

OSS™ Orthopedic Salvage System

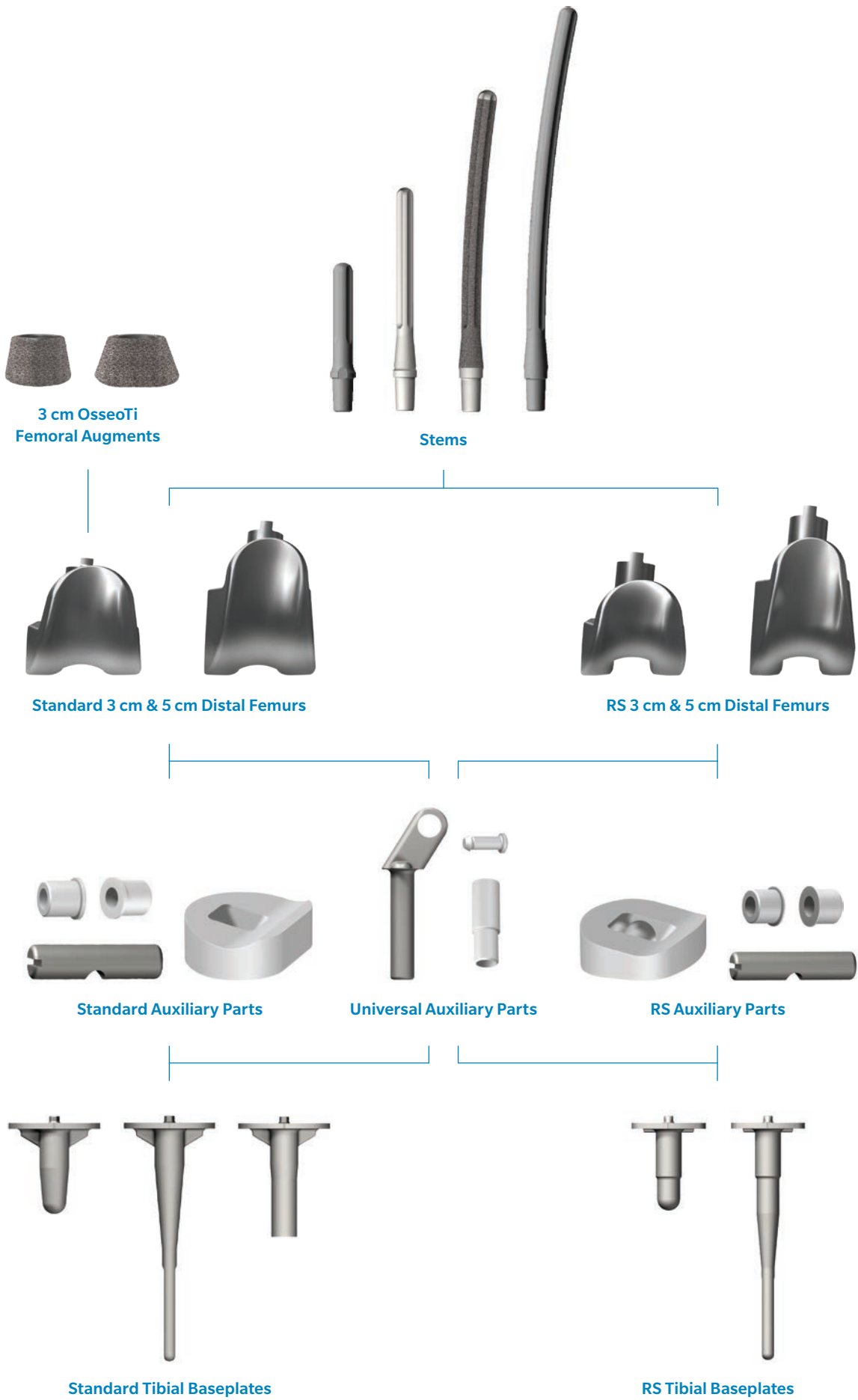
Distal Femoral Replacement

Surgical Technique



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Indications for Use

Indications and Contraindications

Effective as of January 1, 2016

INDICATIONS

1. Painful and disabled joint resulting from avascular necrosis, osteoarthritis, rheumatoid arthritis, or traumatic arthritis.
2. Correction of varus, valgus, or posttraumatic deformity.
3. Correction of revision of unsuccessful osteotomy, arthrodesis or previous joint replacement.
4. Ligament deficiencies.
5. Tumor resections.
6. Treatment of non-unions, femoral neck fracture, and trochanteric fractures of the proximal femur with head involvement, unmanageable using other techniques.*
7. Revision of previously failed total joint arthroplasty.
8. Trauma.

These devices are to be used with bone cement unless composed of OsseoTi® titanium alloy (not licensed in Canada) or a proximal femur is indicated for use (USA).

Legacy Biomet OSS Reduced size (RS) components offers a variety of component options for treatment in small adults and adolescents (12-21 years) that require proximal femoral, distal femoral, total femur, or proximal tibial replacement as well as, resurfacing components for the proximal tibia and distal femur (USA).

*Not applicable to Regenerex® Ultra Porous Construct titanium knee augment usage (not licensed in Canada), or any other knee component.

COMPRESS INDICATIONS

The Compress® Segmental Femoral Replacement System is indicated for:

1. Correction of revision of unsuccessful osteotomy, arthrodesis, or previous joint replacement.
2. Tumor resections.
3. Revision of previously failed total joint arthroplasty.
4. Trauma.

The Compress Segmental Femoral Replacement System components are intended for uncemented use.

When components of the Orthopaedic Salvage System are used with legacy Biomet's Compress Segmental Femoral Replacement System, the user should refer to the package insert contained with the Compress components for full prescription information.

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, 7) vascular insufficiency, muscular atrophy, or neuromuscular disease.

Primary Femoral Preparation

			Stem Length (mm)			
			90	150	225	300
Ream Depth for Corresponding Surgery (mm)	3 cm (30 mm) Primary	+ 3 cm (30 mm) Boss	150	210	285	360
	5 cm (50 mm) Primary		170	230	305	380

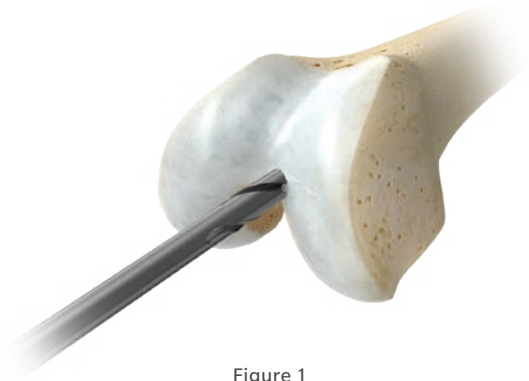


Figure 1

Reamer/Trial/Stem Diameter Example*	
Flexible Reamer	16 mm
Trial Stem	16 mm
Cemented Stem (implant)	14 mm

*16 mm stem trials are 16 mm in diameter



Figure 2a

Figure 2

Reaming

Note: If revising the distal femur, continue to page 17.

Use a .375" intramedullary (IM) drill to penetrate the femoral canal (Figure 1).

Start at full power prior to contact using the flexible reamers and progressively ream in 0.5 mm increments to the appropriate laser-etched markings (see Stem Length chart) until light cortical chatter is obtained (Figure 2).

***Note:** For bowed stems, the final flexible reamer shaft diameter may need to be larger than the definitive trial and implant diameter (Reamer/Trial/Stem Diameter Example).

Note: Reaming over a guide is recommended. The Arcos Flexible Reamers that are designed to prepare for a bowed stem are cannulated to accommodate a guide wire.



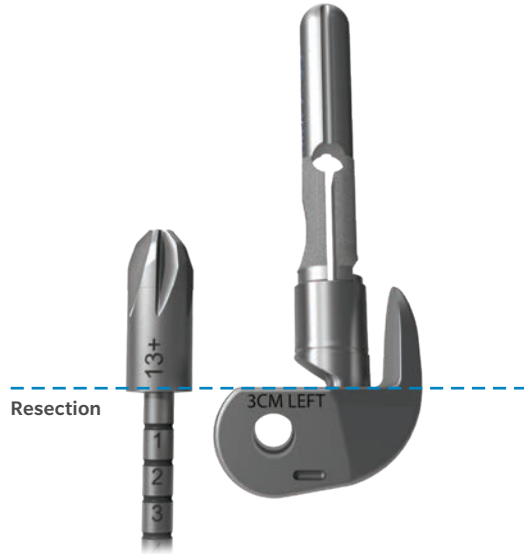


Figure 3
90 mm Stem

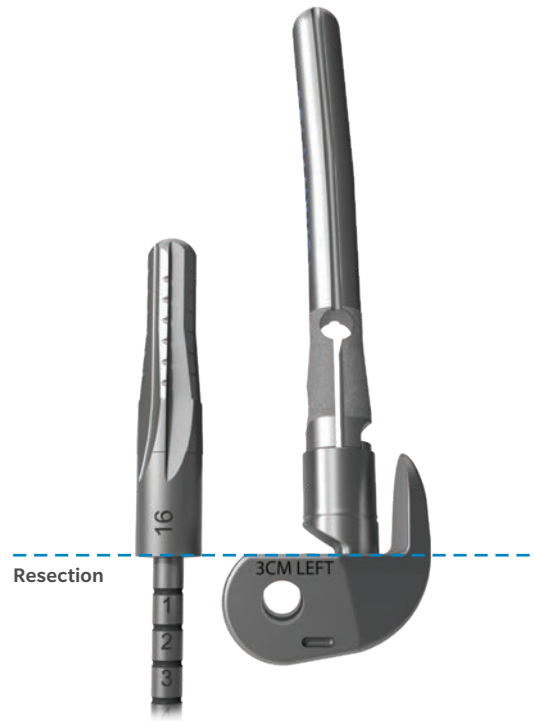


Figure 4
150, 225 or 300 mm stem

Reaming (cont.)

