Smith+Nephew

LEGION◊ TKS

Total Knee System

LEGION TKS with JRNY Lock
Surgical Technique

LEGION◊ Total Knee System Distal Cut First Preparation

Primary Total Knee Arthroplasty

Contents

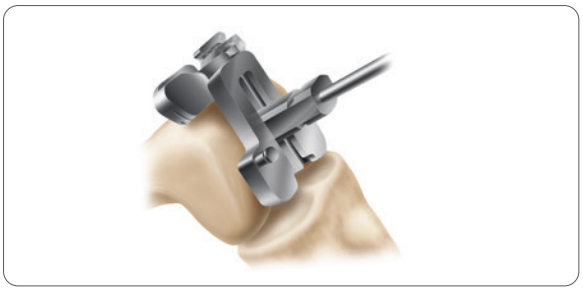
Nota Bene

The following technique is for informational and educational purposes only. It is not intended to serve as medical advice. It is the responsibility of treating physicians to determine and utilize the appropriate products and techniques according to their own clinical judgment for each of their patients. For more information on the product, including its indications for use, contraindications, and product safety information, please refer to the product's label and the Instructions for Use packaged with the product.

Additional LEGION Total Knee System surgical technique brochures are available for the other LEGION components and sets.

Introduction

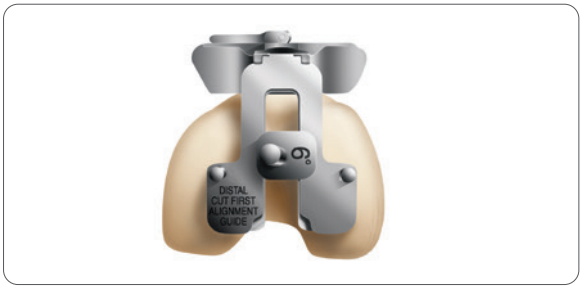
The LEGION◊ Total Knee System has been designed to offer the orthopaedic surgeon solutions to address intraoperative situations. Implant function is directly related to accurate surgical technique. The instrumentation can be used in minimally invasive or standard exposures.



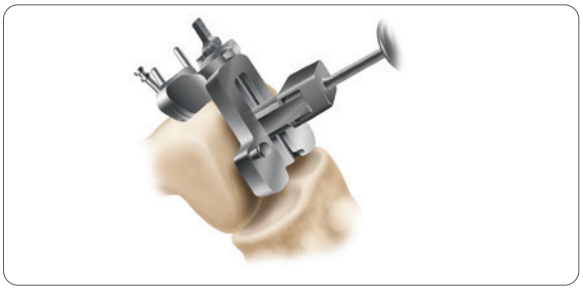
Technique highlights

Distal femoral resection

Use the 9.5mm drill to open up the femoral canal and slide the valgus alignment assembly until at least one side contacts the distal femur.

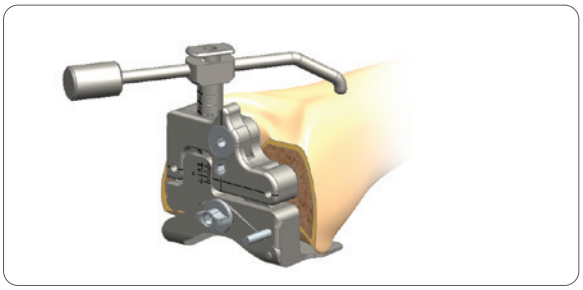


After the assembly is placed in neutral rotation, impact the floating spikes into the distal femur and secure the distal block with pins.

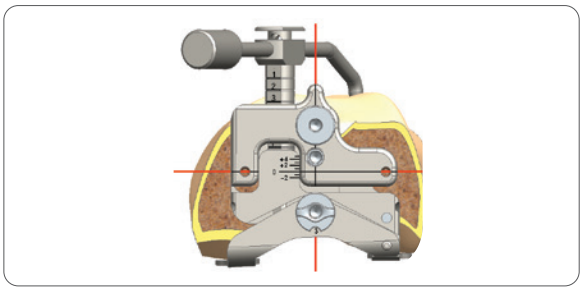


Remove the IM rod, unlock the lever on the valgus alignment guide and remove the valgus alignment assembly using the universal extractor.

Resect the distal femur.

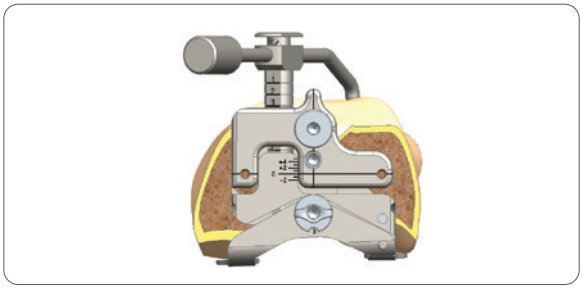


Position the sizing guide flush against the distal femur, while ensuring that the posterior paddles are contacting the underside of both posterior condyles.



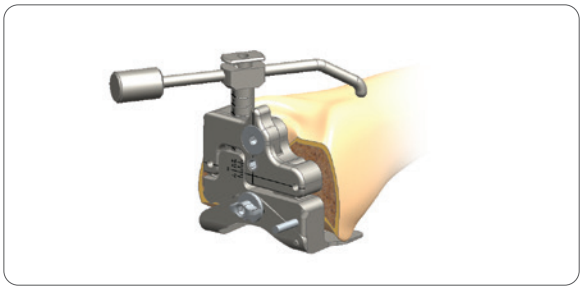
To set rotation

Pin through lateral pivot pinhole, located on the lower lateral corner of the sizing guide. Adjust external rotation of the sizing guide by turning the rotational adjustment knob clockwise (0-6°).



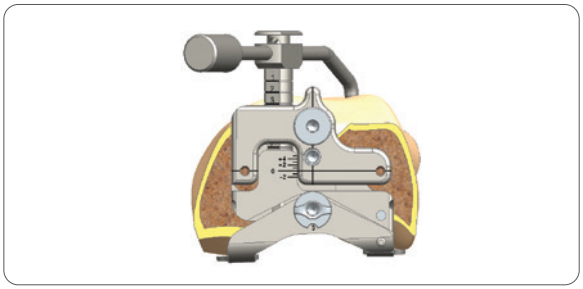
Fixed posterior referencing

Ensure the sizing guide is set in the ‘0’ position.Drill and insert two pins through the locator holes of the sizing guide. Determine the size of the component by the graduations on the stylus. If the femur is in-between two sizes, choose the larger size.

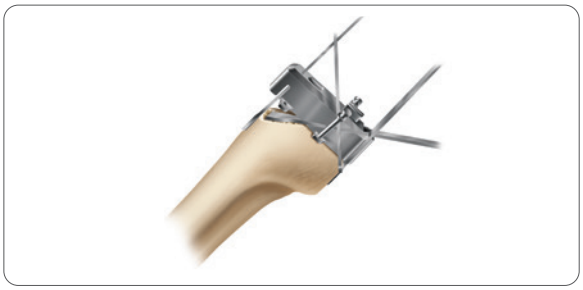


Adjustable anterior referencing

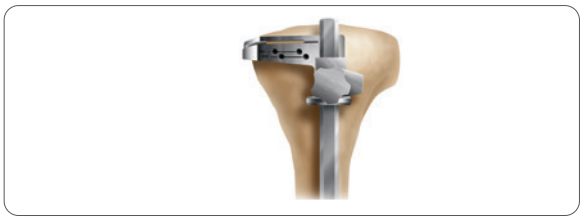
Position the sizing guide stylus so that it contacts the lateral ridge of the anterior cortex and determine the size from the graduations on the shaft of the stylus.



If the indicated size is in-between two sizes, turn the upper hex screw clockwise to the next lower size for anterior referencing or turn the upper hex screw counterclockwise to the next larger size. To lock in position, tighten the locking hex screw. Drill to mark the locator holes for the A/P cutting block.



Place the correctly sized A/P cutting block on the distal femur and make anterior, posterior and chamfer cuts.

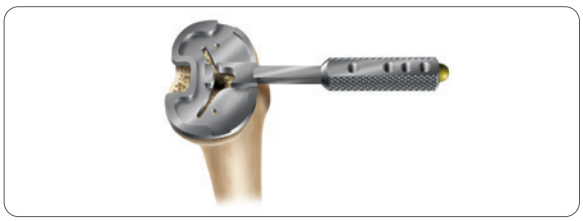


Tibial resection

Place the extramedullary tibial guide with the non-spiked (shown) or spiked rod and place on tibia. Align guide over medial third of the tibial tubercle and parallel to the tibia.

Attach the tibial stylus to the tibial cutting block and lower the cutting block until the stylus touches the low point on the least affected side of the tibia. Once the resection level is determined, insert pins to secure and remove alignment assembly.

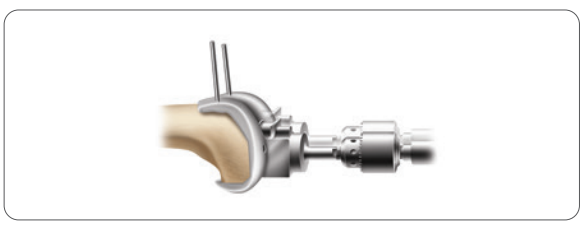
Resect the proximal tibia.



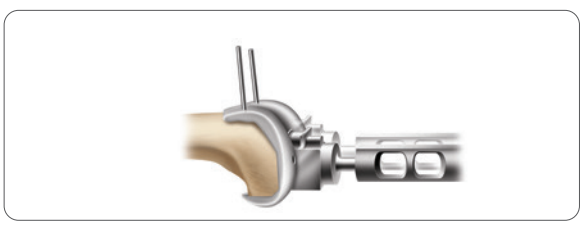
Size the tibia.

Posterior stabilized housing resection

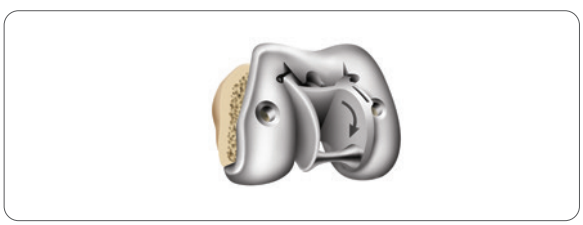
Pin trial through anterior flange. Select the Housing Resection Collet matching the femoral trial size (either 1-2 or 3-8).



Ream through the collet in the anterior position until the depth stop makes contact. Remove the reamer and move the collet to the posterior position. Ream through the collet once more until contact is made.



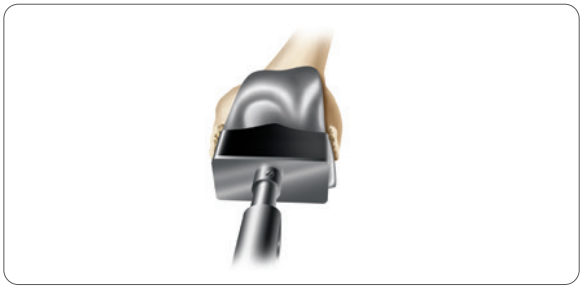
Impact the Housing Box Chisel anteriorly and then posteriorly through the Housing Resection Collet to square the corners of the PS box resection.



Select the appropriate size femoral trial cam module, insert the arms of the cam module into the anterior aspect of the femoral trial box and rotate posteriorly.

Final preparation

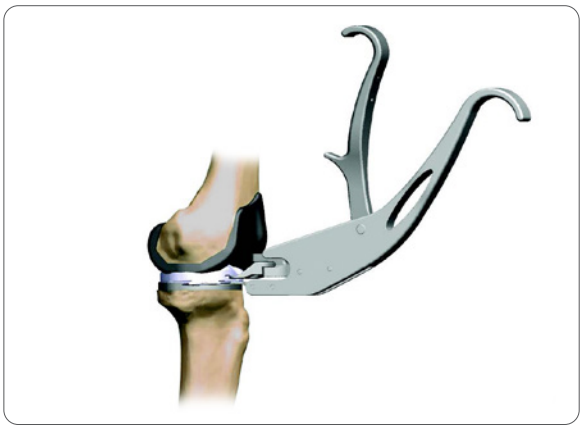
After trial range of motion and alignment checks, select the appropriate trial fin punch and punch through the trial.



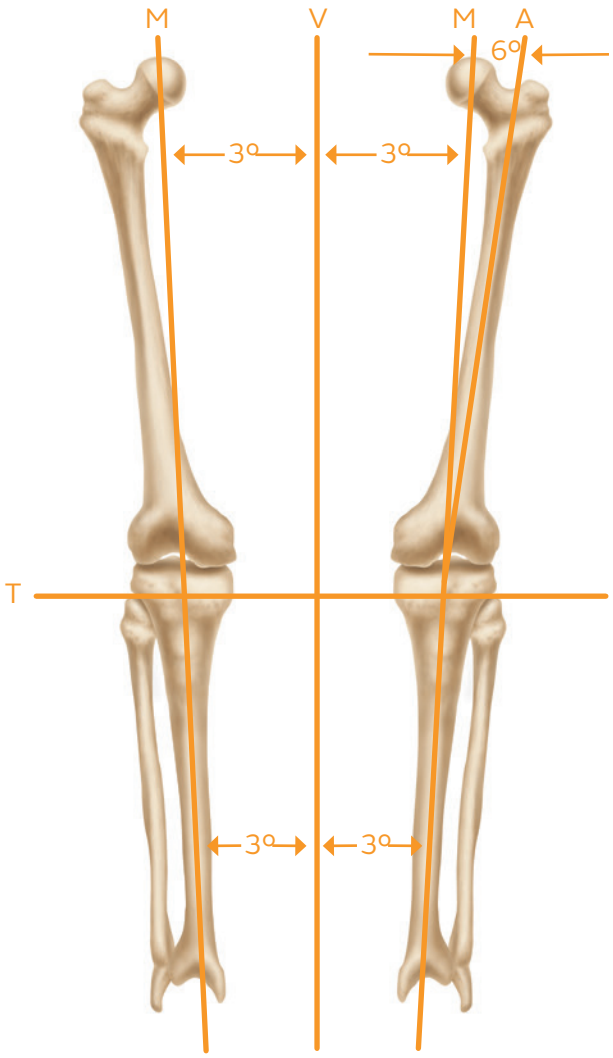
Place the femoral implant on the femur and use the femoral impactor to fully seat the implant.

