Arcos® Modular Femoral Revision System

Surgical Technique

BIOMET®

Knees • Hips • Extremities • Cement and Accessories • PMI® • Technology

One Surgeon. One Patient.®

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.

Arcos® Modular Femoral Revision System

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Arcos® Modular Femoral Revision System

Pre-operative Planning and Approach

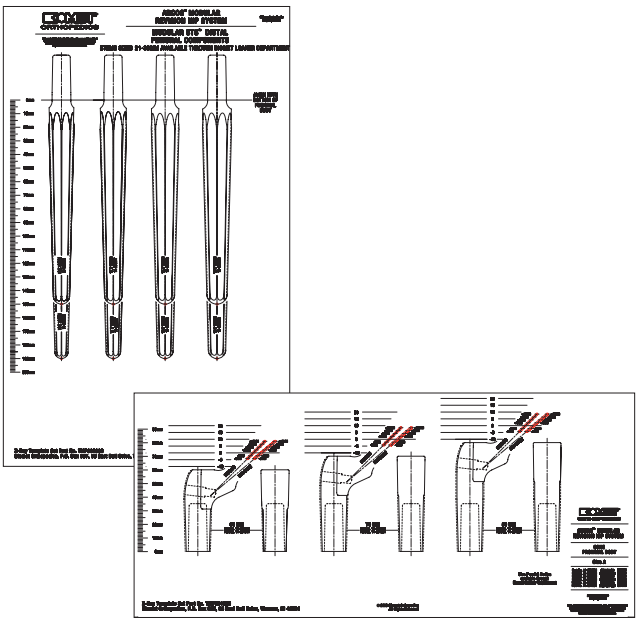


Figure 1

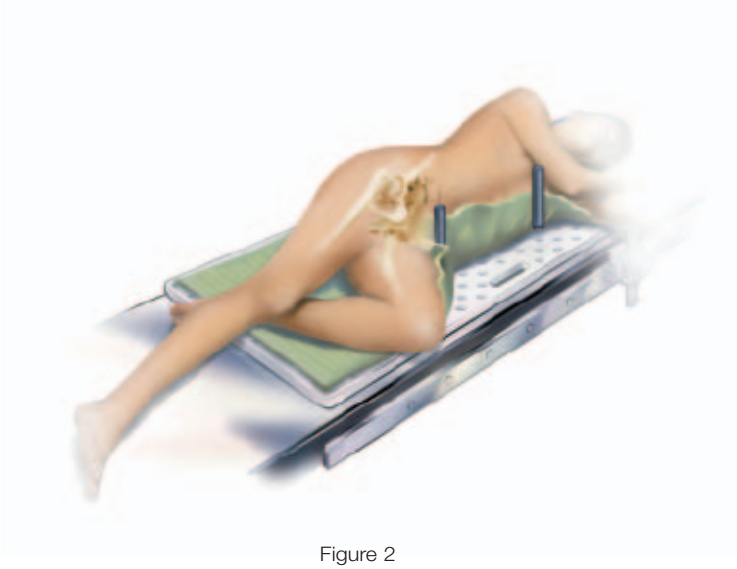


Figure 2

Pre-operative Planning

When planning a hip revision utilizing the Arcos® Modular Femoral Revision System, carefully review the indications and contraindications for use referenced within the package insert located on pages 92–93 of this surgical technique.

The Arcos® System is not designed for use in a fully unsupported proximal femur. Bone stock of adequate quality must be present and appraised at the time of surgery. The use of medial and/or lateral strut grafts may be necessary to support the taper junction in cases of severe proximal deficiency.

Utilizing A/P and M/L X-rays and implant templates will assist in determining the correct implant size, offset and position for a stable reconstruction (Figure 1). Final determination frequently cannot be made until the actual time of surgery, however with appropriate planning, a consistent operative plan with alternatives can be formulated.

Patient Positioning and Surgical Approach

The goal of the surgical approach is to establish adequate visualization of the anatomy (Figure 2).

The Arcos® System was designed and developed in conjunction with Hugh Apthorp, FRCS, John Barrington, M.D., Keith R. Berend, M.D., J. Rod Davey, M.D., Edward McPherson, M.D., Christopher Peters, M.D., and Ian Stockley, FRCS.

This Arcos® Modular Femoral Revision System pre-operative planning and surgical technique is utilized by the surgeons listed above, Biomet, as the manufacturer of this device, does not practice medicine and does not recommend this device or technique. Each surgeon is responsible for determining the appropriate device and technique to utilize on each individual patient.

Figure 3

Figure 4

Figure 5

Removal of a Cemented Component

Once the stem has been removed from the cement mantle by utilizing universal extraction instruments or manufacturer specific instruments, ensure all cement is removed prior to preparation of the femur for the Arcos® femoral components (Figure 3). This can be achieved using the Ultra-Drive® cement removal system or cement removal tools. An osteotomy of the femur may be necessary to facilitate removal of the cement.

Removal of a Cementless Stem

Removal of a cementless stem may be difficult due to the biologic fixation that may exist between the implant and bone. When removing a proximally porous coated stem, it may be necessary to perform an osteotomy of the femur just below the level of the porous coating to assist in stem removal (Figure 4).

Note: An extended trochanteric osteotomy may be necessary if removing an extensively coated stem.

Sectioning the stem and utilizing trephine reamers can assist in the removal of the porous coated distal segment of a cementless stem (Figure 5).

Arcos® Modular Femoral Revision System

Cone Proximal Body & STS™ Distal Stems

Ream-Over Technique

Figure 1

Preparation of the Diaphysis

To prepare the femur for an STS™ distal stem, select the STS™ reamers (silver reamers for 150 mm stem length and gold reamers for a 190 mm stem length). Assemble the STS™ reamer to the T-handle and turn the handle from torque limiting to the locked position (Figure 1).

Ream the femur in 1 mm increments by hand until the reamer advances to the 70 mm mark, referencing the tip of the greater trochanter.

Note: Reaming to the 70 mm etch mark on the STS™ reamer allows for a proximal height adjustment of 10 mm in either direction (e.g. 60 – 80 mm) depending on the final depth of the seated distal stem implant.

Note: The final depth of the implant may vary from the depth of the reamer. How aggressively the femur is prepared and the quality of the bone may impact the depth that the final implant will seat. If the final implant sits proud of the desired ream depth, note the difference between these and utilize the last reamer used to ream deeper into the femur. Reaming the femur by hand may help avoid any discrepancy between the reamed depth and the final depth of the implant.

Figure 2

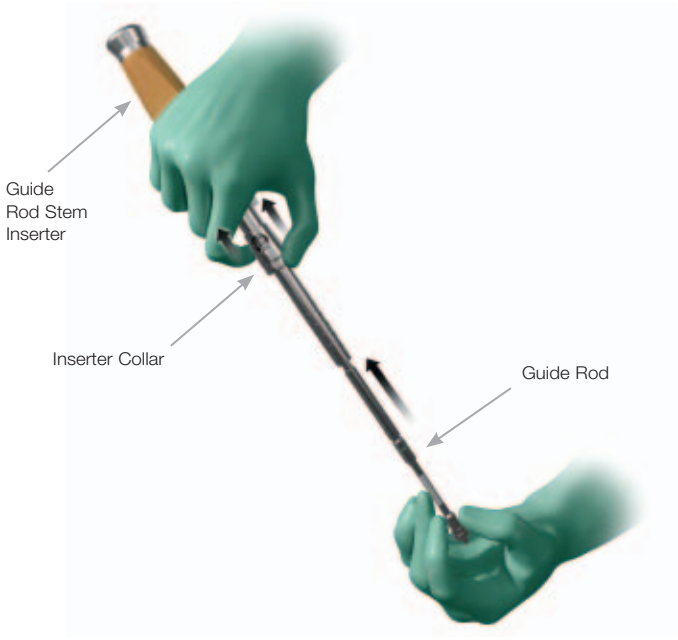


Figure 3

Trialing the Distal Stem

When distal reaming is complete, select the stem trial that is the same diameter as the final reamer and the necessary length for stem stability. Thread the black distal stem trial inserter into the stem trial and insert the stem trial into the femur to the depth mark that matches the ream depth from the final reamer (Figure 2).

Note: The trial stem and reamer are the same size. Both are 1 mm smaller than the femoral implant.

Distal Stem Insertion

Assemble the guide rod to the orange guide rod stem inserter by sliding the rod into the inserter, pulling back on the inserter collar and locking the rod into the stem inserter (Figure 3).

Figure 4

Figure 5

Distal Stem Insertion (cont.)

Thread the inserter assembly to the distal stem implant and seat the implant into the femur to the previously determined depth level, referencing the greater trochanter (Figure 4).

Note: If utilizing the 190 mm stem, ensure the bevel at the distal tip of the stem in oriented anteriorly.

Once the implant has been seated to the desired level, identify the depth on the inserter in reference to the greater trochanter to determine the height of the cone proximal body needed.

Note: The 50 mm, size A cone proximal body implant was not designed to accommodate a trochanteric bolt and claw. If a trochanteric bolt and claw is desired, utilize a cone proximal body implant with a 60, 70 or 80 mm vertical height.

Preparation of the Metaphysis

To ream the proximal femur, release the inserter from the guide rod by pulling back on the collar spring to disengage the reaming guide and remove the stem inserter, leaving the guide rod attached to the distal stem (Figure 5).

Note: The guide rod must be attached to the stem to properly ream over the taper junction. The rod protects the taper junction from reamer damage and provides for accurate reaming depth.

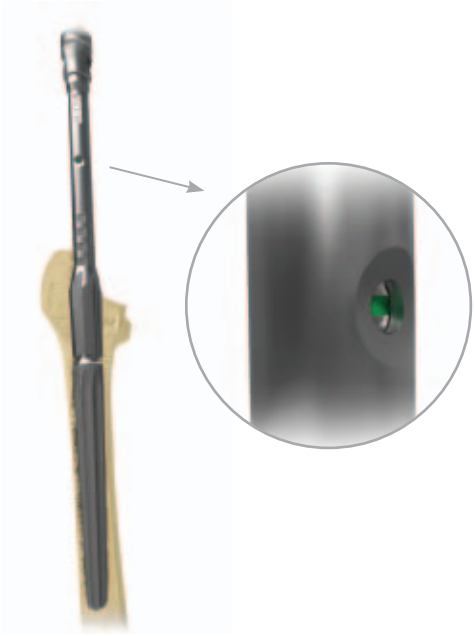


Figure 6

Figure 7

Torque Limiting Position

Figure 8

Ream the proximal femur over the guide rod with the proximal reamers until they no longer advance. A green line is visible through the proximal reamer window verifying that the reamer is fully seated and the proper reaming depth is obtained. Sequentially increase the size of the reamers until the desired proximal body size (A–G) is achieved (Figure 6).

Remove the guide rod from the distal stem implant with the guide rod removal tool, turning the removal tool counter-clockwise (Figure 7).

Trialing the Proximal Body

To trial the proximal body, first ensure that the taper junction on the distal stem implant it is clean and dry. Attach the cone trial that is the same height and size as the final proximal reamer and the appropriate offset. The light green trial indicates standard offset, while the purple trial represents high offset.

Assemble the 3.5 mm hex driver to the T-handle and adjust the T-handle to the torque limiting position. Tighten the cone trial to the distal stem implant until the T-handle “clicks,” setting the desired anteversion or retroversion in the proximal body (Figure 8).

Note: The anti-rotation handle can be placed over the implant neck to control anteversion or retroversion.

Note: In cases with good medial bone stock, impingement between the medial neck and bone may occur causing the trial to not properly seat. Using the appropriate hand tools such as a rongeur, remove the excess bone and re-seat the trial before choosing a final implant.

Cone Proximal Body & STS™ Distal Stems

Ream-Over Technique

Figure 9

Figure 10

Trial Reduction

Utilizing modular head trials, perform a trial reduction and determine if the selected offset, leg length and joint stability are appropriate (Figure 9). In performing the trial range of motion, ensure the absence of impingement of the neck on the rim of the acetabular component or acetabular liner. Remove the cone proximal body trial from the femur with the 3.5 mm hex driver.

Proximal Body Insertion

Note: Reference the Taper Compression Assembly section of this technique if an impaction assembly is not preferred.

Once the proper body height and size has been determined, thread the green proximal body inserter to the proximal body implant, ensuring the anti-rotation tabs are locked in the proper orientation.

Impact the proximal body to the taper junction on the distal stem implant with several blows of the mallet (Figure 10). The implant will be seated when there is an audible change in the pitch during impaction or the etch mark on the inserter handle is advanced to the previously determined ream depth.

Torque Limiting Position

Figure 11

Figure 12

Inserting the Locking Screw

To lock the distal and proximal body implants, thread the locking screw into the top of the cone proximal body using the 3.5 mm hex driver and T-handle in the torque limiting position until a “click” is felt and heard (Figure 11).

Note: If the screw does not thread into the distal stem the proximal body is not fully seated and the implant insertion steps must be repeated.

Final Reduction

If desired, another trial reduction can be accomplished prior to selecting final head size and impacting the modular head onto the stem (Figure 12). Provisional heads in seven neck lengths allow an additional trial reduction using the actual implant to ensure proper leg length and stability. After fully seating the femoral component, impact the appropriate modular head onto the clean, dry taper.

Locked Position

Figure 1

Preparation of the Diaphysis

To prepare the femur for an STS™ distal stem, select the STS™ reamers (silver reamers for 150 mm stem length and gold reamers for a 190 mm stem length). Assemble the STS™ reamer to the T-handle and turn the handle from torque limiting to the locked position (Figure 1).

Ream the femur in 1 mm increments by hand until the reamer advances to the 70 mm mark, referencing the tip of the greater trochanter.

Note: Reaming to the 70 mm etch mark on the STS™ reamer allows for a proximal height adjustment of 10 mm in either direction (e.g. 60 – 80 mm) depending on the final depth of the seated distal stem implant.

Note: The final depth of the implant may vary from the depth of the reamer in this step. How aggressively the femur is prepared and the quality of the bone may impact the depth that the final implant will seat. If the final implant sits proud of the desired ream depth, note the difference between these and utilize the last reamer used to ream deeper into the femur. Reaming the femur by hand may help avoid any discrepancy between the reamed depth and the final depth of the implant.

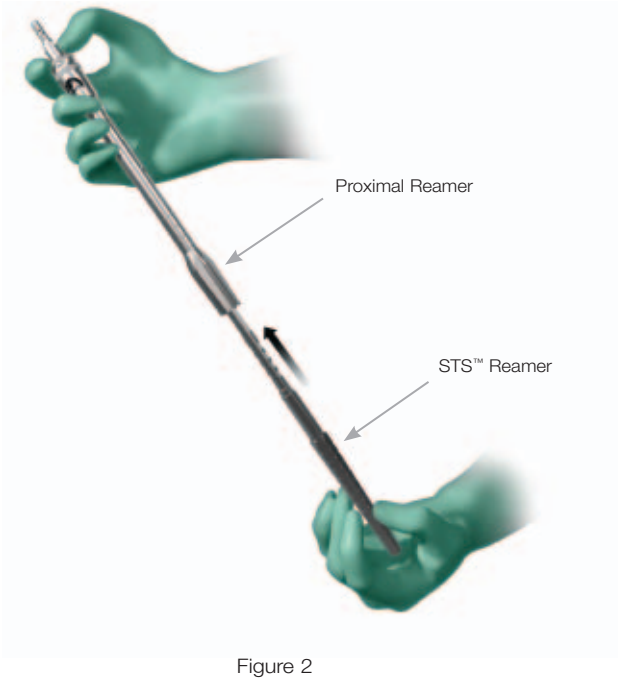


Figure 2

Figure 3

Preparation of the Metaphysis

To prepare the proximal femur, assemble the final STS™ reamer into the proximal reamer and press down on the collar at the top of the proximal reamer to securely lock the two instruments together (Figure 2). Ream the proximal femur with the reamers, sequentially increasing the size of the proximal reamer, until the desired size (A–G) and proximal body height is achieved (Figure 3).

Sterile Field Technique

Torque Limiting Position

Figure 4

Figure 5

Trialing

Select the proximal and distal stem trials that match the predetermined size, height and neck offset (standard or high). The light green trial indicates standard offset and the purple trial represents high offset. Assemble the proximal and distal stem trials together using the 3.5 mm hex driver and the T-handle in torque limiting position (Figure 4).

Thread the green proximal body inserter into the proximal body trial. Insert the trial into the femur aligning the etched depth mark on the inserter with the tip of the greater trochanter (Figure 5).

Note: The anti-rotation handle can be placed over the trial neck to control anteversion or retroversion.

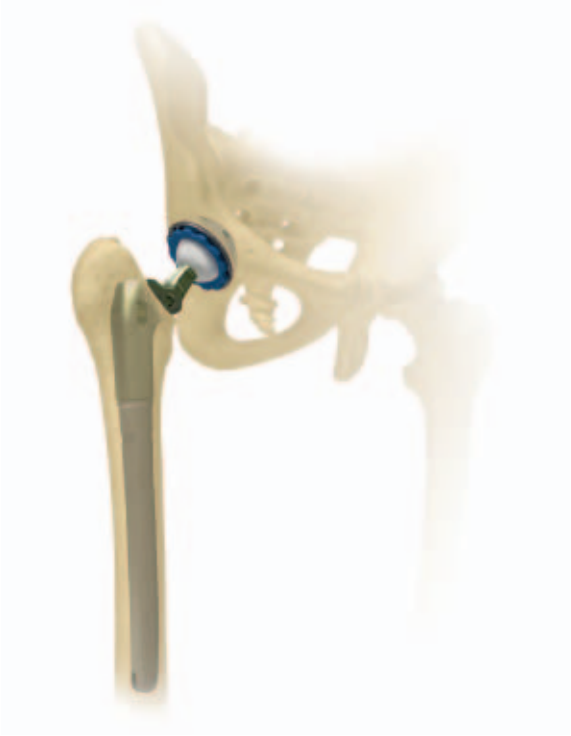


Figure 6

Figure 7

Trial Reduction

Utilizing modular head trials, perform a trial reduction and determine if the selected offset, leg length and joint stability are appropriate (Figure 6). In performing the trial range of motion, ensure the absence of impingement of the neck on the rim of the acetabular component or acetabular liner.

