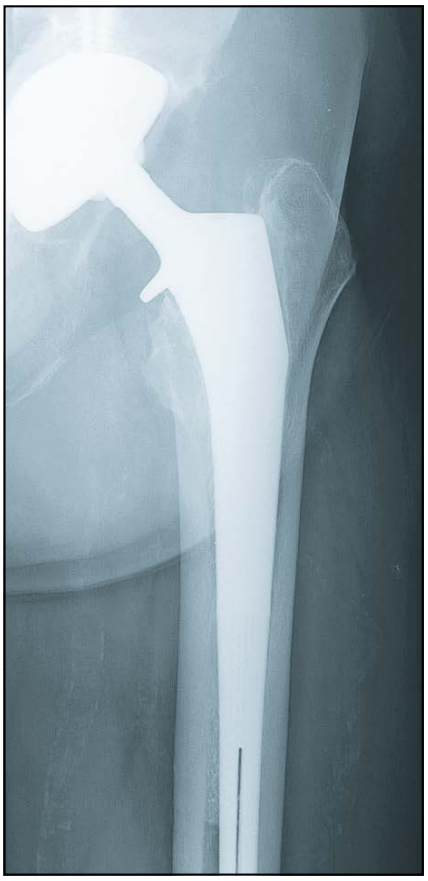
CORAIL Revision Stem can be performed with the same number of instrument trays as CORAIL Primary Stem.

PROVEN FIXATION



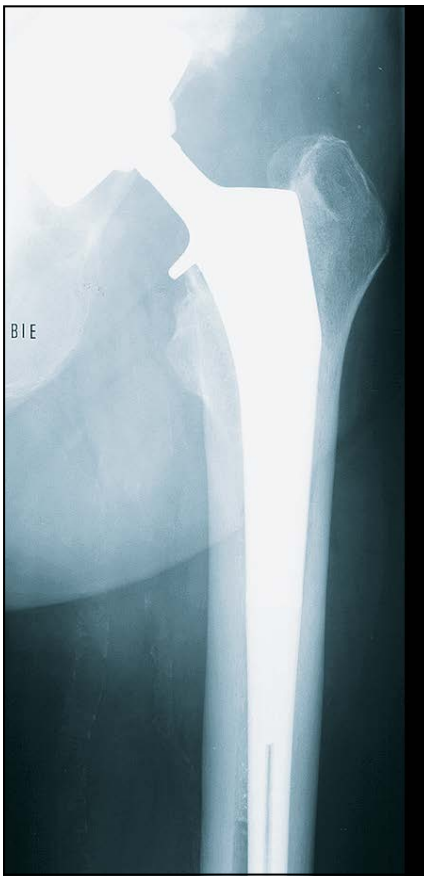
Pre-op

Revision of a loose-cemented femoral stem.



Post-op

At 12 months post-op, the KAR™ Stem, the CORAIL Revision Stem predecessor, shows good stability and restoration of the center of rotation.



10 Years Post-op

The patient is asymptomatic and is satisfied with the hip replacement. Restoration of bone density is satisfactory and implant stability is confirmed.[2]

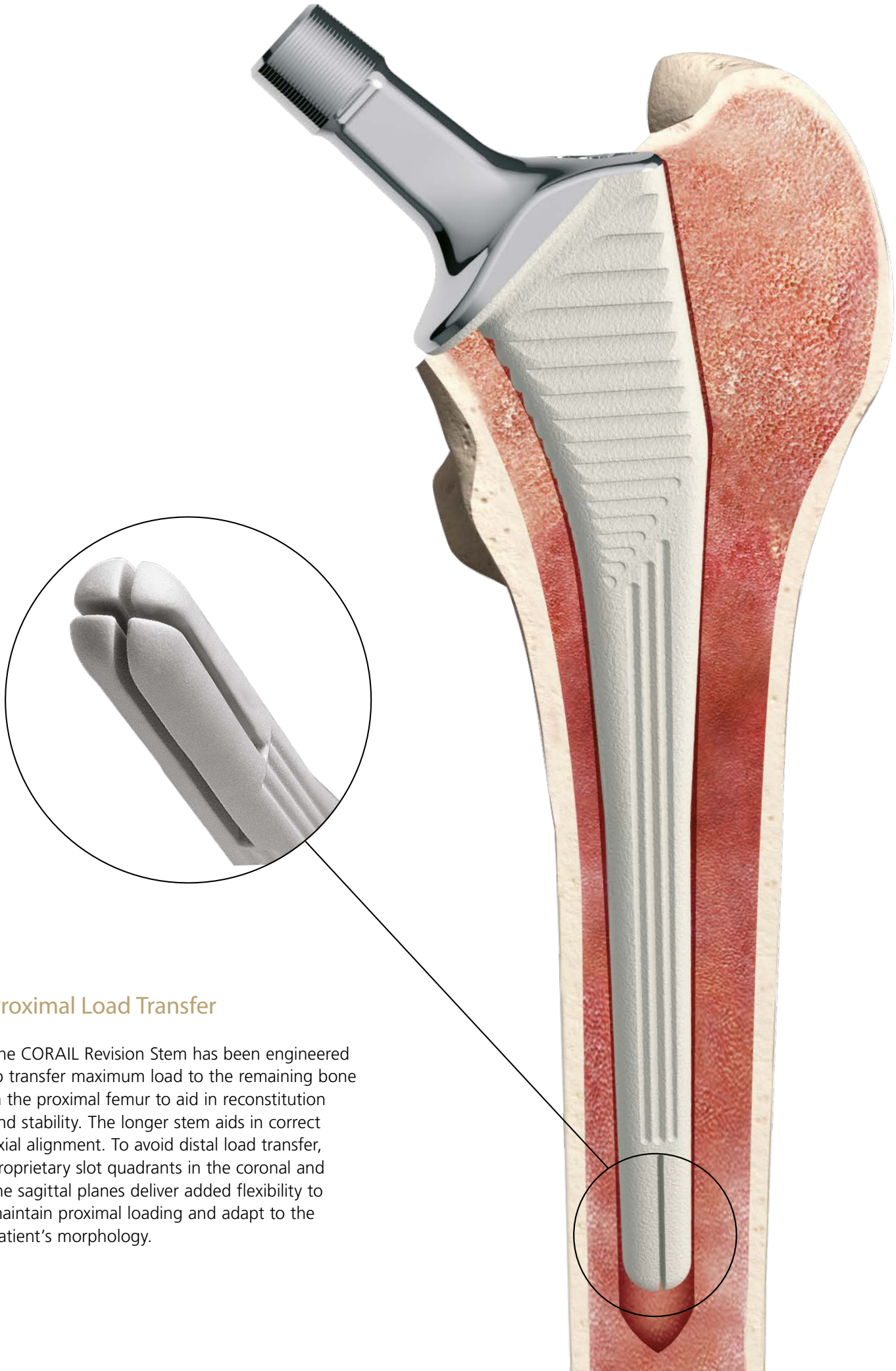
NOTE: The CORAIL Revision Stem shares the same design as its predecessor the KAR Stem other than having two offset options to restore hip biomechanics and a larger size offering.

PROVEN FIXATION

The CORAIL Revision Stem is designed to achieve secure initial and long-term mechanical fixation in the femur. It is shaped to resist both axial and torsional loosening forces. In the frontal plane, the stem's pronounced lateral flare and medial curve provide axial and rotational stability. The lateral flare is fully supported by the infero-lateral aspect of the greater trochanter. In the lateral plane, a progressive anterior to posterior tulip flare fills the metaphysis and, in combination with horizontal grooves around the circumference of the stem, further reinforces axial stability.

The well-defined rectangular section and vertical grooves provide rotational stability. The stem's proximal collar acts as a support to improve axial stability.

The CORAIL Revision Stem is designed to achieve secure initial and long-term mechanical fixation in the femur.



Proximal Load Transfer

The CORAIL Revision Stem has been engineered to transfer maximum load to the remaining bone in the proximal femur to aid in reconstitution and stability. The longer stem aids in correct axial alignment. To avoid distal load transfer, proprietary slot quadrants in the coronal and the sagittal planes deliver added flexibility to maintain proximal loading and adapt to the patient's morphology.

SIMPLISTIC TECHNIQUE

The CORAIL Revision Stem offers the surgeon a range of stems for multiple scenarios in primary and revision arthroplasty.

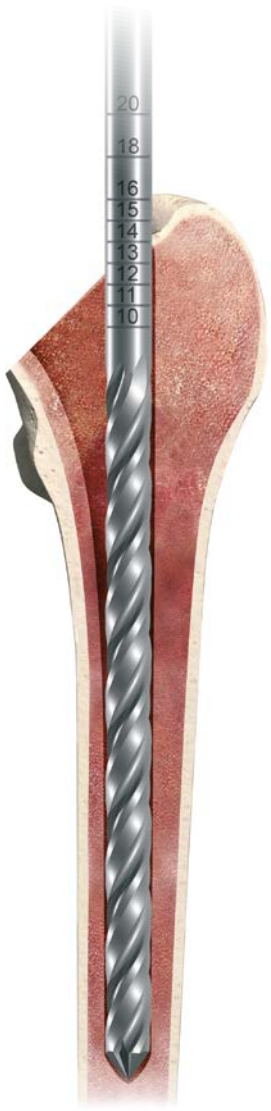
The surgical technique shares a similar straightforward procedure for implantation as the primary CORAIL Stem.