Apply tibial baseplate cover to protect tibial baseplate.

Seat the tibial implant with the tibial impactor.



Insert the articular insert by placing the insert assembly tool into the center notch of the anterior lock detail (handle up) and engage the two tabs of the tool into the two recesses on the anterior periphery of the insert. Squeeze the tool handle until the insert is fully seated within the tibial component.



M = Mechanical Axis

A = Anatomical Axis

T = Transverse Axis

V = Vertical Axis

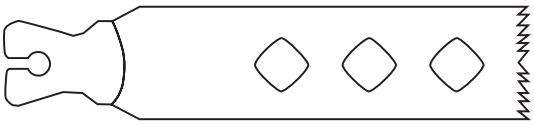
Preoperative planning

Determine the angle between the anatomical and the mechanical axes. This measurement will be used intraoperatively to select the appropriate valgus angle so that correct limb alignment is restored. (Beware of misleading angles in knees with a flexion contracture or rotated lower extremities.)

Tip: Many surgeons prefer to simply select a standard angle for the distal femoral cut (ie, 5º, 6º or 7º) based on the patient and surgical experience.

Recommended sawblades

1.27 Sawblade (for standard blocks) Cutting thickness and blade thickness should be 0.050" or 1.27mm.



1.35 Sawblade (for MIS blocks) Cutting thickness and blade thickness should be 1.35mm.

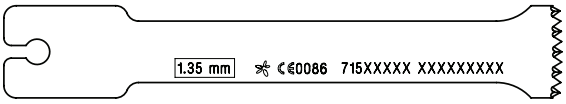


Figure 1

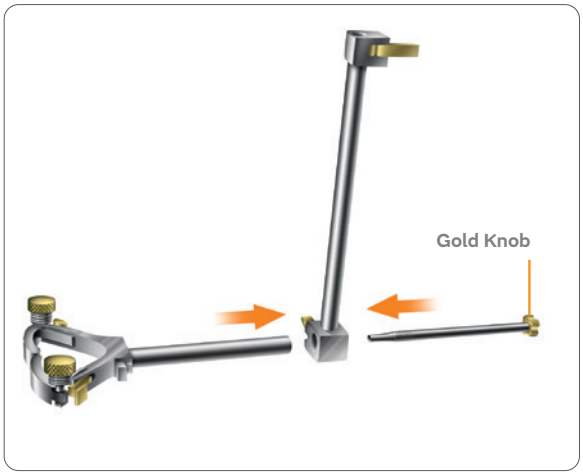


Figure 2

Instrument assembly

IM femoral assembly

1. Attach the selected valgus angle bushing (5°, 6° or 7°) to the valgus alignment guide. Check the bushing position to make sure that 'left' is facing anteriorly when operating on a left knee and 'right' is facing anteriorly when operating on a right knee.
2. Attach a modular T-handle to the IM rod and insert through the alignment assembly (**Figure 1**).
3. Assemble the distal femoral cutting block onto the valgus alignment guide. Positioning the block at the 'primary' resection level will ensure the cut will equal the distal thickness of the femoral prosthesis. Lock by pressing the lever in a horizontal position toward the medial side.

Extramedullary tibial alignment guide

Insert the ankle clamp into the distal end of the alignment tube and thread the locking pin into the ankle clamp (**Figure 2**).

After the ankle clamp is moved into the proper position, lock into place with the gold knob.

Choose the correct left or right tibial cutting block. Select the spiked or non-spiked fixation rod.

Valgus Bushing
5° 71440014
6° 71440016
7° 71440018

Alignment Guide
71441144

T-handle
71110080

IM Rod
Long 71512040
Short 71512035

Distal Cutting Block
71441147

Ankle Clamp
71440444

Alignment Tube
71440448

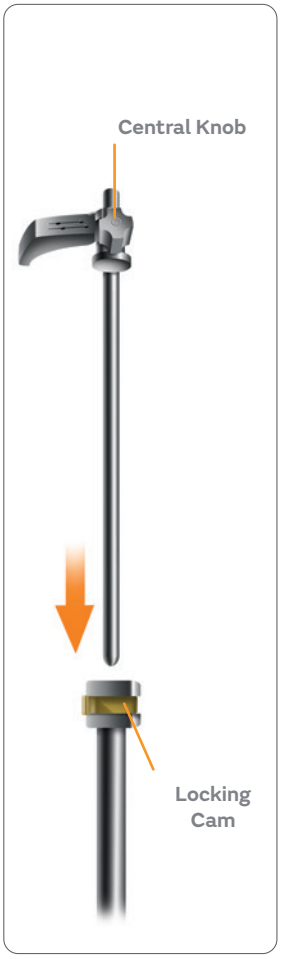


Figure 3

Figure 4

Non-spiked fixation rod

Place the appropriate left or right tibial cutting block on top of the disc on the non-spiked fixation rod (**Figure 3**). Tighten the central knob to lock the block into position.

Introduce the rod into the extramedullary assembly and adjust and lock the cam in the assembly.

Spiked fixation rod

Place the spiked fixation rod through the hole in the tibial cutting guide; adjust the block and tighten the central knob to lock the block into position.

Introduce the spiked fixation rod into the proximal end of the alignment assembly and adjust and lock the cam on the assembly (**Figure 4**).

Tibial Cutting Block		**Non-spiked Fixation Rod**	**Spiked Fixation Rod**
Left	71441136	71440446	71440198
Right	71441137		

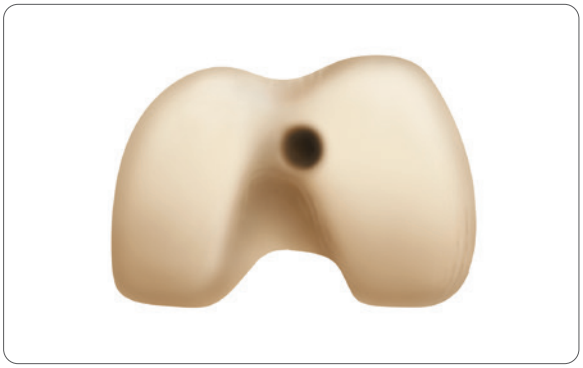


Figure 5

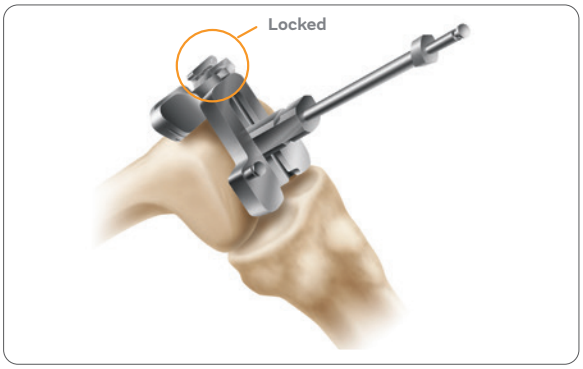


Figure 6

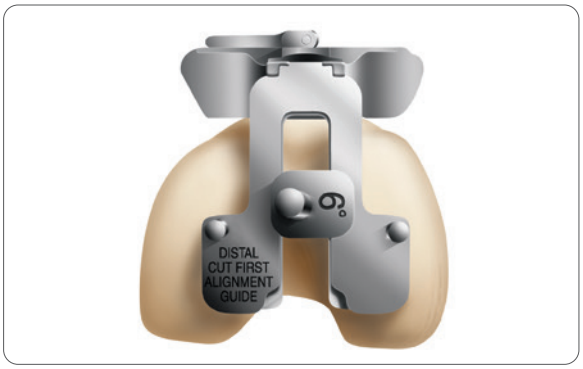


Figure 7

DCF Femoral resection

Intramedullary alignment

1. Open the femoral canal with a 9.5mm intramedullary drill (**Figure 5**).

   Tip: If desired, the distal femoral cutting block may be set to resect an additional +2, +5 or +7mm of bone.

2. Slide the intramedullary rod of the assembly into the femoral canal until the alignment guide contacts the distal femur (**Figure 6**).

   Tip: There may be times when only one side of the guide will touch bone.

3. Orient rotation of the assembly neutral to the posterior condyles (**Figure 7**) and impact one or both of the floating spikes into the distal femur.

Valgus Bushing		Alignment Guide	T-handle	IM Rod		Distal Cutting	IM Drill
5°	71440014	71441144	71110080	**Long**	71512040	**Block**	74012111
6°	71440016			**Short**	71512035	71441147	
7°	71440018						

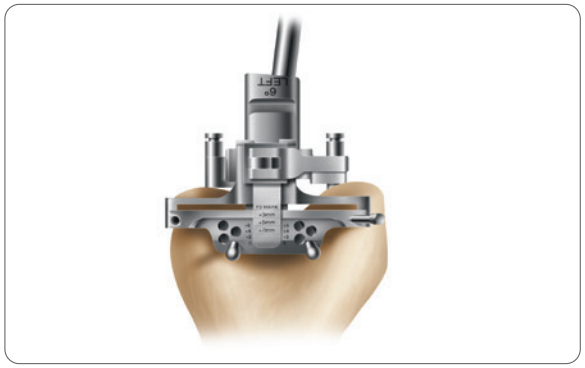


Figure 8

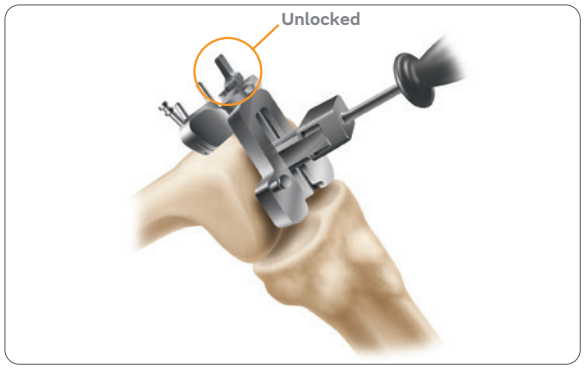


Figure 9

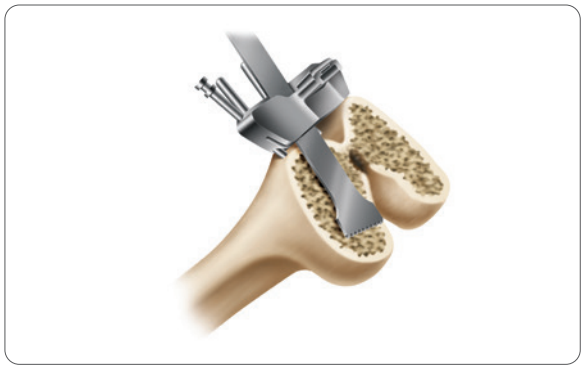


Figure 10

Distal resection

1. Using non-headed pins, pin the distal femoral cutting block to the anterior femur using the holes marked '0'. One adequate distal femoral resection is noted, an additional headed or non-headed pin should be placed obliquely to provide additional stability (**Figure 8**).
2. Unlock the lever on the valgus alignment guide, remove the intramedullary rod and the valgus alignment assembly using the universal extractor (**Figure 9**). Only the distal femoral cutting block should remain on the femur.
3. Resect the distal femur (**Figure 10**) then remove the distal femoral cutting block.

Tip: If the distal femoral resection is not adequate, remove the oblique pin, and reposition the block through the pin holes marked +2 or +4mm for the desired level of resection and re-insert the oblique pin.