Once the desired offset, leg length and joint stability has been achieved, reattach the proximal inserter to the assembled trial and remove the trial from the femur. Unthread the proximal inserter form the assembled trial.

Implant Assembly

With the trial still assembled in the sterile field, assemble the distal stem and proximal body to match the orientation of the assembled trial (Figure 7).

Figure 8

Figure 9

Implant Assembly (cont.)

When the desired position of the implants has been achieved, thread the proximal body inserter to the assembled implants and impact the taper junction with at least three blows of the mallet on the back table (Figure 8).

Note: When using a 190 mm stem, ensure the bevel at the distal tip of the stem is anterior.

Implant Insertion

With the proximal inserter still assembled to the implant, ensure the anti-rotation tabs are properly locked and insert the final implant into the femur until the desired depth is achieved (Figure 9).

Note: The final depth of the implant may vary from the depth of the reamer in this step. How aggressively the femur is prepared and the quality of the bone may impact the depth that the final implant will seat. If the final implant sits proud of the desired ream depth, note the difference between these and utilize the last reamer used to ream deeper into the femur. Reaming the femur by hand may help avoid any discrepancy between the reamed depth and the final depth of the implant.

Torque Limiting Position

Figure 10

Figure 11

Inserting the Locking Screw

To lock the distal and proximal body implants, unthread the proximal body inserter from the implant and thread the locking screw into the top of the cone proximal body using the 3.5 mm hex and T-handle in the torque limiting position until a “click” is felt and heard (Figure 10).

Note: The screw can be used to lock the proximal body and distal stem together before the implants are inserted into the femur. If this is done, check the security of the screw once the implant has been fully seated.

Final Reduction

If desired, another trial reduction can be accomplished prior to selecting final head size and impacting the modular head onto the stem (Figure 11). Provisional heads in seven neck lengths allow an additional trial reduction using the actual implant to ensure proper leg length and stability. After fully seating the femoral component, impact the appropriate modular head onto the clean, dry taper.

Cone Proximal Body & PPS® Distal Stems

Ream-Over Technique

Figure 1

Figure 2

Preparation of the Diaphysis

To prepare the femur for a PPS® distal stem, select flexible or thin shaft reamers and sequentially ream the femur two cortical diameters or 2-3 cm below the distal defect, increasing size until cortical “chatter” is achieved (Figure 1).

Note: When utilizing flexible reamers, ream the canal in 0.5 mm increments until cortical “chatter” is achieved. The final reamer diameter should be line to line or 0.5 mm larger than the diameter of the desired implant, depending on bone quality.

Note: Reaming over a guide is recommended. The Arcos® distal reamers that are designed to prepare the femur for a bowed distal stem are cannulated to accommodate a guide wire.

Preparation of the Metaphysis: Part One

To prepare the femur for the flared region of the PPS® distal stem, select the transition reamer that is the same size as the desired distal stem and ream to the depth of the desired proximal body height (60, 70 or 80 mm). The etch mark of the transition reamer, that corresponds to the proximal body height selected, should align with the tip of the greater trochanter.

Note: The 50 mm, size A cone proximal body implant was not designed to accommodate a trochanteric bolt and claw. If a trochanteric bolt and claw is desired, utilize a cone proximal body implant with a 60, 70 or 80 mm vertical height.

Figure 3

Trialing the Distal Stem

When distal reaming is complete, select the stem trial that is the same diameter as the final transition reamer and the necessary length for stem stability. Thread the black distal trial stem inserter into the stem trial and insert the stem trial into the femur, matching the etched depth mark on the inserter to the depth achieved from the transition reamer (Figure 3).

Note: The stem trial will be 1.5 mm smaller than the final implant diameter as measured over the porous coating.

Cone Proximal Body & PPS® Distal Stems

Ream-Over Technique

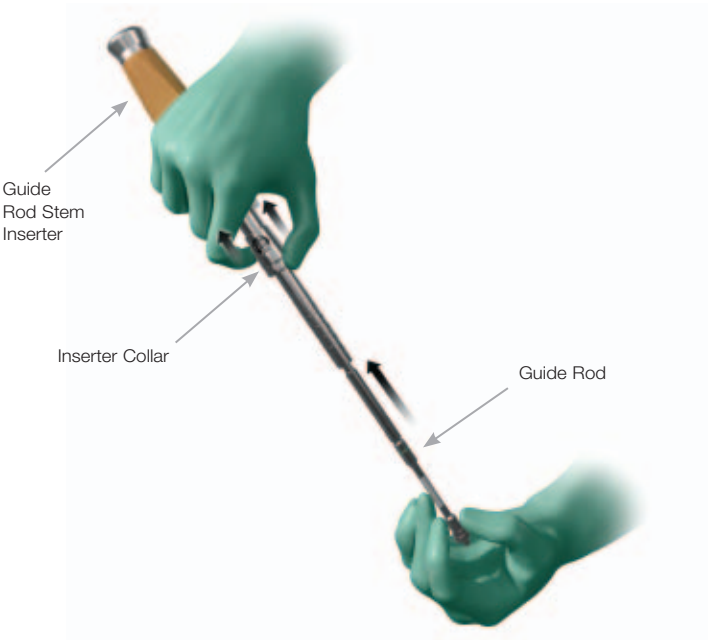


Figure 4

Figure 5

Distal Stem Insertion

Assemble the guide rod to the orange guide rod stem inserter by sliding the rod into the inserter, pulling back on the inserter collar and locking the rod into the inserter (Figure 4). Thread this inserter assembly to the distal stem implant and seat the implant into the femur to the previously determined depth level, referencing the greater trochanter.

Once the implant has been seated to the desired level, identify the depth on the inserter in reference to the greater trochanter to determine the height of the cone proximal body needed (Figure 5).

Figure 6

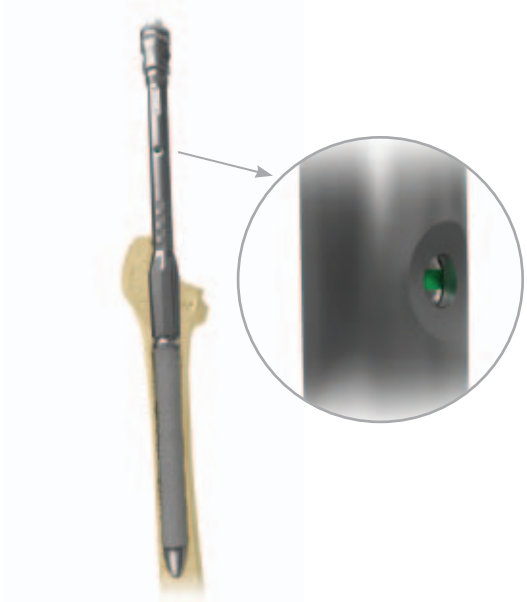


Figure 7

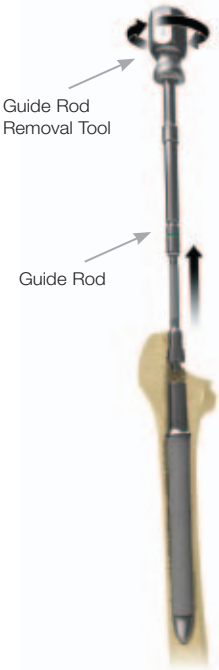


Figure 8

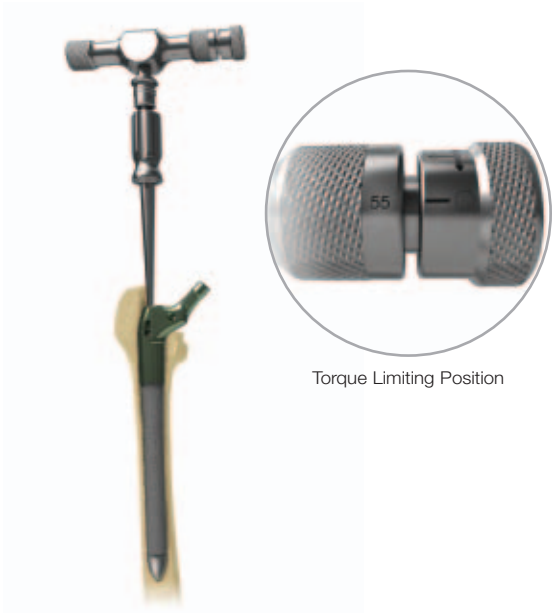
Preparation of the Metaphysis: Part Two

To ream the proximal femur, release the inserter from the guide rod by pulling back on the collar spring to disengage the reaming guide and remove the stem inserter, leaving the guide rod attached to the distal stem (Figure 6).

Note: The guide rod must be attached to the stem to properly ream over the taper junction. The rod protects the taper junction from reamer damage and provides for accurate reaming depth.

Ream the proximal femur over the guide rod with the proximal reamers until they no longer advance. A green line is visible through the proximal reamer window verifying that the reamer is fully seated and the proper reaming depth is obtained. Sequentially increase the size of the reamers until the desired proximal body size (A–G) is achieved (Figure 7).

Remove the guide rod from the distal stem implant with the guide rod removal tool, turning the removal tool counter-clockwise (Figure 8).



Torque Limiting Position

Figure 9

Figure 10

Trialing the Proximal Body

To trial the proximal body, first ensure that the taper junction on the distal stem implant is clean and dry. Attach the cone trial that is the same height and size as the final proximal reamer and the appropriate offset. The light green trial indicates standard offset and the purple trial represents high offset.

Assemble the 3.5 mm hex driver to the T-handle and adjust the T-handle to the torque limiting position. Tighten the cone trial to the distal stem implant until the T-handle "clicks," setting the desired anteversion or retroversion in the proximal body (Figure 9).

Note: The anti-rotation handle can be placed over the neck of the trial to control anteversion or retroversion. Once the desired version has been achieved, use electrocautery to mark the desired position under the neck on the remaining bone stock.

Note: In cases with good medial bone stock, impingement between the medial neck and bone may occur causing the trial to not properly seat. Using the appropriate hand tools such as a rongeur, remove the excess bone and re-seat the trial before choosing a final implant.

Trial Reduction

Utilizing modular head trials, perform a trial reduction and determine if the selected offset, leg length and joint stability are appropriate (Figure 10). In performing the trial range of motion, ensure the absence of impingement of the neck on the rim of the acetabular component or acetabular liner. Remove the cone trial from the femur with the 3.5 mm hex driver.

Figure 11

Proximal Body Insertion

Note: Reference the Taper Compression Assembly section of this technique if an impaction assembly is not preferred.

Once the proper body height and size has been determined, thread the green proximal body inserter to the proximal body implant, ensuring the anti-rotation tabs are locked in the proper orientation.

Impact the proximal body to the taper junction on the distal stem implant with several blows of the mallet (Figure 11). The implant will be seated when there is an audible change in the pitch during impaction or the etch mark of the inserter handle is advanced to the previously determined ream depth.

Cone Proximal Body & PPS® Distal Stems

Ream-Over Technique

Torque Limiting Position

Figure 12

Figure 13

Inserting the Locking Screw

To lock the distal and proximal body implants, thread the locking screw into the top of the cone proximal body using the 3.5 mm hex driver and T-handle in the torque limiting position until a “click” is felt and heard (Figure 12).

Note: If the screw does not thread into the distal stem the proximal body is not fully seated and the final implant assembly steps must be repeated.

Final Reduction

If desired, another trial reduction can be accomplished prior to selecting final head size and impacting the modular head onto the stem (Figure 13). Provisional heads in seven neck lengths allow an additional trial reduction, using the actual implant to ensure proper leg length and stability. After fully seating the femoral component, impact the appropriate modular head onto the clean, dry taper.

Cone & PPS® Stems
Ream-Over Technique

Cone Proximal Body & PPS® Distal Stems

Sterile Field Technique

Figure 1

Preparation of the Diaphysis

To prepare the femur for a PPS® distal stem, select flexible or thin shaft reamers and sequentially ream the femur two cortical diameters or 2–3 cm below the distal defect, increasing size until cortical “chatter” is achieved (Figure 1).

Note: When utilizing flexible reamers, advance the reamer into the canal in 0.5 mm increments until cortical “chatter” is achieved. The final reamer diameter should be line-to-line or 0.5 mm larger than the diameter of the desired implant, depending on bone quality.

Note: Reaming over a guide is recommended. The Arcos® distal reamers that are designed to prepare the femur for a bowed distal stem are cannulated to accommodate a guide wire.

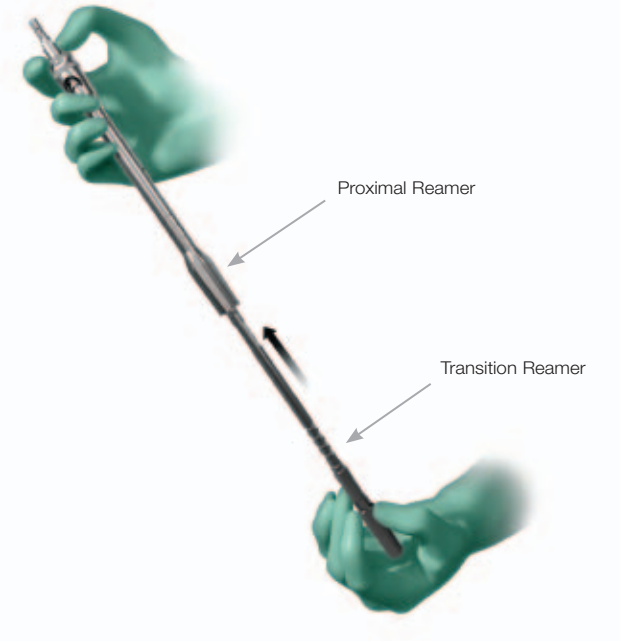


Figure 2

Figure 3

Preparation of the Metaphysis

To prepare the proximal femur for the tapered region of the PPS® distal stem and proximal body, assemble the transition reamer that is the same size as the desired distal stem into the proximal reamer and press down on the collar at the top of the proximal reamer to securely lock the two instruments together (Figure 2). Ream the proximal femur with the modular (transition/proximal) reamer, sequentially increasing the size of the proximal reamer, until the desired size (A–G) and proximal body height (60, 70 or 80 mm) is achieved. The etch mark of the proximal reamer, that corresponds to the proximal body height selected, should align with the tip of the greater trochanter (Figure 3).

Note: The 50 mm, size A cone proximal body implant was not designed to accommodate a trochanteric bolt and claw. If a trochanteric bolt and claw is desired, utilize a cone proximal body implant with a 60, 70 or 80 mm vertical height.

Figure 4

Figure 5

Figure 6

Trialing

Select the proximal and distal stem trials that match the predetermined size, height and neck offset (standard or high). The light green trial indicates standard offset and the purple trial represents high offset. Loosely assemble the proximal and distal stem trials together using the 3.5 mm hex driver (Figure 4).

Note: Assemble the proximal and distal stem trials loose to allow the distal stem to find the appropriate position in the femur.

Thread the green proximal body inserter into the proximal body trial. Insert the trial into the femur aligning the etched depth mark on the inserter with the tip of the greater trochanter (Figure 5).

Once the trial has been seated to the desired level, remove the proximal inserter, adjust the anteversion or retroversion on the proximal trial and lock the proximal body into place with the 3.5 mm hex driver (Figure 6).

Note: The anti-rotation handle can be placed over the neck of the trial to control anteversion or retroversion.

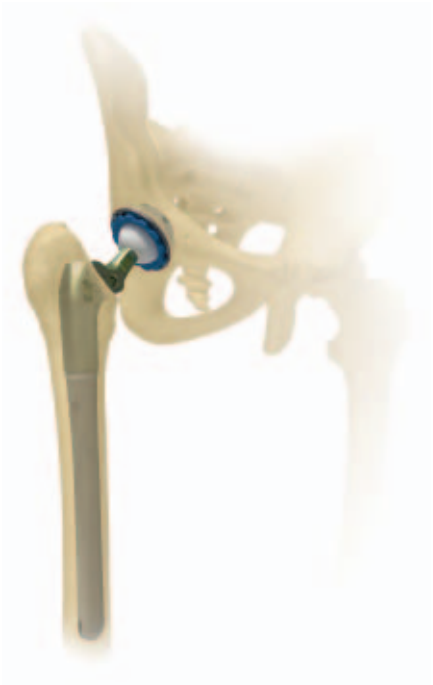


Figure 7

Figure 8

Trial Reduction

Utilizing modular head trials, perform a trial reduction and determine if the selected offset, leg length and joint stability are appropriate (Figure 7). In performing the trial range of motion, ensure the absence of impingement of the neck on the rim of the acetabular component or acetabular liner.

Once the desired offset, leg length and joint stability have been achieved remove the modular head trial. Reattach the proximal inserter to the assembled trial and remove the trial from the femur. Unthread the proximal inserter from the assembled trial.

