ELEOS™ and ELEOS™ with NanoCept™ Techology

Limb Salvage System

Surgical Technique:
Proximal Femoral Replacement

Featuring BioGrip® Modular Collars with Nano HA Treatment

The ELEOS™ and ELEOS™ with NanoCept™ Technology Limb Salvage System offers options for patients with significant bone loss due to cancer, trauma, or previous surgical procedures. The locking taper design has a history of clinical use in a variety of orthopaedic applications. With an array of options in a multitude of sizes, the ELEOS™ and ELEOS™ with NanoCept™ Technology system provides the surgeon the ability to meet a variety of patient needs.

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Precision Orthopaedic Oncology

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ELEOS™ and ELEOS™ with NanoCept™ Technology
Limb Salvage System

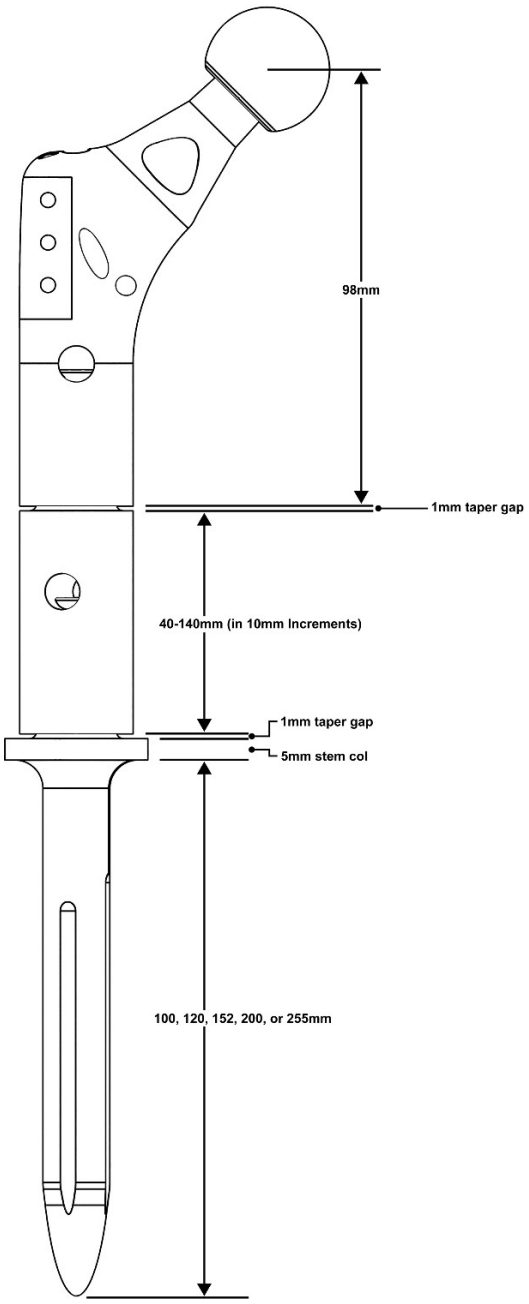
Proximal Femoral Replacement

Construct Overview – Standard Proximal Femur

Table 1.

Proximal Femoral Standard Resection Lengths[1]					
Proximal Femur	Taper Gap	Midsections	Taper Gap	Stem Collar	Overall Resection
98mm	1mm	None	None	5mm	104mm
98mm	1mm	40mm	1mm	5mm	145mm
98mm	1mm	50mm	1mm	5mm	155mm
98mm	1mm	60mm	1mm	5mm	165mm
98mm	1mm	70mm	1mm	5mm	175mm
98mm	1mm	90mm	1mm	5mm	195mm
98mm	1mm	110mm	1mm	5mm	215mm
98mm	1mm	140mm	1mm	5mm	245mm

1 Resection lengths can also total 185, 205, 225, and 235mm when certain midsections are coupled together. An additional 1mm should be considered for the taper gap between the midsection and segmental stem

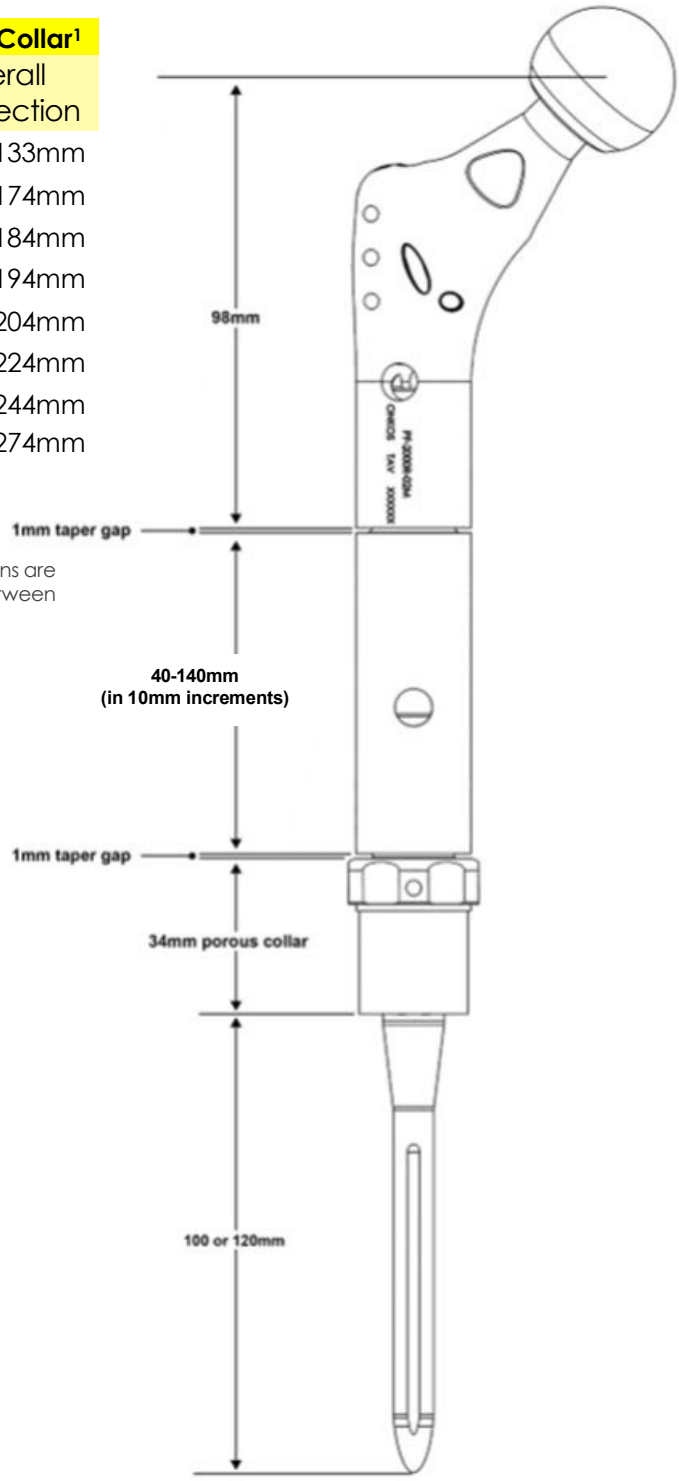


Construct Overview – Proximal Femur with BioGrip® Porous Collar

Table 2.