Valgus Bushing		Alignment Guide	Universal Extractor	IM Rod		Distal Cutting Block
5°	71440014	71441144	71440366	Long	71512040	71441147
6°	71440016			Short	71512035	
7°	71440018					

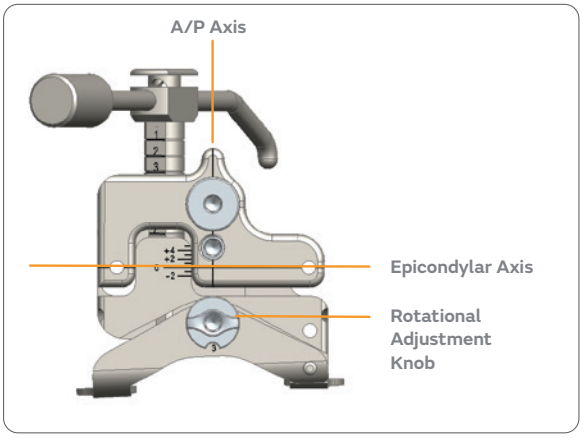


Figure 11

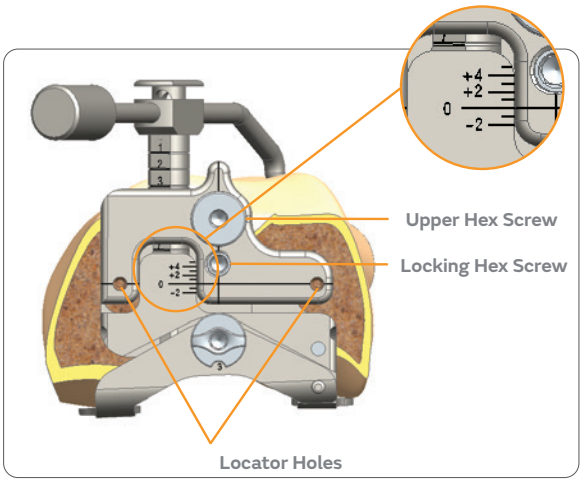


Figure 12

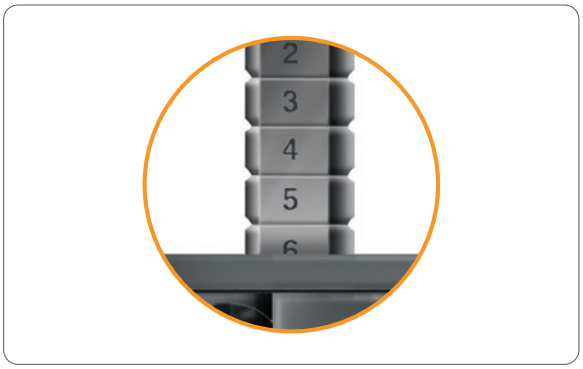


Figure 13

Sizing guide procedure

The sizing guide allows for external rotation to be set from 0-6º based on surgeon preference and patient anatomy. Rotational alignment may be checked by aligning the A/P axis with the pointer on the sizing guide or by ensuring that the laser marked lines on the face of the guide are parallel with the epicondylar axis. The rotational adjustment knob on the lower portion of the guide is turned to dial in rotation (**Figure 11**).

The guide can be used for fixed posterior referencing or can be adjusted anteriorly or posteriorly for fine tuning. When in-between sizes, the surgeon can choose to adjust sizing up to 4mm anteriorly, thereby taking up to an additional 4mm off the posterior condyles, or up to 2mm posteriorly, taking up to an additional 2mm off of the anterior cortex.

If the anterior surface of the guide is in-between two sizes when it is at the zero position, the upper hex screw can be rotated to shift the anterior face of the sizing guide up to the next smaller size or down to the next larger size on the stylus. As a result, the locator holes for the A/P cutting block are shifted either anteriorly or posteriorly to align with the next implant size (**Figure 12**).

Tip: The gap between the top of the sizing guide and the stylus graduation line indicates how much bone will be removed from either the anterior cortex or posterior condyles by choosing the next larger size (**Figure 13**).

Sizing Guide		Sizing Stylus	Hex Screwdriver
Left	71440007	71441140	115035
Right	71440008		

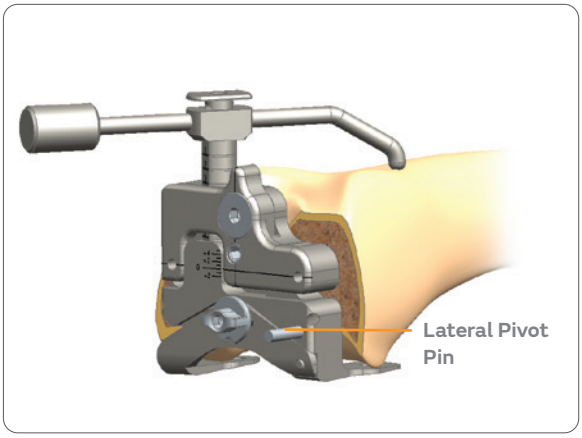


Figure 14

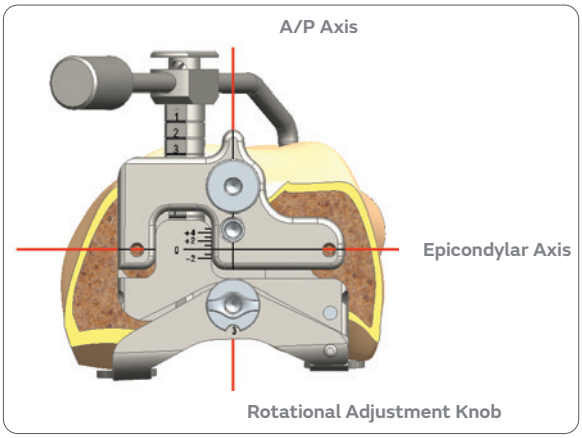


Figure 15

Sizing guide procedure: rotation

1. Flex the knee, approximately 90º so the posterior condyles are accessible.
2. Choose appropriate sizing guide, '**Left**' for a left knee and '**Right**' for a right knee.
3. Position the femoral sizing guide flush against the distal femur, while ensuring the posterior paddles are contacting the underside of both posterior condyles. Once correct position of sizing guide is established, place a pin through lateral pivot pinhole located in the posterior/lateral corner on the face of the sizing guide (**Figure 14**).
4. Adjust the external rotation of the sizing guide to be aligned anatomically with the epicondylar and/or A/P axis. This can be achieved by turning the rotational adjustment knob (0-6º) using a hex screwdriver (**Figure 15**).
5. Once rotation is set, sizing can be established either by fixed posterior referencing or adjustable referencing.

Sizing Guide		Sizing Stylus	Hex Screwdriver
Left	71440007	71441140	115035
Right	71440008		

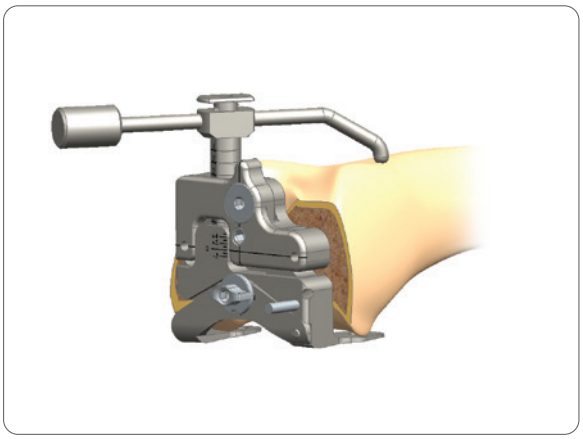


Figure 16

Sizing guide procedure: fixed posterior referencing

1. Ensure that the anterior surface of the sizing guide is set in the ‘0’ position.
2. Drill and insert two pins through the locator holes of the sizing guide to secure the guide.
3. Position the sizing guide stylus so that it contacts the lateral ridge of the anterior femoral cortex (highest point on the anterior cortex of the femur) (**Figure 16**).
4. Determine the size of the component from the graduations on the shaft of the stylus.
5. If the femur is between sizes, chose the larger size.
6. Remove the pins and the sizing guide.

Sizing Guide		Sizing Stylus	Hex Screwdriver
Left	71440007	71441140	115035
Right	71440008		

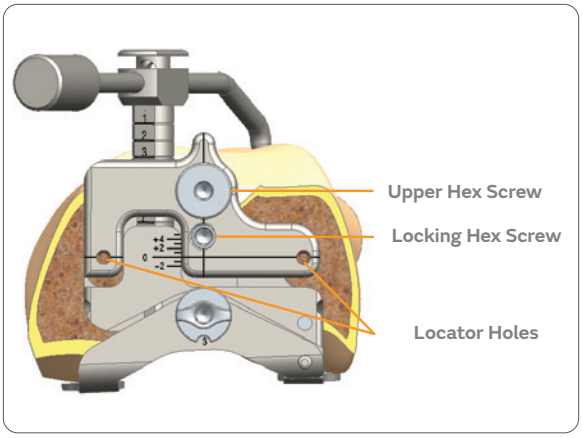


Figure 17

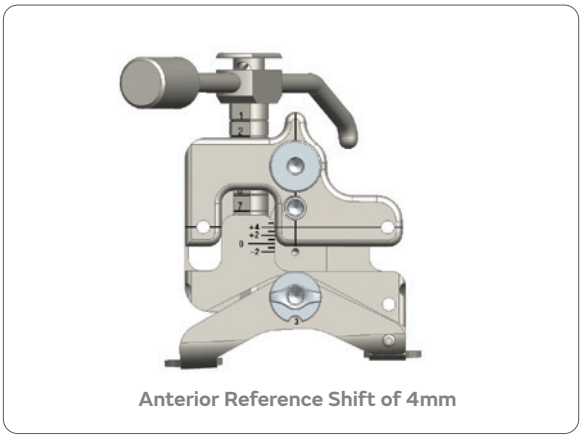


Figure 18a

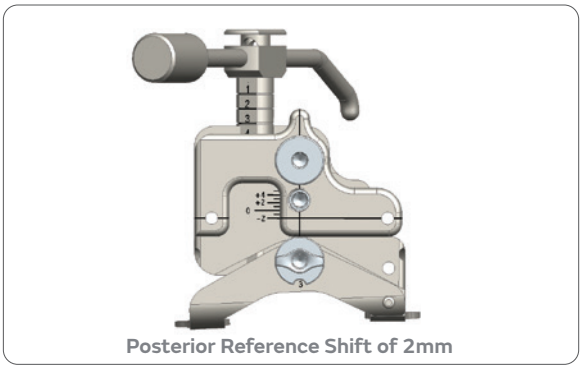


Figure 18b

Sizing guide procedure: adjustable anterior referencing

1. Ensure that the anterior surface of the sizing guide is set in the '0' position.
2. Drill and insert two pins through the oblique holes of the sizing guide to secure the guide.
3. Position the sizing guide stylus so that it contacts the lateral ridge of the anterior femoral cortex (highest point on the anterior cortex of the femur) (**Figure 17**).
4. Determine the size of the component from the graduations on the shaft of the stylus.
5. If the indicated size is in-between sizes, you can turn the upper hex screw to shift the anterior surface up to an additional 4mm to the next smaller size or down an additional 2mm to the next larger size (**Figures 18a and b**). Once the appropriate size is selected, turn the locking hex screw to lock the anterior surface and locator holes into position (**Figure 17**).
6. Drill the locator holes to set the position for the cutting block.
7. Remove the pins and sizing guide.

Sizing Guide		Sizing Stylus	Hex Screwdriver
Left	71440007	71441140	115035
Right	71440008		

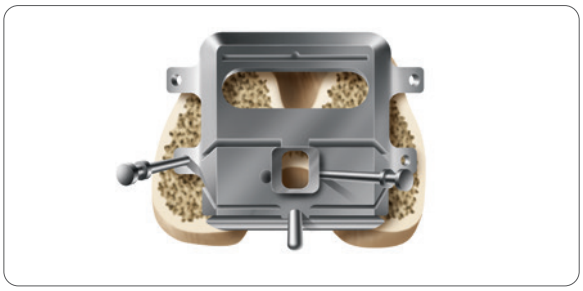


Figure 19

Figure 20

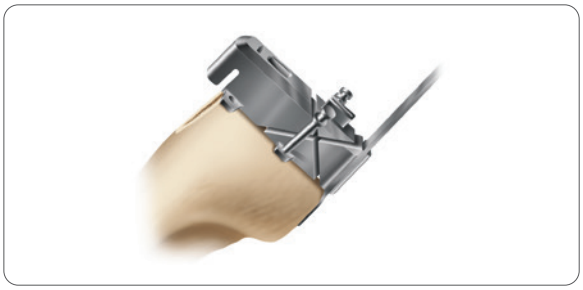


Figure 21

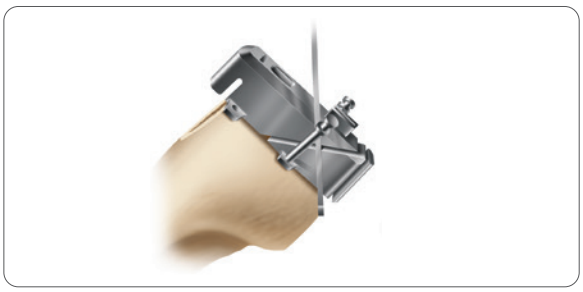


Figure 22

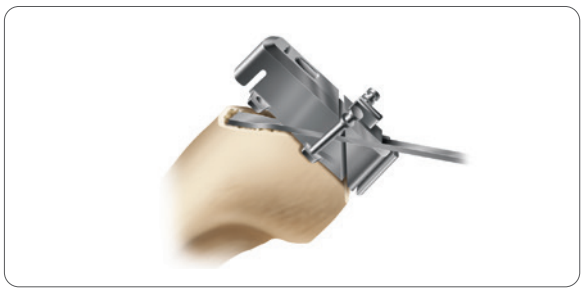


Figure 23

A/P resection

1. Position the fixed spikes on the A/P cutting block into the predrilled holes.

   Tip: It is not necessary that the block be centered M/L on the distal femur.

2. Ensure that the cutting block is flush with the resected distal femur. Several holes in the A/P block allow fixation of the block. Place one pin centrally through one of the middle holes just medial or lateral to the quick-connect attachment. For additional stability, a headed pin may be placed through the holes on the medial or lateral side of the block (**Figure 19**).
3. Complete the anterior, posterior and chamfer cuts (**Figures 20-23**). The block is designed to allow for angling of the sawblade during the cuts.