Implant Assembly

With the trial still assembled in the sterile field, assemble the distal stem and proximal body implants to match the orientation of the assembled trial (Figure 8).

Note: If utilizing a slotted stem, a straight osteotome can be used in the slot of the trial and implant to properly orient the distal stem in relation to the proximal body.

Figure 9

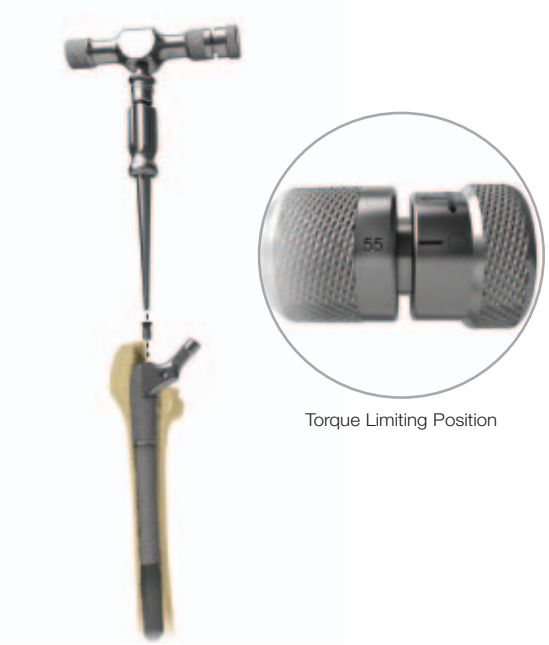
Figure 10

Implant Assembly (cont.)

When the desired orientation of the implants has been achieved, thread the proximal body inserter to the assembled implants and impact the taper junction with at least three blows of the mallet on the back table (Figure 9).

Implant Insertion

With the proximal inserter still assembled to the implant, ensure the anti-rotation tabs are properly locked and insert the final implant into the femur until the desired depth is achieved (Figure 10).



Torque Limiting Position

Figure 11

Figure 12

Inserting the Locking Screw

To lock the distal and proximal body implants, unthread the proximal body inserter from the implant and thread the locking screw into the top of the cone proximal body using the 3.5 mm hex drive and T-handle in torque limiting position until a “click” is felt and heard (Figure 11).

Note: The screw can be used to lock the proximal body and distal stem together before the implants are inserted into the femur. If this is done, check the security of the screw once the implant has been fully seated.

Final Reduction

If desired, another trial reduction can be accomplished prior to selecting final head size and impacting the modular head onto the stem (Figure 12). Provisional heads in seven neck lengths allow an additional trial reduction using the actual implant to ensure proper leg length and stability. After fully seating the femoral component, impact the appropriate modular head onto the clean, dry taper.

Arcos® Modular Femoral Revision System

Calcar/Broach Proximal Bodies & PPS® Distal Stems

Sterile Field Technique

Figure 1

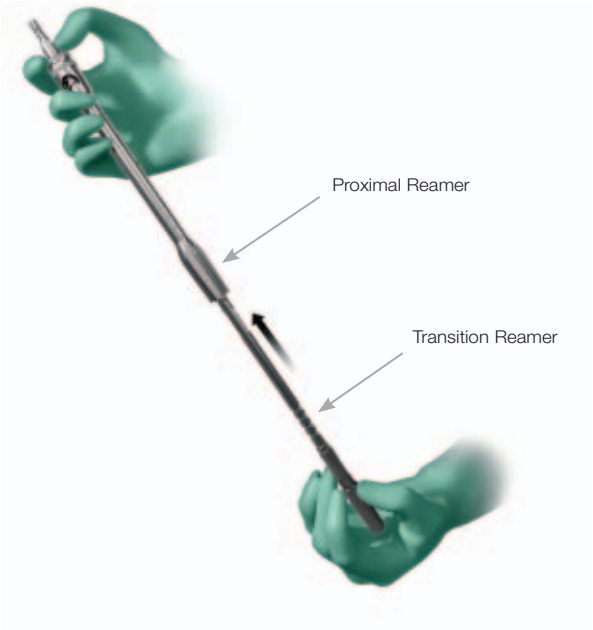


Figure 2

Figure 3

Preparation of the Diaphysis

To prepare the femur for a PPS® coated distal stem, select flexible or thin shaft reamers and sequentially ream the femur two cortical diameters or 2–3 cm below the distal defect, increasing size until cortical "chatter" is achieved (Figure 1).

Note: When utilizing flexible reamers, advance the reamer into the canal in 0.5 mm increments until cortical "chatter" is achieved. The final reamer diameter should be line-to-line or 0.5 mm larger than the diameter of the desired implant, depending on bone quality.

Note: Reaming over a guide is recommended. The Arcos® distal reamers that are designed to prepare the femur for a bowed distal stem are cannulated to accommodate a guide wire.

Preparation of the Metaphysis

To prepare the proximal femur for the tapered region of the PPS® distal stem and proximal body, assemble the transition reamer that is the same size as the desired distal stem into the proximal reamer and press down on the collar at the top of the proximal reamer to securely lock the two instruments together (Figure 2). Ream the proximal femur with the modular (transition/proximal) reamer, sequentially increasing the size of the proximal reamer, until the desired size (A–F) and the 60 mm proximal body height is achieved. The 60 mm etch mark of the proximal reamer should align with the tip of the greater trochanter (Figure 3).

Figure 4

Figure 5

Figure 6

Broaching the Metaphysis

Once the desired size and 60 mm proximal body height has been achieved utilizing the modular reamer, loosely assemble the proximal broach and the distal stem trial together using the 3.5 mm hex driver (Figure 4).

Note: Assemble the proximal broach and distal stem trial loose to allow the distal stem to find the appropriate position in the femur.

Broach the proximal femur sequentially, until the final broach size matches the last proximal reamer used (Figure 5). Verify that the broach is advanced into the femur, oriented to the desired anteversion, and the 60 mm etch mark on the broach handle is aligned with the tip of the greater trochanter.

Once the desired broach size is obtained, remove the broach handle and lock the broach into place with the 3.5 mm hex driver (Figure 6).

Note: Locking the broach and stem trial together will aid in matching the orientation of the trial to the final implant.

Figure 7

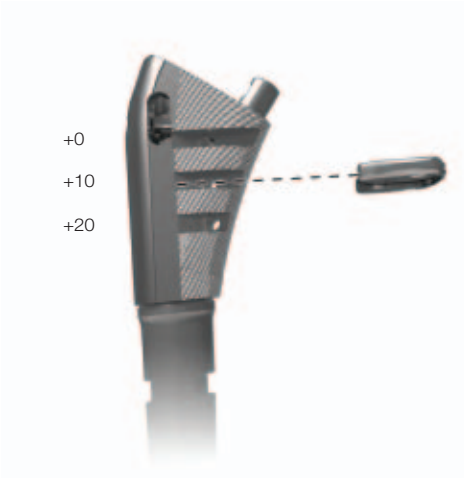


Figure 8

Calcar Resection

If utilizing the calcar proximal body implant, determine the level of deficiency in the proximal femur, align the resection guide to the broach and mark the desired resection with a saw (Figure 7). Remove the broach and stem trial with the broach handle and complete the calcar resection.

Insert either the large or small platform trial into the slot corresponding with the calcar resection level (Figure 8).

Note: The large platform should be utilized for a +0 resection level and the small platform should be utilized for the +10 or +20 resection levels.

Reattach the broach handle to the assembled trial and insert the trial into the femur to verify that it seats to the desired level.

Figure 9

Figure 10

Trial Reduction

Utilizing the modular neck and head trials, perform a trial reduction of the hip and determine if the selected offset, leg length and joint stability are appropriate (Figures 9 and 10). In performing the trial range of motion, ensure the absence of impingement of the neck on the rim of the acetabular component or acetabular liner.

Note: The gold modular trials indicate standard offset and the black trials indicate high offset.

Once the desired offset, leg length and joint stability have been achieved, remove the modular neck and head trials. Reattach the broach handle to the assembled trial and remove the trial from the femur. Detach the broach handle from the assembled trial.

Calcar/Broach Proximal Bodies & PPS® Distal Stems

Sterile Field Technique

Figure 11

Figure 12

Figure 13

Implant Assembly

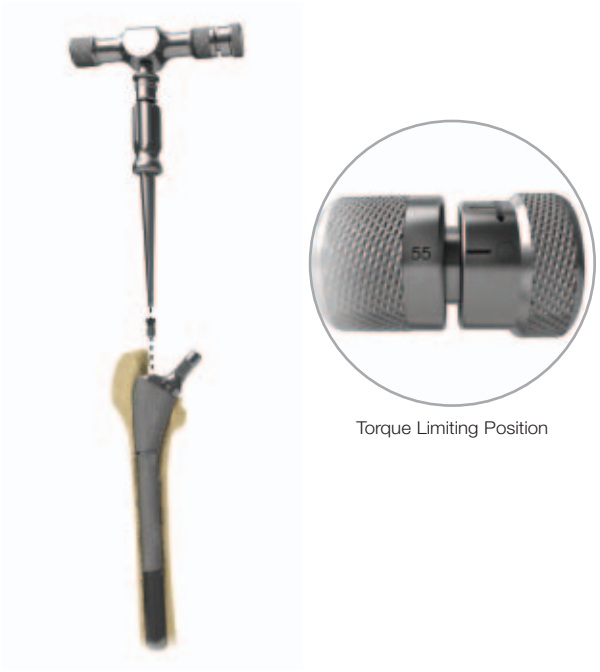
With the trial still assembled in the sterile field, assemble the distal stem and proximal body implants to match the orientation of the assembled trial (Figure 11).

Note: If utilizing a slotted stem, a straight osteotome can be used in the slot of the trial and implant to properly orient the distal stem in relation to the proximal body.

When the desired orientation of the implants has been achieved, thread the green proximal body inserter to the assembled implant and impact the taper junction with at least three blows of the mallet on the back table (Figure 12).

Implant Insertion

With the proximal inserter still assembled to the implant, ensure the anti-rotation tabs are properly locked and insert the implant into the femur until the desired depth is achieved (Figure 13).



Torque Limiting Position

Figure 14

Figure 15

Inserting the Locking Screw

To lock the distal and proximal body implants, thread the locking screw into the top of the proximal body using the 3.5 mm hex driver and the T-handle in torque limiting position until a “click” is felt and heard (Figure 14).

Note: The screw can be used to lock the proximal body and distal stem together before the implants are inserted into the femur. If this is done, check the security of the screw once the implant has been fully seated.

Final Reduction

If desired, another trial reduction can be accomplished prior to selecting final head size and impacting the modular head onto the stem (Figure 15). Provisional heads in seven neck lengths allow an additional trial reduction using the actual implant to ensure proper leg length and stability. After fully seating the femoral component, impact the appropriate modular head onto the clean, dry taper.

Calcar/Broach Proximal Bodies & STS™ Distal Stems

Sterile Field Technique

Locked Position

Figure 1

Figure 2

Preparation of the Diaphysis

To prepare the femur for an STS™ distal stem, select the STS™ reamers (silver reamers for 150 mm stem length and gold reamers for a 190 mm stem length). Assemble the STS™ reamer to the T-handle and turn the handle from torque limiting to the locked position.

Ream the femur in 1 mm increments by hand until the reamer advances to the 60 mm mark, referencing the tip of the greater trochanter (Figure 1).

Note: The final depth of the implant may vary from the depth of the reamer. How aggressively the femur is prepared and the quality of the bone may impact the depth that the final implant will seat. If the final implant sits proud of the desired ream depth, note the difference between these and utilize the last reamer used to ream deeper into the femur. Reaming the femur by hand may help avoid any discrepancy between the reamed depth and the final depth of the implant.

Trialing the Distal Stem

When distal femoral reaming is complete, select the stem trial that is the same diameter as the final reamer and the necessary length for stem stability. Thread the black distal trial inserter into the stem trial and insert the stem trial into the femur, matching the etched depth mark on the inserter to the depth achieved from the last STS™ reamer used (Figure 2).

Note: The stem trial and reamer are the same size. Both are 1 mm smaller than the femoral implant.

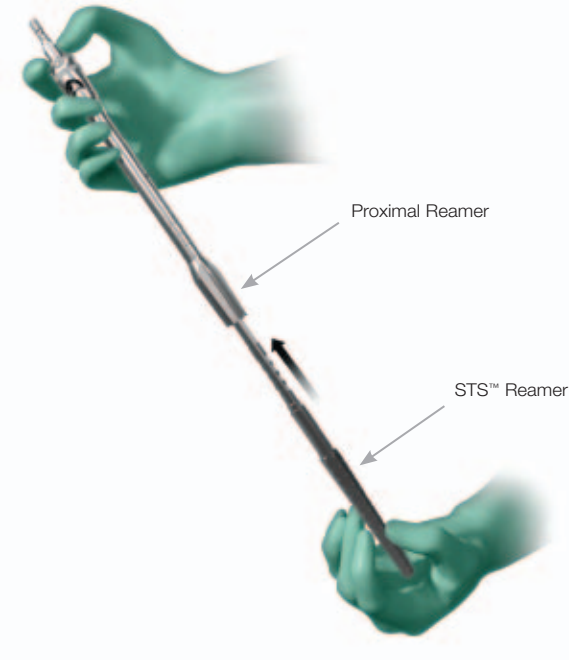


Figure 3

Figure 4

Preparation of the Metaphysis

To prepare the proximal femur, assemble the final STS™ reamer into the proximal reamer and press down on the collar at the top of the proximal reamer to securely lock the two instruments together (Figure 3). Ream the proximal femur with the reamers, sequentially increasing the size of the proximal reamer, until the desired size (A–F) and the 60 mm proximal body height is achieved (Figure 4).

Sterile Field Technique

Figure 5

Figure 6

Broaching the Metaphysis

Once the desired size and 60 mm proximal body height has been achieved utilizing the STS™/proximal reamers, assemble the proximal broach body and the distal stem trial together using the 3.5 mm hex driver (Figure 5).

Note: To keep the broach aligned with the femur, utilize the distal stem trial previously used.

Broach the proximal femur sequentially, until the final broach size matches the last proximal reamer used (Figure 6). Verify that the broach body is advanced into the femur, oriented to the desired anteversion and the 60 mm etch mark on the broach handle is aligned with the tip of the greater trochanter. Once the broach has been seated to the desired level, remove the broach handle from the assembled trial.

Figure 7

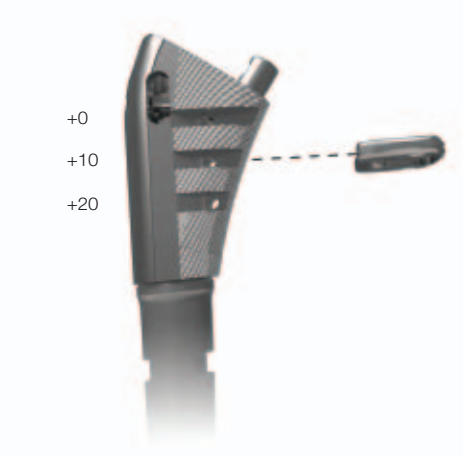


Figure 8

Calcar Resection

If utilizing the calcar proximal body implant, determine the level of deficiency in the proximal femur, align the resection guide to the broach and mark the desired resection with a saw (Figure 7). Remove the broach and stem trial with the broach handle and complete the calcar resection.

Insert either the large or small platform trial into the slot corresponding with the calcar resection level (Figure 8).

Note: The large platform should be utilized for a +0 resection level and the small platform should be utilized for the +10 or +20 resection levels.

Reattach the broach handle to the assembled trial and insert the trial into the femur to verify that it seats to the desired level.

Figure 9

Figure 10

Trial Reduction

Utilizing the modular neck and head trials, perform a trial reduction of the hip and determine if the selected offset, leg length and joint stability are appropriate (Figures 9 and 10). In performing the trial range of motion, ensure the absence of impingement of the neck on the rim of the acetabular component or acetabular liner.

Note: The gold modular trials indicate standard offset and the black trials indicate high offset.

Once the desired offset, leg length and joint stability have been achieved, remove the modular neck and head trials. Reattach the broach handle to the assembled trial and remove the trial from the femur. Detach the broach handle from the assembled trial.

Figure 11

Figure 12

Implant Assembly

With the trial still assembled in the sterile field, assemble the distal stem and proximal body implants to match the orientation of the assembled trial (Figure 11).

Note: If utilizing the 190 mm stem, ensure the bevel at the distal tip of the stem is oriented anteriorly.

When the desired orientation of the implants has been achieved, thread the green proximal body inserter to the assembled implant and impact the taper junction with at least three blows of the mallet on the back table (Figure 12).

Figure 13

Torque Limiting Position

Figure 14

Implant Insertion

With the proximal inserter still assembled to the implant, ensure the anti-rotation tabs are properly locked and insert the final implant into the femur until the desired depth is achieved (Figure 13).

Note: The final depth of the implant may vary from the depth of the reamer in this step. How aggressively the femur is prepared and the quality of the bone may impact the depth that the final implant will seat. If the final implant sits proud of the desired ream depth, note the difference between these and utilize the last reamer used to ream deeper into the femur. Reaming the femur by hand may help avoid any discrepancy between the reamed depth and the final depth of the implant.

Inserting the Locking Screw

To lock the distal and proximal body implants, thread the locking screw into the top of the proximal body using the 3.5 mm hex driver and the T-handle in torque limiting position until a “click” is felt and heard (Figure 14).

Note: The screw can be used to lock the proximal body and distal stem together before the implants are inserted into the femur. If this is done, check the security of the screw once the implant has been fully seated.