Four Easy Steps

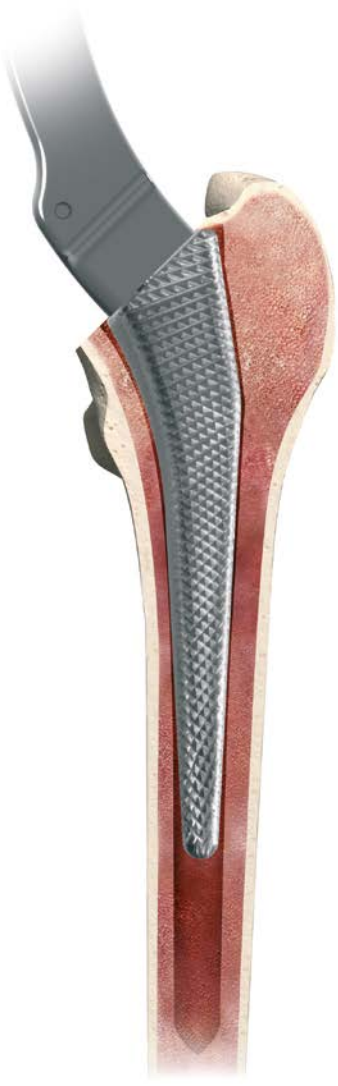
1. **Ream:** Reamers are used to calibrate the distal cavity of the femur. The CORAIL Primary Stem technique does not use reamers.

2. **Broach:** Machined diamond-tooth broaches are used to access good cortical bone while removing cement and/or debris and reshaping the metaphyseal region to a quadrangular envelope. The CORAIL Primary Stem technique uses compaction broaches which shape and impact cancellous bone as opposed to cortical bone.

Step 1: Ream



Step 2: Broach

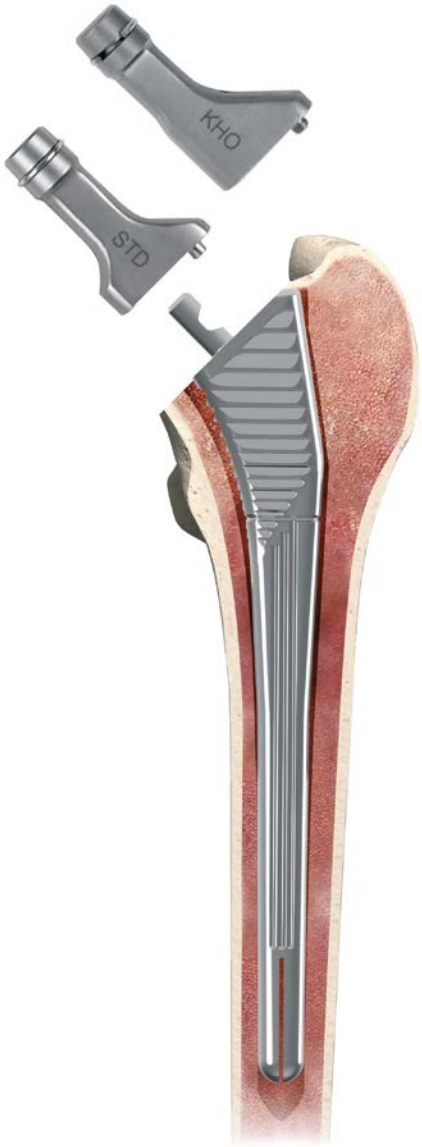


The CORAIL Revision Stem offers the surgeon a range of stems for multiple scenarios in primary and revision arthroplasty.

3. **Trial:** A trial stem is used to allow verification of the proper preparation of the femur to ensure easy insertion of the final stem.

4. **Implant:** The stem is implanted line to line; therefore, the femur is prepared using a broach of the same size minus the thickness of the HA coating.

Step 3: Trial



Step 4: Implant

EFFICIENT INSTRUMENTATION

The same number of instruments needed for CORAIL Revision Stem as for CORAIL Primary Stem.

The CORAIL Revision Stem offers easy-to-use instrumentation with tray and instrument optimization.

Tray and Instrument Optimization

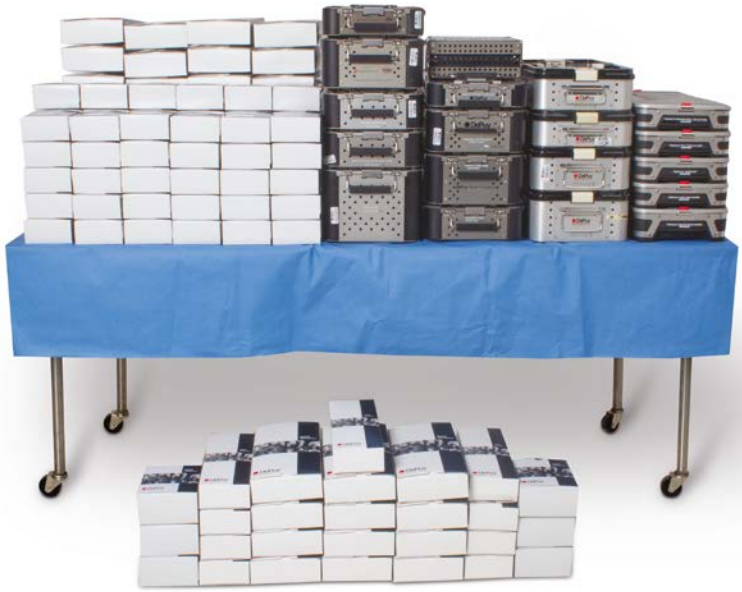
- Only one additional femoral tray is required for a revision surgery, which is the same as a primary surgery
- Streamlined processes for current CORAIL Stem users
- Easy-to-use instrumentation with a ream, broach, trial, and implant technique

Only one additional femoral tray is required for a revision surgery, which is the same as a primary surgery.

CORAIL Primary Surgery

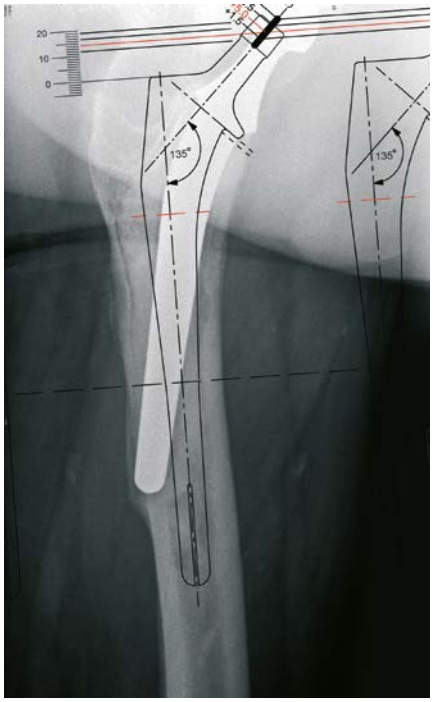
CORAIL Revision Surgery

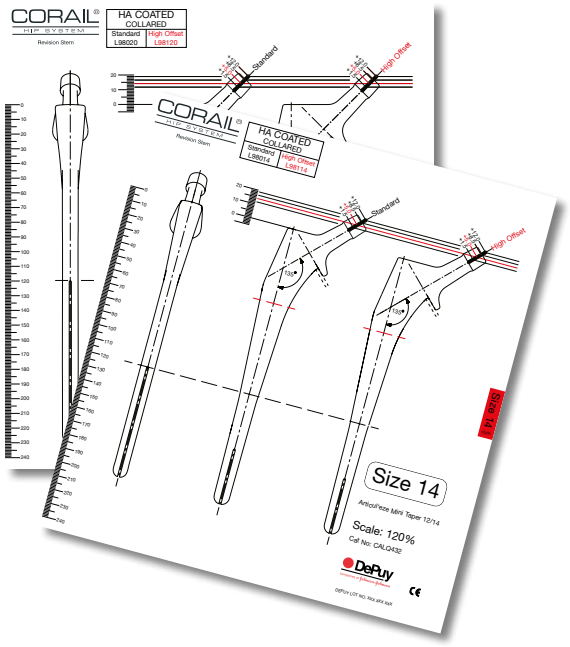
Standard Revision Surgery



Same number of instruments needed for a CORAIL Revision Stem as for a CORAIL Primary Stem. Normally, more instruments are needed for a revision surgery when compared to a typical primary surgery.