Proximal Femoral Resection Lengths with BioGrip® Porous Collar[1]					
Proximal Femur	Taper Gap	Midsections	Taper Gap	Collar Height	Overall Resection
98mm	1mm	None	None	34mm	133mm
98mm	1mm	40mm	1mm	34mm	174mm
98mm	1mm	50mm	1mm	34mm	184mm
98mm	1mm	60mm	1mm	34mm	194mm
98mm	1mm	70mm	1mm	34mm	204mm
98mm	1mm	90mm	1mm	34mm	224mm
98mm	1mm	110mm	1mm	34mm	244mm
98mm	1mm	140mm	1mm	34mm	274mm

1 Resection lengths can also total 214, 234, 254, and 264mm when certain midsections are coupled together. An additional 1mm should be considered for the taper gap between the midsection and segmental stem



Set Configurations

Please refer to document CORP 06.04.21 for a full listing of implant and instrument set requirements, images, and parts.

The ELEOS™ and ELEOS™ with NanoCept™ Technology Proximal Femoral System consists of up to five components: Femoral Head, Proximal Femur, Optional Midsection(s), Optional BioGrip® Modular Porous Collars and Segmental Stem. The ELEOS™ with NanoCept™ Technology antibacterial coated system provides the Optional Midsection(s) with 12-methacryloyloxydodecyl pyridinium bromide (MDPB), an antibacterial coating.

Component Description

Femoral heads

Cobalt-chrome Femoral Heads are available in 22.25mm, 28mm, 32mm and 36mm diameters, and are compatible with MicroPort Orthopedics' Gladiator Bipolar, and Lineage Acetabular Systems. Refer to the ELEOS™ and ELEOS™ with NanoCept™ Technology Limb Salvage System Instructions for Use for compatibility information. | Table 3

Note: MicroPort Orthopedics ceramic femoral heads in 28, 32, and 36mm diameters are compatible with the ELEOS™ System if a ceramic head is indicated.

Table 3.

Neck Lengths						
Head Ø	Material	-3.5mm	+0mm	+3.5mm	+7mm	+10.5mm
22.25mm	Co-Cr		x	x		
28mm	Co-Cr	x	x	x	x	x
32mm	Co-Cr	x	x	x	x	
36mm	Co-Cr	x	x	x	x	

Proximal femur

The ELEOS™ proximal femur is offered in a Left and Right implant as shown in Table 2. The implant features a 135° neckangle, 15° of anteversion, anatomically aligned suture holes, and lateral surface plasma coating. | Table 4

Table 4.

Proximal Femur	
Part #	Description
PF-2000R-02M	Segmental Proximal Femur, Plasma, 98mm, Right
PF-2000L-02M	Segmental Proximal Femur, Plasma, 98mm, Left

Component Description

Midsections

Seven lengths of optional Male/Female Midsection components are interchangeable with all ELEOS™ and ELEOS™ with NanoCept™ Technology systems to allow for precise length determination intraoperatively. Lengths ranging from 40-70mm in 10mm increments in addition to 90mm, 110mm, and 140mm sizes to accommodate bone resection. | Table 5

Midsections are also available with male tapers on both ends enabling the implantation of a Total Femoral Replacement by combining the ELEOS™ Proximal and Distal Femur components(refer to the ELEOS™ and ELEOS™ with NanoCept™ Technology Total Femoral Replacement surgical technique).

Table 5.

Male/Female Midsections	
Part #	Description
25001040E	40mm
25001050E	50mm
25001060E	60mm
25001070E	70mm
25001090E	90mm
25001110E	110mm
25001140E	140mm
Male/Female Midsections with NanoCept™ Antibacterial Coating	
Part #	Description
AM-MS-040MF	40mm, Antibacterial Coated
AM-MS-050MF	50mm, Antibacterial Coated
AM-MS-060MF	60mm, Antibacterial Coated
AM-MS-070MF	70mm, Antibacterial Coated

Component Description

Segmental Stems

Segmental Stems are available in a variety of diameter and length in both cemented and canal filling options. Cemented Stems provide flutes to enhance mechanical interlock of bone cement. Canal filling stems are splined and slotted (Bowed only) and have plasma spray to enhance initial fixation. Modular Collar Segmental Stems are straight and with cemented flutes only. | Table 6.

Table 6.

Segmental stems – cemented			
Part #	Description	Length	Stem Dia (mm)/Collar Dia (mm)
CS-XX100-03M	Straight, Cylindrical, Fluted, Cobalt Chrome	100mm	9/24, 10/24
CS-XX120-03M	Straight, Cylindrical, Fluted, Cobalt Chrome	120mm	11/28, 13/28, 15/32, 17/36
CB-XX152-03M	Bowed, Cylindrical, Fluted, Titanium	152mm	11/28, 13/28, 15/32, 17/36
CB-XX200-03M	Bowed, Cylindrical, Fluted, Titanium	200mm	11/28, 13/28, 15/32, 17/36
CB-11255-03M	Bowed, Cylindrical, Fluted, Titanium	255mm	11/32
Segmental stems – canal filling			
FS-XX120-03M	Straight, Cylindrical, Splined, Full Plasma Spray, Titanium	120mm	11/28, 12/28, 13/28, 14/32, 15/32, 16/36, 17/36, 18/36, 19/36, 20/36, 21/36
FB-XX152-03M	Bowed Cylindrical, Splined, 2/3 Plasma Spray, Slotted, Titanium	152mm	11/28, 12/28, 13/28, 14/32, 15/32, 16/36, 17/36, 18/36, 19/36, 20/36, 21/36
Segmental stems – modular collar			
Part #	Description	Diameter	Length	Porous Collar
HR-30001-03M	Modular Collar Locking Ring and Impactor Tip	N/A	N/A	ALL
HC-09100-03M	Modular Collar Stem, Cemented, Fluted	9mm	100mm	24/28mm
HC-10100-03M	Modular Collar Stem, Cemented, Fluted	10mm	100mm	24/28mm
HC-11120-03M	Modular Collar Stem, Cemented, Fluted	11mm	120mm	24/28mm
HC-13120-03M	Modular Collar Stem, Cemented, Fluted	13mm	120mm	24/28/32/36/40mm
HC-15120-03M	Modular Collar Stem, Cemented, Fluted	15mm	120mm	32/36/40mm
HC-17120-03M	Modular Collar Stem, Cemented, Fluted	17mm	120mm	32/36/40mm