Figure 15

Final Reduction

If desired, another trial reduction can be accomplished prior to selecting final head size and impacting the modular head onto the stem (Figure 15). Provisional heads in seven neck lengths allow an additional trial reduction using the actual implant to ensure proper leg length and stability. After fully seating the femoral component, impact the appropriate modular head onto the clean, dry taper.

Arcos® Modular Femoral Revision System

ETO (Extended Trochanteric Osteotomy) Distal Stem

Ream-Over Technique

Figure 1

Locked Position

Figure 2

Femoral Osteotomy

When utilizing the ETO distal stem the only assembly option is the ream-over technique. Due to its unique design, this stem should only be used in cases when there is an osteotomy of the femur that allows for reaming of the most distal aspect of the femur (into and below the anatomic bow) (Figure 1).

Preparation of the Diaphysis

To prepare the femur for the ETO distal stem, select the STS™ reamers (silver reamers correspond to the 150 mm/250 mm ETO STS™ stem lengths). Assemble the STS™ reamer to the T-handle and turn the handle from torque limiting to the locked position.

Note: Reference the set of depth etch markings closest to the T-handle. The reamer flutes are also marked with additional depth etch marks to allow for a visual reference from the osteotomy level.

Ream the femur in 1 mm increments by hand until the reamer advances to the 70 mm mark, referencing the tip of the greater trochanter and measuring the reaming depth from the more proximal depth marks (Figure 2).

Note: Reaming to the 70 mm mark allows for a proximal height adjustment of 10 mm in either direction (e.g. 60 mm – 80 mm) depending on the final seated depth of the distal stem implant.

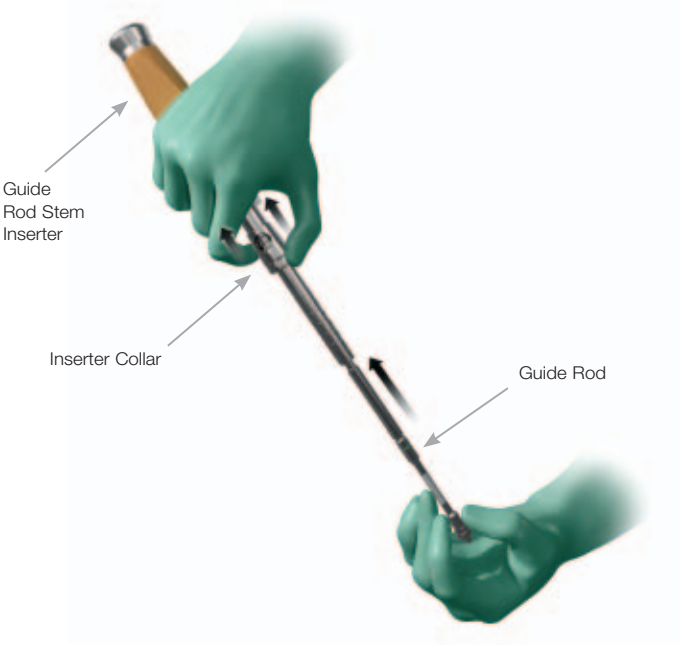


Figure 3

Figure 4

Note: The final depth of the implant may vary from the depth of the reamer in this step. How aggressively the femur is prepared and the quality of the bone may impact the depth that the final implant will seat. If the final implant sits proud of the desired ream depth, note the difference between these and utilize the last reamer used to ream deeper into the femur. Reaming the femur by hand may help avoid any discrepancy between the reamed depth and the final depth of the implant.

Distal Stem Insertion

Once the final stem size has been determined, assemble the guide rod to the orange guide rod stem inserter by sliding the rod into the inserter, pulling back on the inserter collar and locking the rod into the inserter (Figure 3).

Thread the inserter assembly to the distal stem implant and insert the implant into the femur such that the kink in the implant matches the anatomic bow of the femur and the distal stem is seated to the previously determined depth level, referencing the greater trochanter. Once the implant has been seated to the desired level, identify the depth on the inserter in reference to the greater trochanter to determine the height of the cone proximal body needed (Figure 4).

Note: The 50 mm, size A cone proximal body implant was not designed to accommodate a trochanteric bolt and claw. If a trochanteric bolt and claw is desired, utilize a cone proximal body implant with a 60, 70 or 80 mm vertical height.

ETO (Extended Trochanteric Osteotomy) Distal Stem

Ream-Over Technique

Figure 5

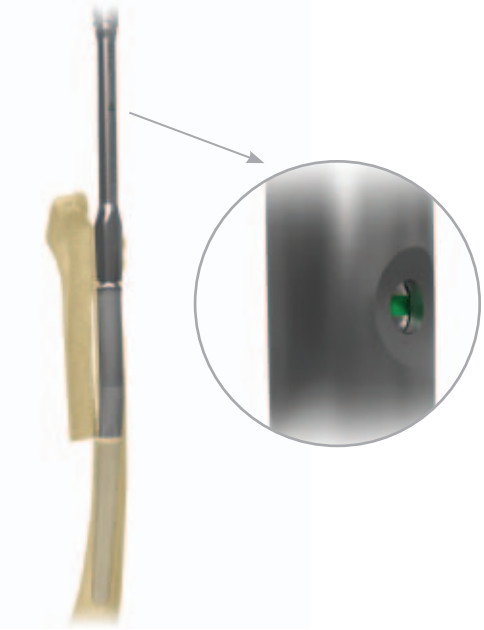


Figure 6

Preparation of the Metaphysis

To ream the proximal femur, release the inserter from the guide rod by pulling back on the collar spring to disengage the reaming guide and remove the stem inserter, leaving the guide rod attached to the distal stem (Figure 5).

Note: The guide rod must be attached to the stem to properly ream over the taper junction. The rod protects the taper junction from reamer damage and provides for accurate reaming depth.

Ream the proximal femur over the guide rod with the proximal reamers until they no longer advance. A green line is visible through the proximal reamer window verifying that the reamer is fully seated and the proper reaming depth is obtained. Sequentially increase the size of the reamers until the desired proximal body size (A–G) is achieved (Figure 6).

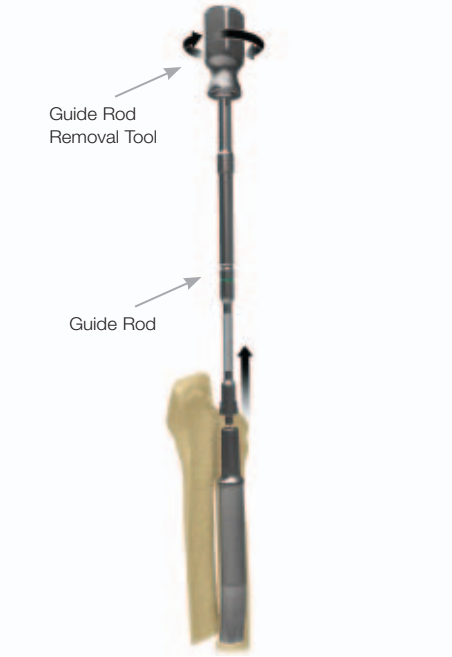


Figure 7

Figure 8

Remove the guide rod from the distal stem implant with the guide rod removal tool, turning the removal tool counter-clockwise (Figure 7).

Trialing the Proximal Body

To trial the proximal body, first ensure that the taper junction on the distal stem implant is clean and dry. Attach the cone trial that is the same height and diameter as the final proximal reamer and the appropriate offset. The light green trial indicates standard offset, while the purple trial represents high offset.

Assemble the 3.5 mm hex driver to the T-handle and adjust the T-handle to the torque limiting position. Tighten the proximal body trial to the distal stem implant until the T-handle "clicks," setting the desired anteversion or retroversion in the proximal body (Figure 8).

Note: The anti-rotation handle can be placed over the trial neck to control anteversion or retroversion.

Note: In cases with good medial bone stock, impingement between the medial neck and bone may occur causing the trial to not properly seat. Using the appropriate hand tools such as a rongeur, remove the excess bone and re-seat the trial before choosing a final implant.

ETO (Extended Trochanteric Osteotomy) Distal Stem

Ream-Over Technique

Figure 9

Figure 10

Trial Reduction

Reduce the hip to ensure that proper leg length and joint stability have been achieved. In performing the trial range of motion, ensure the absence of impingement of the neck on the rim of the acetabular component or acetabular liner. Remove the cone proximal body trial from the femur with the 3.5 mm hex driver.

Proximal Body Insertion

Note: Reference the Taper Compression Assembly Section of this technique if an impaction assembly is not preferred.

Once the proper body height and size has been determined, thread the green proximal body inserter to the proximal body implant, ensuring the anti-rotation tabs are locked in the proper orientation.

Impact the proximal body to the taper junction on the distal stem implant with blows of the mallet (Figure 10). The implant will be seated when there is an audible change in the pitch during impaction or the etch mark of the inserter handle is advanced to the previously determined ream depth.

Torque Limiting Position

Figure 11

Figure 12

Inserting the Locking Screw

To lock the distal and proximal body implants, thread the locking screw into the top of the proximal body using the 3.5 mm T-handle in the torque limiting position until a “click” is felt and heard (Figure 11).

Note: If the screw does not thread into the distal stem the proximal body is not fully seated and the implant insertion steps must be repeated.

Final Reduction

If desired, another trial reduction can be accomplished prior to selecting final head size and impacting the modular head onto the stem (Figure 12). Provisional heads in seven neck lengths allow an additional trial reduction using the actual implant to ensure proper leg length and stability. After fully seating the femoral component, impact the appropriate modular head onto the clean, dry taper.

Trochanteric Bolt and Claw Technique

Figure 1

Figure 2

Once the final implant has been reduced, the osteotomy can be repaired and stabilized by attaching a trochanteric claw directly to the implant.

Note: All proximal body designs accept a bolt and claw except the 50A Cone and 50A Calcar bodies.

Depending on the surgical approach and operative hip, select the appropriate trochanteric bolt guide instrument (Figure 1).

Use the 5.0 mm hex driver to thread the trochanteric bolt guide into the insertion hole on the proximal body, ensuring the anti-rotation tabs are locked to the proximal body implant. Place the trochanteric fragment between the implant and the trochanteric bolt guide (Figure 2).

Use the claw trials (large or small) to select the needed width.

Note: Guide may be easier to attach before hip is reduced.

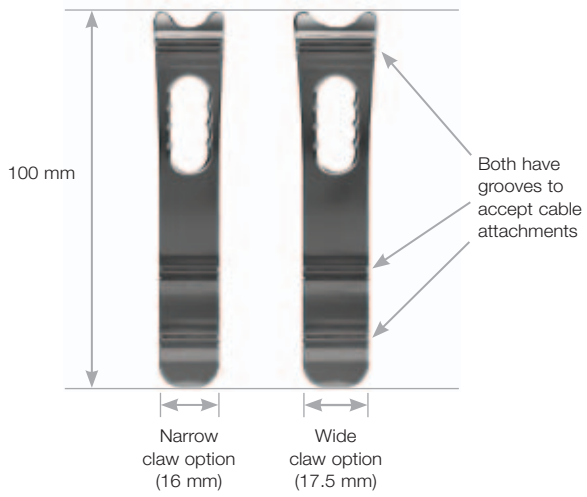


Figure 3

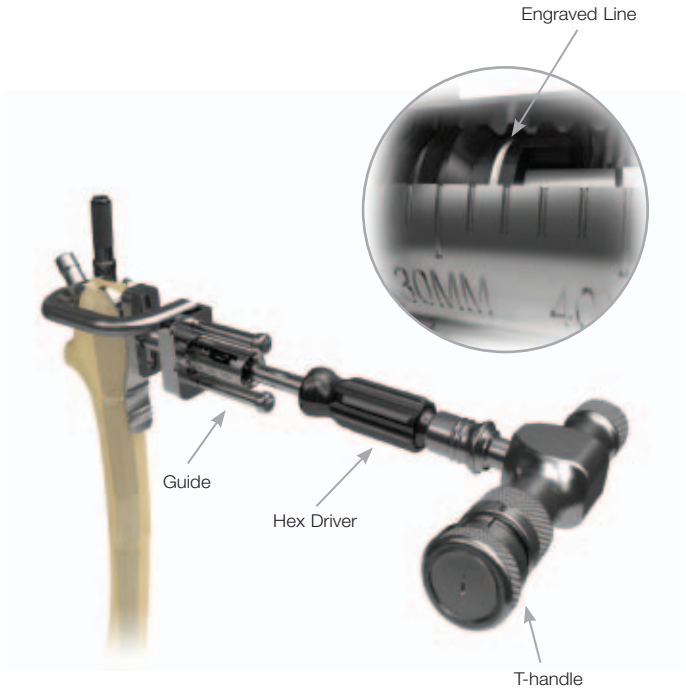


Figure 4

Note: Both claws are 100 mm in length, measured from top to bottom (Figure 3).

Once the size has been determined, compress the claw implant to the bone fragment by threading the plunger tightly against the claw implant using the 5.0 mm hex driver and T-handle in the torque limiting position (Figure 4).

Note: Ensure that the head of the plunger is aligned with a hole in the claw to ensure that the bolt will pass through the claw into the implant.

Select the bolt length that corresponds with the depth marks on the outside of the trochanteric bolt guide as measured according to the position of the engraved line on the plunger. Choose the trochanteric bolt drill bit that matches the size of the proximal body implant (Size A–G) regardless of height or body style.

Example: If a size B cone body is used, select the size B trochanteric bolt drill bit. Selecting the correct size will prevent the drill from contacting the implant.

Note: Bolts are available in 1 mm increments.

Figure 5

Figure 6

Advance the appropriate size drill bit through the plunger until the built-in stop bottoms out on the cylindrical surface of the outrigger (Figure 5).

Note: It is not possible to drill through the bolt hole on the claw trial, preparation must be performed with the final implant in place.

Compress the arms of the trochanteric bolt guide tightly to the claw and remove the measurement plunger with the 5.0 mm hex driver (Figure 6). Attach the 5.0 mm hex driver to the T-handle and set to torque limiting position.

Figure 7

Figure 8

Figure 9

Thread the bolt through the trochanteric bolt guide and into the proximal body until a “click” is felt and heard (Figure 7).

Note: It may be necessary to give the T-handle a few small taps with the mallet to ensure the bolt drops into the hole in the proximal body.

Once the bolt is secured to the implant, unthread the trochanteric bolt guide from the proximal body using the 5.0 mm hex driver (Figure 8).

Note: Cables may be added in the grooves of the claw for additional stability (Figure 9).

Note: If the trochanteric bolt guide is difficult to remove, unthread the trochanteric bolt by ½ of a turn, remove the guide and retighten the bolt with the T-handle in torque limiting position.

Arcos® Modular Femoral Revision System

In-Femur Assembly

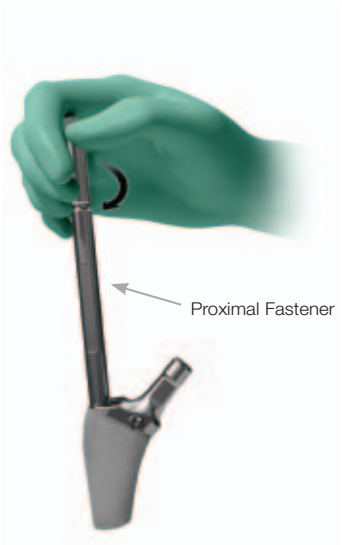


Figure 1

Figure 2

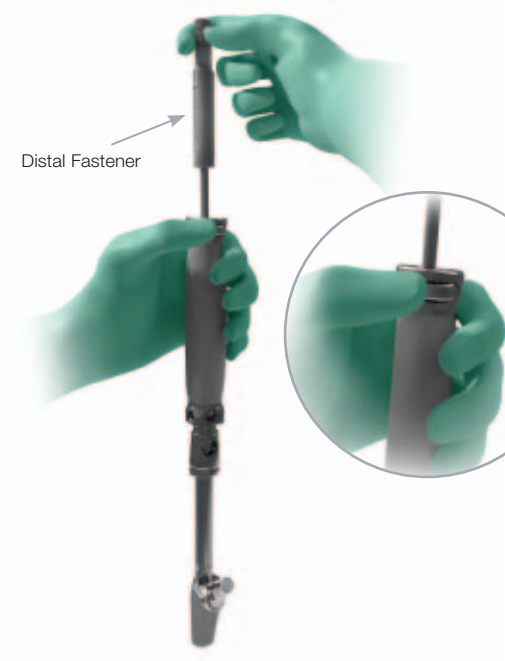


Figure 3

The in-femur assembly tool can be utilized with any proximal body and PPS® coated distal stem construct and was designed to allow for a bowed distal stem to seat in the proper anatomic orientation, independent of the proximal body implant.

Once the diaphysis and metaphysis has been prepared and trialed, the in-femur assembly tool can be utilized for the final insertion of the implant and to securely lock the taper junction.

Implant Assembly

Thread the proximal fastener into the insertion hole on the proximal body implant (Figure 1). Slide the fastener into the gray proximal/distal inserter, pulling back on the inserter collar and locking the fastener into the inserter (Figure 2). Ensure that the anti-rotation tabs are locked to the implant.

Place the distal fastener that matches the selected proximal body height into the proximal/distal inserter handle. Depress the button at the top of the proximal/distal inserter handle and insert the assembly rod into the inserter (Figure 3).

Figure 4

Figure 5

Insert the 5.0 mm hex driver to the top of the proximal/distal inserter handle, hold the taper junction apart and thread the distal fastener into the distal stem (Figure 4).

Note: Do not engage the taper junction when threading the distal fastener rod into the distal stem.