For a 90 mm stem (Figure 3) select the following:

12.5- flare reamer =
8 mm through 12.5 mm flexible reamers

13+ flare reamer =
13 mm through 24 mm flexible reamers

For a 150, 225 or 300 mm stem, select the corresponding flare reamer based on the final diameter of the flexible reamer to prepare the canal for the femoral boss as well as the flared portion of the stem (Figure 4).

12.5- Flare Reamer CP460477
13+ Flare Reamer CP460476
Reamers Tray 3



Flare Reamer
Reamers Tray 3



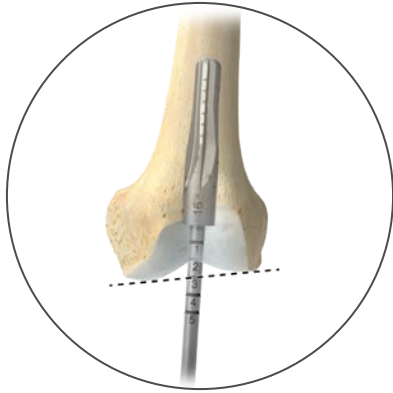


Figure 5a

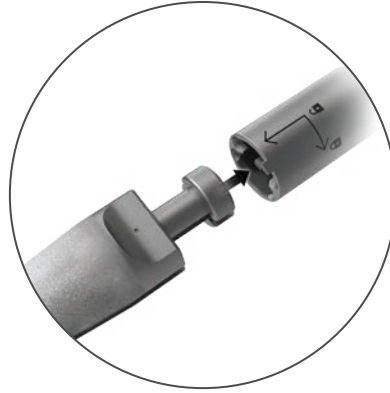


Figure 6a



Figure 6b

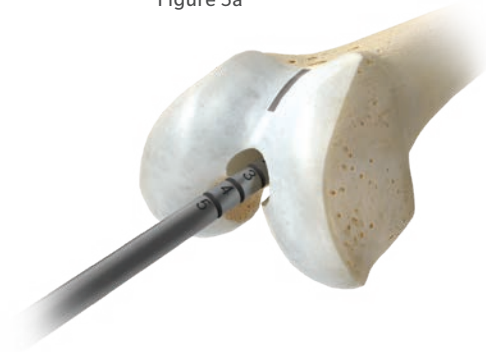


Figure 5



Figure 6

Reaming (cont.)

Start at full power prior to contact and advance the selected flare reamer to a depth equal to the amount of bone resection required (3 cm groove or 5 cm groove), aligning the appropriate groove to the joint line (i.e. ream to '3' groove for a 3 cm and to '5' for a 5 cm distal femoral replacements).

Establish and mark the anterior cortex of the femur to establish appropriate external rotation (Figure 5 and Figure 5a).

Remove the reamer. Connect the stem trial to the stem trial adapter by aligning the arrow on the adapter with the stem trial's anterior mark. Insert and rotate clockwise to lock (Figure 6a and 6b). Insert the stem trial/stem trial adapter aligning the anterior line of the adapter with the established anterior mark (Figure 6).

Note: Select the stem trial that corresponds to the flare reamer. The final implant size should be 2 mm smaller than the stem trial to allow for a 2 mm cement mantle.

Stem Trial Adapter 110030070
Femoral Bone Prep Tray 1



Stem Trials
Short Provisional Stems Tray 7
Long Provisional Stems Tray 8





Figure 7

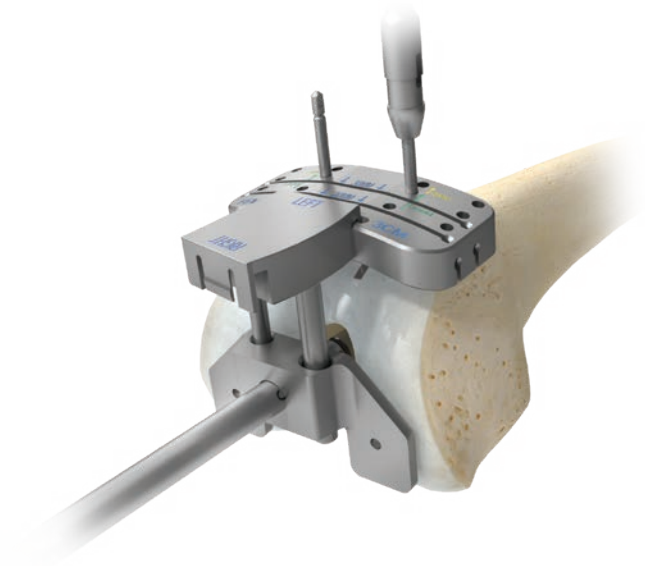


Figure 8

Distal Resection

Slide the left or right 5 degree valgus wing over the stem trial/stem trial adapter firmly against the distal femur. Assemble the distal femoral resection tower to the appropriate distal cut block (3 cm or 5 cm) and slide into the top of the valgus wing until it rests against the anterior cortex (Figure 7).

Note: The tower is universal, and can only be positioned in one direction with the appropriate left or right valgus wing.

Secure the distal resection cut block with 1/8" drill pins or threaded drill pins using the pin driver (Figure 8).

Distal Femoral Resection Tower
110018759
Femoral Bone Prep Tray 1



Distal Femoral Resection Valgus Wings
32-487025 & 32-487005
Femoral Bone Prep Tray 1



Pin Driver 32-486261
Femoral Bone Prep Tray 1



Distal Femoral Resection Cut Blocks
Femoral Bone Prep Tray 1



Drill Pin 32-467619
Threaded Drill Pin 32-700379
Femoral Bone Prep Tray 1





Figure 9



Figure 10

Distal Resection (cont.)

Remove the distal femoral resection tower, valgus wing and stem trial/stem trial adapter (Figure 9).

Make the distal resection through the selected slot using a standard .054" saw blade. For a primary 3 cm resection, use the cut block marked "3 cm" and cut through the slot marked "30 mm". For a primary 5 cm resection, use the cut block marked "5 cm" and cut through the slot marked "50 mm" (Figure 10).

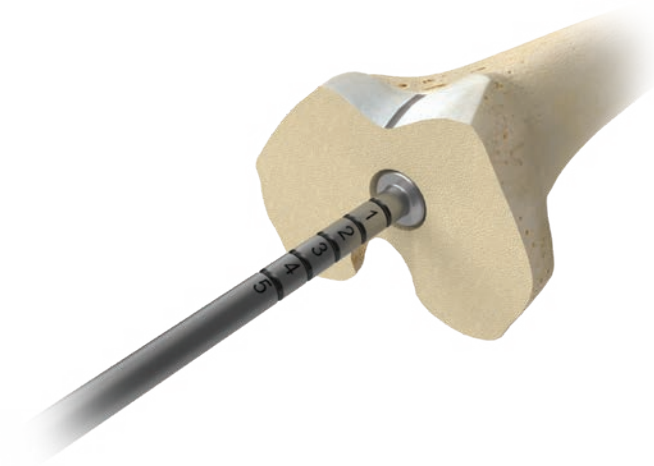


Figure 11



Figure 12

Distal Resection (cont.)

Remove the distal resection cut block and reinsert the stem trial/stem trial adapter (Figure 11).

Slide the A/P cut block onto the stem trial/stem trial adapter through the appropriate left or right hole (Figure 12). Align the appropriate anterior arrow of the block with the established anterior mark.

Stem Trial Adapter 110030070
Femoral Bone Prep Tray 1



Stem Trials
Short Provisional Stems Tray 7
Long Provisional Stems Tray 8



Distal Femoral A/P Cut Block 110018762
Femoral Bone Prep Tray 1





Figure 13

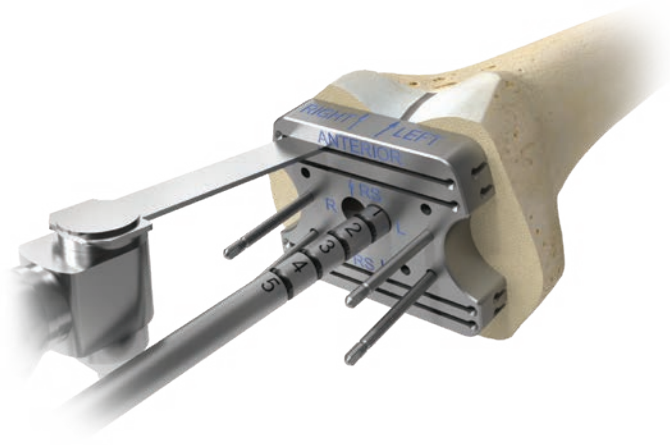


Figure 14

Distal Resection (cont.)

Secure the A/P cut block with 1/8" drills or threaded drill pins using the pin driver (Figure 13).

Anterior and Posterior Resection

Resect the anterior and posterior portions of the distal femur, using either the Standard Size or the Reduced Size "RS" (Figure 14).

If a femoral augment is required go to page 26.