Component Description

Modular Collars – BioGrip® Porous with Nano HA

Modular BioGrip® Porous Collars have a 3D printed porous structure and nano HA treatment to support bone in-growth and anchoring. BioGrip® collars are round in shape and 34mm in overall height (including the locking ring). BioGrip® collars come in diameters ranging from 24mm to 40mm, in 4mm increments. All collars are used with a Locking Ring and single-use Impactor Tip | Table 7.

Table 7.

Modular Collars – BioGrip® Porous with Nano HA					
Part #	Description	Shape	Height	Width	Stems
PB-2400R-03M	Modular Porous BioGrip® HA Collar	Round	34mm	24mm	9/10/11/13mm
PB-2800R-03M	Modular Porous BioGrip® HA Collar	Round	34mm	28mm	9/10/11/13mm
PB-3200R-03M	Modular Porous BioGrip® HA Collar	Round	34mm	32mm	13/15/17mm
PB-3600R-03M	Modular Porous BioGrip® HA Collar	Round	34mm	36mm	13/15/17mm
PB-4000R-03M	Modular Porous BioGrip® HA Collar	Round	34mm	40mm	13/15/17mm

Surgical technique steps

Femoral resection

To ensure restoration of leg length, measure several points of reference between the pelvis and an area distal to the proposed resection area.

A Proximal Femoral Resection Template is available to aid in marking the resection level. The amount of bone to be resected is determined by clinical evaluation. To determine the midsection and stem to use, consult Tables 1 and 2.

Caution: Preoperative templating is intended for estimation purposes only. Final component size and position should be determined intraoperatively. Accurate pre-operative planning requires good quality standardized radiographs of the appropriate anatomy.

Caution: A full femoral x-ray and/or three-dimensional image or MRI must be reviewed prior to surgery to ensure adequate bone stock is available for resection and proper reaming.

1. Using the Proximal Femoral Resection Template, mark the level of the femoral resection by approximating the center of the femoral head with the hole in the template as shown in Figure 1. Note the indicated femoral segment length on the template.

   If using a modular collar, use the Proximal Femur Resection Template provided in the Collar Instrument Tray as it includes resection markings that include the BioGrip® Porous Collar.

   Resect the proximal femur at the marked location, making a transverse cut | Figure 2.

Figure 1

Figure 2

Surgical technique steps

Acetabular preparation

1. Use a compatible acetabular system and prepare the acetabulum with standard technique.

Note: ELEOS™ and ELEOS™ with NanoCept™ Technology is compatible with MicroPort Orthopedics' Gladiator Bipolar and Lineage Acetabular Systems. Refer to the ELEOS™ and ELEOS™ with NanoCept™ Technology Limb Salvage System Instructions for Use for Compatibility information.

Femoral reaming and planing – straight segmental stems and modular collar segmental stems

1. Start by using a Reamer Trial at least 2 millimeters less than the canal diameter as determined during preoperative planning. Progressively ream in 1/2mm or 1mm increments until cortical chatter is achieved. Ream the (femoral) canal using Reamer Trials by inserting to the full 120mm depth to face ream the resection area by ensuring collar contact on the cortices. | Figure 3

2. Select a stem diameter that corresponds to the desired cement mantle thickness or canal filling fit based on clinical evaluation. | Table 3

Note: Use the Reamer Trial Adapter, as shown in Figure 4, with Reamer Trials to ream under power. To assemble the Reamer Trial Adapter, lift the sliding portion of the quick-connect mechanism of the adapter, engage the post, aligning the hexagon,then release. The T-Handle can also be used with the Reamer Trial Adapter for manual reaming. The Reamer Trials are used for both reaming and subsequent trialing.

Note: When determining the appropriate Reamer Trial size for the desired cement mantle thickness, half of the difference between the implant and instrument diameters will represent the cement mantle thickness. For instance, reaming to a 13mm diameter will provide a line- to-line fit with a 13mm stem. Reaming to a 14mm will provide a 0.5mm cement mantle per side, while reaming to 15mm will provide a 1mm cement mantle per side.

Caution: Straight canal filling stems are 0.5mm larger in diameter than the corresponding diameter reamer trials due to plasma coating. As with any plasma coated implant, there may be slight variations to the overall diameter. The straight canal filling stems may be inserted through the various holes of the Ring Gauge to measure the actual stem implant diameter of the chosen stem. Additional reaming may be performed to achieve the desired press fit based on this information and based on the patient's bone quality. | Figure 5

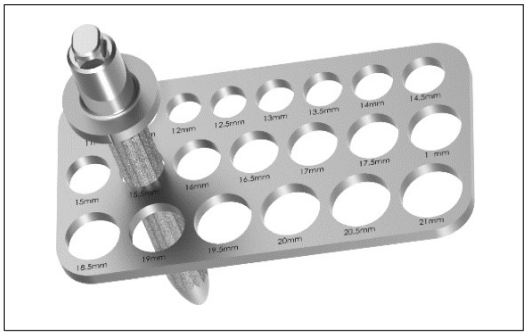
Note: Cerclage wire can be used at the surgeon's discretion to address stresses in the bone that are inherent during the implantation of canal filling stems.

3. If using a straight stem (100mm or 120mm), disconnect the final diameter Reamer Trial from the Reamer Trial Adapter. Leave the Reamer Trial in the femoral canal as it also functions as the stem trial.