PRE-OPERATIVE PLANNING





Pre-operative planning is essential for precise reconstruction of the hip joint. The CORAIL Revision Stem prosthesis comes with a comprehensive set of X-ray templates which includes a clear indication of the scale used, and both standard and high offsets for all size ranges. These are used with radiographs showing the AP view of the pelvis and AP and lateral views of the affected femur, covering the full length of the prosthesis to be revised, as well as any occlusion in the distal femoral canal.

The AP view provides the necessary information needed to determine:

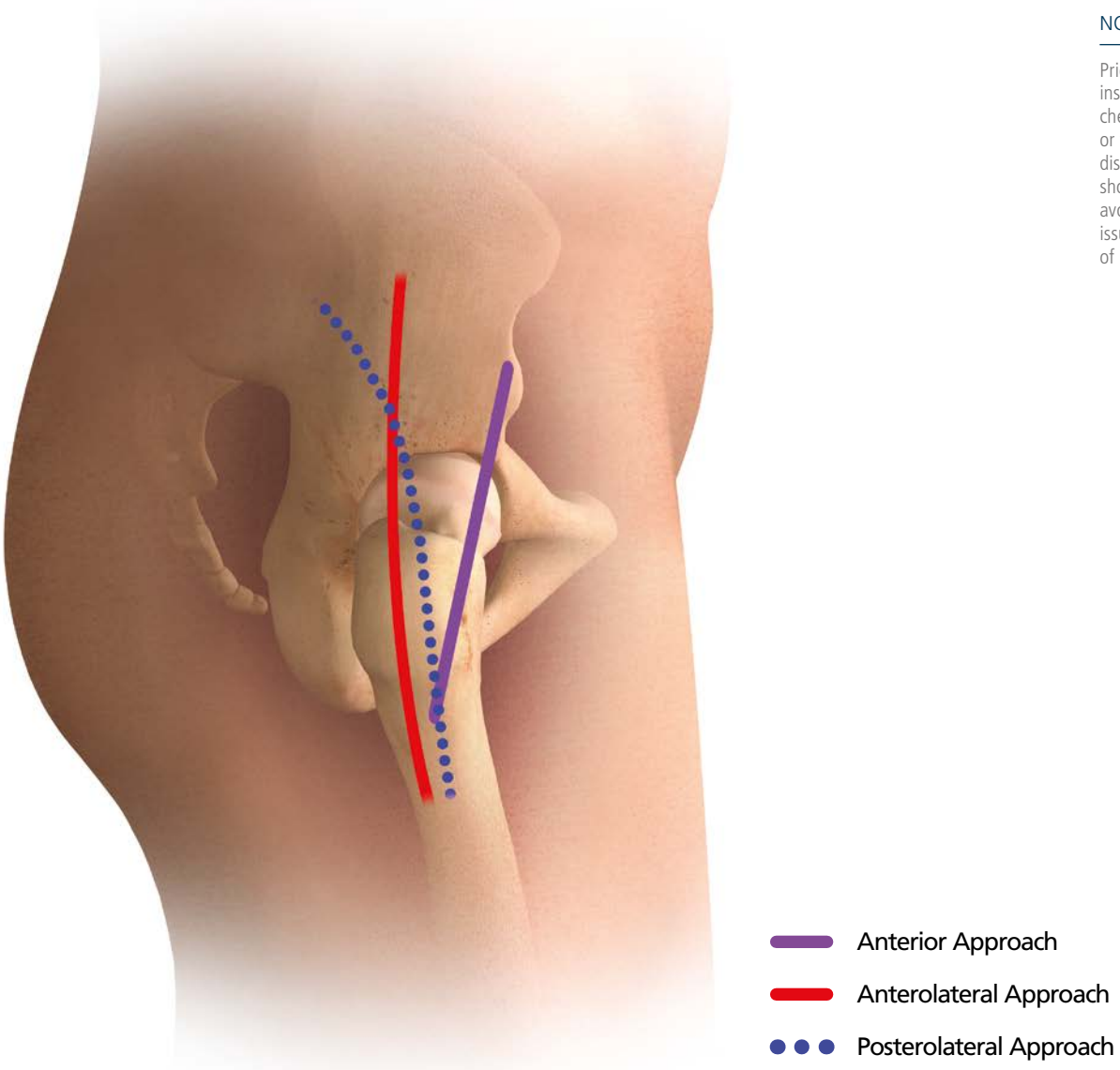
- Implant alignment and the size of component required for combination mechanical fixation in the metaphysis and diaphysis: in accordance with the philosophy of three-point-contact to ensure good primary stability.
- The type of implant, standard or high offset. Associated with neck length, this choice allows restoration of the offset, leg length and patient's natural anatomy.
- Dedicated witness marks on both the X-ray templates and the trial stems that define the required level of implantation, described as the "minimal embedding level" – this ensures adherence to the three-point-contact design philosophy.
- Where necessary, the appropriate height of calcar bone grafting required.

Make note of anatomical landmarks (e.g., pelvic tear drop, greater trochanter, etc.) in relation to the templated stem for implant and trial intra-operative reference points.

The lateral view may then be used to confirm implant version and alignment, to identify any defects that cannot be seen on the AP view and to check the compatibility of the stem with the femoral curvature.

The use of an extended trochanteric osteotomy can be used during the implantation of a CORAIL Revision Stem. The level must be defined using X-ray templates and be above the longitudinal distal slots. Generally, the femoral tube is closed by cerclage wiring to reconstruct the femoral shaft, and then the femoral preparation is carried out as it would be for a closed femur procedure. The primary stability of the stem inside the host bone is the limiting factor.

STEP 1: SURGICAL APPROACH



NOTE 1.1

Prior to surgery, the instruments should be checked for damage or wear. All assembly/ disassembly instructions should be tested to avoid any peri-operative issues related to the use of instruments.

Any of the standard surgical approaches may be used to implant the CORAIL Stem or CORAIL Revision Stem.

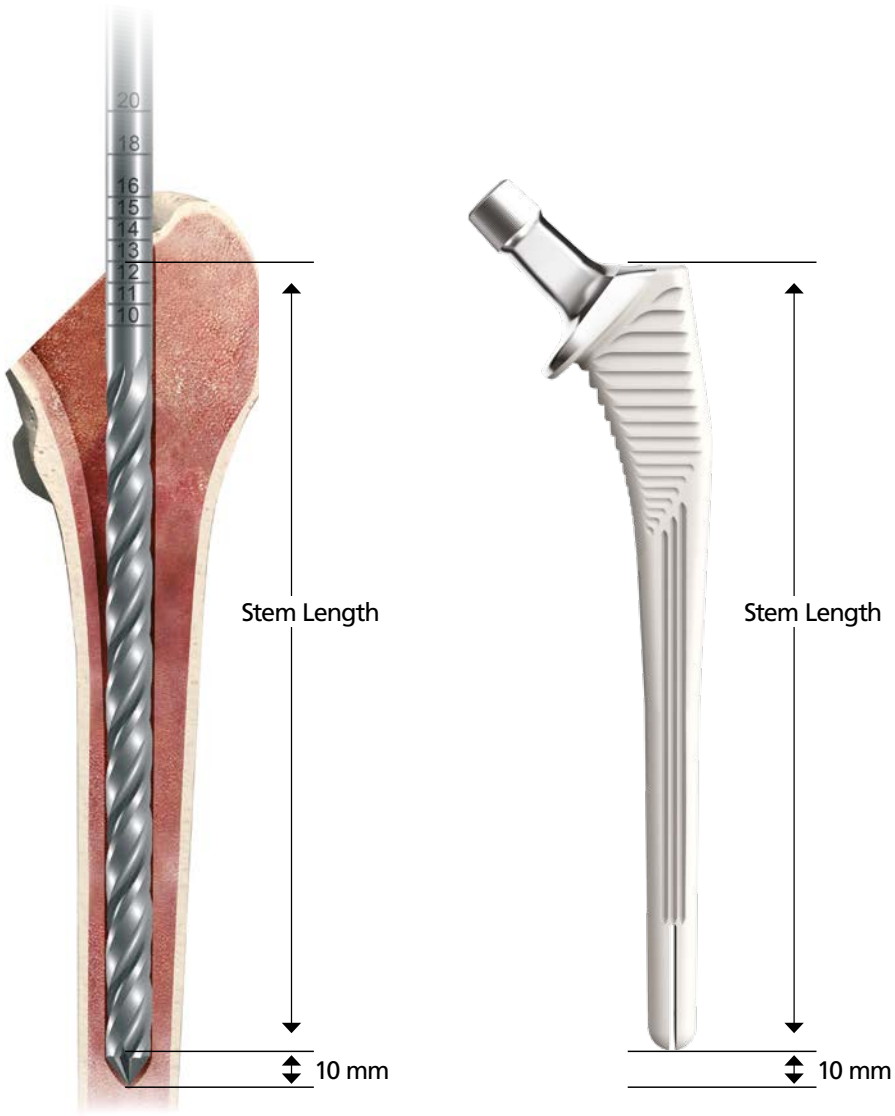
The CORAIL Revision Stem can be implanted using the CORAIL Revision Stem instrument set and the Tissue Sparing Solutions Instruments (TSS) Core 1 and Core 2.