Drill Pin 32-467619
Threaded Drill Pin 32-700379
Femoral Bone Prep Tray 1



Pin Driver 32-486261
Femoral Bone Prep Tray 1



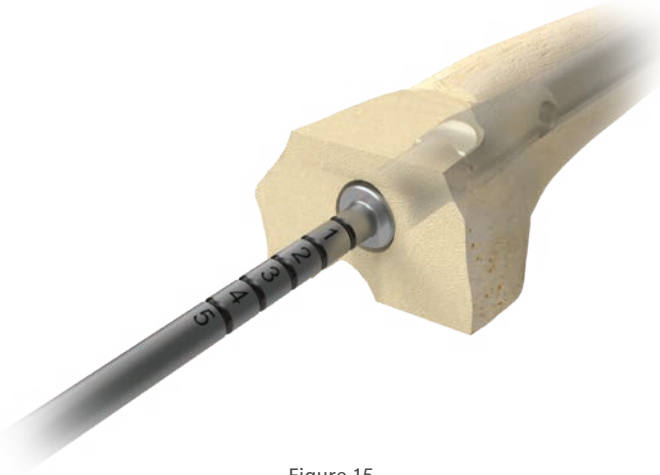


Figure 15

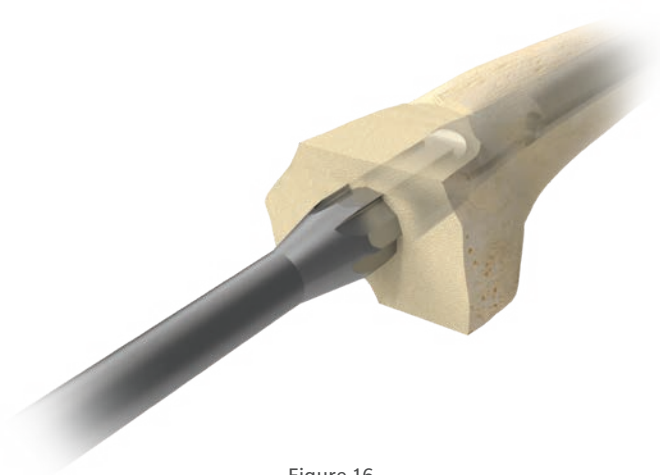


Figure 16

3 cm Resection Boss Preparation for use without OsseoTi Distal Femoral Augments (Standard Only)

Insert the 3 cm resurfacing tapered boss reamer over the stem trial/stem trial adapter. Start at full power prior to engaging the metaphyseal bone and ream to mechanical stop (Figure 15 and Figure 16).

Note: This step is only required if using a standard 3 cm distal femoral replacement.

3 cm Resurfacing Tapered Boss Reamer 110018807
Femoral Bone Prep Tray 1



Revision Femoral Preparation

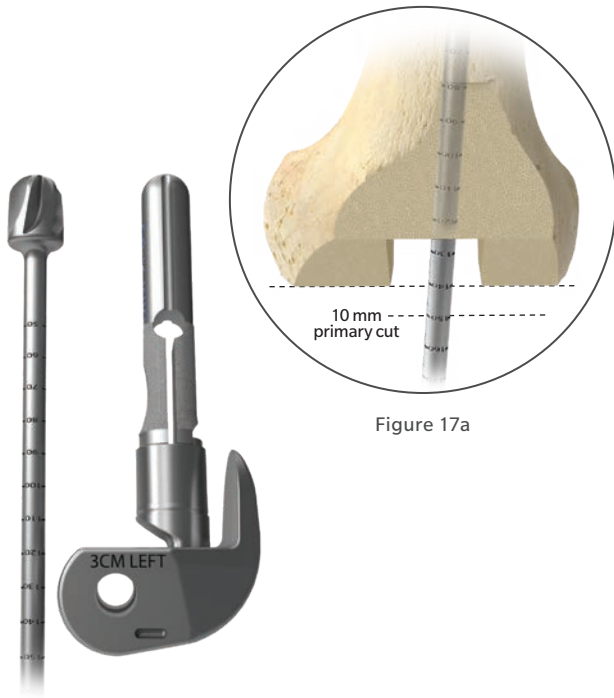


Figure 17a

Figure 17

		Stem Length (mm)				
		90	150	225	300	
Ream Depth for Corresponding Surgery (mm)	3 cm (30 mm) Revision	+ 3 cm (30 mm) Boss	140	200	275	350
	5 cm (50 mm) Revision		160	220	295	370

*Assuming a 10 mm resection from previous implant

Reamer/Trial/Stem Diameter Example*	
Flexible Reamer	16 mm
Trail Stem	16 mm
Cemented Stem (implant)	14 mm

Reaming

Start at full power prior to contact using the flexible reamers and progressively ream in 0.5 mm increments to the appropriate laser-etched markings (see Stem Length Chart) until cortical chatter is obtained (Figure 17).

- ⓘ ***Note:** For bowed stems, the final flexible reamer shaft diameter may need to be larger than the definitive trial and implant diameter (Reamer/Trial/Stem Diameter Example).
- ⓘ **Note:** Reaming over a guide is recommended. The Arcos Flexible Reamers that are designed to prepare for a bowed stem are cannulated to accommodate a guide wire.



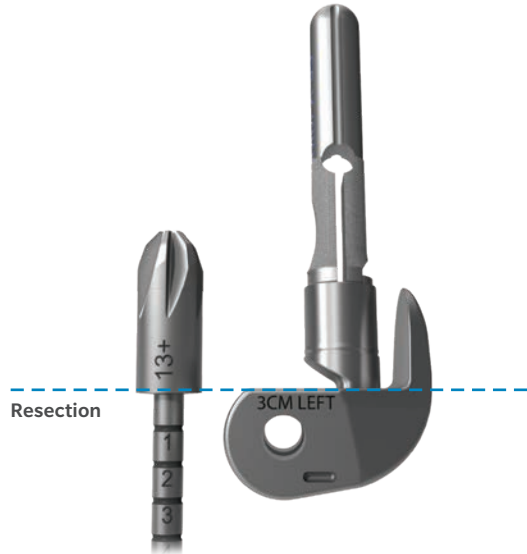


Figure 18
90 mm Stem

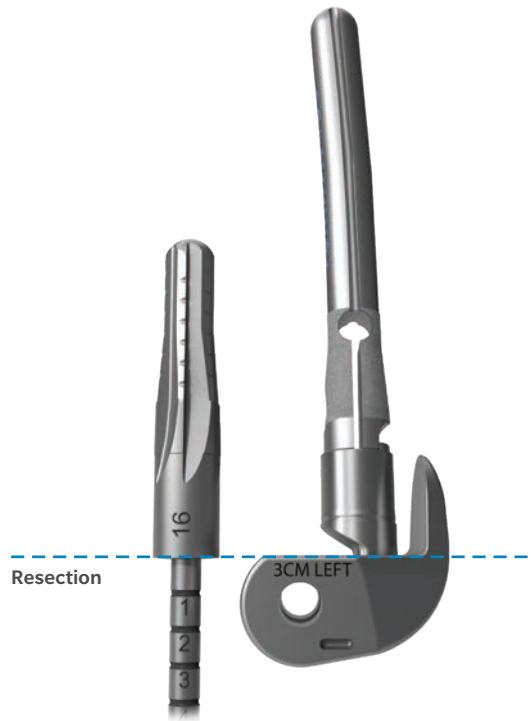


Figure 19
150, 225 or 300 mm stem

Reaming (cont.)

For a 90 mm stem (Figure 18) select the following:

12.5- flare reamer =
8 mm through 12.5 mm flexible reamers

13+ flare reamer =
13 mm through 24 mm flexible reamers

For a 150, 225 or 300 mm stem select the corresponding flare reamer, based on the final diameter of the flexible reamer, to prepare the canal for the femoral boss as well as the flared portion of the stem (Figure 19).

12.5- Flare Reamer CP460477
13+ Flare Reamer CP460476
Reamers Tray 3



Flare Reamer
Reamers Tray 3



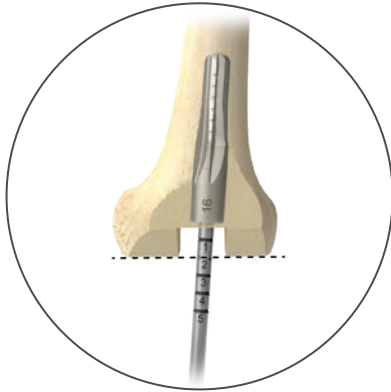


Figure 20a

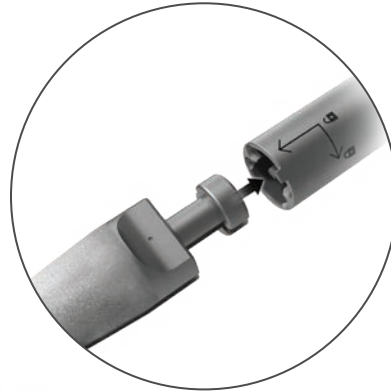


Figure 21a



Figure 22b

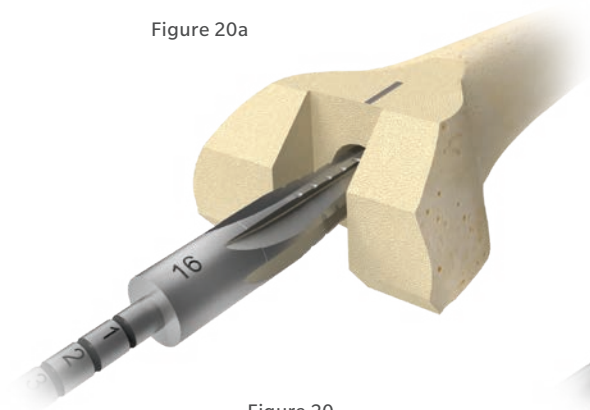


Figure 20

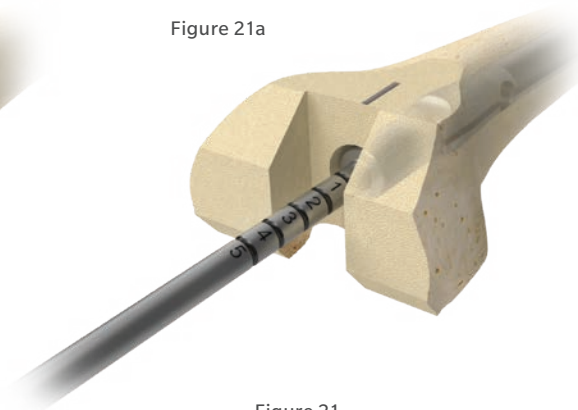


Figure 21

Reaming (cont.)