Attach the proximal/distal inserter handle strike plate, tightening until a “click” is felt and heard. Impact the proximal body until it is 2–3 cm proud of the desired depth (Figure 5).

Note: When a “click” is heard while tightening the strike plate, the proximal body and distal stem are separated and cannot be locked during insertion into the femur.

In-Femur Assembly

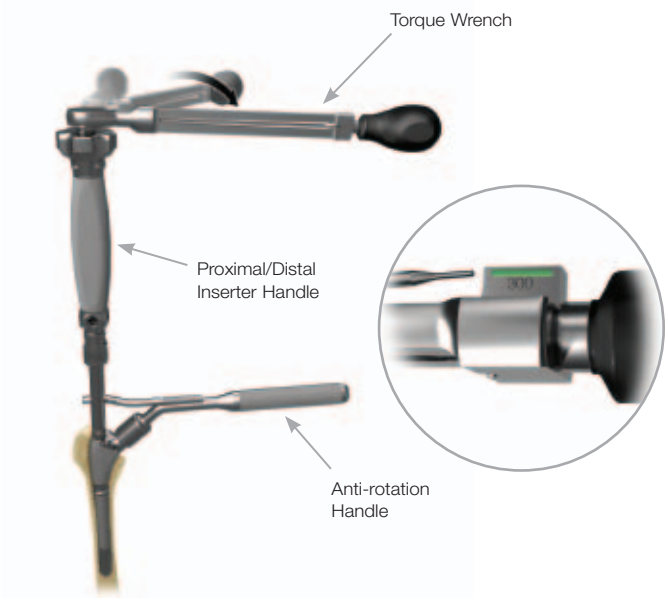


Figure 6

Figure 7

Implant Assembly (cont.)

To fully engage the taper junction, attach the torque wrench to the end of the proximal/distal inserter handle strike plate, place the anti-rotation handle over the implant neck and tighten until 300 in-lbs is indicated on the torque wrench shaft (Figure 6).

Disassemble the torque wrench and anti-rotation handle. Impact the stem to the desired depth (Figure 7).

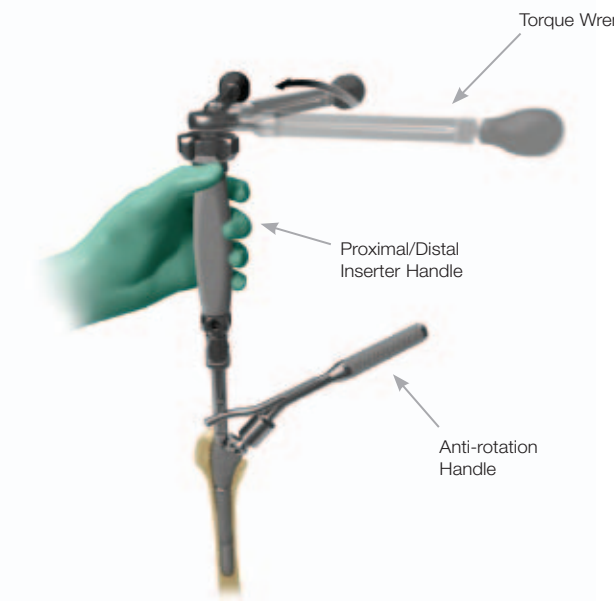


Figure 8

Figure 9

Figure 10

Inserter Disassembly

To loosen the strike plate, use the anti-rotation handle to hold the neck of the implant. Turn the torque wrench counter-clockwise and depress the button at the top of the proximal/distal inserter handle and unthread the strike plate (Figure 8).

Unthread the distal fastener from the distal stem implant using the 5.0 mm hex. Disengage the proximal/distal inserter by pulling back on the inserter collar (Figures 9 and 10).

In-Femur Assembly

Figure 11

Torque Limiting Position

Figure 12

Inserter Disassembly (cont.)

To remove the proximal fastener, utilize the taper assembly driver and unthread the proximal fastener from the proximal body implant (Figure 11).

Note: This inserter disassembly technique will NOT disassemble the implant.

Inserting the Locking Screw

To lock the distal and proximal body implants, thread the locking screw into the top of the proximal body using the 3.5 mm hex driver and T-handle in torque limiting position until a “click” is felt and heard (Figure 12).

Note: If the screw does not thread into the distal stem the proximal body is not fully seated and the final implant assembly steps must be repeated.

Figure 13

Final Reduction

If desired, another trial reduction can be accomplished prior to selecting final head size and impacting the modular head onto the stem (Figure 13). Provisional heads in seven neck lengths allow an additional trial reduction using the actual implant to ensure proper leg length and stability. After fully seating the femoral component, impact the appropriate modular head onto the clean, dry taper.

Taper Compression Assembly

Figure 1

Figure 2

Figure 3

Proximal Body Insertion

Attaching the Proximal Body to the Distal Stem Implant

Once the desired offset has been chosen, ensure that the taper junction on the distal stem implant is clean and dry. Attach the proximal fastener to the cone proximal body implant by threading the proximal fastener into the insertion hole on the cone proximal body implant (Figure 1). Place the gray proximal/distal inserter handle over the proximal fastener by pulling back on the inserter collar and locking the proximal body, ensuring the anti-rotation tabs are locked to the proximal body implant (Figure 2).

Place the distal fastener that matches the selected proximal body height into the proximal/distal inserter handle. Depress the button at the end of the proximal/distal inserter handle and insert the distal fastener into the inserter (Figure 3).

Figure 4

Figure 5

Figure 6

Insert the 5.0 mm hex driver into the top of the proximal/distal inserter handle and tightly thread the distal fastener into the distal stem (Figure 4). Attach the proximal/distal inserter handle strike plate, tightening until a “click” is felt and heard.

Set the desired version of the cone proximal body implant by turning the strike plate clockwise until it stops (Figure 5).

To fully engage the implant taper junction, attach the torque wrench to the end of the proximal/distal inserter handle strike plate, place the anti-rotation handle to the implant neck and tighten until 300 in-lbs is indicated on the torque wrench shaft (Figure 6).

Taper Compression Assembly

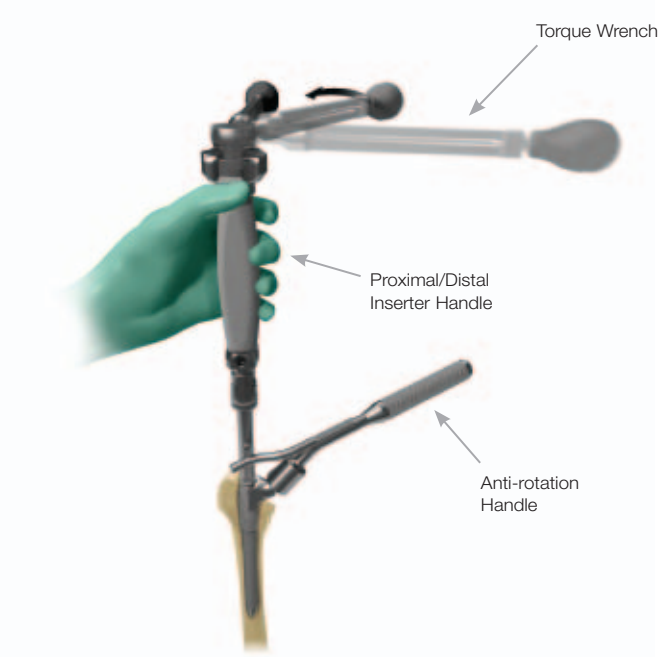


Figure 7

Figure 8

Inserter Disassembly

To remove the inserter from the fully seated implant, turn the torque wrench counter-clockwise while leveraging the anti-rotation handle, depress the button at the top of the proximal/distal inserter handle and unthread the strike plate (Figure 7). Unthread the distal fastener from the distal stem implant using the 5.0 mm hex driver (Figure 8).

Note: If the distal fastener is difficult to loosen with the 5.0 mm hex driver, attach the T-handle, set to the OFF position, and turn it counter-clockwise.

Figure 9

Figure 10

Torque Limiting Position

Figure 11

Disengage the proximal/distal inserter by pulling back on the inserter collar (Figure 9). To remove the proximal fastener, utilize the taper assembly driver and unthread the proximal fastener from the proximal body implant (Figure 10).

Note: This inserter disassembly technique will NOT disassemble the implant.

Inserting the Locking Screw

To lock the distal and proximal body implants, thread the locking screw into the top of the proximal body using the 3.5 mm hex driver and T-handle in torque limiting position until a “click” is felt and heard (Figure 11).

Note: If the screw does not thread into the distal stem the proximal body is not fully seated and the final implant assembly steps must be repeated.

Disengaging the Taper Junction

Figure 1

Figure 2

Disengaging the Proximal Body from the Distal Stem Implant

To disengage the proximal body implant from the distal stem, remove the locking screw with the 3.5 mm hex driver and thread the taper disassembly tool that matches the proximal body height to the proximal body implant (Figure 1). Attach the torque wrench to the taper disassembly tool and with the anti-rotation handle attached to the neck of the proximal body, turn the torque wrench clockwise until the proximal body disengages the distal stem (Figure 2). When resistance is felt, continue to slowly turn the torque handle and after each quarter turn of the handle, pull the underside of the taper disassembly tool until the proximal body disengages.

Note: When disengaging the taper junction within the femur the proximal body may feel tight within the bone although the taper junction is disengaged. This is due to the initial fixation of the PPS® coating to the bone. Gently tap the underside of the taper disassembly tool with the mallet to extricate the proximal body from the bone. Do NOT continue tightening the torque wrench as this may damage the implant.

Arcos® Modular Femoral Revision System

Implants

Product	Standard Offset Part Number	High Offset Part Number	Description	Vertical Body Height	Size
	11-301101	11-301111	Broached Proximal Body	60 mm	A
	11-301102	11-301112	Broached Proximal Body	60 mm	B
	11-301103	11-301113	Broached Proximal Body	60 mm	C
	11-301104	11-301114	Broached Proximal Body	60 mm	D
	11-301105	11-301115	Broached Proximal Body	60 mm	E
	11-301106	11-301116	Broached Proximal Body	60 mm	F

Product	Standard Offset Part Number	High Offset Part Number	Description	Vertical Body Height	Size
	11-301200	11-301210	Calcar Proximal Body	50 mm	A
	11-301201	11-301211	+0 Calcar Proximal Body	60 mm	A
	11-301202	11-301212	+0 Calcar Proximal Body	60 mm	B
	11-301203	11-301213	+0 Calcar Proximal Body	60 mm	C
	11-301204	11-301214	+0 Calcar Proximal Body	60 mm	D
	11-301205	11-301215	+0 Calcar Proximal Body	60 mm	E
	11-301206	11-301216	+0 Calcar Proximal Body	60 mm	F
	11-301221	11-301231	+10 Calcar Proximal Body	60 mm	A
	11-301222	11-301232	+10 Calcar Proximal Body	60 mm	B
	11-301223	11-301233	+10 Calcar Proximal Body	60 mm	C
	11-301224	11-301234	+10 Calcar Proximal Body	60 mm	D
	11-301225	11-301235	+10 Calcar Proximal Body	60 mm	E
	11-301226	11-301236	+10 Calcar Proximal Body	60 mm	F
	11-301241	11-301251	+20 Calcar Proximal Body	60 mm	A
	11-301242	11-301252	+20 Calcar Proximal Body	60 mm	B
	11-301243	11-301253	+20 Calcar Proximal Body	60 mm	C
	11-301244	11-301254	+20 Calcar Proximal Body	60 mm	D
	11-301245	11-301255	+20 Calcar Proximal Body	60 mm	E
	11-301246	11-301256	+20 Calcar Proximal Body	60 mm	F

Product	Standard Offset Part Number	High Offset Part Number	Description	Vertical Body Height	Size
	11-301300	**11-301310**	Cone Proximal Body	50 mm	A
	11-301301	**11-301311**	Cone Proximal Body	60 mm	A
	11-301302	**11-301312**	Cone Proximal Body	60 mm	B
	11-301303	**11-301313**	Cone Proximal Body	60 mm	C
	11-301304	**11-301314**	Cone Proximal Body	60 mm	D
	11-301305	**11-301315**	Cone Proximal Body	60 mm	E
	11-301306	**11-301316**	Cone Proximal Body	60 mm	F
	11-301307	**11-301317**	Cone Proximal Body	60 mm	G
	11-301321	**11-301331**	Cone Proximal Body	70 mm	A
	11-301322	**11-301332**	Cone Proximal Body	70 mm	B
	11-301323	**11-301333**	Cone Proximal Body	70 mm	C
	11-301324	**11-301334**	Cone Proximal Body	70 mm	D
	11-301325	**11-301335**	Cone Proximal Body	70 mm	E
	11-301326	**11-301336**	Cone Proximal Body	70 mm	F
	11-301327	**11-301337**	Cone Proximal Body	70 mm	G
	11-301341	**11-301351**	Cone Proximal Body	80 mm	A
	11-301342	**11-301352**	Cone Proximal Body	80 mm	B
	11-301343	**11-301353**	Cone Proximal Body	80 mm	C
	11-301344	**11-301354**	Cone Proximal Body	80 mm	D
	11-301345	**11-301355**	Cone Proximal Body	80 mm	E
	11-301346	**11-301356**	Cone Proximal Body	80 mm	F
	11-301347	**11-301357**	Cone Proximal Body	80 mm	G

Product	Part Number	Description	Diameter	Length
	11-300512	Bowed Slotted Distal Stem	12 mm	150 mm
	11-300513	Bowed Slotted Distal Stem	13 mm	150 mm
	11-300514	Bowed Slotted Distal Stem	14 mm	150 mm
	11-300515	Bowed Slotted Distal Stem	15 mm	150 mm
	11-300516	Bowed Slotted Distal Stem	16 mm	150 mm
	11-300517	Bowed Slotted Distal Stem	17 mm	150 mm
	11-300518	Bowed Slotted Distal Stem	18 mm	150 mm
	11-300519	Bowed Slotted Distal Stem	19 mm	150 mm
	11-300520	Bowed Slotted Distal Stem	20 mm	150 mm
	11-300521	Bowed Slotted Distal Stem	21 mm	150 mm
	11-300522	Bowed Slotted Distal Stem	22 mm	150 mm
	11-300523	Bowed Slotted Distal Stem	23 mm	150 mm
	11-300524	Bowed Slotted Distal Stem	24 mm	150 mm
	11-300525	Bowed Slotted Distal Stem	25 mm	150 mm
	11-300526	Bowed Slotted Distal Stem	26 mm	150 mm
	11-300612	Bowed Slotted Distal Stem	12 mm	200 mm
	11-300613	Bowed Slotted Distal Stem	13 mm	200 mm
	11-300614	Bowed Slotted Distal Stem	14 mm	200 mm
	11-300615	Bowed Slotted Distal Stem	15 mm	200 mm
	11-300616	Bowed Slotted Distal Stem	16 mm	200 mm
	11-300617	Bowed Slotted Distal Stem	17 mm	200 mm
	11-300618	Bowed Slotted Distal Stem	18 mm	200 mm
	11-300619	Bowed Slotted Distal Stem	19 mm	200 mm
	11-300620	Bowed Slotted Distal Stem	20 mm	200 mm
	11-300621	Bowed Slotted Distal Stem	21 mm	200 mm
	11-300622	Bowed Slotted Distal Stem	22 mm	200 mm
	11-300623	Bowed Slotted Distal Stem	23 mm	200 mm
	11-300624	Bowed Slotted Distal Stem	24 mm	200 mm
	11-300625	Bowed Slotted Distal Stem	25 mm	200 mm
	11-300626	Bowed Slotted Distal Stem	26 mm	200 mm
	11-300712	Bowed Slotted Distal Stem	12 mm	250 mm
	11-300713	Bowed Slotted Distal Stem	13 mm	250 mm
	11-300714	Bowed Slotted Distal Stem	14 mm	250 mm
	11-300715	Bowed Slotted Distal Stem	15 mm	250 mm
	11-300716	Bowed Slotted Distal Stem	16 mm	250 mm
	11-300717	Bowed Slotted Distal Stem	17 mm	250 mm
	11-300718	Bowed Slotted Distal Stem	18 mm	250 mm
	11-300719	Bowed Slotted Distal Stem	19 mm	250 mm
	11-300720	Bowed Slotted Distal Stem	20 mm	250 mm
	11-300721	Bowed Slotted Distal Stem	21 mm	250 mm
	11-300722	Bowed Slotted Distal Stem	22 mm	250 mm
	11-300723	Bowed Slotted Distal Stem	23 mm	250 mm
	11-300724	Bowed Slotted Distal Stem	24 mm	250 mm
	11-300725	Bowed Slotted Distal Stem	25 mm	250 mm
	11-300726	Bowed Slotted Distal Stem	26 mm	250 mm