The CORAIL Revision Stem offers easy-to-use instrumentation with tray and instrument optimization.

STEP 2: FEMORAL CANAL PREPARATION

NOTE 2.1

The use of an extended trochanteric osteotomy can be used during the implantation of a CORAIL Revision Stem. Generally, the femoral tube is closed by cerclage wiring to reconstruct the femoral shaft, and then the femoral preparation is carried out as it would be for a closed femur procedure. The primary stability of the stem inside the host bone is the limiting factor.



Distal Reaming

Once the failed implant has been retrieved, the femur is cleared of any remaining cement or debris, if present. Rigid reamers are available in a range of sizes that should be used sequentially to prepare the distal femoral canal.

Reaming should begin in a central position in alignment with the intramedullary canal. A 10 mm reamer can be used as a starter to allow the easy introduction of the 11 mm reamer. It is recommended to ream to a size 12 in all cases to ensure no unnecessary distal hang up occurs and good proximal support is achieved. It may be necessary to increase the size of the reamer to a 13 mm to allow free passage of the trial stem to the desired depth (see Distal ML Stem Width Chart). In all cases, trialing should be performed to evaluate stem seating and stability.

Each rigid reamer has mechanical engravings showing the approximate depth of reaming, corresponding to each stem length as referenced from the tip of the stem to the shoulder of the stem. Each reamer is lengthened by 10 mm to take into account the tapered tip.

The depth marks on the reamer are an approximate guide based off the lateral shoulder of the implant. It is recommended to ream past the expected implantation level of the stem to ensure there is no distal hang up, allowing for good proximal support.

SIZING INFORMATION

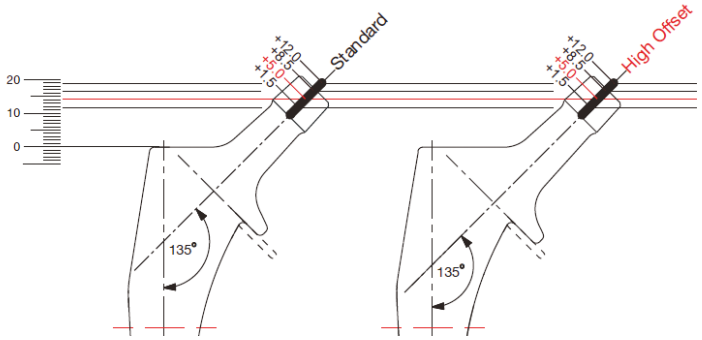
If there is a preference to reference the head center rather than the lateral shoulder of the implant, please utilize the Sizing Information shown below.

Stem Length + Shoulder to Head Center = Ream Depth from Head Center						
Head Offset	-2	+1.5	+5.0	+8.5	+12.0	+15.5
Shoulder to Head center	9.2	11.6	14.1	16.6	19.0	21.5

NOTE 2.2

If preference is to reference the head center rather than the lateral shoulder of the implant, please reference Sizing Information shown here. The depth marks are a guide. It is recommended to ream past the expected level of the stem to ensure there is no distal hang up, allowing for good proximal support.

Reference the CORAIL Revision templates which provide a scale referencing from the top of the implant shoulder to the head center location, as shown below:



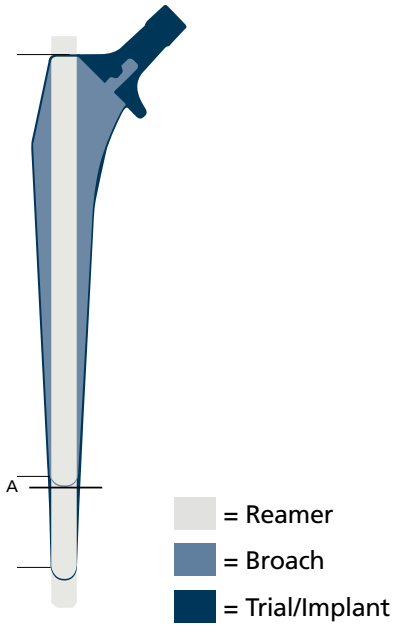
Broach, Ream, and Trial Press-Fit

The proximal press-fit of an implant is 0.155 mm per side. The distal press-fit of an implant, past the end of the broach (Point A), varies due to implant shape and reamer diameter choice.

The CORAIL Revision Stem offers four distal reamer diameters (10, 11, 12, and 13 mm). A 10 mm reamer can be used as a starter to allow easier introduction to sequentially larger size reamers. Reaming to a minimum of a 12 mm reamer will help facilitate proper implant press-fit; however the larger reamer may be required for larger stem sizes. The chart illustrates the distal diameter of a trial or final implant at Point A on the diagram.

ML Width at Point A		
Size	Trial M/L Width (mm)	Implant M/L Width (mm)
10	11.00	11.31
11	11.60	11.91
12	11.69	12.00
13	11.75	12.06
14	11.85	12.16
15	11.96	12.27
16	12.21	12.52
18	12.45	12.76
20	13.38	13.69

Distal ML Stem Width Chart



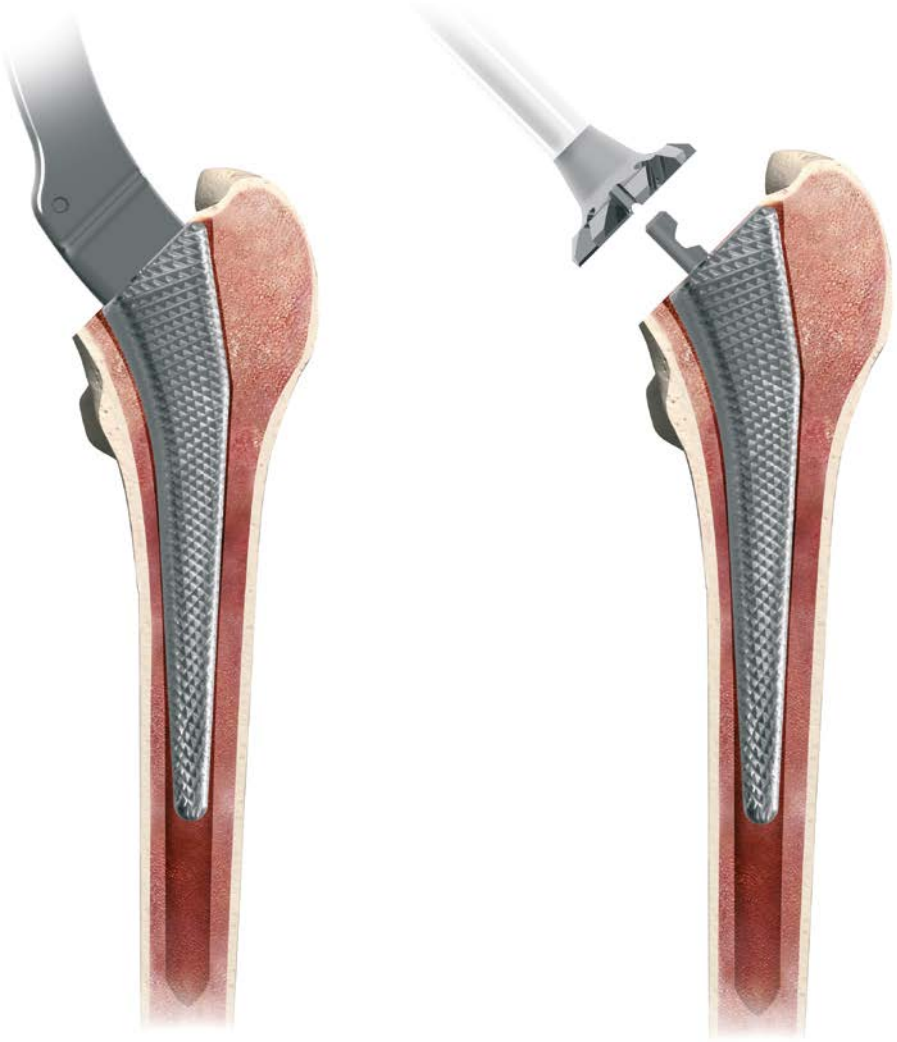
STEP 3: METAPHYSEAL PREPARATION

NOTE 3.1

Recommendation: To ensure correct seating and no distal restriction, a trial reduction should be performed using the corresponding trial stem.

NOTE 3.2

The revision broaches are intended for preparation of CORAIL Revision Stems only.