In a revision scenario where approximately 1 cm of distal femur is absent due to prior implant removal, the flare reamer should be advanced to the 2 cm groove and aligned with the current distal resection, preparing for a 3 cm replacement (Figure 20 and Figure 20a) or 4 cm groove preparing for a 5 cm replacement.

Start at full power prior to contact and ream the canal (Figure 20).

Establish and mark the anterior cortex of the femur to establish appropriate external rotation.

Remove the reamer. Connect the stem trial to the stem trial adapter by aligning the arrow on the adapter with the stem trial's anterior mark. Insert and rotate clockwise to lock. Insert the stem trial/stem trial adapter aligning the anterior line of the adapter with the established anterior mark (Figures 21, 21a, 21b).

Note: Select the stem trial that corresponds to the flare reamer. The final implant size should be 2 mm smaller than the stem trial.

Stem Trials
Short Provisional Stems Tray 7
Long Provisional Stems Tray 8



Stem Trial Adapter 110030070
Femoral Bone Prep Tray 1



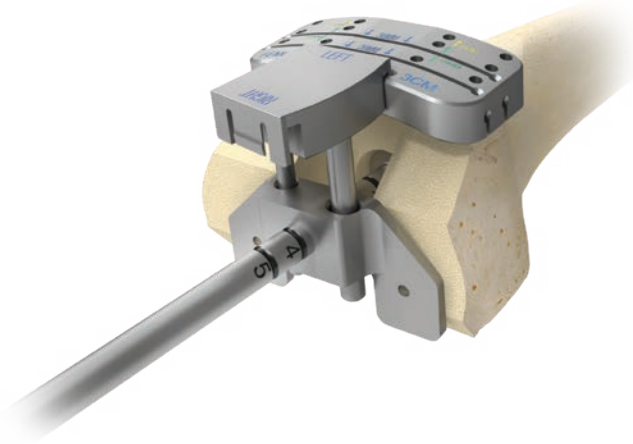


Figure 23

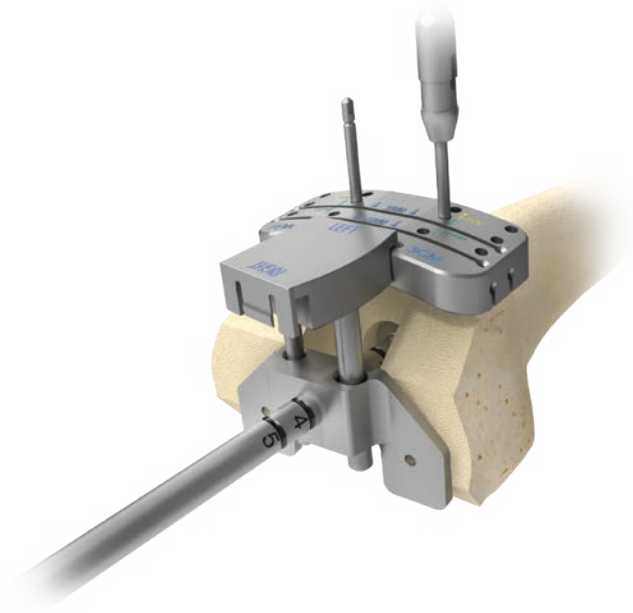


Figure 24

Reaming (cont.)

Slide the left or right 5 degree valgus wing over the stem trial/stem trial adapter firmly against the distal femur. Assemble the distal femoral resection tower to the appropriate distal cut block (3 cm or 5 cm) and slide into the top of the valgus wing (Figure 23).

ⓘ **Note:** The tower is universal, and can only be positioned in one direction with the appropriate left or right valgus wing.

Distal Resection

ⓘ **Note:** This assumes the original primary knee required a 1 cm resection. If more or less bone needs to be resected to achieve appropriate length, shift the cut block using the pin holes marked 5, 10 or 15 mm.

Secure the distal resection cut block with 1/8" drill pins or threaded drill pins using the pin driver (Figure 24).

Distal Femoral Resection Tower 110018759
Femoral Bone Prep Tray 1



Distal Femoral Resection Valgus Wings 32-487025 & 32-487005
Femoral Bone Prep Tray 1



Distal Femoral Resection Cut Blocks
Femoral Bone Prep Tray 1



Drill Pin 32-467619
Threaded Drill Pin 32-700379
Femoral Bone Prep Tray 1



Pin Driver 32-486261
Femoral Bone Prep Tray 1





Figure 25

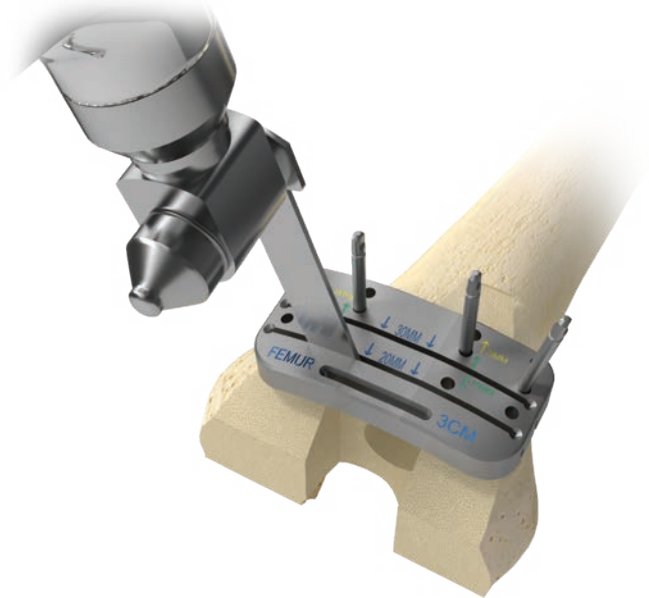


Figure 26

Distal Resection (cont.)

Remove the distal femoral resection tower, valgus wing and stem trial/stem trial adapter (Figure 25).

Make the distal resection through the selected slot using a standard .054" saw blade (Figure 26). For a 3 cm femoral component, use the cut block marked "3 cm" and cut through the slot marked "20 mm". For a 5 cm femoral component, use the cut block marked "5 cm" and cut through the slot marked "40 mm".*

ⓘ ***Note:** This assumes the original primary knee required a 1 cm resection. If more or less bone needs to be resected to achieve appropriate length, shift the cut block using the pin holes marked 5, 10 or 15 mm.



Figure 27



Figure 28

Distal Resection (cont.)

Remove the distal femoral resection block and reinsert the stem trial/stem trial adapter (Figure 27).

Slide the A/P cut block onto the stem trial/stem trial adapter through the appropriate left or right hole (Figure 28). Align the appropriate anterior arrow of the block with the established anterior mark.

Stem Trials
Short Provisional Stems Tray 7
Long Provisional Stems Tray 8



Stem Trial Adapter 110030070
Femoral Bone Prep Tray 1



Distal Femoral A/P Cut Block 110018762
Femoral Bone Prep Tray 1



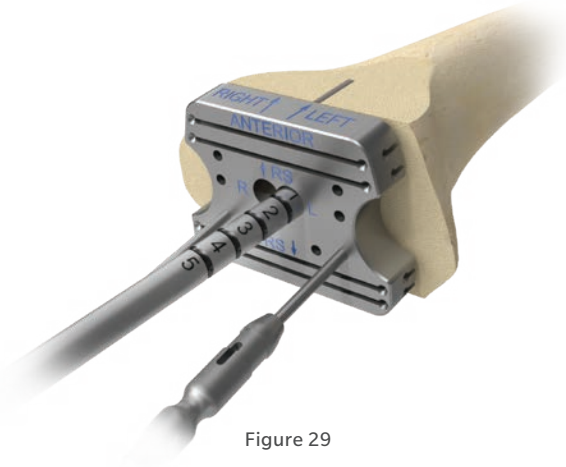


Figure 29

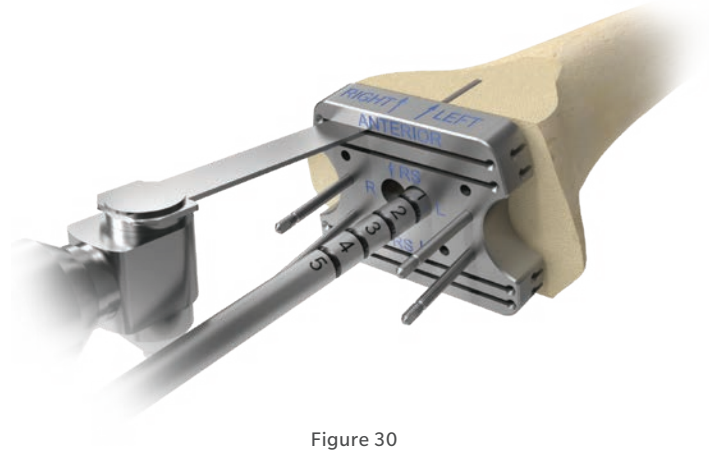


Figure 30

Distal Resection (cont.)

Secure the A/P resection block with 1/8" drills or threaded drill pins using the pin driver (Figure 29).

Anterior and Posterior Resection

Resect the anterior and posterior portions of the distal femur, using either the Standard or Reduced Size "RS" cut slots (Figure 30).

To prepare the femur for a 3 cm resection without the use of an augment, continue to next page.

If a femoral augment is required, go to page 26.