Product	Part Number	Description	Diameter	Length
	11-301412	Straight Bullet-tip Distal Stem	12 mm	115 mm
	11-301413	Straight Bullet-tip Distal Stem	13 mm	115 mm
	11-301414	Straight Bullet-tip Distal Stem	14 mm	115 mm
	11-301415	Straight Bullet-tip Distal Stem	15 mm	115 mm
	11-301416	Straight Bullet-tip Distal Stem	16 mm	115 mm
	11-301417	Straight Bullet-tip Distal Stem	17 mm	115 mm
	11-301418	Straight Bullet-tip Distal Stem	18 mm	115 mm
	11-301419	Straight Bullet-tip Distal Stem	19 mm	115 mm
	11-301420	Straight Bullet-tip Distal Stem	20 mm	115 mm
	11-301421	Straight Bullet-tip Distal Stem	21 mm	115 mm
	11-301422	Straight Bullet-tip Distal Stem	22 mm	115 mm
	11-301512	Bowed Bullet-tip Distal Stem	12 mm	150 mm
	11-301513	Bowed Bullet-tip Distal Stem	13 mm	150 mm
	11-301514	Bowed Bullet-tip Distal Stem	14 mm	150 mm
	11-301515	Bowed Bullet-tip Distal Stem	15 mm	150 mm
	11-301516	Bowed Bullet-tip Distal Stem	16 mm	150 mm
	11-301517	Bowed Bullet-tip Distal Stem	17 mm	150 mm
	11-301518	Bowed Bullet-tip Distal Stem	18 mm	150 mm
	11-301519	Bowed Bullet-tip Distal Stem	19 mm	150 mm
	11-301520	Bowed Bullet-tip Distal Stem	20 mm	150 mm
	11-301521	Bowed Bullet-tip Distal Stem	21 mm	150 mm
	11-301522	Bowed Bullet-tip Distal Stem	22 mm	150 mm
	11-301523	Bowed Bullet-tip Distal Stem	23 mm	150 mm
	11-301524	Bowed Bullet-tip Distal Stem	24 mm	150 mm
	11-301525	Bowed Bullet-tip Distal Stem	25 mm	150 mm
	11-301526	Bowed Bullet-tip Distal Stem	26 mm	150 mm
	11-301612	Bowed Bullet-tip Distal Stem	12 mm	200 mm
	11-301613	Bowed Bullet-tip Distal Stem	13 mm	200 mm
	11-301614	Bowed Bullet-tip Distal Stem	14 mm	200 mm
	11-301615	Bowed Bullet-tip Distal Stem	15 mm	200 mm
	11-301616	Bowed Bullet-tip Distal Stem	16 mm	200 mm
	11-301617	Bowed Bullet-tip Distal Stem	17 mm	200 mm
	11-301618	Bowed Bullet-tip Distal Stem	18 mm	200 mm
	11-301619	Bowed Bullet-tip Distal Stem	19 mm	200 mm
	11-301620	Bowed Bullet-tip Distal Stem	20 mm	200 mm
	11-301621	Bowed Bullet-tip Distal Stem	21 mm	200 mm
	11-301622	Bowed Bullet-tip Distal Stem	22 mm	200 mm
	11-301623	Bowed Bullet-tip Distal Stem	23 mm	200 mm
	11-301624	Bowed Bullet-tip Distal Stem	24 mm	200 mm
	11-301625	Bowed Bullet-tip Distal Stem	25 mm	200 mm
	11-301626	Bowed Bullet-tip Distal Stem	26 mm	200 mm
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	11-301713	Bowed Bullet-tip Distal Stem	13 mm	250 mm
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	11-301723	Bowed Bullet-tip Distal Stem	23 mm	250 mm
	11-301724	Bowed Bullet-tip Distal Stem	24 mm	250 mm
	11-301725	Bowed Bullet-tip Distal Stem	25 mm	250 mm
	11-301726	Bowed Bullet-tip Distal Stem	26 mm	250 mm

Arcos® Modular Femoral Revision System

Product	Part Number	Description	Diameter	Length
	11-300812	STS™ Distal Stem	12 mm	150 mm
	11-300813	STS™ Distal Stem	13 mm	150 mm
	11-300814	STS™ Distal Stem	14 mm	150 mm
	11-300815	STS™ Distal Stem	15 mm	150 mm
	11-300816	STS™ Distal Stem	16 mm	150 mm
	11-300817	STS™ Distal Stem	17 mm	150 mm
	11-300818	STS™ Distal Stem	18 mm	150 mm
	11-300819	STS™ Distal Stem	19 mm	150 mm
	11-300820	STS™ Distal Stem	20 mm	150 mm
	11-300821	STS™ Distal Stem	21 mm	150 mm
	11-300822	STS™ Distal Stem	22 mm	150 mm
	11-300823	STS™ Distal Stem	23 mm	150 mm
	11-300824	STS™ Distal Stem	24 mm	150 mm
	11-300825	STS™ Distal Stem	25 mm	150 mm
	11-300826	STS™ Distal Stem	26 mm	150 mm
	11-300827	STS™ Distal Stem	27 mm	150 mm
	11-300828	STS™ Distal Stem	28 mm	150 mm
	11-300829	STS™ Distal Stem	29 mm	150 mm
	11-300830	STS™ Distal Stem	30 mm	150 mm
	11-300912	STS™ Distal Stem	12 mm	190 mm
	11-300913	STS™ Distal Stem	13 mm	190 mm
	11-300914	STS™ Distal Stem	14 mm	190 mm
	11-300915	STS™ Distal Stem	15 mm	190 mm
	11-300916	STS™ Distal Stem	16 mm	190 mm
	11-300917	STS™ Distal Stem	17 mm	190 mm
	11-300918	STS™ Distal Stem	18 mm	190 mm
	11-300919	STS™ Distal Stem	19 mm	190 mm
	11-300920	STS™ Distal Stem	20 mm	190 mm
	11-300921	STS™ Distal Stem	21 mm	190 mm
	11-300922	STS™ Distal Stem	22 mm	190 mm
	11-300923	STS™ Distal Stem	23 mm	190 mm
	11-300924	STS™ Distal Stem	24 mm	190 mm
	11-300925	STS™ Distal Stem	25 mm	190 mm
	11-300926	STS™ Distal Stem	26 mm	190 mm
	11-300927	STS™ Distal Stem	27 mm	190 mm
	11-300928	STS™ Distal Stem	28 mm	190 mm
	11-300929	STS™ Distal Stem	29 mm	190 mm
	11-300930	STS™ Distal Stem	30 mm	190 mm

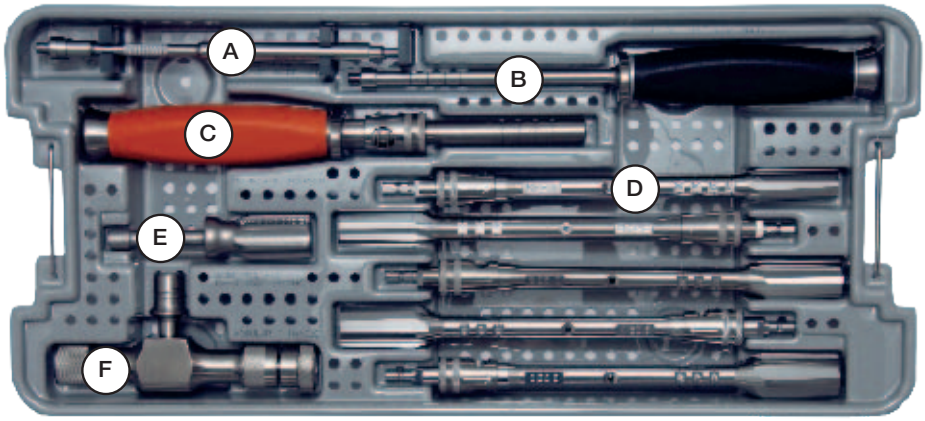
Product	Part Number	Description	Diameter	Length
	11-301012	ETO STS™ Distal Stem	12 mm	250 mm
	11-301013	ETO STS™ Distal Stem	13 mm	250 mm
	11-301014	ETO STS™ Distal Stem	14 mm	250 mm
	11-301015	ETO STS™ Distal Stem	15 mm	250 mm
	11-301016	ETO STS™ Distal Stem	16 mm	250 mm
	11-301017	ETO STS™ Distal Stem	17 mm	250 mm
	11-301018	ETO STS™ Distal Stem	18 mm	250 mm
	11-301019	ETO STS™ Distal Stem	19 mm	250 mm
	11-301020	ETO STS™ Distal Stem	20 mm	250 mm
	11-301021	ETO STS™ Distal Stem	21 mm	250 mm
	11-301022	ETO STS™ Distal Stem	22 mm	250 mm
	11-301023	ETO STS™ Distal Stem	23 mm	250 mm
	11-301024	ETO STS™ Distal Stem	24 mm	250 mm
	11-301025	ETO STS™ Distal Stem	25 mm	250 mm
	11-301026	ETO STS™ Distal Stem	26 mm	250 mm
	11-301027	ETO STS™ Distal Stem	27 mm	250 mm
	11-301028	ETO STS™ Distal Stem	28 mm	250 mm
	11-301029	ETO STS™ Distal Stem	29 mm	250 mm
	11-301030	ETO STS™ Distal Stem	30 mm	250 mm

Product	Part Number	Description	Size
	11-301000	Proximal/Distal Screw	–
	11-302101 **11-302102**	Trochanteric Claw Trochanteric Claw	Large Small

Product	Part Number	Description	Size
	11-302124	Trochanteric Bolt	24 mm
	11-302125	Trochanteric Bolt	25 mm
	11-302126	Trochanteric Bolt	26 mm
	11-302127	Trochanteric Bolt	27 mm
	11-302128	Trochanteric Bolt	28 mm
	11-302129	Trochanteric Bolt	29 mm
	11-302130	Trochanteric Bolt	30 mm
	11-302131	Trochanteric Bolt	31 mm
	11-302132	Trochanteric Bolt	32 mm
	11-302133	Trochanteric Bolt	33 mm
	11-302134	Trochanteric Bolt	34 mm
	11-302135	Trochanteric Bolt	35 mm
	11-302136	Trochanteric Bolt	36 mm
	11-302137	Trochanteric Bolt	37 mm
	11-302138	Trochanteric Bolt	38 mm
	11-302139	Trochanteric Bolt	39 mm
	11-302140	Trochanteric Bolt	40 mm
	11-302141	Trochanteric Bolt	41 mm
	11-302142	Trochanteric Bolt	42 mm
	11-302143	Trochanteric Bolt	43 mm
	11-302144	Trochanteric Bolt	44 mm
	11-302145	Trochanteric Bolt	45 mm
	11-302146	Trochanteric Bolt	46 mm
	11-302147	Trochanteric Bolt	47 mm
	11-302148	Trochanteric Bolt	48 mm
	11-302149	Trochanteric Bolt	49 mm
	11-302150	Trochanteric Bolt	50 mm
	11-302151	Trochanteric Bolt	51 mm
	11-302152	Trochanteric Bolt	52 mm
	11-302153	Trochanteric Bolt	53 mm
	11-302154	Trochanteric Bolt	54 mm

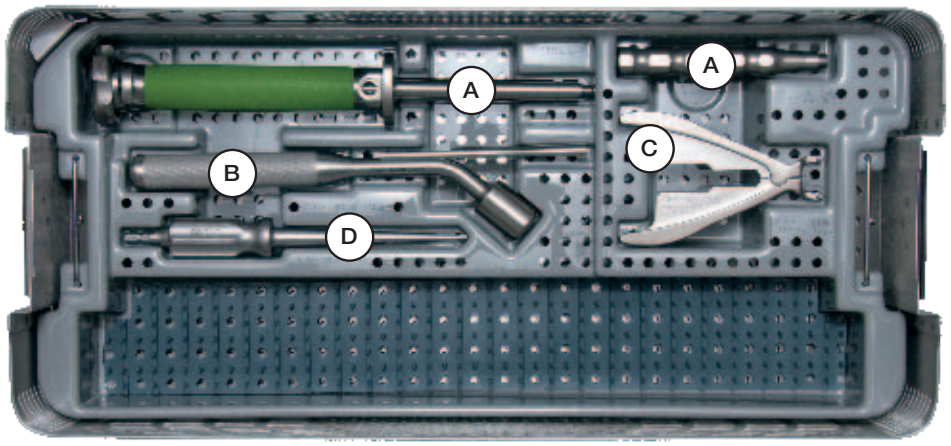
Arcos® Modular Femoral Revision System

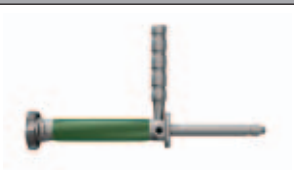
593100 General Instrument Case—Top Tray



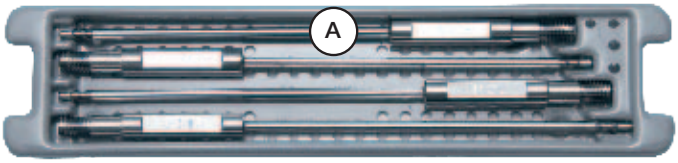
Product	Label	Part Number	Description	Size
	A	31-301368	Distal Stem Reamer Guide	–
	B	31-302000	Distal Stem Trial Inserter	–
	C	31-301854	Guide Rod Stem Inserter	–
	D	31-301361 31-301362 31-301363 31-301364 31-301365	Proximal Reamer	A B C D E
	E	31-301851	Guide Rod Removal Tool & Taper Assembly Driver	–
	F	31-301850	Torque Limiting T-Handle	–

593100 General Instrument Case—Bottom Tray



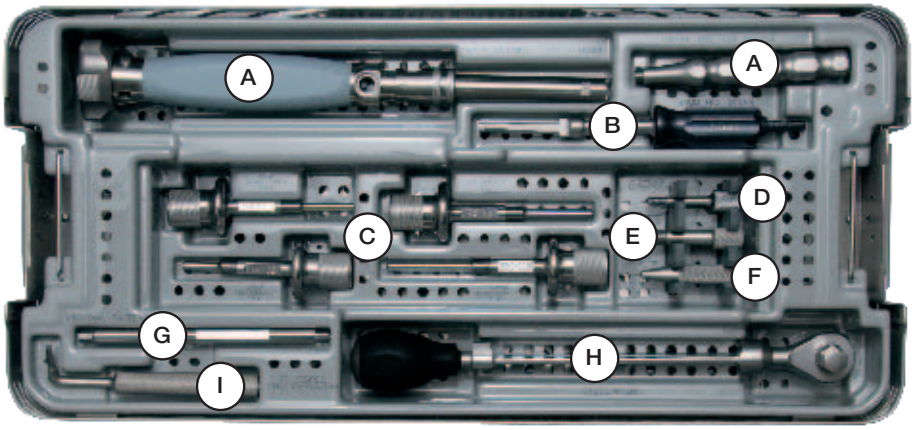
Product	Label	Part Number	Description	Size
	A	31-301000	Proximal Body Inserter	–
	B	31-301870	Anti-Rotation Handle	–
	C	31-301114	Calcar Wrench	–
	D	31-301852	3.5 mm Hex Drive	–

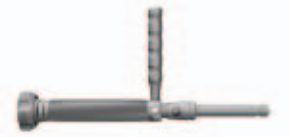
593101 Assembly/Disassembly Instrument Case—Top Tray



Product	Label	Part Number	Description	Size
	A	**31-302005** **31-302006** **31-302007** **31-302008**	Taper Assembly Tool-Distal Fastener	50 mm 60 mm 70 mm 80 mm

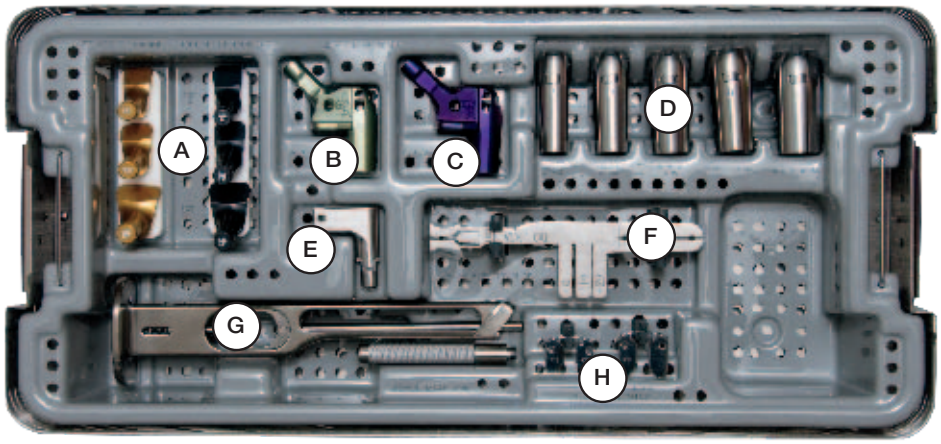
593101 Assembly/Disassembly Instrument Case—Bottom Tray



Product	Label	Part Number	Description	Size
	A	31-302001	Taper Assembly Tool – Proximal/Distal Inserter	–
	B	31-301853	5.0 mm Hex Driver	–
	C	31-301856 31-301857 31-301858 31-301859	Taper Disassembly Tool	50 mm 60 mm 70 mm 80 mm
	D	X31-400001	Threaded Adaptor	1/4 in
	E	31-302003	Threaded Adaptor	3/8 in
	F	31-478350	Universal Thread Extractor	-
	G	31-302004	Taper Assembly Tool Proximal Fastener	–
	H	31-301860	Torque Wrench	9/16 in
	I	31-301890	Stem Extractor	90°