   Tip: To maintain block stability, the anterior chamfer cut should be completed last

A/P Cutting Block
sz 5 71441153

Figure 24

Downsizing the femoral component

1. Attach the downsizing drill guide to the cut femur, placing the spikes on the back of the plate into the same location holes used for the A/P cutting block (**Figure 24**).
2. Drill new location holes through the downsizing drill guide (shifted 2mm anterior).
3. Place the smaller A/P cutting block into the new location holes. Redo the posterior, anterior and chamfer cuts.

   Tip: It is useful to mark the original pin track holes with a marking pen in order to properly identify the new holes.

Downsizing Drill Guide
71440860

Figure 25

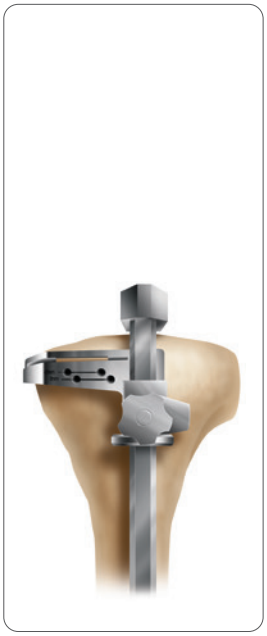


Figure 26

Figure 27

Figure 28

Extramedullary (EM) tibial resection

EM tibial preparation

When using the extramedullary tibial alignment, the surgeon may use a non-spiked or spiked fixation rod.

Non-spiked fixation

1. Place the arms of the extramedullary alignment clamp around the ankle, and adjust the distal M/L slide directly over the middle of the tibiotalar joint, which is also approximated by the second ray of the foot proximal to the malleoli (**Figure 25**).

The cutting block on the proximal end of the assembly should be proximal to the tibial tubercle (**Figure 26**).

2. Assess rotation of the alignment guide and slope of the cutting plane. The goal is to align the extramedullary alignment assembly rotationally so that it aligns over the medial third of the tibial tubercle and over the second toe (**Figure 27**).
3. Rotational alignment is critical due to the 3° posterior sloped cut. The slope can be adjusted according to the patient's anatomy (**Figure 28**).

Note: 3-5° of slope is built into the articular insert (depending on which insert is chosen) and 3° of slope is built into the tibial cutting block. A neutral or slightly sloped alignment should usually be chosen.

Tip: Neutral or minimally sloped alignment may be achieved by palpating the fibula followed by aligning the alignment guide parallel to the fibula. Tibial bowing and soft tissue bulk may make external tibial referencing unreliable.

Ankle Clamp	Alignment Tube	Tibial Cutting Block	Non-spiked Fixation Rod
71440444	71440448	**Left** 71441136 **Right** 71441137	71440446

Figure 29

Figure 32

Figure 30

Figure 31

Figure 33

Spiked fixation

1. Place the arms of the extramedullary alignment clamp around the ankle, and adjust the distal M/L slide directly over the middle of the tibiotalar joint, which is also approximated by the second ray of the foot proximal to the malleoli (**Figure 29**).

The cutting block on the proximal end of the assembly should be proximal to the tibial tubercle (**Figure 30**).

2. Impact the longer spike of the spiked fixation rod into the proximal tibia (**Figure 31**).
3. Assess rotation of the alignment guide and slope of the cutting plane. The goal is to align the extramedullary alignment assembly rotationally so that it aligns over the medial third of the tibial tubercle and over the second toe (**Figure 32**).
4. Rotational alignment is critical due to the 3° posterior sloped cut. The slope can be adjusted according to the patient's anatomy (**Figure 33**). Impact the second spike to secure the assembly (**Figure 34**).

   Note: 3-5° of slope is built into the articular insert (depending on which insert is chosen) and 3° of slope is built into the tibial cutting block. A neutral or slightly sloped alignment should usually be chosen.

   Tip: Neutral or minimally sloped alignment may be achieved by palpating the fibula followed by aligning the alignment guide parallel to the fibula. Tibial bowing and soft tissue bulk may make external tibial referencing unreliable.

Figure 34

Ankle Clamp	Alignment Tube	Tibial Cutting Block	Spiked Fixation Rod
71440444	71440448	**Left** 71441136 **Right** 71441137	71440198

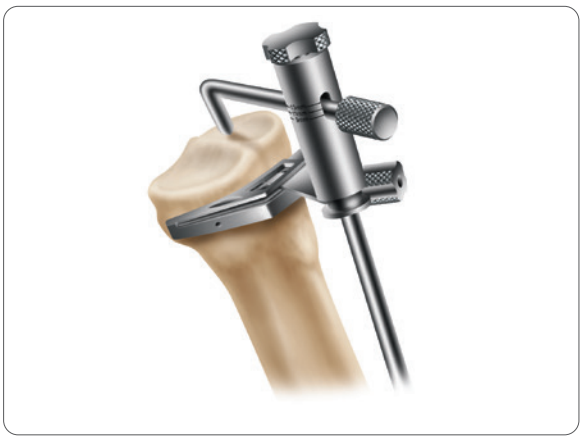


Figure 35

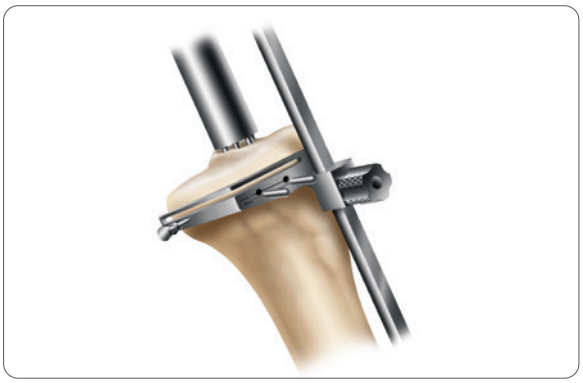


Figure 36

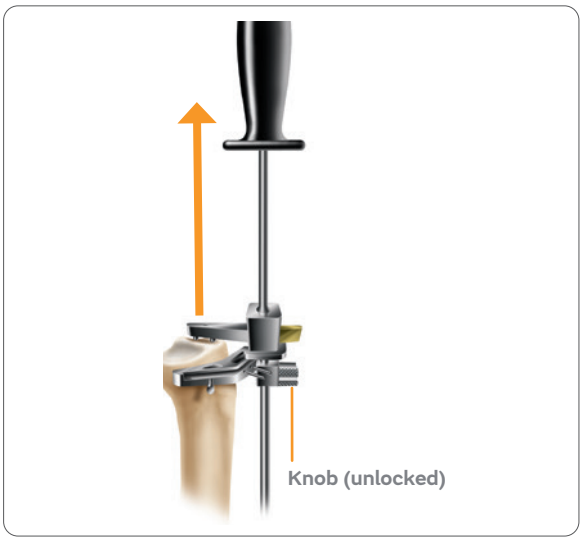


Figure 37

Tibial resection

1. Attach the tibial stylus to the tibial cutting block by inserting the stylus foot into the cutting slot.
2. Lower the cutting block until the stylus touches the low point on the least affected side of the tibia (**Figure 35**). The stylus can be adjusted for a 1-13mm tibial resection by twisting the knob on top of the stylus. If the affected side of the tibia is to be used as a reference, the stylus may be adjusted for a 1-9mm resection level.
3. Pin the tibial cutting block to the tibia by inserting pins first through the central holes; then the oblique hole.

   Tip: Pinning through the central holes marked 0mm with smooth pins will allow the block to be moved +2mm should additional resection be required (**Figure 36**).

   Tip: A 9mm resection is recommended since 9mm of metal and plastic is the thinnest available component.

   Tip: To do an extramedullary alignment check, place the extramedullary alignment rod through the tibial cutting block.
4. To remove the assembly:
   a. For the assembly with spiked rod, release the cam at the top of the alignment tube and use the universal extractor to remove the spiked fixation rod (**Figure 37**) after loosening the thumbscrew.
   b. The assembly with the non-spiked rod may be left in place or removed by loosening the thumbscrew and lowering the non-spiked rod to disengage from the tibial cutting block.

Tibial Stylus	Alignment Rod	Tibial Cutting Block	
71441143	71441148	**Left**	71441136
		Right	71441137

Figure 38

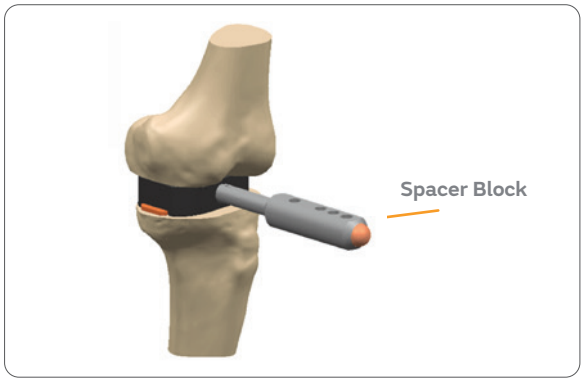


Figure 39

5. Cut the tibia by first directing the blade in the posterior direction and then laterally (**Figure 38**).

Check Alignment and Balance

1. Assemble the Quick Connect Handle to the Flexion/Extension block. Attach desired thickness of Flexion/Extension Spacer onto the Flexion/Extension block.
2. Insert the Flexion/Extension block into the extension gap. Evaluate alignment, balance, and extension space (**Figure 39**)
3. Adjust the thickness of the spacer as needed to determine the extension space.
4. Remove the block and reassemble desired thickness of spacer for flexion gap evaluation.
5. With the knee flexed to 90 degrees, place the Flexion/Extension Block into the joint space.
6. Apply a varus/valgus force and assess the medial and lateral compartment laxity levels of the flexion space. Then adjust the thickness of the spacer as needed to determine the flexion space.
7. When the flexion space is determined, compare the thickness selected relative to the extension space previously determined.

   Note: Remember any difference between the Extension and Flexion Gap Assessments as this will affect how the femoral implant is positioned in the steps ahead (e.g. 10mm Ext - 11mm Flex = -1mm Flex Imbalance).

Universal Extractor
71440366

Tibial Cutting Block
Left 71441136
Right 71441137

Flexion/Extension Block Standard
74018603

Flexion/Extension Spacers
9mm 74018608
11mm 74018611
13mm 74018613
15mm 74018615
18mm 74018618
21mm 74018621

Quick Connect Handle
71440044

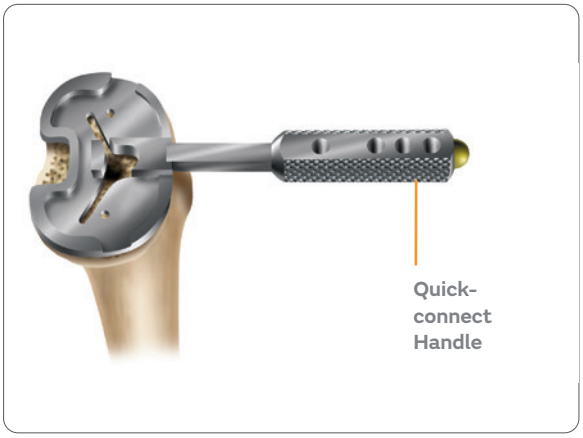


Figure 40

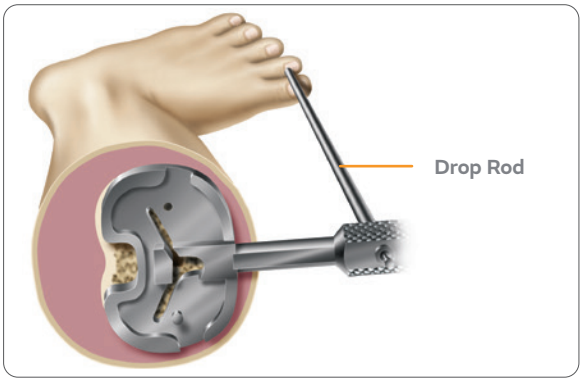


Figure 41

Tibial sizing

Option A – stemless tibial trials

1. Attach a quick-connect handle to a stemless trial one size below the femoral component size and place on the cut tibia to assess coverage (**Figure 40**). As needed, additional sizes should be templated using the stemless trials.
2. Once the appropriate size is determined, pin the medial side of the selected stemless trial with a short headed pin.
3. Place a trial insert into the stemless tibial trial tray and perform a trial range of motion to allow the baseplate to center on the femoral trial. (As a secondary check, the surgeon may pass the alignment rod through the quick-connect handle to assess alignment) (**Figure 41**). Pin the lateral side of the trial.

   Tip: After putting the knee through a trial range of motion, the surgeon should note the proper rotation of the trial tibial component on the proximal tibia and mark the tibia for future reference.

   Tip: The center-line marks on the femoral and tibial trial components should line up.
4. Using the tibial fin/stem punch, rotational alignment may be set now or at the time of trial placement.

   Tip: If the tibial bone is sclerotic, first drill for the stem using the 11mm tibial drill. Begin the fin slot with a burr or thin sawblade before using the fin punch to prevent tibial fracture.