Figure 3

Figure 4

Figure 5



Surgical technique steps

Femoral reaming and planing – bowed segmental stems

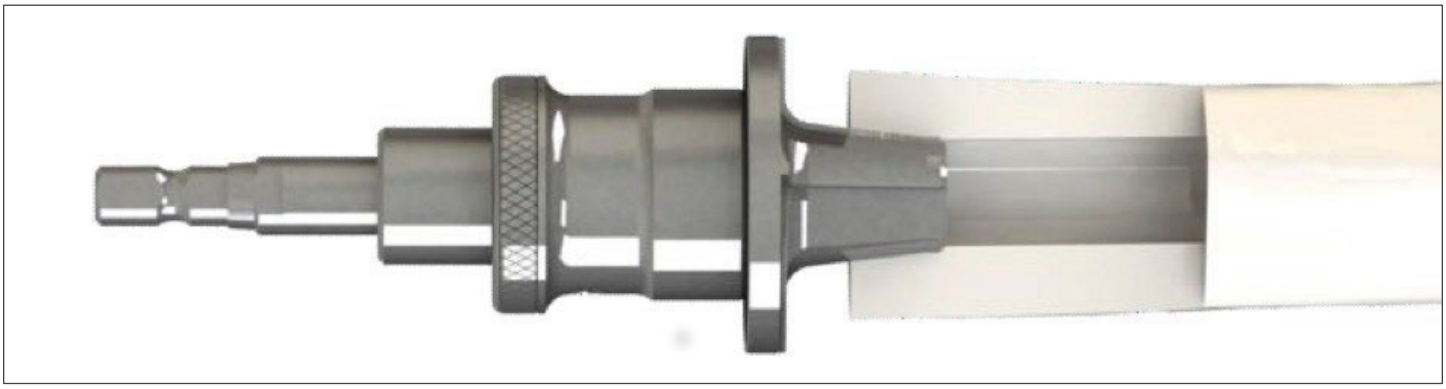
1. If using a bowed stem, a set of flexible reamers can be used from the hospital's general surgical OR instrumentation. Based on preoperative planning, start by using a flexible reamer at least 2 millimeters less than the assessed canal diameter. Progressively ream in 1/2mm or 1mm increments until cortical chatter is achieved. Follow the flexible reamer with the appropriate size Bowed Stem Planer based on chosen stem diameter. Ream for the stem taper geometry and face plane the resection area to ensure collar contact on the cortices. | Table 8

   - Caution: It is important to utilize the Bowed Stem Planer that matches the desired stem size to be implanted. This will assure that the correct proximal geometry is prepared in the bone to match the implanted stem.
   - Note: Use the Reamer Trial Adapter, as shown in Figure 6, with Bowed Planer to ream under power. To assemble the Reamer Trial Adapter, lift the sliding portion of the quick connect mechanism of the adapter, engage the post, aligning the hexagon, then release.

Table 8

Bowed Stem Planers		
Part #	Description	Use with Bowed Stem Diameters
BP-1113S-03N	Bowed Planer, Small	11mm-13mm
BP-1417M-03N	Bowed Planer, Medium	14mm-17mm
BP-1821L-03N	Bowed Planer, Large	18mm-21mm

Figure 6



Surgical technique steps

Femoral reaming and planing – bowed segmental stems (cont.)

2. Select a stem diameter that corresponds to the appropriate cement mantle or canal filling fit based on clinical evaluation. | Table 3

- Note: The bowed trial diameters are line to line with the marked size. For example, a 12mm bowed stem trial has a 12mm actual outside diameter.
- Note: The Bowed Cemented Segmental Stem diameters from, as shown in Table 4, are equal to bowed stem trial diameters. When determining the appropriate bowed stem trial size for the desired cement mantle thickness, half the difference between the implant and instrument will represent the cement mantle. For instance, reaming to a 13mm diameter will provide a line-to-line fit with a 13mm stem. Reaming to a 14mm will provide a 0.5mm cement mantle per side, while reaming to 15mm will provide a 1mm cement mantle per side.
- Note: The Bowed Canal Filling Stem diameters from Table 3 are larger by 0.5mm than the packaged stem size due to the addition of the plasma coating. When determining the appropriate Bowed Segmental Stem Trial for the desired press fit, half the difference between the Bowed Segmental Stem Trial size and the Bowed Segmental Canal Filling Stem size plus 0.5mm will represent the press fit. For instance, reaming to a 12.5mm diameter will provide a 0.5mm press fit with a 13mm stem.
- Caution: Canal filling stems require appropriate clinical evaluation for sizing. Use of a canal filling stem may increase the risk of fracture during implantation. Intraoperative fluoroscopy during reaming and implantation will decrease this risk. Depending on patient bone quality, the canal may require reaming to the same diameter as the actual stem implant diameter.
- Caution: Bowed Segmental Canal Filling Stem Canal filling stems are 0.5mm larger in diameter than the corresponding diameter reamer trials. As with any plasma spray process, there may be slight variations to the overall diameter. The canal filling stems should be inserted through the various holes of the Ring Gauge to measure the actual stem implant diameter of the chosen stem similar to that as shown in Figure 5. Additional reaming may be performed to achieve the desired press fit based on this information and based on the patient's bone quality.
- Note: Due to the bow of the stem, the Bowed Segmental Canal Filling Stem may not insert fully to the collar in the Ring Gauge. The size of the plasma spray can be assessed when the stem is inserted partially prior to reaching the bow.
- Note: Cerclage wire can be used at the surgeon's discretion to address stresses in the bone that are inherent during the implantation of canal filling stems.

Surgical technique steps

Trialing

Proximal femur trial configuration

The proximal femoral trial requires orientation based on the side of the body being treated, Right or Left.

1. Pull apart the proximal neck and quick release portions of the proximal femur trial to set the appropriate direction of anteversion. While separated, twist the directional tab toward either the right or left marking, sliding the tab into the chosen slot. | Figure 7

Reamer trial assembly

1. Assemble the Trial Proximal Femur and any necessary Trial Midsections to the in-situ Reamer Trial to reproduce the appropriate construct length. To assemble the Trial Proximal Femur/Trial Midsection(s) to the Reamer Trial, lift the sliding portion of the quick connect mechanism of the trial component, engage the post, align the tab with the slot, then release. | Figure 8

Note: To reproduce the appropriate construct length within 10mm increments, two 40mm Trial Midsections are available in the instrumentation tray.

Bowed trial assembly

1. Assemble the Trial Proximal Femur and any necessary Trial Midsections to the Bowed Stem Trial to reproduce the appropriate construct length.
2. To assemble the Trial Proximal Femur/Trial Midsection(s) to the Bowed Stem Trial, lift the sliding portion of the quick connect mechanism of the trial component, engage the post, align the tab with the slot, then release. | Figure 9
3. After assembly, insert the femoral trial construct into the femoral canal.