Drill Pin 32-467619
Threaded Drill Pin 32-700379
Femoral Bone Prep Tray 1



Pin Driver 32-486261
Femoral Bone Prep Tray 1





Figure 31

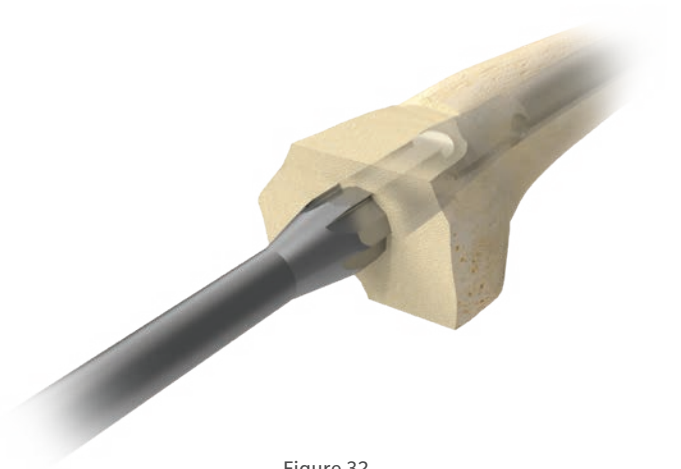


Figure 32

3 cm Resection Boss Preparation for use without OsseoTi Distal Femoral Augments (Standard Only)

Insert the 3 cm resurfacing tapered boss reamer over the stem trial/stem trial adapter. Start at full power prior to engaging the metaphyseal bone and ream to mechanical stop (Figure 31 and Figure 32).

- ⓘ **Note:** This step is only required if using a standard 3 cm distal femoral replacement.
- ⓘ **Note:** If using a standard 3 cm MAK Distal Femoral replacement, do not use the tapered boss reamer.

3 cm Resurfacing Tapered Boss Reamer 110018807
Femoral Bone Prep Tray 1



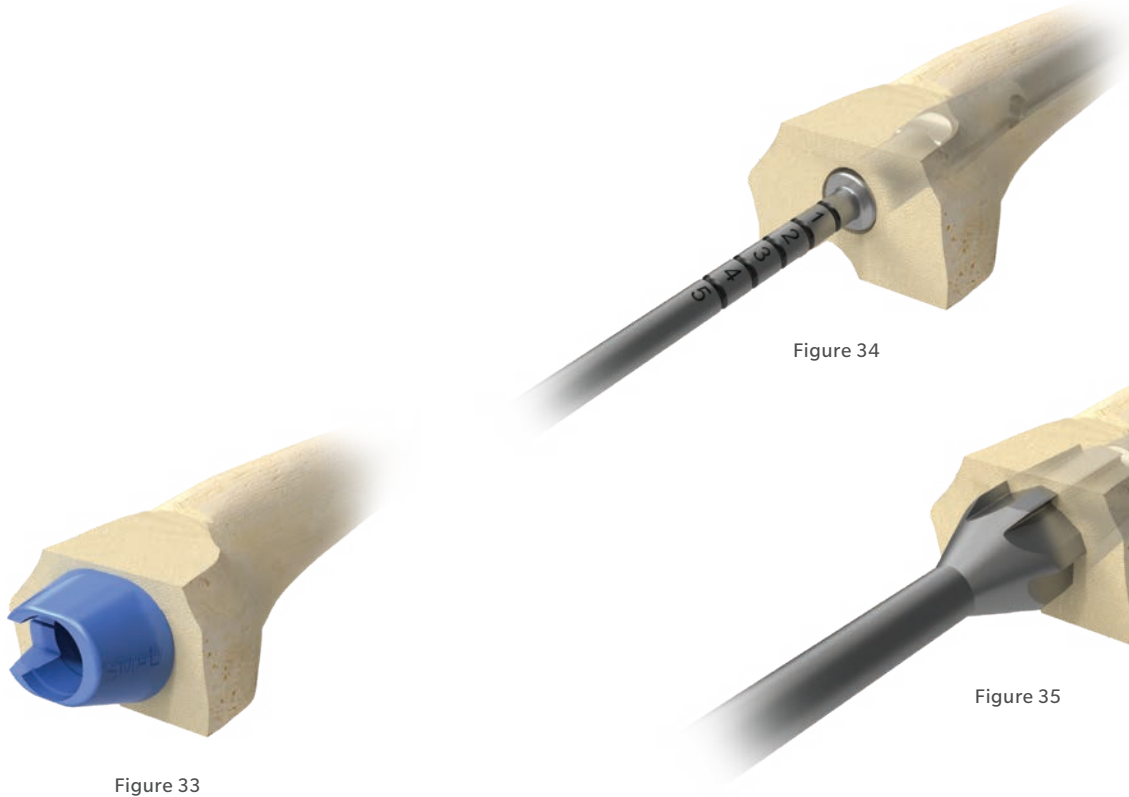


Figure 33

Figure 34

Figure 35

OsseTi Distal Femoral Augments

Evaluate the size of the metaphyseal bone void using the small or large femoral augment trial (Figure 33).

Insert the small conical augment reamer over the stem trial/stem trial adapter. Start at full power prior to engaging the metaphyseal bone and ream to mechanical stop (Figure 34 and Figure 35).

Note: The Distal Femoral Augment is only available using a standard 3 cm distal femoral replacement.

Femoral Augment Trials
STND Femoral Provisionals Tray 4



Stem Trial Adapter 110030070
Femoral Bone Prep Tray 1



Stem Trials
Short Provisional Stems Tray 7
Long Provisional Stems Tray 8



Small Conical Augment Reamer 110018789
Femoral Bone Prep Tray 1





Figure 36



Figure 36a

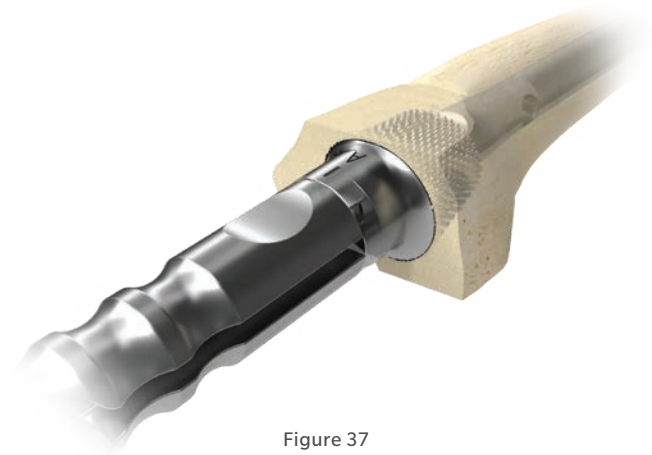


Figure 37

OsseoTi Distal Femoral Augments (cont.)

Align and attach the smallest broach (marked “1”), to the broach handle (Figure 36). Slide over the stem trial/stem trial adapter. Broach to the mechanical stop, sequentially broaching up to the desired size (small or large (Figures 36a, 37)), cleaning broach as necessary.

To prepare for a size “Small” femoral augment, sequentially broach, using broaches marked “1” and “2”. To prepare for a size “Large” femoral augment, sequentially broach, using broaches marked, “1”, “2”, “3”, “4” and “5”.

ⓘ **Note:** Broaches “2” and “5” are black corresponding to the “small” or “large” final implant, there are no OsseoTi augments corresponding to the ‘1’, ‘3’, or ‘4’ size broaches.

Remove broaches.

Femoral Broach Handle 110018806
Femoral Bone Prep Tray 1



Femoral Broaches
Femoral Bone Prep Tray 1



Tibial Preparation



Figure 38



Figure 39

- ⓘ **Note:** If using a modular tibial component with a stem for a revision, reference page 38.

This technique is utilized for a tibial replacement of 20 mm or less. If resecting more than 20 mm, reference the Proximal Tibial Replacement Surgical Technique.

- ⓘ **Note:** If an extramedullary guide is preferred, the OSS Tibial Resection Guide and Stylus can be used in conjunction with the Vanguard XP® (32-700365), Vanguard Premier™ (32-487551, 32-487550), and Vanguard Microplasty® Elite (32-484550, 32-487550) extramedullary guides.

Reaming

Fully flex the knee and locate the center of the tibial plateau. Center the drill and start at full power prior to contact to create an entry hole with the .375" intramedullary (IM) drill (Figure 38), followed by the IM reamer (Figure 39). Replace with the IM rod.

Intramedullary (IM) Drill 32-467600
Femoral Bone Prep Tray 1



IM Reamer 32-467602
Tibial Bone Prep Tray 2



IM Rod 32-467603
Tibial Bone Prep Tray 2



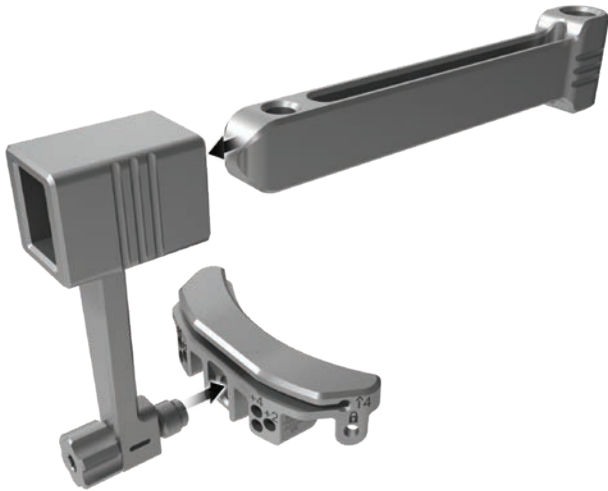


Figure 40



Figure 41

Proximal Tibial Resection

Screw in the tibial resection guide to the tibial vertical guide then connect to the tibial horizontal guide (Figure 40).

Slide the tibial resection guide assembly over the IM rod (Figure 41).

Tibial Resection Guide Universal 110030077
Tibial Bone Prep Tray 2



IM Tibial Vertical Guide 110030078
Tibial Bone Prep Tray 2



IM Tibial Horizontal Guide 110030079
Tibial Bone Prep Tray 2



Tibial Stylus 2/12mm 110030075
Tibial Bone Prep Tray 2



IM Rod 32-467603
Tibial Bone Prep Tray 2





Figure 42



Figure 43

Proximal Tibial Resection (cont.)