Quick-connect Handle	Stemless Trials	Fin/Stem Punch	11mm Tibial Drill
71440044	**Left** sz 4 71430167 **Right** sz 4 71430183	sz 3-4 71449993	71440040

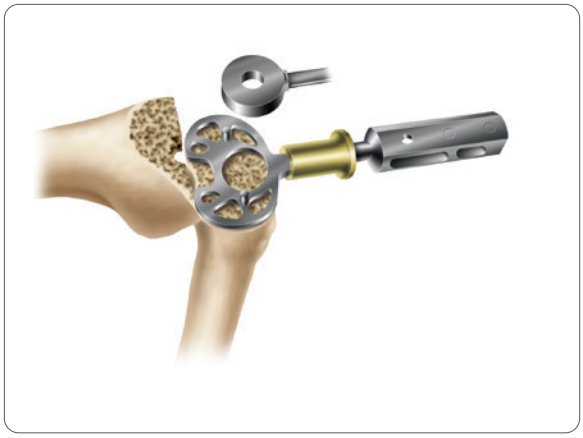


Figure 42

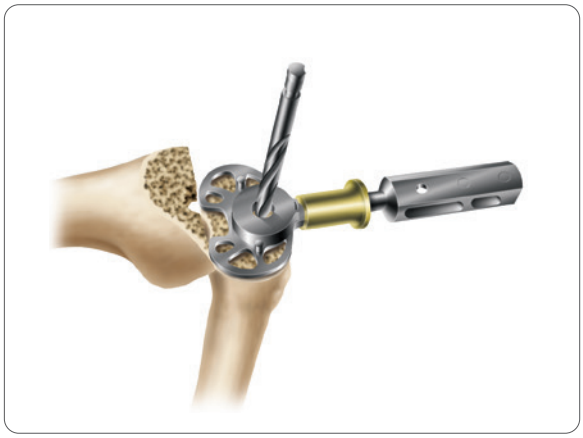


Figure 43

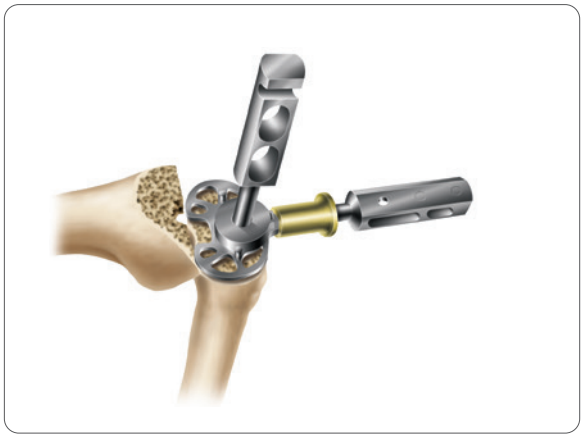


Figure 44

Option B – stemmed tibial trials (Not available in universal instrument sets)

1. Place a tibial drill guide one size below the femoral component size on the cut tibia to assess coverage. As needed, additional sizes should be templated (**Figure 42**).
2. Once the tibial drill guide has been centralized on the proximal tibia, pin the drill guide in place. Retract the gold collar on the drill guide handle and insert the 11mm tibial collet.
3. With the 11mm tibial collet in place, drill with the 11mm tibial drill (**Figure 43**) and punch with the 11mm tibial punch (**Figure 44**).
4. Remove the tibial drill guide.
5. Place the stemmed tibial trial into the prepared hole.
6. Using the tibial fin punch, rotational alignment may be set now or at the time of trial placement.

   Tip: After putting the knee through a trial range of motion, the surgeon should note the proper rotation of the trial tibial component on the proximal tibia and mark the tibia for future reference.

   Tip: The center-line marks on the femoral and tibial trial components should line up.

11mm Tibial Punch	11mm Tibial Drill	Stem Trials	Fin/Stem Punch
71440262	71440040	**Left** sz 4 71430166 **Right** sz 4 71430182	sz 3-4 71440266

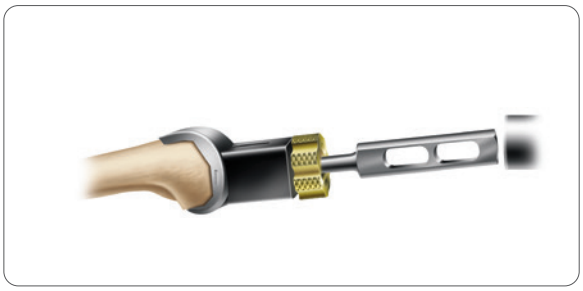


Figure 45

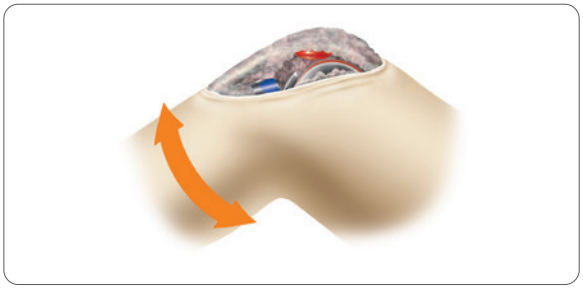


Figure 46

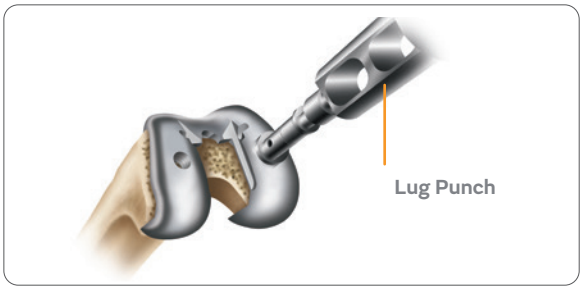


Figure 47

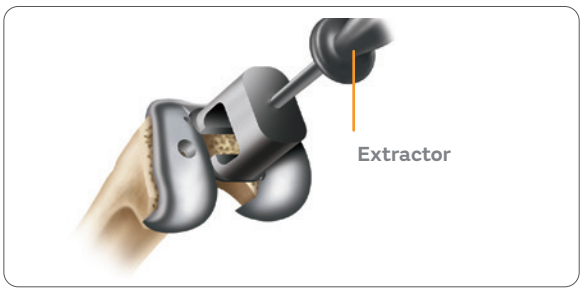


Figure 48

Component trialing

Femoral component trialing

1. Flex the knee to 90° and insert the femoral trial using the femoral trial impactor (**Figure 45**).
2. Perform a trial range of motion to assess patellar tracking. With cruciate-retaining knees, medial/lateral placement of the femoral trial can be adjusted to optimize patellar tracking (**Figure 46**).
3. For cruciate-retaining femorals, prepare the femoral lug holes through the femoral trial with the femoral lug punch (**Figure 47**).

   Note: It is recommended to leave the femoral trial on at this point to perform full component trialing. However, if desired, you may attach the end of the universal extractor to the femoral trial and remove the femoral trial (**Figure 48**).

Femoral Trial		Femoral Trial Impactor	Lug Punch	Universal Extractor
Left		71440009	71440183	71440366
sz 5	71433345			
Right				
sz 5	71433355			

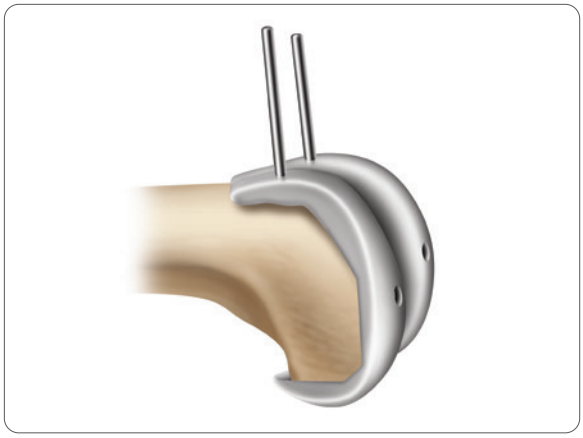


Figure 49

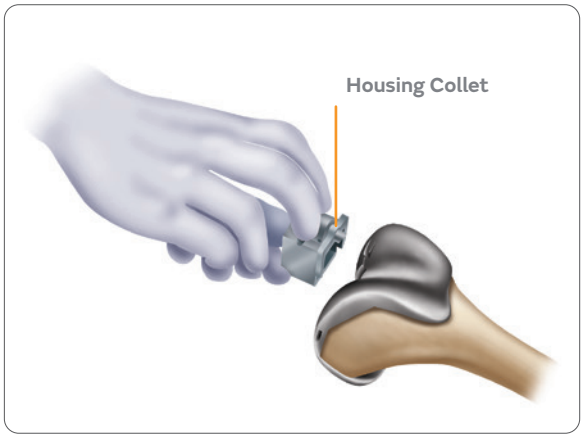


Figure 50

Posterior stabilized resection

Femoral housing box resection

1. Pin the femoral trial through the anterior flange (**Figure 49**).
2. Choose the housing resection Collet matching the femoral trial size (either 1-2 or 3-8). Attach the Collet to the femoral trial by sliding the Housing Collet (anterior to posterior) into the slots on the distal face of the femoral trial and threading the two posts into the femoral trial. The Housing Collet should be secured in the anterior position first and then shifted to the posterior position and screwed (**Figure 50**).

Femoral Trial		Housing Collet Resection	
Left		sz 3-8	71434424
sz 5	71433345		
Right			
sz 5	71433355		

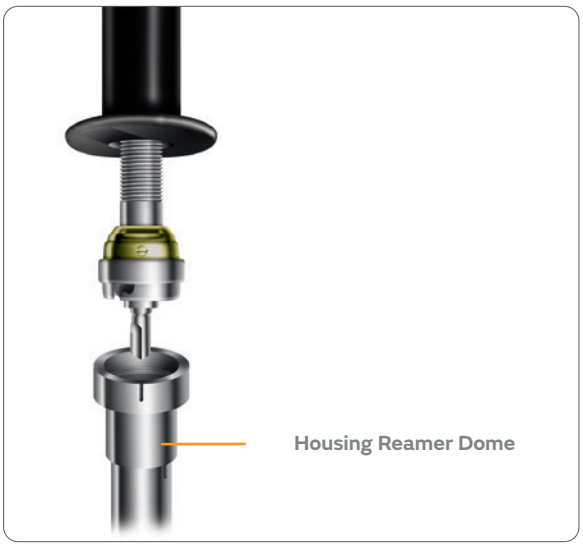


Figure 51

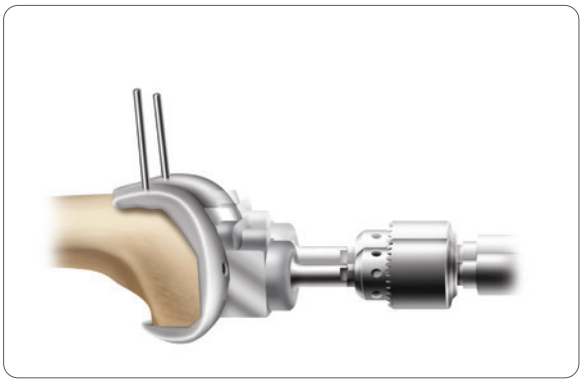


Figure 52

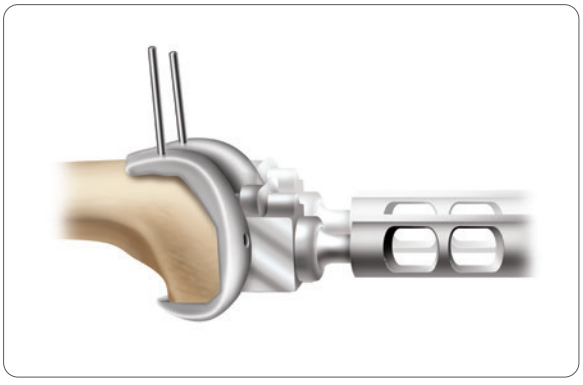


Figure 53

3. Attach the Housing Reamer Dome and the PS Reamer Sleeve to the Patellar Reamer Shaft (**Figure 51**).

Ream through the housing resection Collet in both the anterior and posterior positions until the depth stop contacts the Collet (**Figure 52**).

4. Impact the Housing Box Chisel through the Housing Resection Collet to square the corners of the housing. The Housing Box Chisel should be used anteriorly and then posteriorly to ensure that the full length of the box is prepared (**Figure 53**).

Housing Reamer Dome	**Housing Box Chisel**	**Patellar Reamer Shaft**	**Reamer Sleeve**
71440145	71440373	71440324	71440464

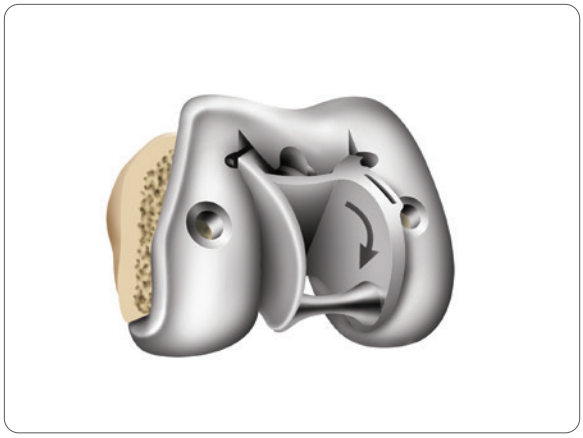


Figure 54

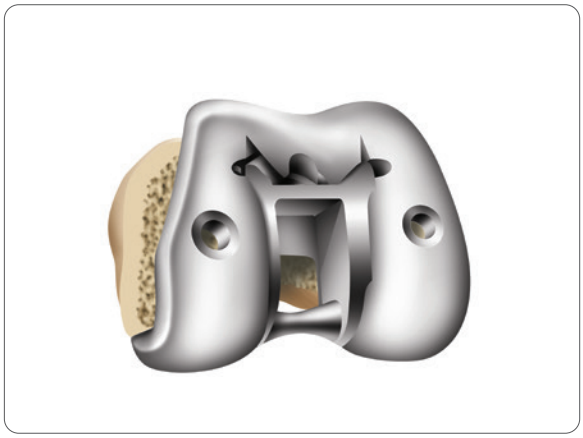


Figure 55

Femoral trial cam module assembly

1. Select the appropriate sized femoral trial cam module (matching the femoral trial size selected).
2. Insert the arms of the femoral cam module into the anterior aspect of the femoral trial box and rotate posteriorly until seated (**Figures 54 and 55**).