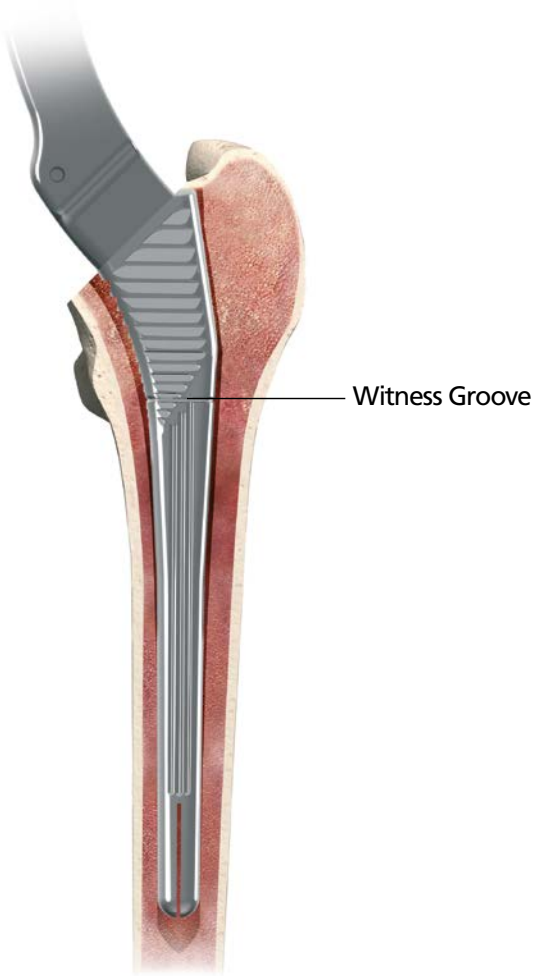
Access to the femoral canal should be enlarged laterally into the greater trochanter using a box osteotome, to ensure that the broaches do not enter the femur in varus. The first is attached to the broach handle and the proximal femur is prepared by progressively increasing broach sizes.

The CORAIL Revision Stem instrument set contains both size 8 and size 9 diamond-tooth broaches, which can be used as "starter" broaches.

The preparation of the proximal femur requires the metaphyseal region to be reshaped to a quadrangular bone cavity aiming for the correct pre-operatively planned anteversion by using the broaches. It is essential that the final broach is completely rotationally and axially stable in the femur, in order to ensure stem stability in the metaphysis. To test for appropriate stability, rotational and axial pressure should be applied to the broach handle without movement of the broach inside the femoral canal. Distal stem stability alone is not sufficient.

The calcar mill can be used carefully on the remaining calcar in order to produce a flat surface upon which to seat the implant collar and prevent the formation of stress raisers.

STEP 4: TRIAL STEM INTRODUCTION



NOTE 4.1

The trial stem should seat at the same height as the broach. If it seats higher, it may then be necessary to use the 13 mm reamer to open the canal distally.

Important note: The revision broaches are intended for preparation of CORAIL Revision Stems only and not for trialing. The trials are 40 mm longer than the broach, so you must trial off of the trial and not the broach to ensure the stem clears distally.

The final broach is extracted and the trial stem of the same size is attached to the broach handle. The trial stem is lightly inserted into the femoral canal using a hammer. It should be stable at the level defined during pre-operative planning relative to the greater and lesser trochanter.

It may be necessary to ream distally using the 13 mm reamer to allow free passage of the trial stem to the desired depth.

If the trial stem is not stable, a trial stem one size larger can be tried in order to obtain stability at the correct level.

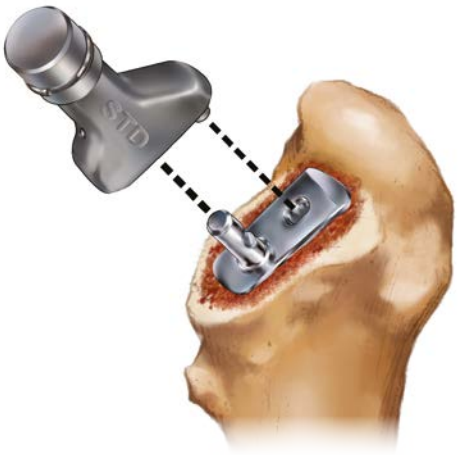
In case visual access is available, it can be useful to check that the "minimal embedding level" is reached using the dedicated witness groove on the trial stem to ensure you have enough proximal support. It is essential that the final trial is completely rotationally and axially stable in the femur, in order to ensure stem stability in the metaphysis. To test for appropriate stability, rotational and axial pressure should be applied to the broach handle without movement of the trial inside the femoral canal. Distal stem stability alone is not sufficient.

STEP 5: NECK AND HEAD TRIALING

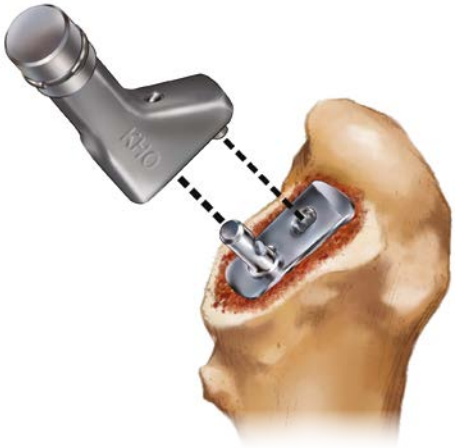
NOTE 5.1

Care should be taken not to use the coxa-vara trial neck (KLA), which is available as part of the CORAIL Primary Instrument Set.

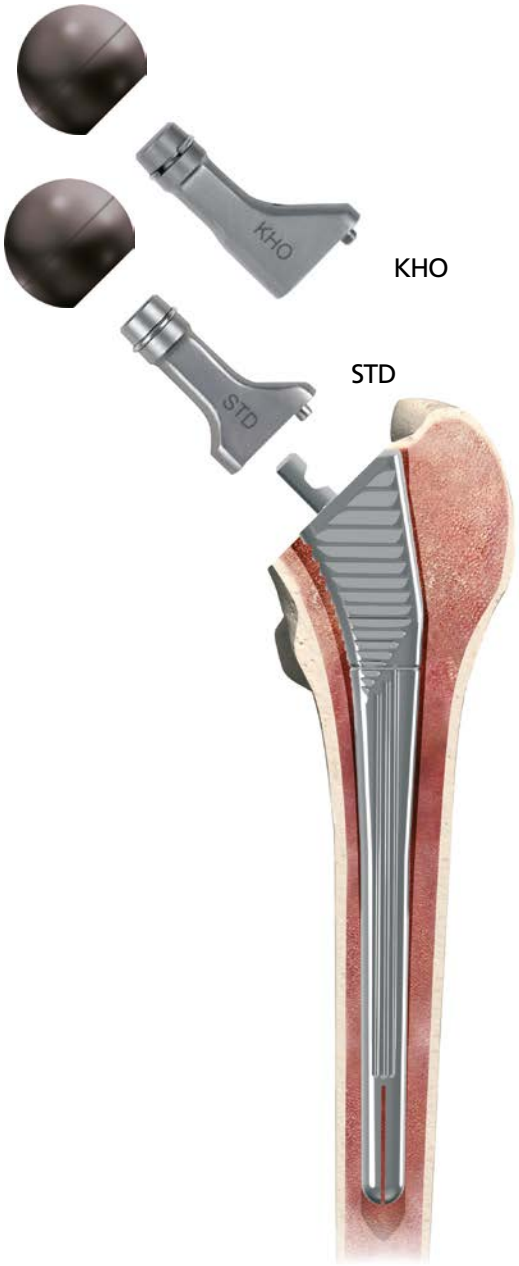
The KLA is only to be used with CORAIL Primary Stem, not the CORAIL Revision Stem.



Standard Offset Collared (STD)



High Offset Collared (KHO)