Insert the stylus into the cut slot of the tibial resection guide (Figure 42). When referencing the deepest point of the least affected condyle, use the 12 mm stylus foot (primary). Use the 2 mm stylus foot when referencing the deepest point of the most affected condyle (revision).

Once the desired resection depth has been achieved, pin the resection guide in the most distal holes with 1/8" drills or threaded drill pins using the pin driver (Figure 43). This will allow additional resection of +2 mm or +4 mm of the proximal tibial plateau if needed. Pin the resection guide using the diverging holes to secure the guide in place.

Drill Pin 32-467619 or
Threaded Drill Pin 32-700379
Femoral Bone Prep Tray 1



Pin Driver 32-486261
Femoral Bone Prep Tray 1





Figure 44



Figure 45

Proximal Tibial Resection (cont.)

Remove the tibial guide assembly and IM rod leaving the tibial resection guide in place (Figure 44).

⊖ **Note:** If necessary, use the 3.5mm hex screw driver to remove the tibial assembly guide from the tibial resection guide.

Use a standard .054" saw blade and cut through the slot (Figure 45). Remove the cutting guide.

⊖ **Note:** To prepare the tibia for a Regenerex[®] tibial cone augment, reference pages 4–6 of the Regenerex Tibial Cone Augment Surgical Technique Addendum to the Vanguard[®] SSK Revision System. Recommended sizing of x-small or small.

3.5 mm Short Driver CP460366
General Instruments Tray 13



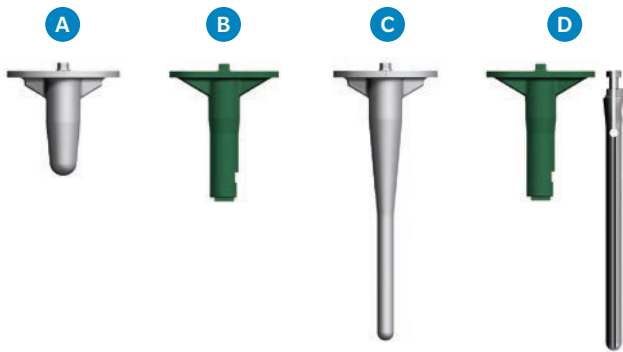


Figure 46
Short Non-Modular or Modular Tibia without a Stem

There are four distinct tibial options:

- A – Short Non-Modular Tibial Component
- B – Modular Tibial Component without a Stem
- C – Long Non-Modular Tibial Component
- D – Modular Tibial Component with a Stem

Note: The distal diameter of the modular tibial base plate is larger than the non-modular tibial base plate to accommodate the taper of a stem.

Canal Preparation

For preparation of (A) or (B), select and center a tibial sled sized to provide the best tibial plateau coverage without overhang, making sure to establish appropriate external rotation. Attach with long head bone nails (Figure 46).

Tibial Sled
Tibial Bone Prep Tray 2



Tibial Sled Alignment Handle 32-360299
Tibial Bone Prep Tray 2



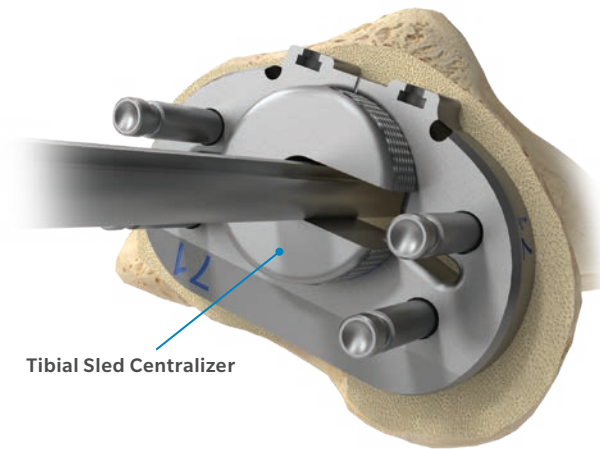


Figure 47
Preparation for Long Non-Modular or Modular Tibia with a Stem

Canal Preparation (cont.)

For preparation of (C) or (D), reinsert the IM Rod. Position the tibial sled over the tibial plateau using the tibial sled centralizer in order to centrally locate the distal end of a long non-modular or modular tibia with a stem. Use the tibial sled with the best coverage without overhang making sure to establish appropriate external rotation (Figure 47).

The tibial sled may have to be downsized. Attach tibial sled with long head bone nails. Remove the tibial centralizer and IM rod.

- Note:** The tibial sled alignment handle can be used in conjunction with the alignment rod to centrally locate the distal end of a long non-modular or modular tibia with a stem.

IM Rod 32-467603
Tibial Bone Prep Tray 2

Tibial Sled Centralizer 110024531
Tibial Bone Prep Tray 2

Long Head Bone Nail 32-422623
Tibial Bone Prep Tray 2

Alignment Rod 32-466616
Tibial Bone Prep Tray 2





Figure 48

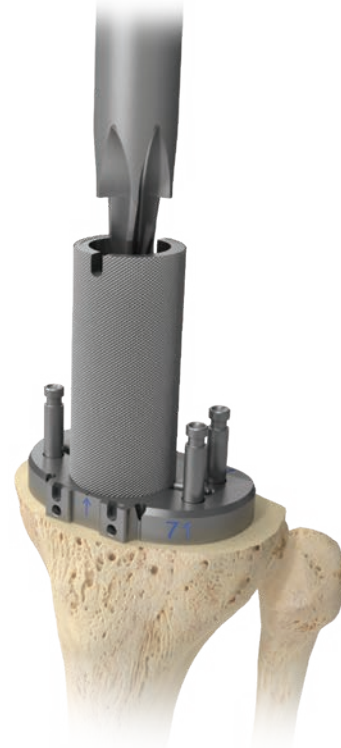


Figure 49

Canal Preparation (cont.)

Insert the tibial sled guide post to the tibial sled. Attach by rotating clockwise (Figure 48).

Use the tibial starter reamer to provide an entry hole into the tibia. Start at full power prior to contacting the tibia (Figure 49).

Tibial Sled Guide Post 110018785
Tibial Bone Prep Tray 2



Tibial Starter Reamer 32-468410
Tibial Bone Prep Tray 2



Short Non-Modular Tibial Reamer (Standard or RS)



Long Non-Modular Tibial Reamer (Standard or RS)



Modular Tibial Reamer

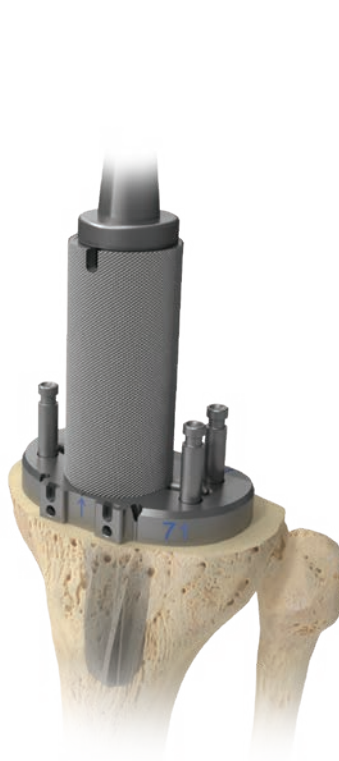


Figure 50



Figure 51

Canal Preparation (cont.)

Select the appropriate reamer that corresponds to the Standard or RS short non-modular, Standard or RS long non-modular or standard modular tibial component.

Start at full power prior to contact and ream to the mechanical stop (Figure 50).

Note: There are several tibial reamers in the OSS set. It is important to select the correct reamer that corresponds to the type of Standard or RS replacement (long non-modular, short non-modular or modular reamer).

Keel Prep

If using a standard sized tibia, select the keel punch and impact through the sled until fully seated. Remove (Figure 51).

Note: The keel punch is not used when preparing for a RS tibial component.

If preparing for a modular tibia with a stem, continue to the next page.

Continue to page 43 for Trialing.

Tibial Reamers
STND Tibial Provisionals Tray 9
STND Tibial Provisionals Tray 10
RS Tibial Provisionals Tray 11



Keel Punch 110018808
Tibial Bone Prep Tray 2



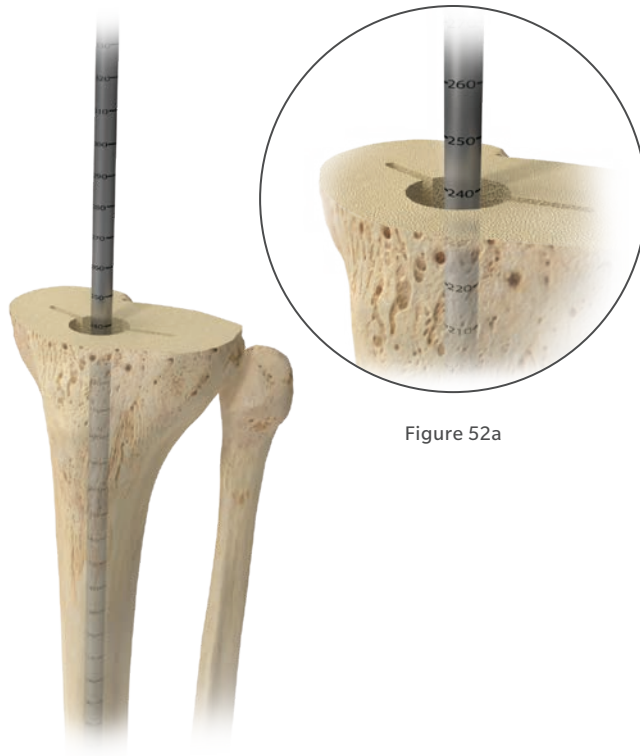


Figure 52a

Figure 52

Modular Tibial Component with Stem

Begin with the smallest diameter flexible reamer. Start power prior to contact and sequentially ream in .5 mm increments until light cortical chatter is achieved (Figure 52). See charts below for reamer to stem diameter and ream depth.