Cam Modules		Femoral Trial	
sz 5	71433365	**Left**	
		sz 5	71433345
		Right	
		sz 5	71433355

Figure 56

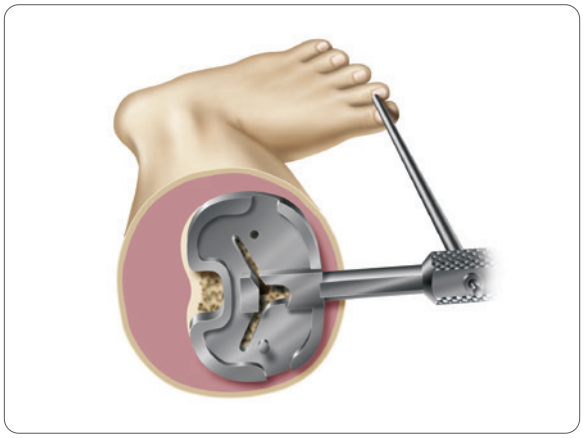


Figure 57

Tibial component trialing

1. Use the appropriate insert trial (begin with a 9mm trial) to determine stability and alignment.
2. Perform a trial range of motion. The alignment marks on the front of the femoral and tibial trials should line up (**Figure 56**). The quick-connect handle may be attached to the tibial trial and used to set the appropriate rotational alignment.

   Optional: Extend the knee fully with the handle attached to the tibial trial. Pass the extramedullary rod through the handle to assess full leg alignment (**Figure 57**).

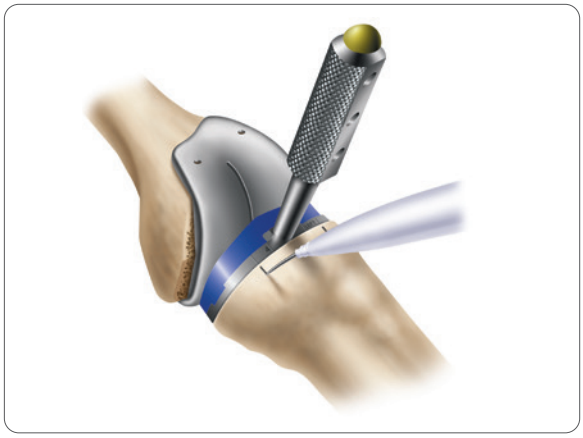


Figure 58

Figure 59

3. Mark correct tibial rotational alignment on the anterior tibia using a cautery knife (**Figure 58**).
4. If not previously performed, select the appropriate tibial fin punch to prepare the fins and punch through the tibial trial (**Figure 59**).

   Tip: If the tibial bone is sclerotic, begin the fin slot with a burr or thin sawblade before using the fin punch to prevent tibial fracture.
5. Remove the femoral and tibial trials.

   Note: If a constrained insert has been selected, the patient should have good femoral quality and a tibial stem is recommended.

Note: If the Cemented Tibia Baseplate no Taper with JRNY lock is utilized, please use the dedicated tibia fin punches. Both fin punches and final Cemented Tibia Baseplate no Taper with JRNY lock implant are about 10mm shorter than the standard fin punches and cemented tibia implant.

Fin punches for Cemented Tibia Baseplate no Taper with JRNY lock:

PLUS◊ TC Rev Solu Modular Hd
7500-7202

ORTHOMATCH◊ Mod Fin Punch
Sz 1-2 71436335
Sz 3-4 71436336
Sz 5-6 71436337
Sz 7-8 71436338

Fin Punches for Cemented Standard Primary Tibia:

GENESIS◊ II NP Fin-Stem Punch
sz 1-2 71449991
sz 3-4 71449993
sz 5-6 71449995
sz 7-8 71449997

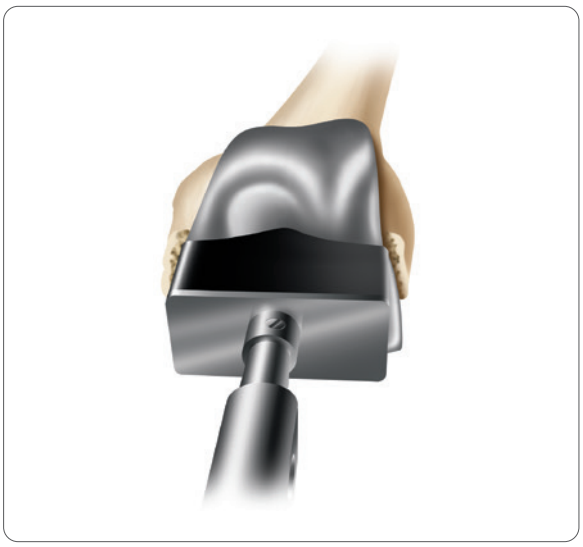


Figure 60

Femoral implantation

Cemented

1. Mix and prepare bone cement for femoral component and distal femur. Apply to the femoral component or prepared bone, based on the surgeon's preference.

   Tip: Many surgeons put cement on the bone rather than, or supplemental to, cement on the underside of the implant.

2. Place the femoral implant onto the femur and use the femoral impactor to fully seat the implant (**Figure 60**).
3. Remove excess cement. Extend the knee to remove cement anteriorly without retracting the proximal soft tissue.

   Tip: After tibial implant is implanted, place the tibial insert trial onto the tibial implant and extend the leg to pressurize the cement.

   Tip: Place the CR tibial trial in the tibial implant tray to assist with aligning the femoral component during implantation.

Porous

1. Ensure that flat, clean cuts are made to all of the femoral resection cuts. This will help to achieve an optimal press-fit.

   Tip: Lavaging during resection helps ensure flat, clean cuts.

2. Place the femoral implant onto the femur and use the femoral impactor to fully seat the implant.

   Tip: If extraction of the femoral component is needed, attach the locking impactor and move in side-to-side motions to leverage off, then adjust and reimpact.

OXINIUM® CR Impactor (Universal Impactor) 71440890	**Femoral Impactor** 71440190	**PS Femoral Impactor** 71440005

Figure 61

Figure 62

Figure 63

Tibial implantation

Apply cement on the proximal tibia and/or the implant, tibial insert covers on the articular surface of the baseplate, and seat the tibial implant with the tibial impactor (**Figure 61**). Remove excess cement.

Recommended insert placement method

1. Clear any debris from the locking mechanism and manually slide the insert into the tibial baseplate engaging the locking mechanism until the insert periphery is within 1-2mm of the Tibial Component periphery.
2. Insert the Tip of the JOURNEY◊ Articular Insert Tool into the center notch of the anterior lock detail (handle up) and engage the two tabs of the Tool into the two recesses on the anterior periphery of the insert (**Figure 62**).

   Note: Make sure the tool is level with the plane of the baseplate.
3. Squeeze the tool handle until the insert is fully seated within the Tibial Component. The insert should not move under any pressure in flexion or extension.

CR, Medial Stabilized, Deep Dished and PS insert placement

1. Determine the correct articular insert thickness.
2. Clear any debris from the locking mechanism and manually slide the insert into the tibial baseplate engaging the locking mechanism. For the PS insert, begin insertion in flexion and extend the leg to engage the locking mechanism.
3. Attach the articular inserter/extractor to the tibial tray. Lift the inserter superiorly until the anterior lip of the articular insert is fully seated (**Figure 63**).

Tibial Base Impactor 74018901	**Articular Inserter/ Extractor** 71440194	**JOURNEY Articular Inserter Tool** 74018911

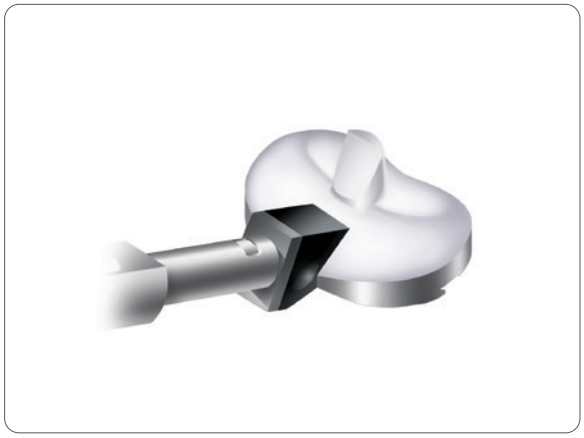


Figure 64

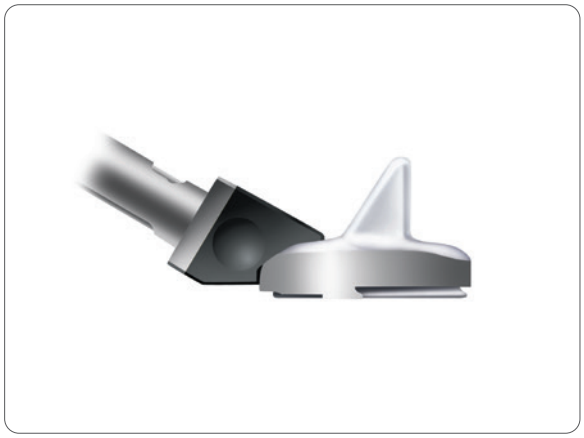


Figure 65

PS and CR high flex insert placement and Medial Stabilized insert

1. Attach the appropriately sized impactor head (either 1-2 or 3-8) to the impactor handle.
2. Position the knee in approximately 90° flexion.
3. Align the articular insert with the locking mechanism of the tibial baseplate.
4. Push the insert posteriorly until the top of the anterior rail of the baseplate is visible.
5. Place the impactor head on the anterior chamfer of the insert. The mating surfaces should be very conforming (**Figures 64 and 65**).
6. Impact the handle until the insert is fully seated.

High-flex Impactor Head	High-flex Impactor Handle
sz 1-2 71441553	71441552
sz 3-8 71441554	

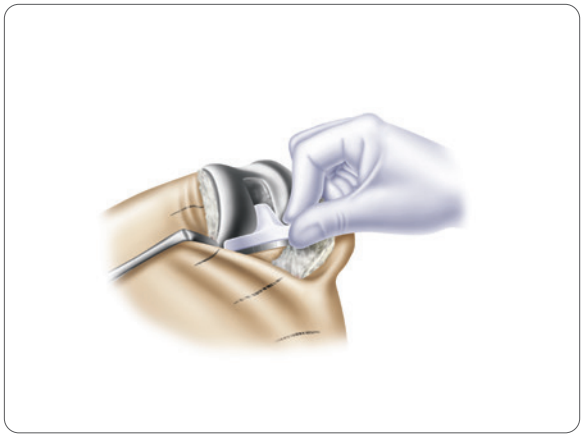


Figure 66

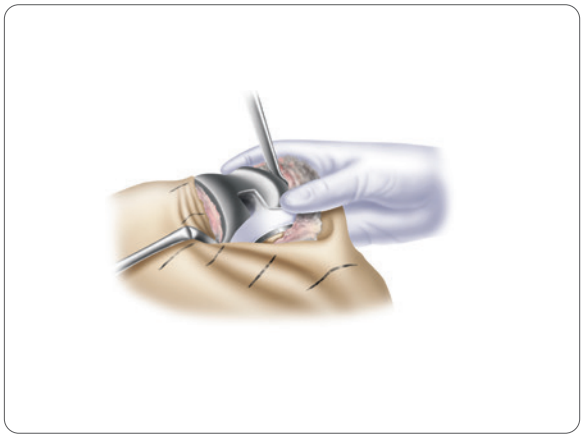


Figure 67

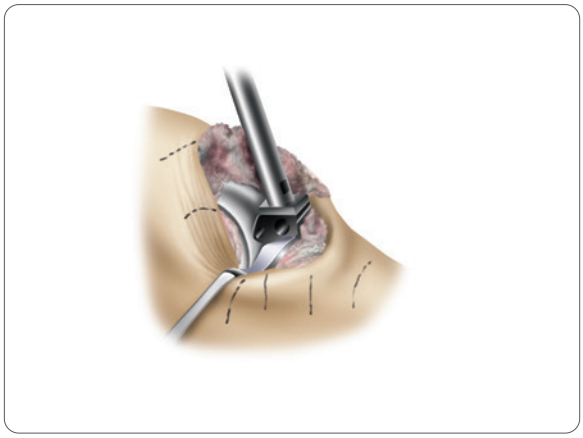


Figure 68

MIS PS high flex insert placement

When using the PS high flex insert in a minimally invasive procedure, the femoral cam mechanism is likely to prevent the insert from fully seating into the locking mechanism while the knee is in flexion. To use the PS high flex insert in a MIS case:

1. Flex the knee to 90° and push the insert as far back as it will go posteriorly with the knee in flexion (**Figure 66**).

   Tip: Lift the distal femur to prevent scratching of the posterior condyle of the component.

2. Placing your thumb on the anterior of the insert to hold it on the baseplate (**Figure 67**), move the knee into extension.
3. Use the impactor handle with the appropriately sized impactor head to fully seat the insert and engage the anterior portion of the dovetail locking mechanism (**Figure 68**).