Caution: If the construct is difficult to insert into the femoral canal, replace the Bowed Stem Trial with the next smallest size until insertion is feasible.

Note: To reproduce the appropriate construct length within 10mm increments, two 40mm Trial Midsections are available in the instrumentation tray.

Note: When assembling a Bowed Trial Stem, ensure that the bow is in alignment with the curve of the bone.

4. Attach the appropriate Femoral Head Trial based on pre-operative planning and intra-operative measurements.

Figure 7

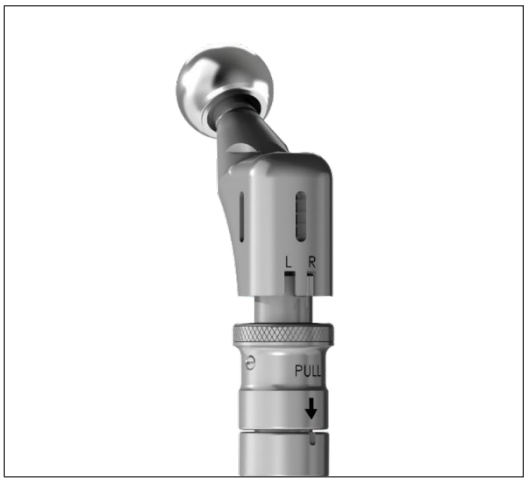
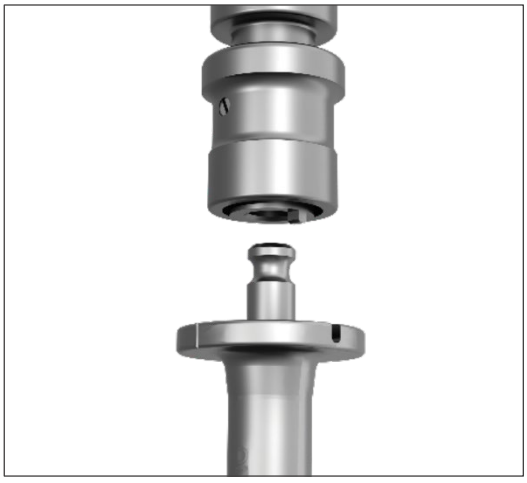


Figure 8

Figure 9



Surgical technique steps

Optional Step – Trialing with Modular Collars

1. If using a Modular BioGrip® Porous Collar, determine the optimal collar size and geometry by overlaying the Collar Trial Gauge with the in-situ Reamer Trial | Figure 1

2. Assemble the Proximal Femur Trial, BioGrip® Collar Height Trial, and any necessary Trial Midsections to the in-situ Reamer Trial. | Figure 2

Note: To reproduce the appropriate leg length within 10mm increments, two 40mm Trial Midsections are available in the instrumentation tray.

To assemble the Trial Midsections to the BioGrip® Collar Height Trial, lift the sliding portion of the quick connect mechanism of the trial component, engage the post, aligning the tab with the slot, then release

3. If additional face reaming is desired prior to final Trial Reduction, remove the in-situ reamer trial by turning it counter-clockwise. Assemble the Face Planer with the appropriate diameter Modular Guide Stem. Proceed to face ream the remaining bone to desired state. | Figure 3

4. Remove the Face Reamer and Guide Stem and replace with the desired diameter Reamer Trial to perform final Trial Reduction.

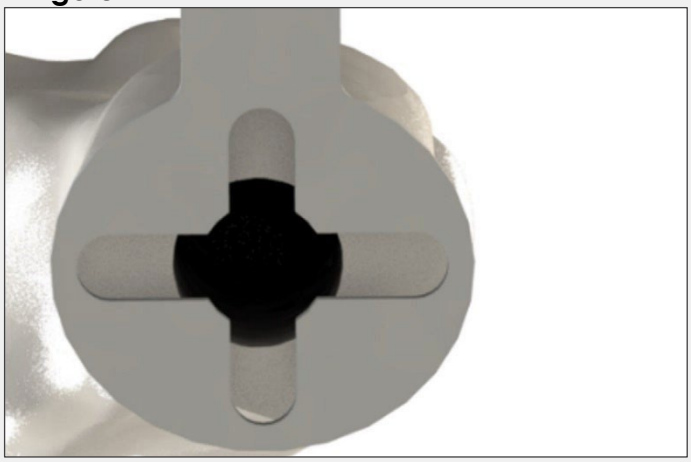
Note: Collar size and geometry can be rechecked by overlaying a Collar Trial Gauge on the resection level visually centered on the canal. | Figure 4

Figure 1

Figure 2

Figure 3

Figure 4



Surgical technique steps

Trial reduction

1. Perform a trial reduction as shown in Figure 10. Mark or re-mark the rotational position on the bone from the notch of the collar of the Reamer Trial at the resection level. This will mark the position for the final implant.

   If the overall leg length requires adjustment or soft tissue tensioning, adjustments may require altering the choice of femoral head or midsection trials or changing the resection level.

Note: To reproduce femoral rotation, the Reamer Trial can be rotated counterclockwise within the canal to achieve desired femoral rotation. Utilize the T-Handle attached to the Reamer Trial Adapter or with the Proximal Femur Trial itself. To assemble the Reamer Trial Adapter, lift the sliding portion of the quick connect mechanism of the adapter, engage the post, then release.

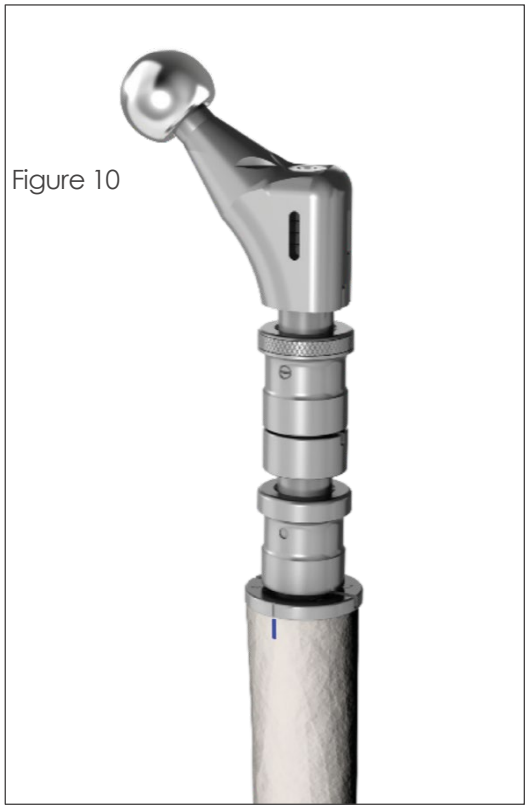


Figure 10

Surgical technique steps

Optional Step: Modular BioGrip® Collar + Stem

How to Assemble Modular BioGrip® Collar + Stem (required to be implanted together)