Arcos® Modular Femoral Revision System

593102 Broach and Calcar Proximal Body Instrument Case

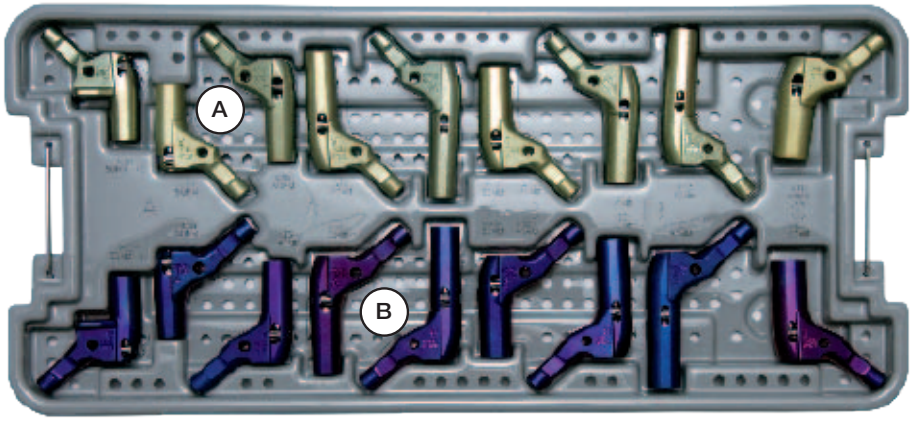


Product	Label	Part Number	Description	Size
	A	**31-301111** **31-301112** **31-301113**	Standard Offset Trunnion	A BCD EF
	A	**31-301121** **31-301122** **31-301123**	High Offset Trunnion	A BCD EF
	B	**31-301200**	50 mm Calcar Proximal Body Trial – Standard Offset	A / 50 mm
	C	**31-301210**	50 mm Calcar Proximal Body Trial – High Offset	A / 50 mm
	D	**31-301101** **31-301102** **31-301103** **31-301104** **31-301105**	60 mm Proximal Body Broach	A B C D E

Product	Label	Part Number	Description	Size
	E	**31-301115**	Broach Reference Resection Guide	–
	F	**31-301107**	Calcar Resection Guide	–
	G	**31-555503**	Broach Handle	60 mm
	H	**31-301109** **31-301110**	Calcar Shelf Trial	Large Small

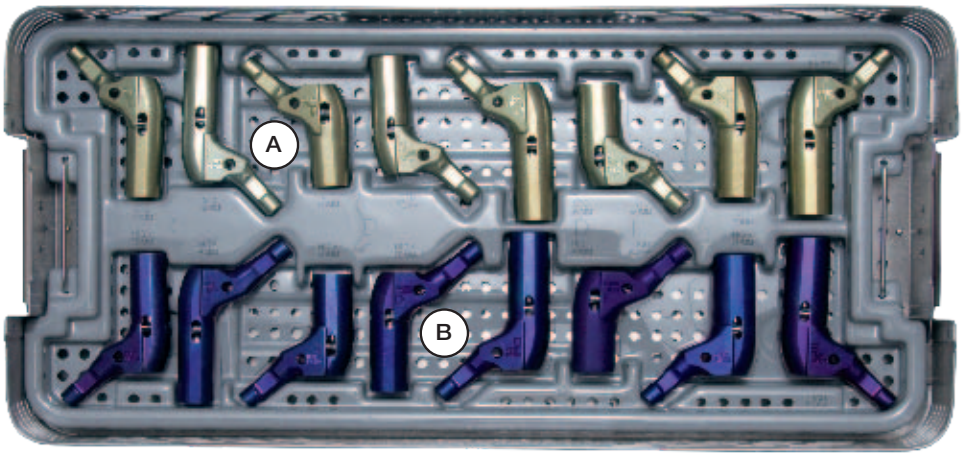
Arcos® Modular Femoral Revision System

593103 Cone Proximal Body Trials Instrument Case—Top Tray



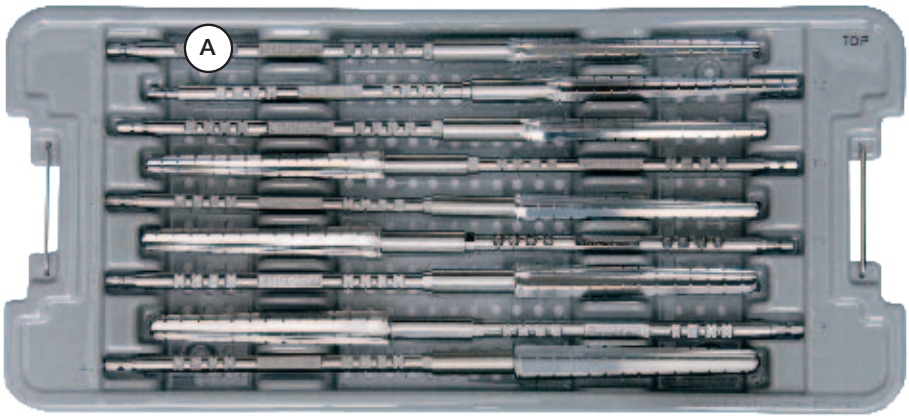
Product	Label	Part Number	Description	Size
	A	31-301200	50 mm Calcar Proximal Body Trial - Standard Offset	A / 50 mm
	A	31-301300	50 mm Cone Proximal Body Trial - Standard Offset	A / 50 mm
		31-301301 31-301302 31-301303 31-301304 31-301305	60 mm Cone Proximal Body Trial - Standard Offset	A / 60 mm B / 60 mm C / 60 mm D / 60 mm E / 60 mm
		31-301321 31-301322 31-301323 31-301324 31-301325	70 mm Cone Proximal Body Trial - Standard Offset	A / 70 mm B / 70 mm C / 70 mm D / 70 mm E / 70 mm
		31-301341 31-301342 31-301343 31-301344 31-301345	80 mm Cone Proximal Body Trial - Standard Offset	A / 80 mm B / 80 mm C / 80 mm D / 80 mm E / 80 mm

593103 Cone Proximal Body Trials Instrument Case—Bottom Tray



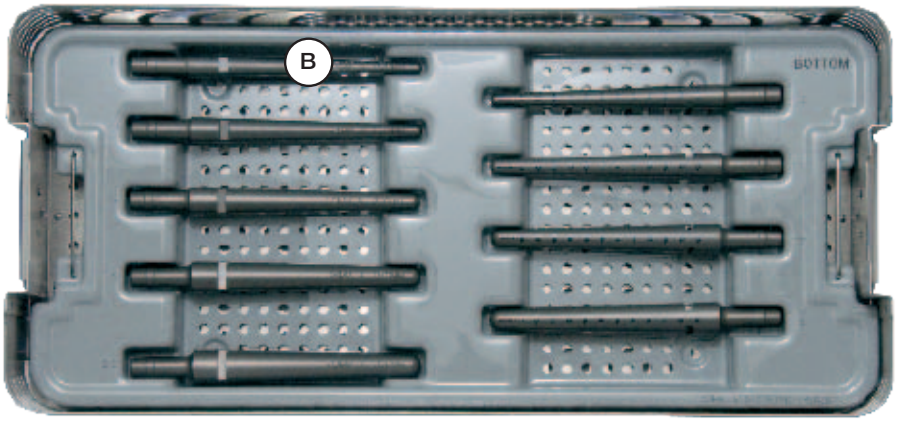
Product	Label	Part Number	Description	Size
	B	31-301210	50 mm Calcar Proximal Body Trial - High Offset	A / 50 mm
	B	31-301310	50 mm Cone Proximal Body Trial - High Offset	A / 50 mm
		31-301311 31-301312 31-301313 31-301314 31-301315	60 mm Cone Proximal Body Trial - High Offset	A / 60 mm B / 60 mm C / 60 mm D / 60 mm E / 60 mm
		31-301331 31-301332 31-301333 31-301334 31-301335	70 mm Cone Proximal Body Trial - High Offset	A / 70 mm B / 70 mm C / 70 mm D / 70 mm E / 70 mm
		31-301351 31-301352 31-301353 31-301354 31-301355	80 mm Cone Proximal Body trial - High Offset	A / 80 mm B / 80 mm C / 80 mm D / 80 mm E / 80 mm

593104 STS™ Distal Trials/Reamers 150/250 Instrument Case—Top Tray



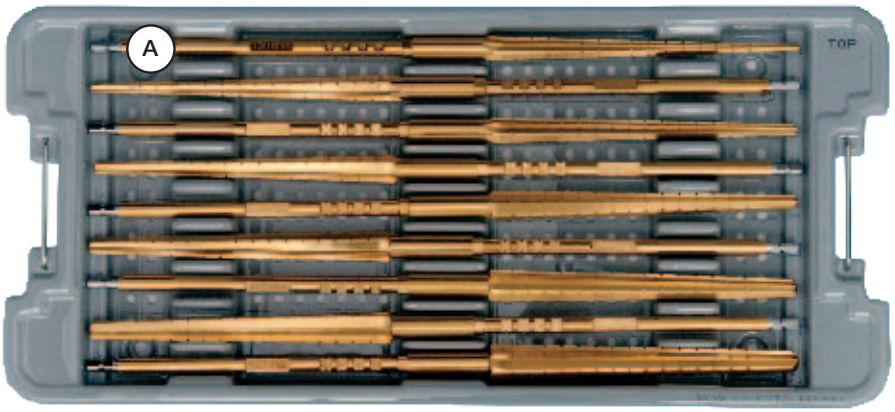
Product	Label	Part Number	Description	Size
	A	**31-300862**	STS™ Distal Reamer	12 mm x 150/250 mm
		31-300863		13 mm x 150/250 mm
		31-300864		14 mm x 150/250 mm
		31-300865		15 mm x 150/250 mm
		31-300866		16 mm x 150/250 mm
		31-300867		17 mm x 150/250 mm
		31-300868		18 mm x 150/250 mm
		31-300869		19 mm x 150/250 mm
		31-300870		20 mm x 150/250 mm

593104 STS™ Distal Trials/Reamers 150/250 Instrument Case—Bottom Tray



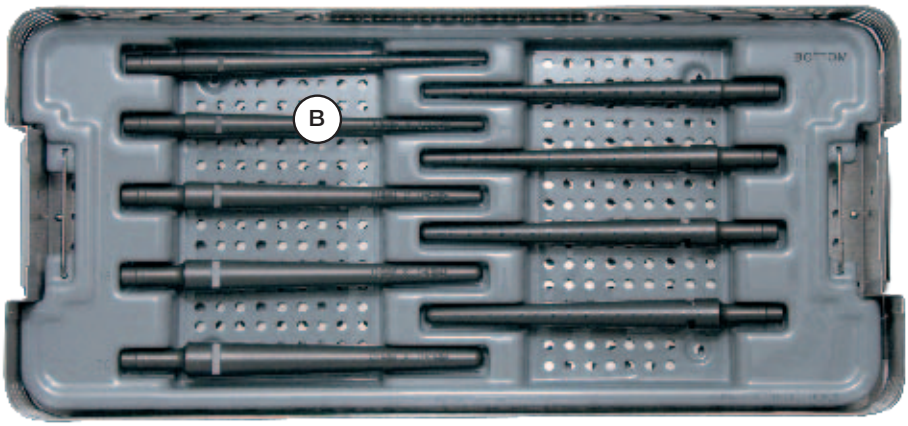
Product	Label	Part Number	Description	Size
	B	**31-300812**	STS™ Distal Stem Trial	12 mm x 150 mm
		31-300813		13 mm x 150 mm
		31-300814		14 mm x 150 mm
		31-300815		15 mm x 150 mm
		31-300816		16 mm x 150 mm
		31-300817		17 mm x 150 mm
		31-300818		18 mm x 150 mm
		31-300819		19 mm x 150 mm
		31-300820		20 mm x 150 mm

593105 STS™ Distal Trials/Reamers 190 Instrument Case—Top Tray



Product	Label	Part Number	Description	Size
	A	**31-300962**	STS™ Distal Stem Reamer	12 mm x 190 mm
		31-300963		13 mm x 190 mm
		31-300964		14 mm x 190 mm
		31-300965		15 mm x 190 mm
		31-300966		16 mm x 190 mm
		31-300967		17 mm x 190 mm
		31-300968		18 mm x 190 mm
		31-300969		19 mm x 190 mm
		31-300970		20 mm x 190 mm

593105 STS™ Distal Trials/Reamers 190 Instrument Case—Bottom Tray



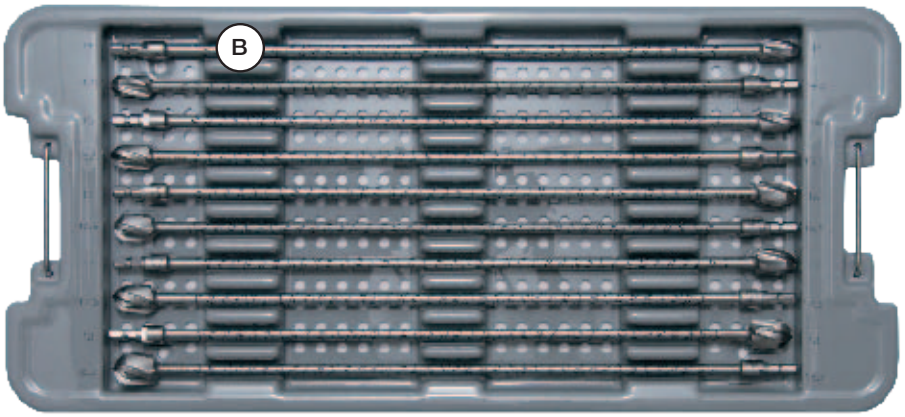
Product	Label	Part Number	Description	Size
	B	**31-300912**	STS™ Distal Stem Trial	12 mm x 190 mm
		31-300913		13 mm x 190 mm
		31-300914		14 mm x 190 mm
		31-300915		15 mm x 190 mm
		31-300916		16 mm x 190 mm
		31-300917		17 mm x 190 mm
		31-300918		18 mm x 190 mm
		31-300919		19 mm x 190 mm
		31-300920		20 mm x 190 mm

Arcos® Modular Femoral Revision System

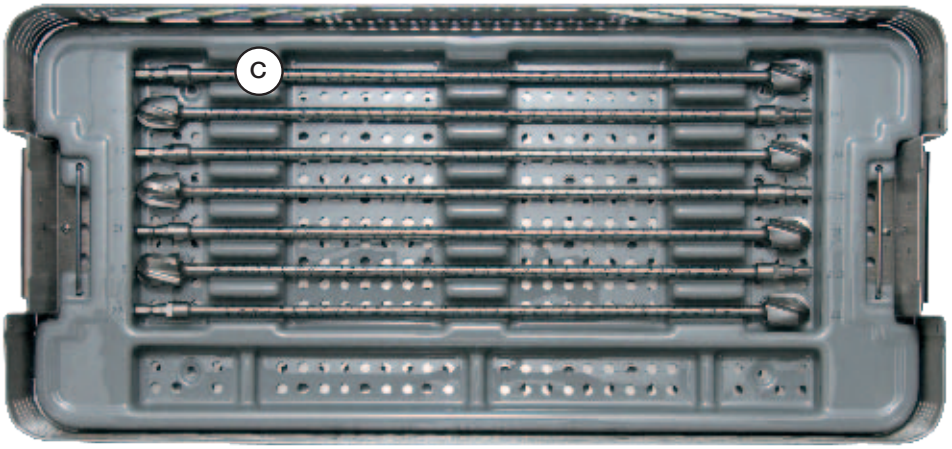
593106 Flexible Reamers Instrument Case—Top Tray

Product	Label	Part Number	Description	Size
	A	**31-301805**	Flexible Shaft Reamer	9 mm
		31-301806		9.5 mm
		31-301807		10 mm
		31-301808		10.5 mm
		31-301809		11 mm
		31-301810		11.5 mm
		31-301811		12 mm
		31-301812		12.5 mm
		31-301813		13 mm
		31-301814		13.5 mm
	B	**31-301815**	Flexible Shaft Reamer	14 mm
		31-301816		14.5 mm
		31-301817		15 mm
		31-301818		15.5 mm
		31-301819		16 mm
		31-301820		16.5 mm
		31-301821		17 mm
		31-301822		17.5 mm
		31-301823		18 mm
		31-301824		18.5 mm
	C	**31-301825**	Flexible Shaft Reamer	19 mm
		31-301826		19.5 mm
		31-301827		20 mm
		31-301828		20.5 mm
		31-301829		21 mm
		31-301830		21.5 mm
		31-301831		22 mm

593106 Flexible Reamers Instrument Case—Middle Tray

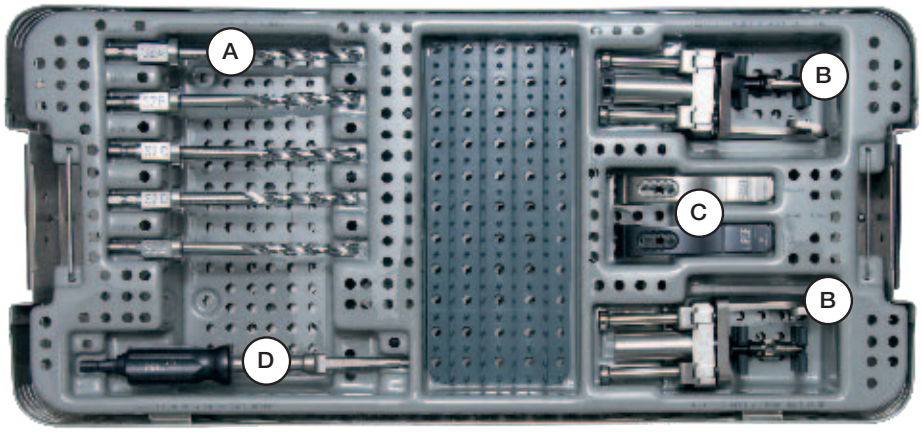


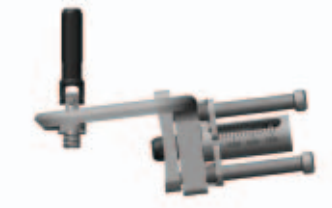
593106 Flexible Reamers Instrument Case—Bottom Tray