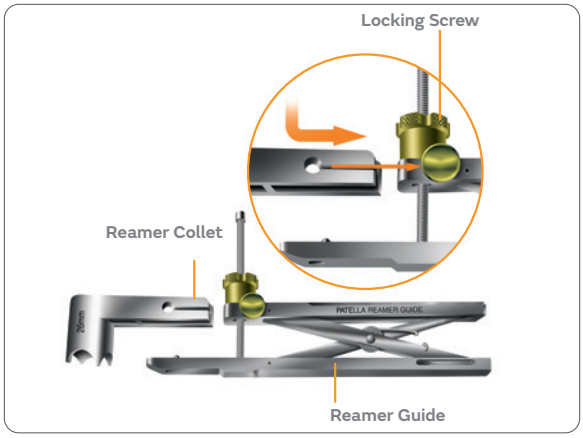


Figure 69

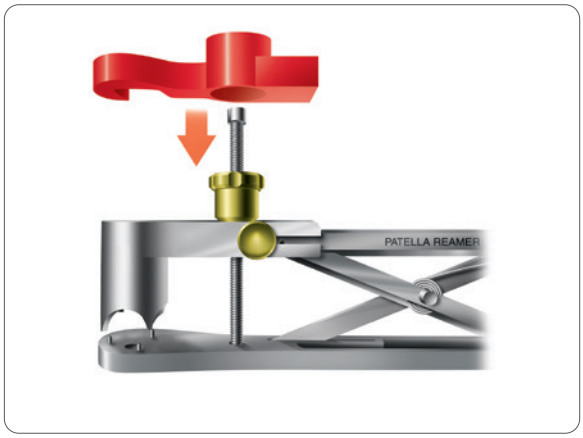


Figure 70

Figure 71

Figure 72

Options/Alternatives

Patella preparation

Instrument assembly

Patellar Reamer Guide

Determine the appropriate diameter patellar implant, and select the correctly-sized Patellar Reamer Collet and slide it into place on the Patellar Reamer Guide (**Figure 69**).

Depth gauge and reamer assembly

1. Attach the appropriate patellar depth gauge (red = resurfacing, black = large resurfacing/round) to the Reamer Guide (**Figure 70**).
2. Attach the matching sized patellar reamer dome and patellar depth stop to the patellar reamer shaft (**Figures 71 and 72**). Lower the assembly through the patellar Reamer Guide until the reamer dome contacts the patella.

Reamer Collet
26mm 71440512
29mm 71440514
32mm 71440516
35mm 71440518

Reamer Guide
71440311

Resurfacing Depth Gauge
71440330

Large Resurfacing/Oval Depth Gauge
71440431

Patellar Depth Stop
71440326

Large Resurfacing/Oval Depth Stop
71440427

Reamer Shaft
71440324

Reamer Dome
26mm 71440348
29mm 71440342
32mm 71440344
35mm 71440346

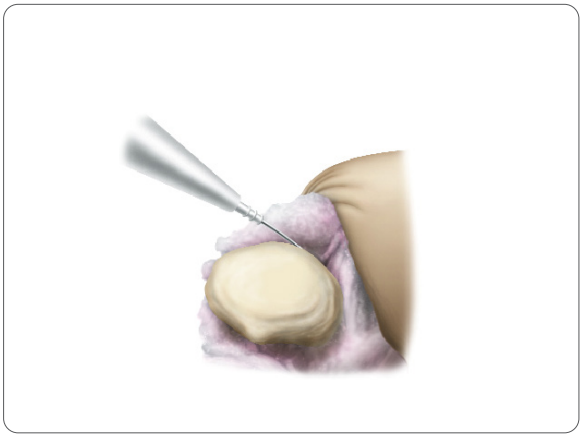


Figure 73

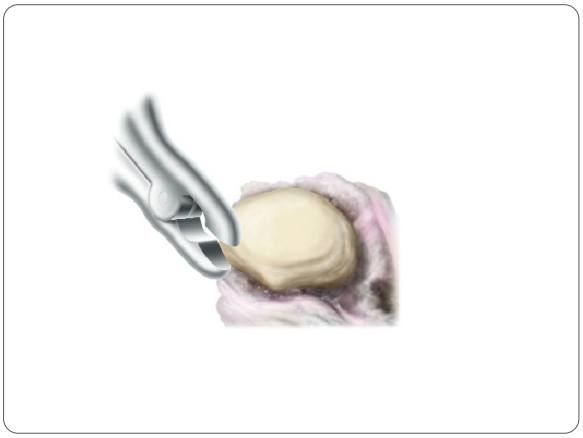


Figure 74

Figure 75

Resurfacing patellar preparation

The surgeon can choose from a freehand cutting technique with towel clips, or if desired, he or she can choose one of the following instrumented techniques.

Reaming technique

The objective of this technique is to resurface the articular surface of the patella with the precision of a reaming technique. The reamed patellar surface can accommodate an oval or round resurfacing patellar component.

1. Trim tissue surrounding the patella using electrocautery (bovie) (**Figure 73**).
2. Use a rongeur to remove osteophytes and reduce the patella to its true size (**Figure 74**). It is recommended to leave the superior rim of bone intact. The bovie should also be used to release soft tissue attachments to the estimated level of resection.
3. Place the collet over the patella so that it fits snugly around the patellar diameter (**Figure 75**). The goal is to reduce the patella to its smallest diameter so that the smallest possible collet will fit around the entire patella. Use the patellar reamer collet as a sizing template to select the appropriately sized collet and reamer.

   Tip: The collet should be resting on the soft tissue surrounding the patella. If the patella does not enter the collet evenly but instead enters at an angle, the collet may not be completely surrounding the patella, but instead resting on part of the bone. If the collet is only slightly smaller than the patella, you may trim 1-2mm of the medial and lateral edges of the patella to ensure a snug fit. If the collet is far smaller than the patella, choose the next size up and assess fit.

Reamer Collet	
26mm	71440512
29mm	71440514
32mm	71440516
35mm	71440518

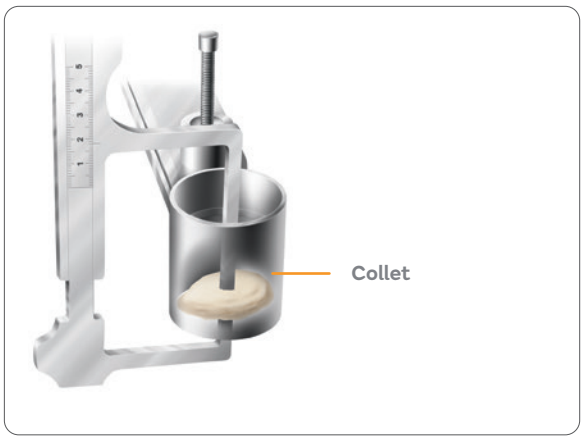


Figure 76

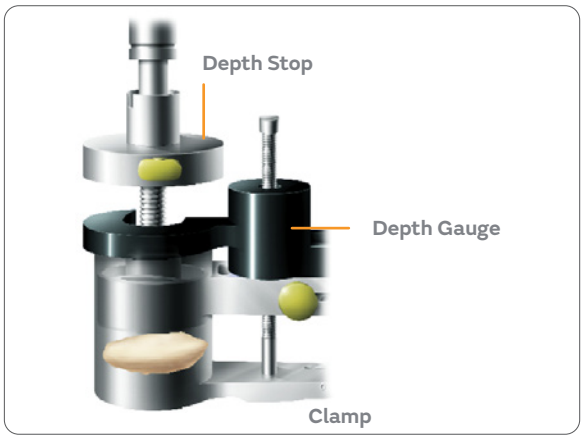


Figure 77

Figure 78

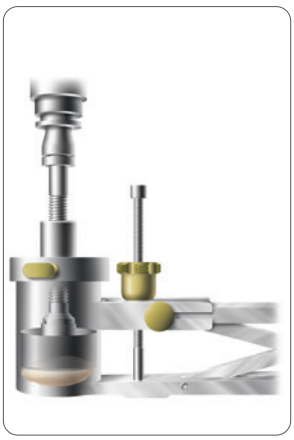


Figure 79

4. Measure patella thickness with the patellar calipers (**Figure 76**).

   Tip: The patella should measure a minimum of 19mm before reaming to use this resurfacing technique.

Determine the design and diameter of the patellar implant to be used. The round resurfacing patella is 9mm thick, and the depth stop for this technique prepares for 9mm of resection.

Tip: Minor adjustments may be necessary at the time of resection to accommodate the largest diameter oval patellar implants. (Please see chart on page 44).

5. Rotate the appropriate resurfacing patellar depth gauge (red = round) around so that the hooked end or 'claw' surrounds the patellar reamer shaft (**Figure 77**). Lower the depth stop by compressing the button until it meets the depth gauge (**Figure 78**). Remove the depth gauge from the assembly. Ream the patella until the depth stop engages the patellar Reamer Guide (**Figure 79**).

   Tip: Excessive force on the reamer shaft may alter the depth of resection, causing overreaming.

Resurfacing Depth Stop
71440326

Reamer Shaft
71440324

Reamer Dome

26mm	71440348
29mm	71440342
32mm	71440344
35mm	71440346

Reamer Guide
71440311

Resurfacing Depth Gauge
71440330

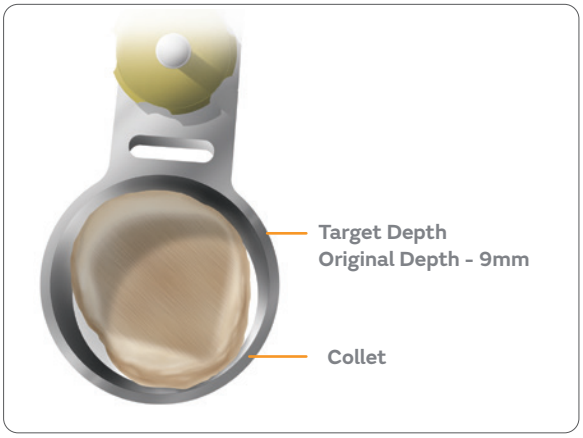


Figure 80

Figure 81

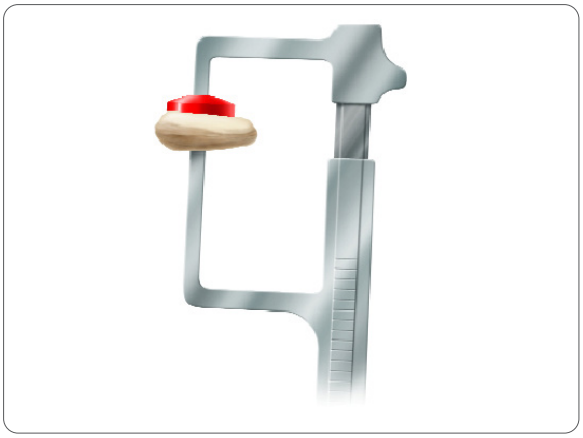


Figure 82

6. After reaming, the patella should have a completely flat articular surface (**Figure 80**). Measure the resected patella to ensure adequate resection (the resected patella should measure its original depth minus 9mm).
7. Drill the appropriate fixation holes for the resurfacing patellar implant using the correctly sized drill guide and resurfacing drill (**Figure 81**).
8. Place the patellar trial into the prepared patella. If desired, use the calipers to remeasure the composite thickness of bone and trial (**Figure 82**).

Patellar Calipers	**Resurfacing Peg Drill**	**Resurfacing Drill Guide 26mm**	**Resurfacing Drill Guide 29mm**	**Resurfacing Drill Guide 32mm**	**Resurfacing Drill Guide 35mm**
114943	74010401	74010426	74010429	74010432	74010435

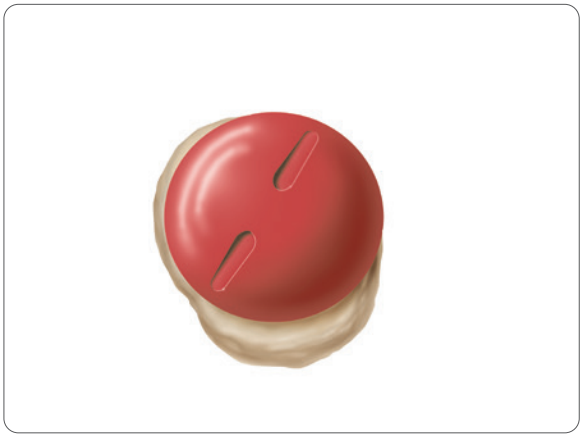


Figure 83

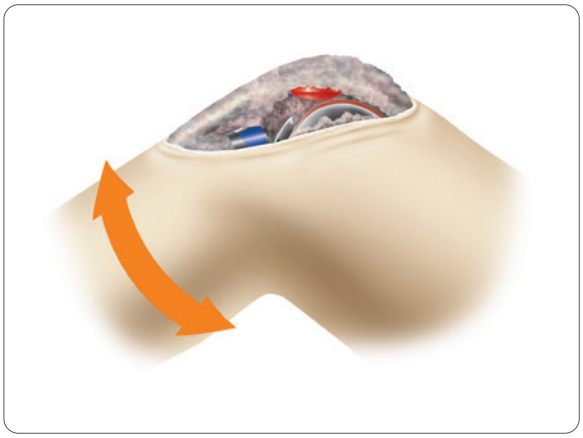


Figure 84

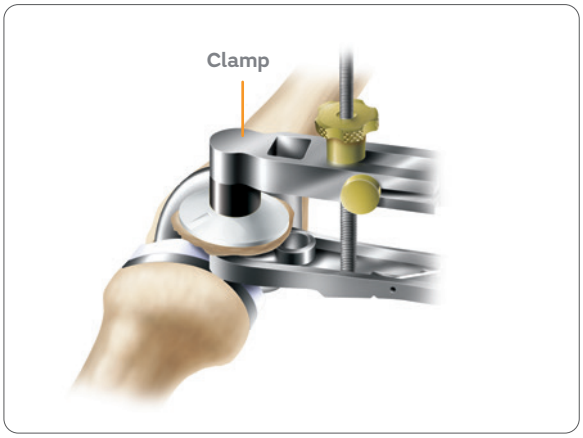


Figure 85

Component trialing

1. Place the patellar trial into the prepared patella (**Figure 83**).
2. Perform a trial range of motion to assess patellar tracking. Medial/lateral placement of the femoral trial can be adjusted to optimize patellar tracking (**Figure 84**).