		Stem Length (mm)	
		90	150
Primary	Modular Tibial + Poly (90 mm)	180	240
Revision	Modular Tibia (80 mm)	170	230

Reamer/Trial/Stem Diameter Example	
Flexible Reamer	13 mm
Trial Stem	13 mm
Porous Stem (implant)	13.5 mm
Cemented Stem (implant)	11 mm

Arcos Flexible Reamer
Arcos Modular Femoral Revision System
Flexible Reamers Instrument Case



Flare Reamer
Reamers Tray 3



12.5- Flare Reamer CP460477
13+ Flare Reamer CP460476
Reamers Tray 3





Figure 53

Modular Tibial Component with Stem (cont.)

Based on the diameter of the final flexible reamer, select the flare reamer of equivalent size. Start power prior to contact and ream the canal opening to the groove marked “5” on the reamer shaft to prepare the canal for the modular tibial component and the flared stem (Figure 53).

For a 90 mm stem, select the following:

12.5- flare reamer =

8 mm through 12.5 mm flexible reamers

13+ flare reamer =

13 mm through 24 mm flexible reamers

For a 150, 225 or 300 mm stem select the corresponding flare reamer, based on the final diameter of the flexible reamer to prepare for the flared portion of the stem.

ⓘ **Note:** If using a modular tibial component with a stem for a revision, refer back to page 31 to continue bone preparation. To achieve adequate stability when making the tibial resection, the flare reamer can be used in place of the IM rod.



Figure 54

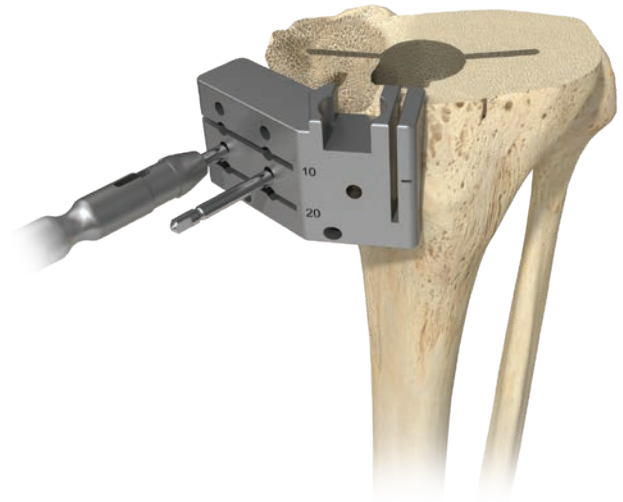


Figure 55

Tibial Block Augment Resection

Magnetically attach the augment resection block to the alignment handle and connect to the tibial sled (Figure 54). Medial or lateral specific options are available in 10 mm and 20 mm sizes.

Secure the augment block to the tibia with 1/8" drill pins or threaded drill pins using the pin driver (Figure 55). Remove the alignment handle and sled.

Tibial Sled
Tibial Bone Prep Tray 2



Long Head Bone Nails 32-422623
Tibial Bone Prep Tray 2



Tibial Sled Alignment Handle 32-360299
Tibial Bone Prep Tray 2



Tibial Augment Resection Block
Tibial Bone Prep Tray 2



Drill Pins 32-467619 or Threaded Drill Pins 32-700379
Femoral Bone Prep Tray 1



Pin Driver 32-486261
Femoral Bone Prep Tray 1



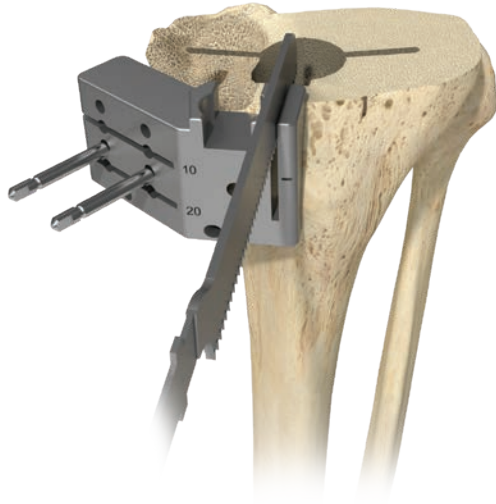


Figure 56



Figure 57

Tibial Block Augment Resection (cont.)

Make the vertical augment resection through the cut block utilizing a reciprocating saw, being careful to only cut down to the appropriate augment depth (Figure 56).

Note: Augment depths are denoted with engraved markings.

Resect the tibia through the appropriate slot (10 mm or 20 mm thick augments) using a .054" saw blade (Figure 57).

Tibial Augment Resection Block
Tibial Bone Prep Tray 2



**Drill Pins 32-467619 or
Threaded Drill Pins 32-700379**
Femoral Bone Prep Tray 1



Trialing

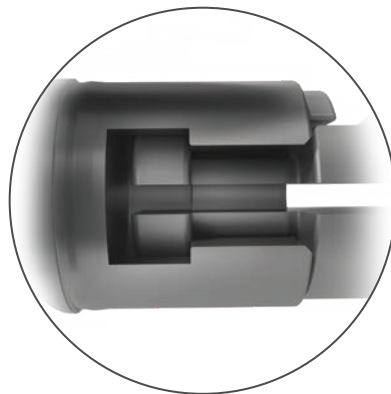


Figure 58a

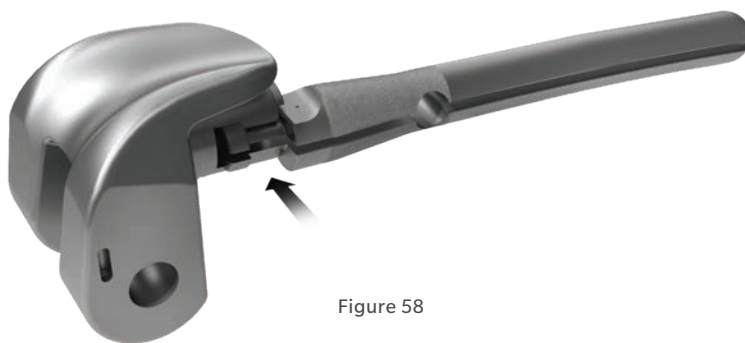


Figure 58

Trialing

Aligning the anterior tab and flat, connect the stem trial to the femoral component trial using the quick release connection (Figure 58 and Figure 58a).

Femoral Trials
STND Femoral Provisionals Tray 4
RS Femoral Provisionals Tray 6



Stem Trials
Short Provisional Stems Tray 7
Long Provisional Stems Tray 8





Figure 59



Figure 60

Trialing (cont.)

In flexion, insert both the assembled trial femoral component (Figure 59) and the trial tibial baseplate (Figure 60). Proceed with the trial reduction on page 49, if no augments are necessary.

⊖ **Note:** Lightly impact with the impactor if necessary.

⊖ **Note:** If trialing with a femoral augment, anterior flange augment or tibial augment, proceed to pages 46-48.

Tibial Trials
 STND Tibial Provisionals Tray 9
 STND Tibial Provisionals Tray 10
 RS Tibial Provisionals Tray 11



Femoral/Tibial Impactor 110030072
 General Instruments Tray 13



Femoral/Tibial Impactor Handle 110030072
 General Instruments Tray 13



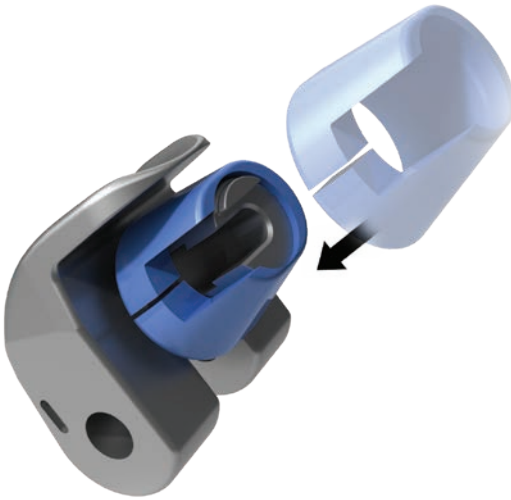


Figure 61



Figure 62

OsseoTi Distal Femoral Augment Option

Slide the selected corresponding femoral augment trial over the boss of the 3 cm distal femoral trial. The window in the augment trial should align with the window in the femoral trial (Figure 61).

Connect the stem into the assembled femoral component trial using the quick release connection (Figure 62).

Femoral Trials
STND Femoral Provisionals Tray 4
RS Femoral Provisionals Tray 6



Femoral Augment Trials
110018748 & 110018749
STND Femoral Provisionals Tray 4



Stem Trials
Short Provisional Stems Tray 7
Long Provisional Stems Tray 8





Figure 63



Figure 64

Anterior Femoral Flange Augment Option

Insert anterior flange augment trial if required (Figure 63 and Figure 64).

Anterior Flange Augment 110018655
STND Femoral Provisionals Tray 4



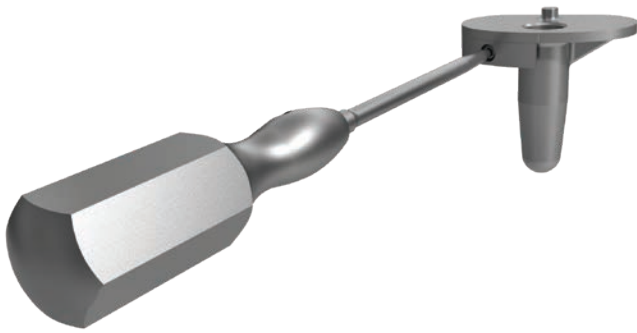


Figure 65



Figure 66

Tibial Augment Trial Assembly

Attach the augment trial utilizing the 3.5 mm driver (Figure 65).