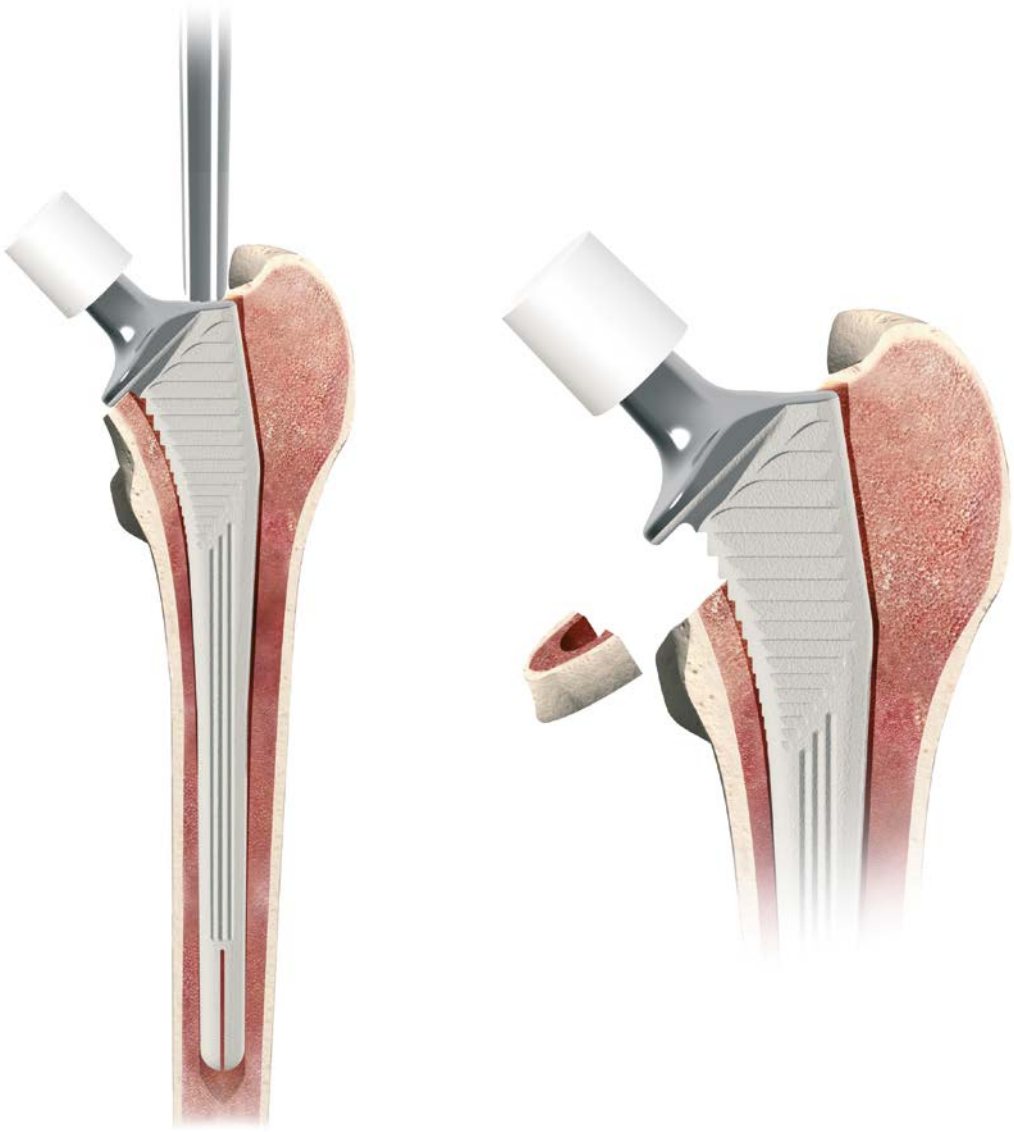


The required trial neck is then attached onto the trial stem. Two options are available: standard (STD) and high offset (KHO).

The high offset variant offers up to 7 mm of direct lateralization, depending on the size, and will increase soft tissue tension without affecting leg length.

A trial head is placed on the neck of the trial stem, and the hip is reduced and assessed for stability, through a full range of motion.

STEP 6: DEFINITIVE STEM INTRODUCTION



NOTE 6.1

Primary stability of the implant at this stage is crucial.

Important note: The protective covers should be left on the stem taper until the components are ready to be implanted. Before implanting a femoral head, the male taper on the femoral stem should be wiped clean of any blood, bone chips or other foreign materials.

The definitive implant of the same size as the trial stem and same offset as the trial neck is inserted as far as it will go by hand into the femoral canal. Next manage stem seating using the stem impactor, while ensuring the correct restored anteversion is applied.

The stem is cautiously impacted using a hammer, while avoiding any impact on the neck.

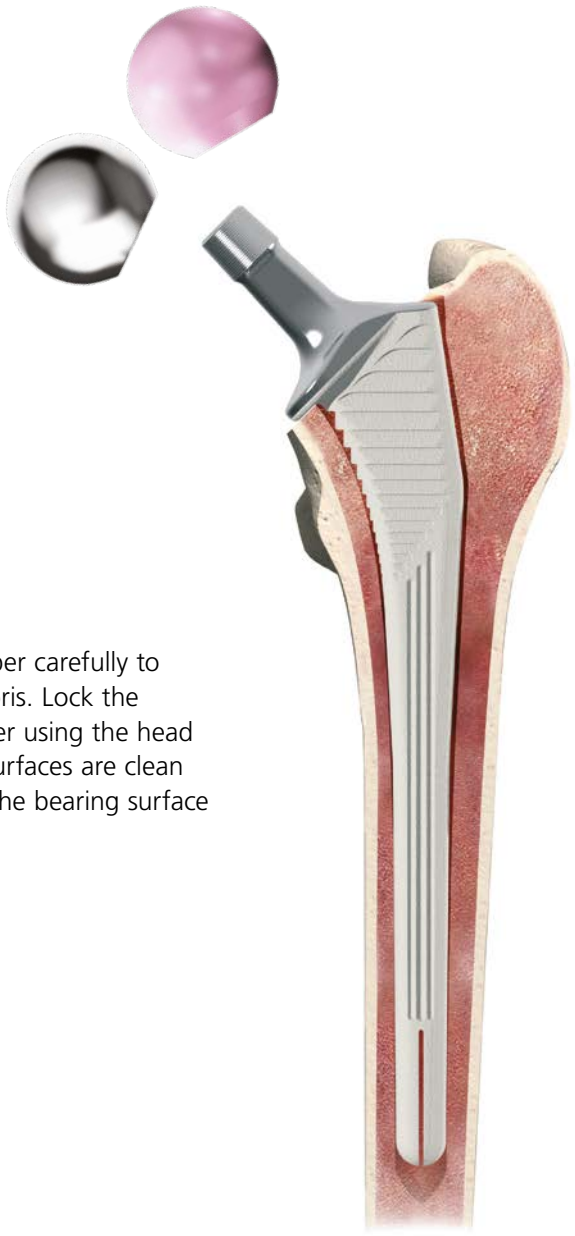
Where a horseshoe-shaped structural allograft is used, this should be placed to fill the defect before final impaction. The graft will be stabilized by the collar after final impaction. The goal of this calcar graft is to ensure the correct level of implantation and minimize the potential for subsidence.

An optional reduction using the trial head can be done at this stage.

STEP 7: FEMORAL HEAD IMPACTION

NOTE 7.1

*DePuy Synthes Joint Reconstruction's 12/14 ARTICUL/EZE Modular Head must be used.



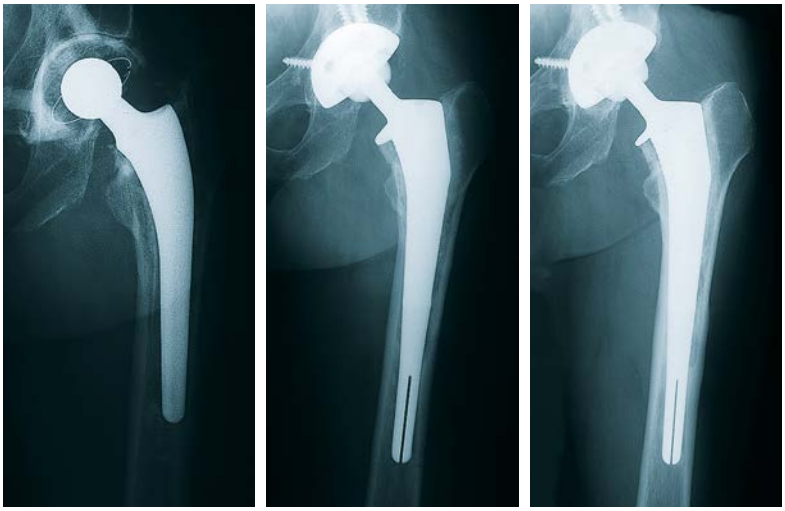
Clean and dry the stem taper carefully to remove any particulate debris. Lock the femoral head onto the taper using the head impactor. Ensure bearing surfaces are clean and avoid any damage to the bearing surface during reduction.

STEP 8: POST-OPERATIVE PROTOCOL

The post-operative management of the patient, including the extent to which weight bearing is permitted, is defined by the surgeon according to quality of the bone stock and the stability of the implant. Immediate weight bearing can thus be considered for primary or revision surgery if adequate bone stock remains.

In all the cases, the duration of protected weight bearing is per surgeon's standard of care, taking into account the condition of the femur and radiological evidence of osteointegration. If applicable, the consolidation and/or healing of the transfemoral osteotomy or the femoroplasty should also be taken into account. This is generally reached after 45 days.

RADIOGRAPHIC CASES



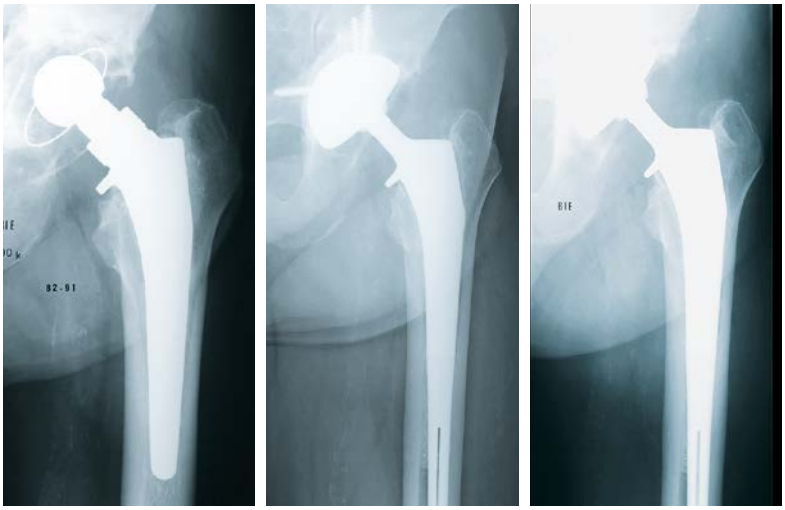
Pre-op | 6 Months Post-op | 5 Years Post-op

Case Study 1

Pre-op: Revision of a loose cemented femoral stem was performed in 1992. Subsidence of the loose stem and thinning of the lateral cortex are observed.