Patellar implantation

1. Assemble the patellar cement clamp to the patellar Reamer Guide.
2. Apply bone cement to the patella.
3. Place the patellar implant onto the patella and clamp into the bone (**Figure 85**). Remove excess cement.

Reamer Guide
71440311

Cement Clamp
71440322

Cemented Round Patella w/ JRNY Pegs 9.0mm 26mm trial
74037026

Cemented Round Patella w/ JRNY Pegs 9.0mm 29mm trial
74037029

Cemented Round Patella w/ JRNY Pegs 9.0mm 32mm trial
74037032

Cemented Round Patella w/ JRNY Pegs 9.0mm 35mm trial
74037035

Cemented Round Patella w/ JRNY Pegs 9.0mm 38mm trial
74037038

Cemented Round Patella w/ JRNY Pegs 9.0mm 41mm trial
74037041

Note: Resurfacing Round patella also available in 7.5mm as add-on


Figure 85


Figure 86


Figure 87


Figure 88


Figure 89


Figure 90


Figure 91

Intramedullary (IM) tibial preparation

Technique highlights

Place the intramedullary alignment assembly on the tibia. The alignment rod should align with the medial third of the tibial tubercle. (**Figure 85**)
Impact assembly.

Attach the tibial stylus to the tibial cutting block and lower the cutting block until the stylus touches the low point on the least affected side of the tibia. Once the resection level is determined, insert pins to secure and remove alignment assembly. (**Figure 86**)

Resect the proximal tibia. (**Figure 87**)

Size the tibia. (**Figure 88**)

Final preparation

After trial range of motion and alignment checks, select the appropriate trial fin punch and punch through the trial. (**Figure 89**)

Seat the tibial implant with the tibial impactor. (**Figure 90**)

Insert the articular insert by placing the insert assembly tool into the center notch of the anterior lock detail (handle up) and engage the two tabs of the tool into the two recesses on the anterior periphery of the insert. Squeeze the tool handle until the insert is fully seated within the tibial component. (**Figure 91**)

Figure 92

Figure 93

Instrument assembly

Intramedullary Tibial Alignment Guide

1. Insert the external rod of the Intramedullary Tibial Alignment Guide through the hole on the correct left or right Tibial Cutting Block and lock the cam (**Figure 92**).
2. Attach the T-handle to the IM Rod and pass it through the cannulated alignment sleeve on the alignment assembly (**Figure 93**).

T-handle
71110080

Tibial Cutting Block
Left 71441136
Right 71441137

IM Alignment Guide
71440200

IM Rod
Short 71512035
Long 71512040

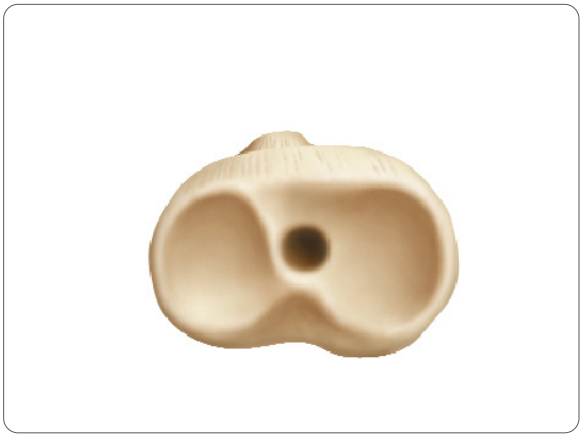


Figure 94

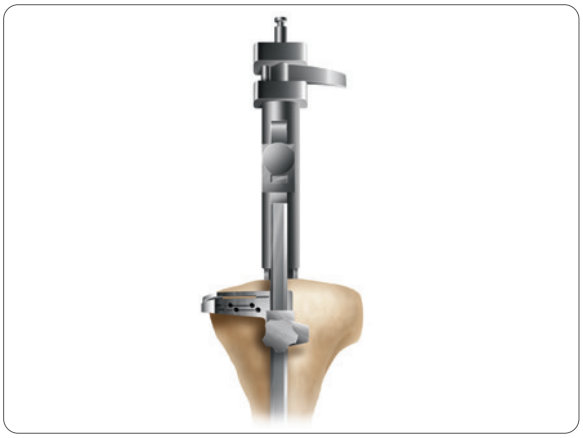


Figure 95

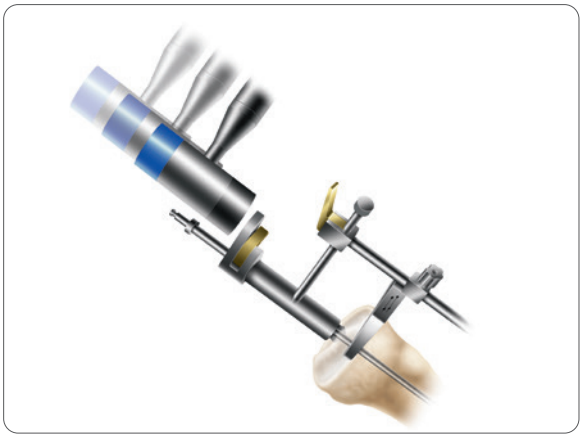


Figure 96

IM tibial preparation

1. Make a 9.5mm pilot hole into the tibial canal (**Figure 94**). A preliminary resection of the tibial spine may facilitate seating of the tibial drill guide onto the proximal tibia.
2. Slowly insert the IM rod into the tibial canal.
3. Assess rotation of the intramedullary tibial alignment guide. Rotational alignment is critical due to the 3º posterior sloped cut. The alignment rod of the intramedullary tibial alignment assembly should align with the medial third of the tibial tubercle (**Figure 95**).
4. Impact the proximal end of the cannulated alignment sleeve to drive the distal spikes into the proximal tibia to lock rotational alignment (**Figure 96**).

IM Drill
74012111

Tibial Cutting Block
Left 71441136
Right 71441137

IM Alignment Guide
71440200

IM Rod
Short 71512035
Long 71512040

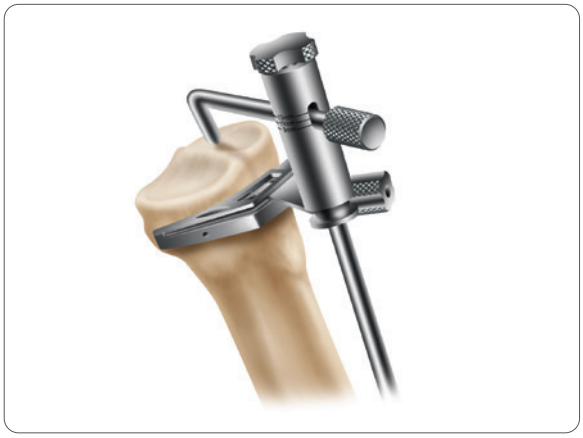


Figure 97

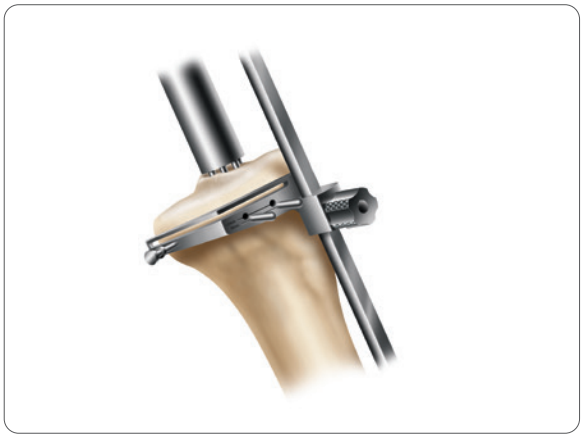


Figure 98

Tibial resection

1. Attach the Tibial Stylus to the Tibial Cutting Block by inserting the stylus foot into the cutting slot.
2. Lower the cutting block until the stylus touches the low point on the least affected side of the tibia (**Figure 97**). The stylus can be adjusted for a 1-13mm tibial resection by twisting the knob on top of the stylus. If the affected side of the tibia is to be used as a reference, the stylus may be adjusted for a 1-9mm resection level.
3. Pin the Tibial Cutting Block to the tibia by inserting pins first through the central holes; then the oblique hole.

   Tip: Pinning through the central holes marked 0mm with smooth pins will allow the block to be moved +2mm should additional resection be required (**Figure 98**).

   Tip: A 9mm resection is recommended since 9mm of metal and plastic is the thinnest available component.

   Tip: To do an extramedullary alignment check, place the extramedullary Alignment Rod through the tibial cutting block.

Tibial Stylus	Tibial Cutting Block		Alignment Rod
71441143	**Left**	71441136	71441148
	Right	71441137	

Figure 99

Figure 100

4. To remove the assembly:
   Use the universal extractor leaving the cutting block on the anterior tibia (**Figure 99**) after loosening the thumbscrew.
5. Cut the tibia by first directing the blade in the posterior direction and then laterally (**Figure 100**).
6. Check alignment and balance with spacer block and rod. Balance ligaments in standard fashion.

Universal Extractor (Slap Hammer)
71440366

Flexion / Extension Block Standard
74018603

Flexion / Extension Spacers
9mm 74018608
11mm 74018611
13mm 74018613
15mm 74018615
18mm 74018618
21mm 74018621

Quick Connect Handle
71440044

Tibial Cutting Block
Left 71441136
Right 71441137

Alignment Rod
71441148

Appendix A

Implant size interchangeability

	Femoral Size							
Insert Size	1	2	3	4	5	6	7	8
1-2PS, DD, Con	●	●	●					
1-2PSHF, CRHF, MS	●	●	●	●				
3-4PS, DD, Con		●	●	●	●			
3-4PSHF, CRHF, MS		●	●	●	●	●		
5-6PS, DD, Con				●	●	●	●	
5-6PSHF, CRHF, MS				●	●	●	●	●
7-8PS, DD, Con						●	●	●
7-8PSHF, CRHF, MS						●	●	●

PS – Standard posterior stabilized
DD – Deep dish
Con – Constrained
PSHF – Posterior stabilized high flex
CRHF – Cruciate retaining high flex
MS - Medial Stabilized

Note: CR – Standard cruciate retaining inserts are interchangeable with all size femoral components

* Medial Stabilized and Deep Dished Inserts are compatible with or without PCL resection

LEGION◊ Total Knee System compatibility guide

Cruciate Retaining Construct

Femoral	Insert	Tibial Baseplate	Patella
LEGION CR Non-Porous Femoral (CoCr)	**LEGION** CR Standard Insert with JRNY Lock	**JOURNEY◊** Nonporous Tibial Baseplate	**GENESIS◊ II** Round Resurfacing Patella
LEGION CR Narrow Non-Porous Femoral (CoCr)	**LEGION** CR High Flex Insert with JRNY Lock	**LEGION** Revision Tibial Baseplate with JRNY Lock	**GENESIS II** Oval Resurfacing Patella
LEGION CR Porous Femoral (CoCr)	**LEGION** Deep Dish Insert with JRNY Lock	**CEMENTED** Tibial Baseplate with JRNY Lock (No Taper)	**GENESIS II** Biconvex Resurfacing Patella
LEGION CR Porous + HA Femoral (CoCr)	**LEGION** Medial Stabilized Insert with JRNY Lock	**POROUS** Tibial Baseplate with JRNY Lock	**POROUS** Round Patella
LEGION CR OXINIUM◊ Femoral			**POROUS** Oval Patella
LEGION CR Narrow OXINIUM Femoral			**CEMENTED** Round Patella with JRNY Pegs

Posterior Stabilized Construct

Femoral	Insert	Tibial Baseplate	Patella
LEGION PS Non-Porous Femoral (CoCr)	**LEGION** PS Standard Insert with JRNY Lock	**JOURNEY** Nonporous Tibial Baseplate	**GENESIS II** Round Resurfacing Patella
LEGION Narrow PS Non-Porous Femoral (CoCr)	**LEGION** PS High Flex Insert with JRNY Lock	**LEGION** Revision Tibial Baseplate with JRNY Lock	**GENESIS II** Oval Resurfacing Patella
LEGION PS OXINIUM Femoral	**LEGION** PS Constrained Insert with JRNY Lock*	**CEMENTED** Tibial Baseplate with JRNY Lock (No Taper)	**GENESIS II** Biconvex Resurfacing Patella
LEGION Narrow PS OXINIUM Femoral		**POROUS** Tibial Baseplate with JRNY Lock	**POROUS** Round Patella
LEGION Revision Constrained Femoral (CoCr)			**POROUS** Oval Patella
LEGION Revision OXINIUM Constrained Femoral			**CEMENTED** Round Patella with JRNY Pegs

***Component must be used with the LEGION Femorals (CoCr and OXINIUM) and Tibial Stem**

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