1. Assemble the collar over the intermedullary shaft of the modular stem, starting distally and sliding up the stem proximally. Confirm the taper of the collar threads matches the taper of the stem shaft. | Figure 1
2. Assemble the locking ring over the proximal end of the modular stem in preparation for threading to the collar. | Figure 2
3. Hand-tighten the locking ring while holding the collar in a firm fingertip grip. | Figure 3
4. Insert the Counter-Torque Socket into the Assembly Tower base hole. | Figure 4
5. Align the T-shaped anti-rotation boss of the stem with the matching T-slot of the Counter-Torque Socket. Insert the hand-tightened stem-collar-locking ring assembly into the Counter-Torque Socket. | Figure 5

Figure 1

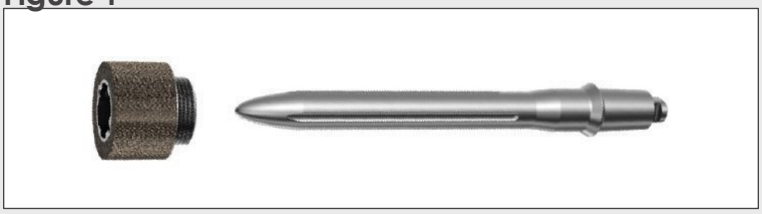


Figure 2

Figure 3

Figure 4

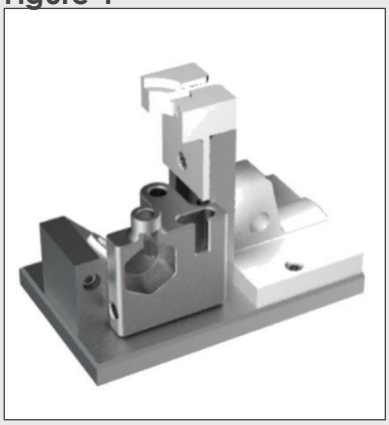
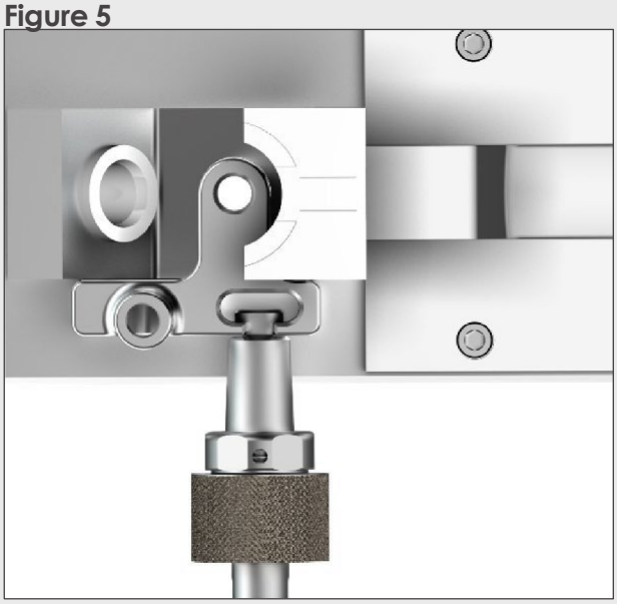


Figure 5



Surgical technique steps

Optional Step: Modular BioGrip® Collar + Stem

How to Assemble Modular BioGrip® Collar + Stem (required to be implanted together)

6 Slide the open socket of the Torque Wrench on the hex of the locking ring ensuring the handle of the Torque Wrench is fully seated. | Figure 6

7 Insert the Counter-Torque Handle into the indicated hole of the Counter-Torque Socket facing the user. | Figure 7

8 In a scissor motion, apply force on the Torque Wrench handle in the direction of the "Tightening" arrow on the upper surface of the Counter-Torque Socket until the handle shaft reaches a minimum of 35Nm on the Torque Wrench scale indicator. | Figure 8

Figure 6

Figure 7

Figure 8

Surgical technique steps

Optional Step: Modular BioGrip® Collar + Stem

How to Assemble Modular BioGrip® Collar + Stem (required to be implanted together)

9. Remove the Torque Wrench and stem-collar locking ring assembly from the socket

10. Rotate the stem-collar locking ring assembly until the Locking Ring Impactor Hole is aligned vertically up. | Figure 9

11. Insert the stem-collar locking ring assembly in the hex socket of the Counter-ToSocket, ensuring the peening hole is visible through the guide ring of the Counter-Torque Socket.

12. Thread a single-use Impactor Tip on the Collar Impactor | Figure 10

Figure 9

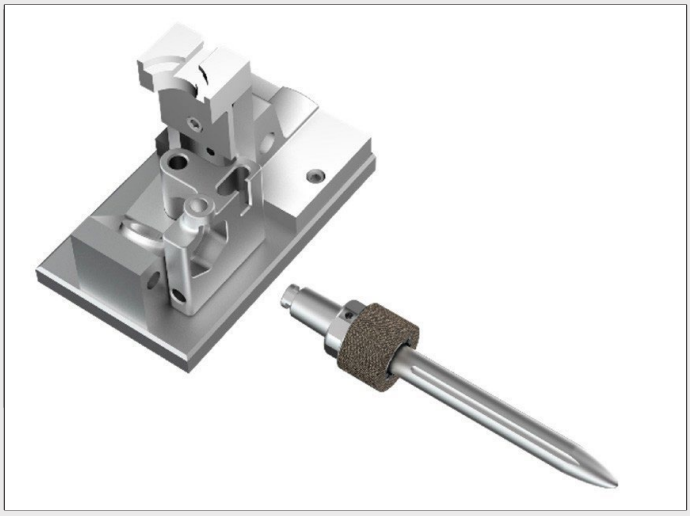
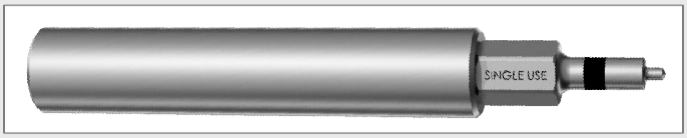


Figure 10



Surgical technique steps

Optional Step: Modular BioGrip® Collar + Stem

How to Assemble Modular BioGrip® Collar + Stem (required to be implanted together)

13 Insert the Impactor Tip into the guide ring of the Counter-Torque Socket, ensuring that the black ring on the tip is no longer visible (it is covered by the guide ring). | Figure 11

This indicates the tip is fully seated on the collar thread prior to impaction. The shaft of the stem can be gently pulled on to test that the Impactor Tip is fully seated on the collar thread through the Locking Ring peening hole.