Place the augment trial/baseplate trial assembly into the prepared tibia (Figure 66).

Tibial Trials
STND Tibial Provisionals Tray 9
STND Tibial Provisionals Tray 10
RS Tibial Provisionals Tray 11



Tibial Block Augment Trials
STND Provisionals Tray 10
RS Tibial Provisionals Tray 11



3.5 mm Short Driver CP460366
General Instruments Tray 13





Figure 67



Figure 68



Figure 69

Tibial Trial Assembly

Insert the 12 mm tibial bearing trial into the tibial baseplate (Figure 67).

Reduce the bearing/baseplate assembly into the trial femoral component. Insert the trial axle through the condyles so that the entire construct is fully captured (Figure 68 and Figure 69).

ⓘ **Note:** Ensure the corresponding trial axle is utilized for a Standard or RS femoral replacement.

Select the tibial bearing that allows for full extension, but not more than 8 mm of joint distraction with longitudinal traction in full extension. Upon confirming fit and interaction of all components, the trials are removed.

ⓘ **Note:** The patella is prepared using a legacy Biomet patella of choice. It is not recommended to use a patella smaller than 31 mm.

Tibial Bearings
STND Femoral Provisionals Tray 4
RS Femoral Provisionals Tray 6



Trial Axle
STND Femoral Provisionals Tray 4
RS Femoral Provisionals Tray 6





Figure 70

Trial Removal

If the distal femoral trial is difficult to remove by hand, reinsert the trial axle in the femoral trial and connect the distal femoral trial extractor to the slide hammer. Slide the hook around the trial axle and use the slide hammer to remove (Figure 70).

Slide Hammer 31-473621
General Instruments Tray 14



Distal Femoral Trial Extractor 110018813
General Instruments Tray 13



Implant Assembly

Step 1: Augment Assembly

If not utilizing a femoral augment with a standard 3 cm femoral component, proceed to Step 2: Stem Assembly.

To impact the 3 cm distal femoral component with the femoral augment, assemble the impactor onto the impaction base (A). Thread the augment impactor onto the impaction handle (B). Vigorously impact using the augment impactor.



Figure 71

Impaction Handle
General Instruments Tray 12



Augment Impactor
General Instruments Tray 12



Impaction Base
General Instruments Tray 12



Femoral/Tibial Impactor 110030072
General Instruments Tray 13



Step 2: Stem Assembly

To impact the 3 cm distal femoral component with a stem, assemble the impactor onto the impaction base (A). Vigorously impact using the impactor handle (B).

After impaction, thread the large head/small thread locking screw packaged with the stem, through the femoral component with a 3.5 mm short driver (Figure 72).

Cementing the Distal Femur

Insert a cement plug and retrograde fill the femoral canal with bone cement. Digitally pressurize cement into the anterior and distal areas of the femur and apply cement to the anterior, and distal aspect of the femoral component and impact the component into place. Carefully clean any excess cement using a curette or similar instrument.



Figure 72



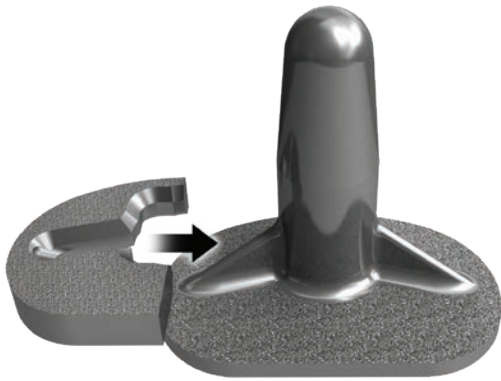


Figure 73



Figure 74

Tibial Augment Implant Assembly

The tibial augment is attached to the interior surface of the tibial baseplate with bone cement. Hold the augment(s) securely to the baseplate until the cement cures (Figure 73 and Figure 74).

Cementing the Tibial Construct

Digitally pressurize cement into the proximal tibia and apply cement under the tibial tray. Insert the tibial assembly onto the tibia. Impact the implant with the femoral/tibial impactor being careful to match the patient's correct rotational alignment.

ⓘ **Note:** It is imperative that the augment is cemented to the tibial baseplate prior to implantation.

Femoral/Tibial Impactor Handle 110030073
General Instruments Tray 13



Femoral/Tibial Impactor 110030072
General Instruments Tray 13





Figure 75



Figure 76



Figure 77

Implant Assembly

The trial bearing may be used with the definitive distal femoral and tibial implants to confirm the correct tibial bearing thickness.

Position the selected trial bearing onto the tibial baseplate (Figure 75).

Reduce the bearing/baseplate assembly into the femoral component. Insert the bushing/axle trial through the medial condyle to fully capture the femoral component (Figure 76 and Figure 77).

Once the tibial bearing thickness has been finalized, and the trial components removed, two options are available to assemble the remaining implants.

Tibial Bearings
STND Femoral Provisionals Tray 4
RS Femoral Provisionals Tray 6



Bushing/Axle Trial
STND Femoral Provisionals Tray 4
RS Femoral Provisionals Tray 6





Figure 78



Figure 79



Figure 80

Implant Assembly (cont.)

Insert the two polyethylene femoral bushings into the femoral condyle openings from within the intercondylar notch (Figure 78 and Figure 79).

Insert the polyethylene tibial bushing into the tibial baseplate (small end first) (Figure 80).

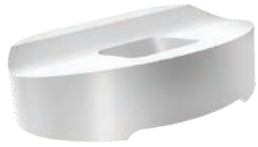


Figure 81



Figure 82



Figure 83

Option One

Push the yoke through the underside of the polyethylene tibial bearing and place up between the femoral condyles (Figures 81, 82, and 83).



Figure 84



Figure 85

Option One (cont.)

The axle is inserted (non-slotted end first) into the medial side of the femoral component and through the yoke (Figure 84) until the slotted end of the axle is flush with the polyethylene femoral bushing (Figure 85).



Figure 86

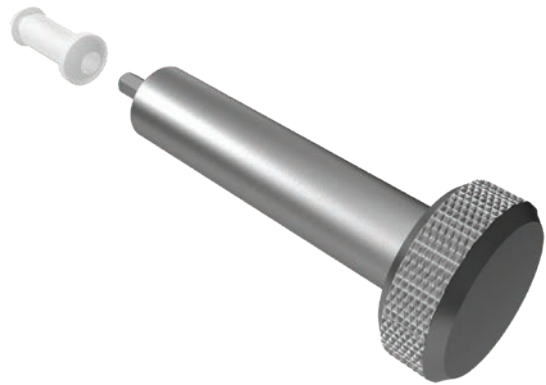


Figure 87

Option One (cont.)

Using the axle driver, rotate the axle until the lock pin notch in the axle is aligned with the hole located on the anterior face of the yoke (Figure 86).

Upon correct alignment the polyethylene lock pin is placed onto the lock pin inserter (Figure 87).

Axle Driver CP461009
General Instruments Tray 13



Lock Pin Inserter 32-472106
General Instruments Tray 13





Figure 88



Figure 89



Figure 90

Option One (cont.)

Insert the lock pin through the yoke opening and ensure that it is fully engaged (Figure 88 and Figure 89).

ⓘ **Note:** If lock pin is difficult to insert, tap lightly on the lock pin inserter to engage.

Remove the lock pin inserter (Figure 90).



Figure 91



Figure 92

Option One (cont.)

To articulate the tibial and femoral components, hyperflex the knee with the patella everted and insert the yoke down into the tibial baseplate (Figure 91 and Figure 92).

Place the knee in extension and evaluate the soft tissue tension.

Closure is accomplished in the standard fashion.

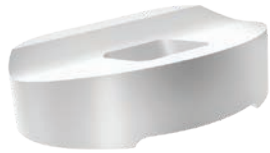


Figure 93



Figure 94

Option Two

Push the yoke through the underside of the selected polyethylene tibial bearing (Figure 93 and Figure 94).



Figure 95



Figure 96

Option Two (cont.)

While holding the proximal portion of the yoke, insert the assembly into the opening of the tibial baseplate (Figure 95 and Figure 96).



Figure 97



Figure 98

Option Two (cont.)

Slide the distal femur onto the tibial component with the proximal portion of the yoke resting between the condyles (Figure 97 and Figure 98).



Figure 99



Figure 100

Option Two (cont.)

The axle is inserted (non-slotted end first) into the medial side of the femoral component and through the yoke until the slotted end of the axle is flush with the polyethylene femoral bushing.

Note: The yoke may need to be slightly “lifted” in order for the axle to pass through the medial side of the femoral component.

Using the axle driver, rotate the axle until the lock pin notch in the axle is aligned with the hole located on the anterior face of the yoke (Figure 99 and Figure 100).



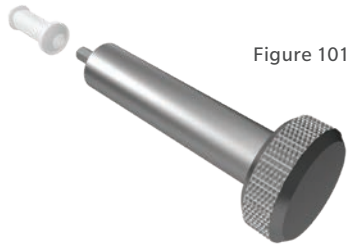


Figure 101



Figure 102



Figure 103



Figure 104

Option Two (cont.)

Upon correct alignment, the polyethylene lock pin is placed onto the lock pin inserter (Figure 101). Insert the lock pin through the yoke opening and ensure that it is fully engaged (Figure 102 and Figure 103).

Note: If the lock pin is difficult to insert, tap lightly on the lock pin inserter to engage.

Remove the lock pin inserter (Figure 104). Place the knee in extension and evaluate the soft tissue tension. Closure is accomplished in the standard fashion.



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