6-months post-op: Follow-up shows good alignment of the KAR Prosthesis and placement of a calcar graft under the collar.

5 years post-op: The patient is satisfied with his hip replacement. The prosthesis is stable. Extensive regeneration of both cortices with endosteal ossification is evident.



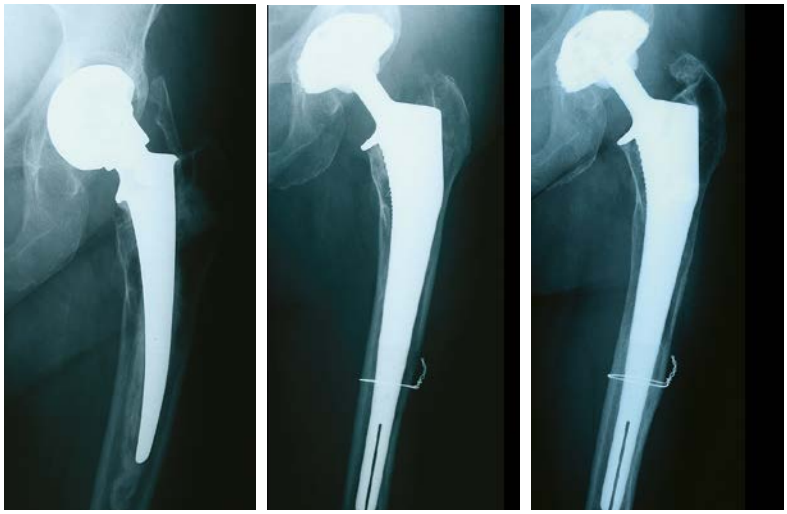
Pre-op | 1 Year Post-op | 10 Years Post-op

Case Study 2

Pre-op: Revision of a loose cemented femoral stem was performed in 1991.

Post-op: The radiograph at 12 months shows a good result achieved with the KAR Femoral Stem, both in terms of stability and restoration of the center of rotation.

10 years post-op: The patient is asymptomatic and is satisfied with the hip replacement. Restoration of bone density is satisfactory and implant stability is confirmed.



Pre-op | 2 Weeks Post-op | 5 Years Post-op

Case Study 3

Pre-op: Revision of a loose cemented femoral stem and cup was performed in 1993.

Post-op: A radiograph taken at two weeks follow-up shows good stability of the KAR Femoral Stem, both in the proximal and distal regions. A cortical window has been used to remove the cement restrictor. The metaphysis has been bone grafted, and the calcar reconstructed using a substantial allograft.

5 years post-op: The patient is satisfied with his hip replacement. Good bone ingrowth can be noted, with signs of endosteal bone formation and restoration of adequate cortical density. No radiolucency is observed.

The CORAIL Revision Stem addresses the majority of revision scenarios in which mild to moderate bone loss is encountered.

Quality femoral bone stock is critical to ensure fixation of the femoral stem. The CORAIL AMT Stem should not be used for a revision surgery unless there is sufficient available bone. If there is insufficient bone to use the CORAIL AMT Stem for primary implantation, the CORAIL Revision may be considered.

(For guidance on primary neck resection, please consult the CORAIL Primary Stem surgical technique.)

For revision total hip arthroplasty, the defect should be confirmed during the procedure after removal of the implant and all cement debris.

In all cases, the stability of the stem must be achieved prior to inserting bone graft. Therefore, the bone graft serves only to fill defects and not to ensure the stability of the stem. A wedge bone graft would fail to achieve sufficient stability, and therefore would lead to potential failure of the stem. If insufficient primary stability is observed, a longer, distally locked stem should be used to achieve primary stability.

In the case where it is difficult to achieve primary stability with a CORAIL Revision Stem, a longer, distally locked prosthesis must be used.

ORDERING INFORMATION: IMPLANTS

CORAIL Revision Stem

Standard Offset

L98010	CORAIL Revision Stem STD 10
L98011	CORAIL Revision Stem STD 11
L98012	CORAIL Revision Stem STD 12
L98013	CORAIL Revision Stem STD 13
L98014	CORAIL Revision Stem STD 14
L98015	CORAIL Revision Stem STD 15
L98016	CORAIL Revision Stem STD 16
L98018	CORAIL Revision Stem STD 18
L98020	CORAIL Revision Stem STD 20

High Offset

L98110	CORAIL Revision Stem HO 10
L98111	CORAIL Revision Stem HO 11
L98112	CORAIL Revision Stem HO 12
L98113	CORAIL Revision Stem HO 13
L98114	CORAIL Revision Stem HO 14
L98115	CORAIL Revision Stem HO 15
L98116	CORAIL Revision Stem HO 16
L98118	CORAIL Revision Stem HO 18
L98120	CORAIL Revision Stem HO 20

Compatible 12/14 ARTICUL/EZE Femoral Heads

Ceramic

136528310	12/14 ARTICUL/EZE BIOLOX® delta Head 28 +1.5
136528320	12/14 ARTICUL/EZE BIOLOX delta Head 28 +5
136528330	12/14 ARTICUL/EZE BIOLOX delta Head 28 +8.5
136532310	12/14 ARTICUL/EZE BIOLOX delta Head 32 +1
136532320	12/14 ARTICUL/EZE BIOLOX delta Head 32 +5
136532330	12/14 ARTICUL/EZE BIOLOX delta Head 32 +9
136536310	12/14 ARTICUL/EZE BIOLOX delta Head 36 +1.5
136536320	12/14 ARTICUL/EZE BIOLOX delta Head 36 +5
136536330	12/14 ARTICUL/EZE BIOLOX delta Head 36 +8.5
136536340	12/14 ARTICUL/EZE BIOLOX delta Head 36 +12

Ceramic with Titanium Sleeve (Ti-6Al-4V ELI)

136528710	12/14 ARTICUL/EZE BIOLOX delta TS Head 28 +1.5
136528720	12/14 ARTICUL/EZE BIOLOX delta TS Head 28 +5.0
136528730	12/14 ARTICUL/EZE BIOLOX delta TS Head 28 +8.5
136528740	12/14 ARTICUL/EZE BIOLOX delta TS Head 28 +12
136532710	12/14 ARTICUL/EZE BIOLOX delta TS Head 32 +1
136532720	12/14 ARTICUL/EZE BIOLOX delta TS Head 32 +5
136532730	12/14 ARTICUL/EZE BIOLOX delta TS Head 32 +9
136536710	12/14 ARTICUL/EZE BIOLOX delta TS Head 36 +1.5
136536720	12/14 ARTICUL/EZE BIOLOX delta TS Head 36 +5.0
136536730	12/14 ARTICUL/EZE BIOLOX delta TS Head 36 +8.5
136536740	12/14 ARTICUL/EZE BIOLOX delta TS Head 36 +12
136540710	12/14 ARTICUL/EZE BIOLOX delta TS Head 40 +1.5
136540720	12/14 ARTICUL/EZE BIOLOX delta TS Head 40 +5.0
136540730	12/14 ARTICUL/EZE BIOLOX delta TS Head 40 +8.5
136540740	12/14 ARTICUL/EZE BIOLOX delta TS Head 40 +12
136544710	12/14 ARTICUL/EZE BIOLOX delta TS Head 44 +1.5
136544720	12/14 ARTICUL/EZE BIOLOX delta TS Head 44 +5.0
136544730	12/14 ARTICUL/EZE BIOLOX delta TS Head 44 +8.5
136544740	12/14 ARTICUL/EZE BIOLOX delta TS Head 44 +12

Metal (CoCr)