14 While securely holding the Collar Impactor, firmly strike the impactor with the surgical mallet five times. | Figure 12

15 Remove the stem-collar-locking ring assembly from the hex socket of the Counter-Torque Socket. Proceed to the standard surgical technique step on next page for standard impaction to the distal femoral implant and/or optional midsections.

Figure 11

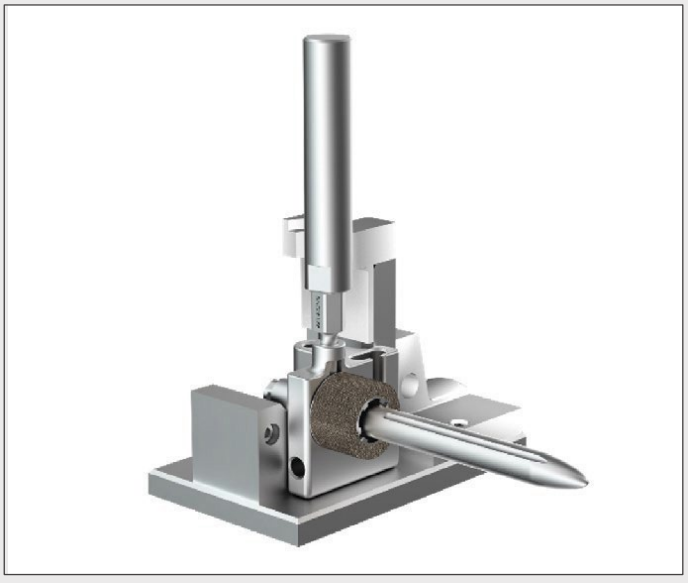


Figure 12

Surgical technique steps

Component assembly

1. Assemble the Proximal Femur on the Femoral Assembly Platform. Then assemble any optional Midsections to the Proximal Femur with five hard mallet blows using the Midsection Assembly Impactor. | Figure 11

2. Place the Segmental Stem in the Proximal Femur/Midsection/ Femoral Head component (or in the Proximal Femur if no Midsection was used) and assemble with five hard mallet blows using the Stem Assembly Impactor. | Figure 12

Caution: Mallet assembly must be performed over or near the support legs of a rigid back table and not on an unstable surface such as the mayo stand. Ensure the components are free from debris and dry prior to assembly. If required, wipe/dry components with a sterile lap sponge. If using antibacterial coated components, do not wipe with isopropyl alcohol.

Figure 11

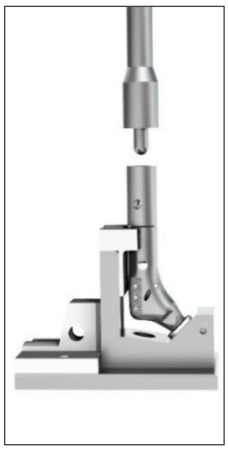


Figure 12

Cement preparation

1. Remove trial components from the femoral canal. Clean the canal with pulsating lavage to prepare for cement. Dry the canal with the desired sponge. If necessary, place a cement restrictor into the canal. Inject cement into the canal in a pressurized retrograde fashion.

Component insertion

Femoral component

1. Place the assembled implant in the femoral canal, aligning the anteversion mark on the stem with the anteversion mark on the femur as shown in Figure 13. Refer to the notes in the femoral reaming and planing section of the surgical technique for additional considerations for canal filling stem insertion.

2. Guide and impact the stem into the canal with the Proximal Femoral Impactor until the stem is seated at the resected plane. | Figure 14

3. Remove excess cement. Proper position of the implant should be maintained until the cement cures.

Figure 13

Figure 14

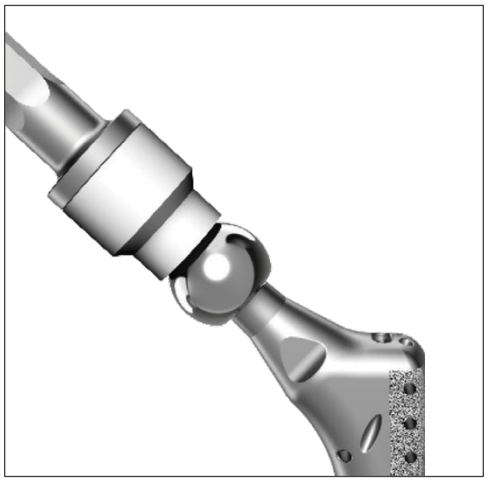
Femoral head assembly

A final trial reduction may be performed with the 22.25mm, 28mm, 32mm or 36mm Trial Femoral Heads to ensure precise soft tissue balancing.

1. Remove the Trial Femoral Head from the implant. Clean and dry the taper of the Proximal Femur to be free of foreign materials.

2. Select the desired Femoral Head. Place the Femoral Head on the femoral stem taper using a slight turning motion. Impact the Femoral Head with the Femoral Head Impactor with five hard mallet blows to achieve final seating. | Figure 15

Figure 15



Surgical technique steps

Suture Technique

Figure 16

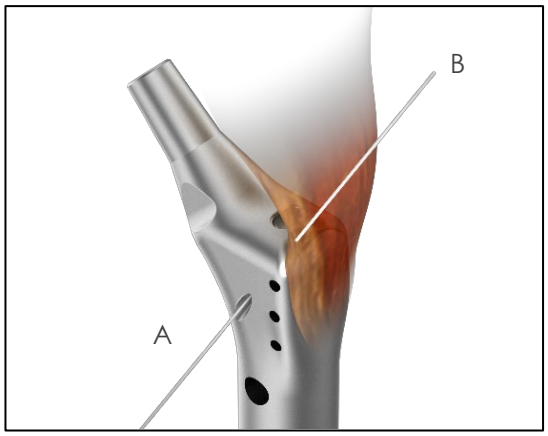
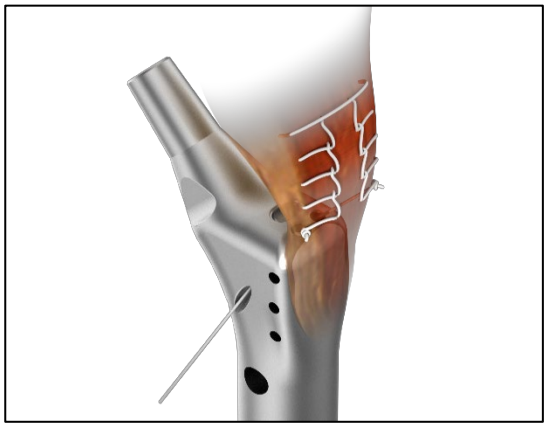