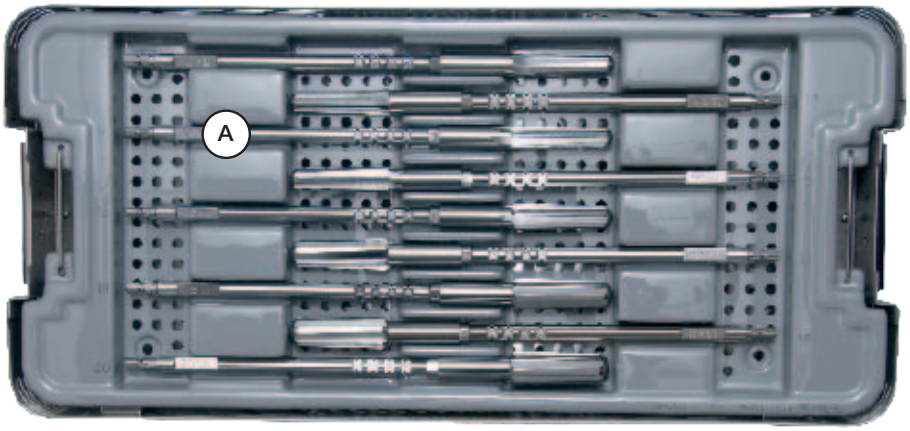
Arcos® Modular Femoral Revision System

593108 Troch/Bolt Instrument Case



Product	Label	Part Number	Description	Size
	A	**31-301881** **31-301882** **31-301883** **31-301884** **31-301885**	Troch Bolt Drill	A B C D E
	B	**31-301005** **31-301006**	Troch Bolt Guide	Right P / Left A Left P / Right A
	C	**31-302101** **31-302102**	Trial Claw	Large Small
	D	**31-301853**	5.0 mm Hex Driver	–

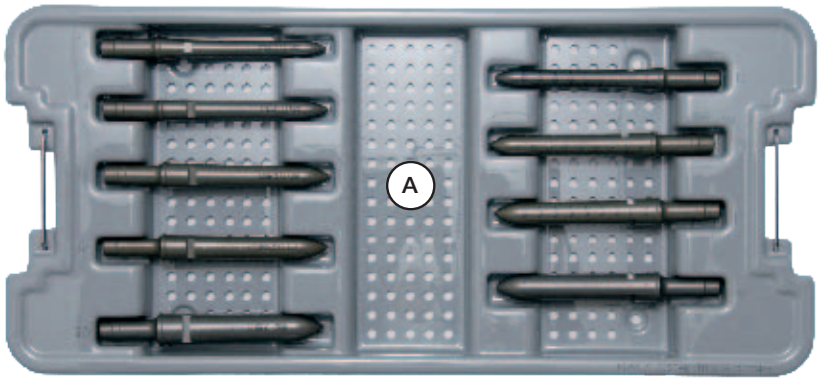
593109 Porous Distal Reamers Instrument Case



Product	Label	Part Number	Description	Size
	A	31-300562	Distal Stem Transition Reamer	12 mm
		31-300563		13 mm
		31-300564		14 mm
		31-300565		15 mm
		31-300566		16 mm
		31-300567		17 mm
		31-300568		18 mm
		31-300569		19 mm
		31-300570		20 mm

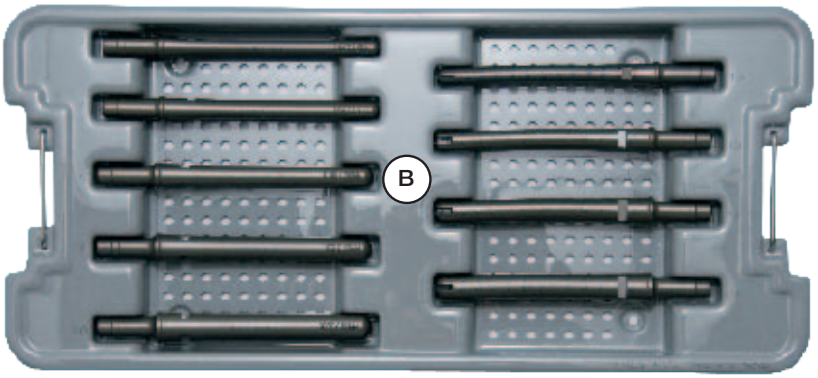
Arcos® Modular Femoral Revision System

593110 Porous Distal Trials Instrument Case—Top Tray

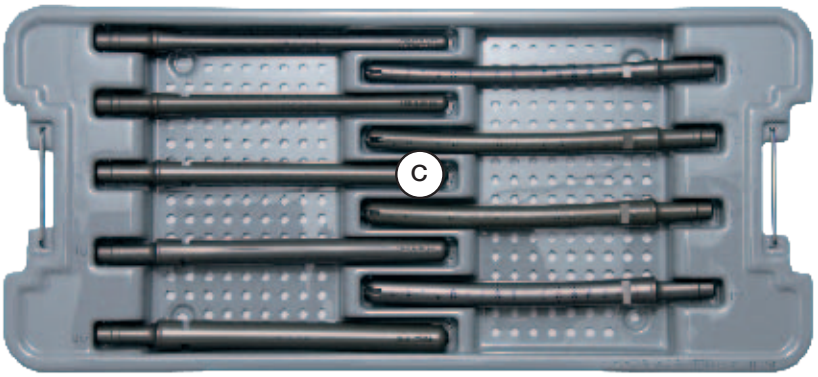


Product	Label	Part Number	Description	Size
	A	**31-301412** **31-301413** **31-301414** **31-301415** **31-301416** **31-301417** **31-301418** **31-301419** **31-301420**	115 mm Porous Distal Stem Trial	12 mm x 115 mm 13 mm x 115 mm 14 mm x 115 mm 15 mm x 115 mm 16 mm x 115 mm 17 mm x 115 mm 18 mm x 115 mm 19 mm x 115 mm 20 mm x 115 mm
	B	**31-301512** **31-301513** **31-301514** **31-301515** **31-301516** **31-301517** **31-301518** **31-301519** **31-301520**	150 mm Porous Distal Stem Trial	12 mm x 150 mm 13 mm x 150 mm 14 mm x 150 mm 15 mm x 150 mm 16 mm x 150 mm 17 mm x 150 mm 18 mm x 150 mm 19 mm x 150 mm 20 mm x 150 mm
	C	**31-301612** **31-301613** **31-301614** **31-301615** **31-301616** **31-301617** **31-301618** **31-301619** **31-301620**	200 mm Porous Distal Stem Trial	12 mm x 200 mm 13 mm x 200 mm 14 mm x 200 mm 15 mm x 200 mm 16 mm x 200 mm 17 mm x 200 mm 18 mm x 200 mm 19 mm x 200 mm 20 mm x 200 mm
	D	**31-301712** **31-301713** **31-301714** **31-301715** **31-301716** **31-301717** **31-301718** **31-301719** **31-301720**	250 mm Porous Distal Stem Trial	12 mm x 250 mm 13 mm x 250 mm 14 mm x 250 mm 15 mm x 250 mm 16 mm x 250 mm 17 mm x 250 mm 18 mm x 250 mm 19 mm x 250 mm 20 mm x 250 mm

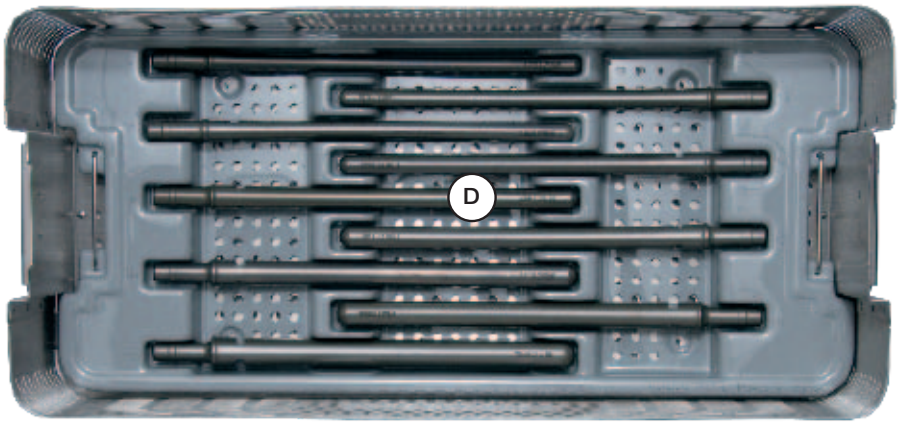
593110 Porous Distal Trials Instrument Case—Middle Top Tray



593110 Porous Distal Trials Instrument Case—Middle Bottom Tray



593110 Porous Distal Trials Instrument Case—Bottom Tray



Biomet Orthopedics
56 East Bell Drive
P.O. Box 587
Warsaw, Indiana 46581 USA

01-50-0997
Date: 2010-09

Biomet® Femoral Revision System

ATTENTION OPERATING SURGEON

DESCRIPTION

Biomet's Femoral Revision System is a comprehensive, press-fit revision stem consisting of modular proximal and distal bodies with multiple styles for reconstruction of various defects associated with femoral revision surgery. Auxiliary implants to aid in fixation include trochanter reattachment claws, bolts, and interlocking screws. The system is used with Biomet® Type I Taper modular heads and compatible Biomet® acetabular shells/liners and screws. Components are available in a variety of designs and size ranges intended for uncemented primary and revision procedures.

Materials

Proximal Bodies	Titanium Alloy
Distal Stems	Titanium Alloy
Claws and Bolts	CoCrMo Alloy
Screws	Titanium Alloy
Porous Coating	Titanium Alloy

INDICATIONS

1. Noninflammatory degenerative joint disease including osteoarthritis and avascular necrosis.
2. Rheumatoid arthritis.
3. Correction of functional deformity.
4. Treatment of non-union, femoral neck fracture, and trochanteric fractures of the proximal femur with head involvement, unmanageable using other techniques.
5. Revision of previously failed total hip arthroplasty.

The Biomet® Modular Femoral Revision System hip components are single-use implants, intended for uncemented use only.

CONTRAINDICATIONS

Absolute contraindications include: infection, sepsis, and osteomyelitis.

Relative contraindications include: 1) uncooperative patient or patient with neurologic disorders who are incapable of following directions, 2) osteoporosis, 3) metabolic disorders which may impair bone formation, 4) osteomalacia, 5) distant foci of infections which may spread to the implant site, 6) rapid joint destruction, marked bone loss or bone resorption apparent on roentgenogram, and 7) vascular insufficiency, muscular atrophy, or neuromuscular disease.

WARNINGS

Improper selection, placement, positioning, alignment and fixation of the implant components may result in unusual stress conditions which may lead to subsequent reduction in the service life of the prosthetic components. Malalignment of the components or inaccurate implantation can lead to excessive wear and/or failure of the implant or procedure. Inadequate preclosure cleaning (removal of surgical debris) can lead to excessive wear. Improper preoperative or intraoperative implant handling or damage (scratches, dents, etc.) can lead to crevice corrosion, fretting, fatigue fracture and/or excessive wear. Use clean gloves when handling implants. Do not modify implants. The surgeon is to be thoroughly familiar with the implants and instruments, prior to performing surgery.

1. Use Biomet® femoral and modular head component with appropriate matching "Type I Taper".
2. Firmly seat modular components to prevent dissociation. Thoroughly clean and dry taper prior to attachment of the modular component to avoid crevice corrosion and improper seating.
3. Tight fixation of all non-cemented components at the time of surgery is critical to the success of the procedure. Each component must properly press fit into the host bone which necessitates precise operative technique and the use of specified instruments. Bone stock of adequate quality must be present and appraised at the time of surgery.
4. Complete preclosure cleaning and removal of metallic debris and other surgical debris at the implant site is critical to minimize wear of the implant articular surfaces.
5. Distal cross-screws are intended to provide temporary (<6 months) rotational stability only. Cross-screws are not intended to carry any axial load.

Biomet® joint replacement prostheses provide the surgeon with a means of reducing pain and restoring function for many patients. While these devices are generally successful in attaining these goals, they cannot be expected to withstand the activity levels and loads of normal, healthy bone and joint tissue.

Accepted practices in postoperative care are important. Failure of the patient to follow postoperative care instructions involving rehabilitation can compromise the success of the procedure. The patient is to be advised of the limitation of the reconstruction and the need for protection of the implants from full load bearing until adequate fixation and healing have occurred. Excessive, unusual and/or awkward movement and/or activity, trauma, weight gain, and obesity have been implicated with premature failure of the implant by loosening, fracture, dislocation, subluxation and/or wear. It has been noted that this may be particularly true where smaller sized stems are involved. Loosening of the implants can result in increased production of wear particles, as well as accelerate damage to bone, making successful revision surgery more difficult. The patient is to be made aware and warned of general surgical risks, possible adverse effects as listed, and to follow the instructions of the treating physician, including follow-up visits.

Patient selection factors to be considered include: 1) need to obtain pain relief and improve function, 2) ability and willingness of the patient to follow instructions, including control of weight and activity level, 3) a good nutritional state of the patient, and 4) the patient must have reached full skeletal maturity.

Patient smoking may result in delayed healing, non-healing and/or compromised stability in or around the placement site.

PRECAUTIONS

Specialized instruments are designed for Biomet® joint replacement systems to aid in the accurate implantation of the prosthetic components. The use of instruments or implant components from other systems can result in inaccurate fit, sizing, excessive wear and device failure. Intraoperative fracture or breaking of instruments has been reported. Surgical instruments are subject to wear with normal usage. Instruments, which have experienced extensive use or excessive force, are susceptible to fracture. Surgical instruments should only be used for their intended purpose. Biomet recommends that all instruments be regularly inspected for wear and disfigurement.

Do not reuse implants. While an implant may appear undamaged, previous stress may have created imperfections that would reduce the service life of the implant. Do not treat patients with implants that have been, even momentarily, placed in a different patient.

POSSIBLE ADVERSE EFFECTS

1. Material sensitivity reactions. Implantation of foreign material in tissues can result in histological reactions involving various sizes of macrophages and fibroblasts. The clinical significance of this effect is uncertain, as similar changes may occur as a precursor to or during the healing process. Particulate wear debris and discoloration from metallic and polyethylene components of joint implants may be present in adjacent tissue or fluid. It has been reported that wear debris may initiate a cellular response resulting in osteolysis or osteolysis may be a result of loosening of the implant. Further, there has been a report regarding an association between articulating surfaces of: 1) CoCrMo alloy on CoCrMo alloy, 2) CoCrMo alloy on polyethylene, and 3) Titanium alloy on polyethylene in hip replacements and increased genotoxicity. This report, however, did not assess either the clinical relevance of the data or make any definite conclusions as to which metal ions or interactions between metal ions or particulate metals might be responsible for the observed data. The report further cautioned that an association does not necessarily mean a causal relationship, and that any potentially increased risk associated with metal ions needs to be balanced against the benefits resulting from hip replacement.
2. Early or late postoperative infection and allergic reaction.
3. Intraoperative bone perforation or fracture may occur, particularly in the presence of poor bone stock caused by osteoporosis, bone defects from previous surgery, bone resorption, or while inserting the device.
4. Loosening or migration of the implants can occur due to loss of fixation, trauma, malalignment, malposition, bone resorption, or excessive unusual and/or awkward movement and/or activity.
5. Periarticular calcification or ossification, with or without impediment of joint mobility.
6. Inadequate range of motion due to improper selection or positioning of components.
7. Undesirable shortening of limb.
8. Dislocation and subluxation due to inadequate fixation, malalignment, malposition, excessive, unusual and/or awkward movement and/or activity, trauma, weight gain, or obesity. Muscle and fibrous tissue laxity can also contribute to these conditions.
9. Fatigue fracture of component can occur as a result of loss of fixation, strenuous activity, malalignment, trauma, non-union, or excessive weight.
10. Fretting and crevice corrosion can occur at interfaces between components.
11. Fracture of the cross-screws.
12. Wear and/or deformation of articulating surfaces.
13. Trochanteric avulsion or non-union as a result of excess muscular tension, early weight bearing, or inadequate reattachment.
14. Problems of the knee or ankle of the affected limb or contralateral limb aggravated by leg length discrepancy, too much femoral medialization or muscle deficiencies.
15. Postoperative bone fracture and pain.

STERILITY

Prosthetic components are sterilized by exposure to a minimum dose of 25 kGy of gamma radiation. Do not resterilize. Do not use any component from an opened or damaged package. Do not use implants after expiration date.

MRI Information

The effects of the MR environment have not been determined for this device. This device has not been tested for heating or migration in the MR environment.

Caution: Federal law (USA) restricts this device to sale by or on the order of a physician.

Comments regarding this device can be directed to Attn: Regulatory Dept., Biomet, Inc., P.O. Box 587, Warsaw, IN 46581 USA, Fax 574-372- 3968.

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Authorized Representative: Biomet U.K., Ltd.
Waterton Industrial Estate
Bridgend, South Wales
CF31 3XA, U.K.

CE 0086

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Manufacturer

Date of Manufacture

Do Not Reuse

Caution

Sterilized using Ethylene Oxide

Sterilized using Irradiation

Sterile

Sterilized using Aseptic Processing Techniques

Sterilized using Steam or Dry Heat

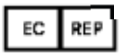
Use By

WEEE Device

Catalogue Number

Batch Code

Flammable



Authorized Representative in the European Community

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For product information, including indications, contraindications, warnings, precautions and potential adverse effects, see the package insert at biomet.com.

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ORTHOPEDICS

One Surgeon. One Patient.®

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