136529000	12/14 ARTICUL/EZE Head 22.225 +4
136530000	12/14 ARTICUL/EZE Head 22.225 +7
136511000	12/14 ARTICUL/EZE Head 28 +1.5
136511500	12/14 ARTICUL/EZE M-Spec Head 28 +1.5
136512000	12/14 ARTICUL/EZE Head 28 +5
136512500	12/14 ARTICUL/EZE M-Spec Head 28 +5
136513000	12/14 ARTICUL/EZE Head 28 +8.5
136513500	12/14 ARTICUL/EZE M-Spec Head 28 +8.5
136514000	12/14 ARTICUL/EZE Head 28 +12 (Skirted)
136521000	12/14 ARTICUL/EZE Head 32 +1
136522000	12/14 ARTICUL/EZE Head 32 +5
136523000	12/14 ARTICUL/EZE Head 32 +9
136524000	12/14 ARTICUL/EZE Head 32 +13 (Skirted)
136550000	12/14 ARTICUL/EZE M-Spec Head 36 -2
136551000	12/14 ARTICUL/EZE M-Spec Head 36 +1.5
136552000	12/14 ARTICUL/EZE M-Spec Head 36 +5
136553000	12/14 ARTICUL/EZE M-Spec Head 36 +8.5
136554000	12/14 ARTICUL/EZE M-Spec Head 36 +12
136504000	12/14 ARTICUL/EZE M-Spec Head 40 -2
136505000	12/14 ARTICUL/EZE M-Spec Head 40 +1.5
136506000	12/14 ARTICUL/EZE M-Spec Head 40 +5
136507000	12/14 ARTICUL/EZE M-Spec Head 40 +8.5
136508000	12/14 ARTICUL/EZE M-Spec Head 40 +12
136560000	12/14 ARTICUL/EZE M-Spec Head 44 -2
136561000	12/14 ARTICUL/EZE M-Spec Head 44 +1.5
136562000	12/14 ARTICUL/EZE M-Spec Head 44 +5
136563000	12/14 ARTICUL/EZE M-Spec Head 44 +8.5
136564000	12/14 ARTICUL/EZE M-Spec Head 44 +12

ORDERING INFORMATION: INSTRUMENTS

Femoral Preparation Instrument Trays

L98704	CORAIL Revision Set Femoral Preparation - Lid
L98703	CORAIL Revision Set Femoral Preparation - Top
L98702	CORAIL Revision Set Femoral Preparation - Middle
L98701	CORAIL Revision Set Femoral Preparation - Bottom
L98700	CORAIL Revision Set Femoral Preparation - Base

Femoral Preparation Set Parts

L98610	Reamer - Diameter 10 mm
L98611	Reamer - Diameter 11 mm
L98612	Reamer - Diameter 12 mm
L98613	Reamer - Diameter 13 mm
L20431	CORAIL Standard Offset Neck Segment
L20433	CORAIL High Offset Neck Segment

Note: Revision broaches are not intended for use with the primary stem.

L98408X	Diamond-tooth Broach - Size 8
L98409X	Diamond-tooth Broach - Size 9
L98410X	Diamond-tooth Broach - Size 10
L98411X	Diamond-tooth Broach - Size 11
L98412X	Diamond-tooth Broach - Size 12
L98413X	Diamond-tooth Broach - Size 13
L98414X	Diamond-tooth Broach - Size 14
L98415X	Diamond-tooth Broach - Size 15
L98416X	Diamond-tooth Broach - Size 16
L98418X	Diamond-tooth Broach - Size 18
L98420X	Diamond-tooth Broach - Size 20

L98510	Trial Stem - Size 10
L98511	Trial Stem - Size 11
L98512	Trial Stem - Size 12
L98513	Trial Stem - Size 13
L98514	Trial Stem - Size 14
L98515	Trial Stem - Size 15
L98516	Trial Stem - Size 16
L98518	Trial Stem - Size 18
L98520	Trial Stem - Size 20

X-Ray Templates

CALQ432	CORAIL Revision Stem - Scale 120%

CORAIL AMT Core Case Complete

2354-10-000	Canal Probe
53-0360	T-Handle
2598-07-570	Retaining Implant Inserter (2 pcs)
2570-05-100	Standard Implant Inserter
2001-65-000	Head Impactor
2530-81-000	28 mm ARTICUL/EZE +1.5 mm Trial Head
2530-82-000	28 mm ARTICUL/EZE +5.0 mm Trial Head
2530-83-000	28 mm ARTICUL/EZE +8.5 mm Trial Head
2530-84-000	28 mm ARTICUL/EZE +12.0 mm Trial Head
2665-99-003	Core Case Complete

TSS Femoral Core Case 1

2598-07-400	Base
2598-07-411	Tray
2598-07-410	Lid
2598-07-460	Universal Stem Inserter Handle
	Trial Heads – 2 Sets per Case*
	*Accommodates up through size 40 mm
2598-07-570	Retaining Stem Inserter (2 pcs)
2598-07-530	Modular Box Osteotome

TSS Femoral Core Case 2

2598-07-421	Base
2598-07-422	Lid
2354-10-000	Müller Awl Reamer with Hudson End
2001-42-000	T-Handle
2001-80-501	IM Initiator Sized
9400-80-007	Shielded Calcar Planer
85-3927	Femoral Rasp
9400-80-001	Canal Finder
2001-65-000	Femoral/Humeral Head Impactor
2001-66-000	Replacement Tip Femoral Head Impactor

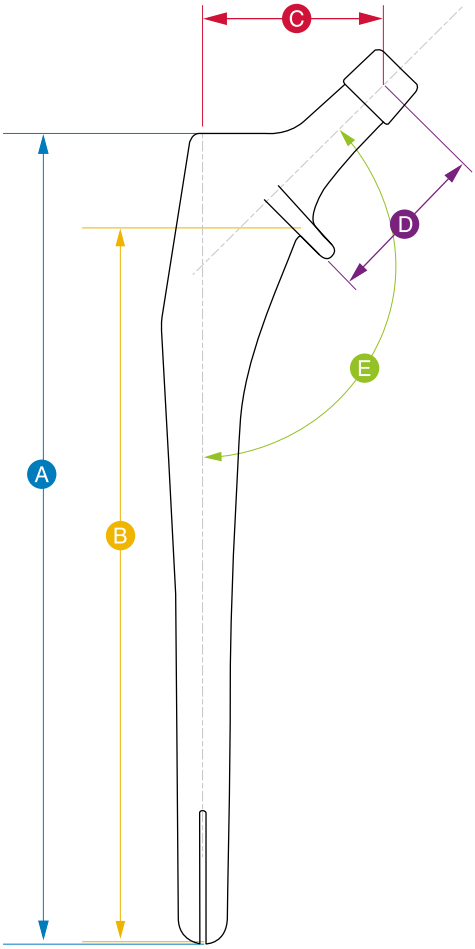
Any two of the below handles accommodated:

2570-00-000	SUMMIT® Universal Broach Handle
2598-07-540	Long Posterior Broach Handle
2598-07-550	Extra Curved Broach Handle
2598-07-350	Anterior Dual Offset Broach Handle - Left
2598-07-360	Anterior Dual Offset Broach Handle - Right
9522-10-500F	CORAIL AMT Straight Broach Handle
9522-11-500	CORAIL AMT Curved Broach Handle
2598-07-470	CORAIL/TRI-LOCK® Posterior Stem Inserter Shaft
2598-07-480	SUMMIT Posterior Stem Inserter Shaft
2598-07-435	Bullet Tip Stem Inserter Shaft
2598-07-430	Standard Straight Stem Inserter Shaft
2598-07-440	CORAIL/TRI-LOCK Anterior Stem Inserter Shaft
2598-07-450	SUMMIT Anterior Stem Inserter Shaft

TECHNICAL SPECIFICATION

CORAIL Revision Hip Stem - Standard Offset

Stem Size	Stem Length (mm) (A)	Stem Length (mm) (B)	Offset (mm) (C)	Neck Length (mm) (D)	Neck Shaft Angle (E)
10	180	157	39.5	38.5	135°
11	185	162	40	38.5	135°
12	190	167	41	38.5	135°
13	195	172	41.5	38.5	135°
14	200	177	42.5	38.5	135°
15	205	182	43	38.5	135°
16	210	187	44	38.5	135°
18	220	197	45	38.5	135°
20	230	207	46	38.5	135°



CORAIL Revision Hip Stem - High Offset

Stem Size	Stem Length (mm) (A)	Stem Length (mm) (B)	Offset (mm) (C)	Neck Length (mm) (D)	Neck Shaft Angle (E)
10	180	157	46.5	43.2	135°
11	185	162	47.0	43.2	135°
12	190	167	48.0	43.2	135°
13	195	172	48.5	43.2	135°
14	200	177	49.0	43.2	135°
15	205	182	50.0	43.2	135°
16	210	187	50.5	43.2	135°
18	220	197	51.5	43.2	135°
20	230	207	52.5	43.2	135°

Note: All measurements are based on a 28 mm +5.0 ARTICUL/EZE Head, which is the middle length of non-skirted femoral heads.

References

1. Paprosky, et al. CORR, 1999, 369:230-242

2. Hardy D, et al. "Hydroxyapatite-Coated Femoral Arthoplasties: A Long-Term Study Through 29 Corail Prostheses Explanted During a Ten-Year Survey." *Surgical Technology International.* 237:245.

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CAUTION: USA Law restricts these devices to sale by or on the order of a physician.

When used with multiple components of a total hip replacement system, the MR compatibility and safety of the entire system of implants has not been evaluated, and the entire system of implants has not been tested together for heating or migration in the MR environment.

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DePuy Orthopaedics, Inc.
700 Orthopaedic Drive
Warsaw, IN 46582
USA
Tel: +1 (800) 366-8143
Fax: +1 (800) 669-2530

www.depuysynthes.com

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