Figure 17



1. Using a heavy non-absorbable suture and a straight needle, advance through the medial superior-inferior hole of the implant from inferior to superior (Point A to Point B). Leave approximately 100mm of suture at point A. (See Figure 16)

2. Utilizing a lock stitch, starting medially and underneath on the deep side of the abductor tissue, sew a few locked stitches from distal to proximal exiting out the superficial side of the tissue proximally. Then sew a few locked stitches posteriorly from proximal to distal exiting on the deep side of the tissue distally. (See Figure 17)

Figure 18

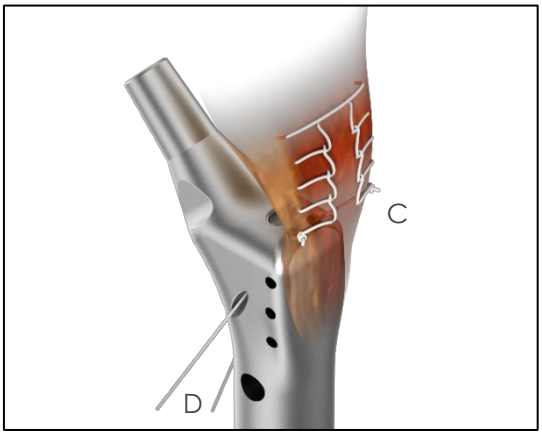
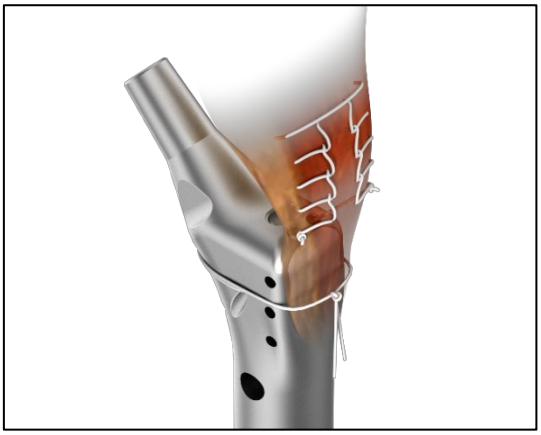


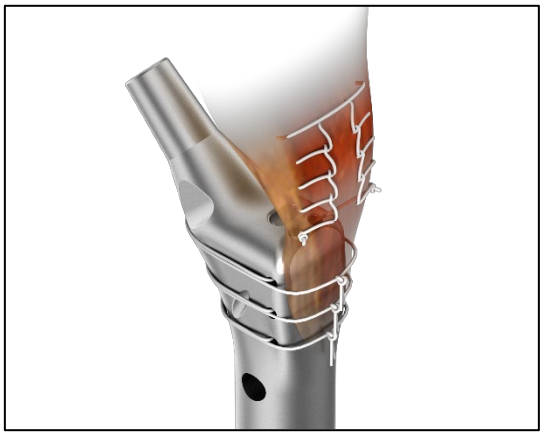
Figure 19



3. Advance the suture through the posterior superior-inferior hole of the implant from superior to the implant from superior to inferior (Point C to Point D). (See Figure 18)

4. Tension suture to approximate the abductors to the implant. At about the level of the middle A/P suture hole, wrap sutures and tie medially around the implant. Then wrap back laterally and tie suture again around the abductors on the lateral side of the implant. An absorbable hemostat can be inserted between the implant and the suture to protect the suture from the plasma coating, if necessary. (See Figure 19)

Figure 20



5. If possible, use the most proximal A/P hole to tie down the abductor (See Figure 20). Use the A/P holes to tie the vastus lateralis to the implant. If possible, tie the vastus lateralis to the abductor. Utilize other rotational muscle flaps as necessary to ensure that none of the implant is left exposed.

Component disassembly

To disengage the ELEOS™ and ELEOS™ with NanoCept™ Technology tapers, insert the Taper Disassembly Tool into the hole on the side of the implant. Strike the end of the tool with a mallet until the components separate as shown in Figure 21. Support the implant during disassembly.

Alternatively, or in concert with the Taper Disassembly Tool, insert the Taper Disassembly Fork around the outside of the implant, below the seam between the two components to be disassembled. Strike the end of the fork to disengage the tapers as shown in Figure 22. Support the implant during disassembly.

Figure 21

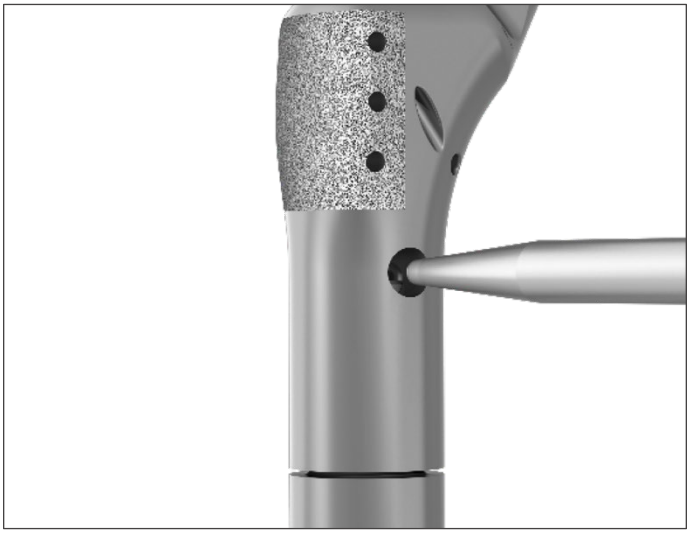


Figure 22

Explantation information

Segmental Stem explanation may be required in revision scenarios. To explant a Segmental Stem, attach the Stem Extractor Attachment to the Slap Hammer Extractor Handle.

Contact us to learn more:
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The ELEOS™ and ELEOS™ with NanoCept™ Technology Limb Salvage System is compatible with the following MicroPort Orthopedics systems trademarked by MicroPort: Guardian, Advance, Gladiator, Lineage, and Transcend.

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