Surgical Technique for LEGION CR and PS with SYNC Performance Instruments

smith&nephew

LEGION®
Total Knee System

SYNC
Performance Instruments

Surgical Technique

LEGION® CR and PS with SYNC Performance Instruments

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. LEGION Instruments listed within reflect examples in the SYNC Performance Instrument Set.

Introduction

The LEGION® Total Knee System has been designed to offer the orthopaedic surgeon solutions to address intraoperative situations.

Patient outcomes can be directly related to accurate surgical technique and precision instrumentation. The SYNC Performance Instruments have been developed to assist surgeons in obtaining accurate and reproducible results and reducing OR time.

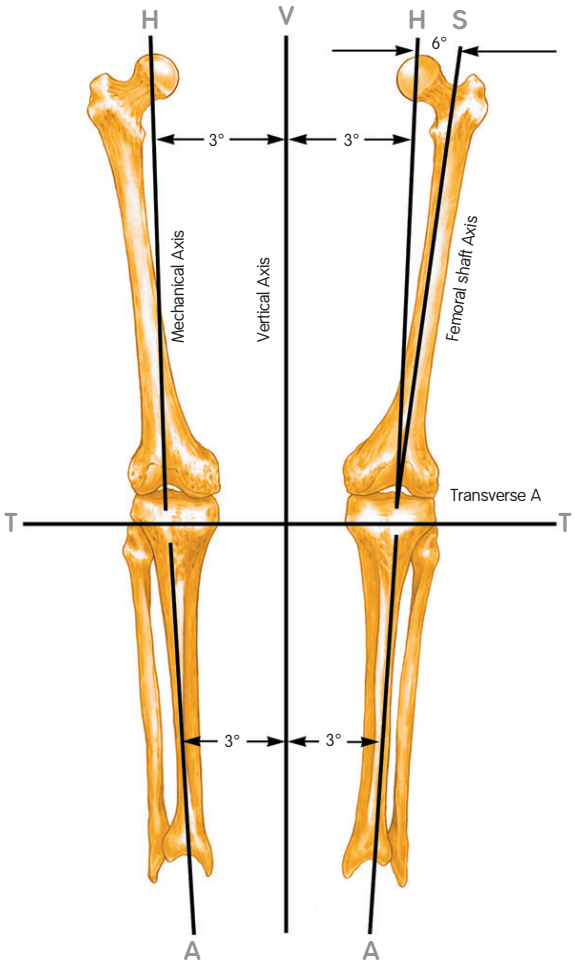
While it has been the designers' objective to develop accurate, easy-to-use instrumentation, each surgeon must evaluate the appropriateness of the following technique based on his or her medical training, experience and patient evaluation.

Prologue

Preoperative planning

Determine the angle between the anatomical and the mechanical axis. 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, 5°, 6° or 7°) based on the patient and surgical experience.



Recommended Sawblades

Cat. No.	Description
71512901	Stryker 2000 3/4" fanned
71512903	Amsco Hall 3/4" fanned
71512904	2M 3/4" fanned
71512905	Stryker 2000 1/2" straight
71512907	Amsco Hall 1/2" straight
71512908	3M 1/2" straight
71512910	VersiPower Plus 3/4" fanned
71512911	PowerPro 3/4" fanned

Or any 0.053" or 1.35mm thickness sawblade

Instrument assembly

Note Surgical Technique for alignment alternative using the Fixed Instrumentation can be found on page 33.

IM assembly

1. Attach the Adjustable Valgus Bridge to the Adjustable Valgus Guide. Dial on the bridge should point towards the button on the Valgus Guide (Figure 1).

   Note The Adjustable Valgus Bridge was designed to move anterior and posterior within the Adjustable Valgus Guide to accommodate various patient morphology.

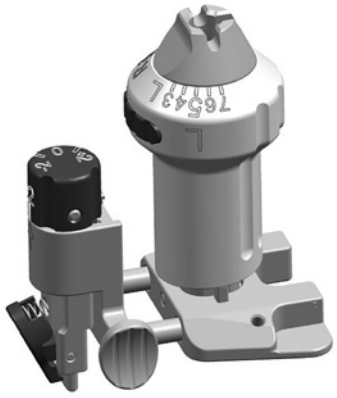


Figure 1

2. Attach the IM rod to the T-handle and insert through the alignment assembly (Figure 3). IM rod will lock into the alignment assembly in one of three places (see Figure 2).

   Note There are two locking positions on the IM Rod. If the alignment assembly can make a full rotation around the IM Rod, the second lock has not engaged. Remove the IM Rod and reengage.

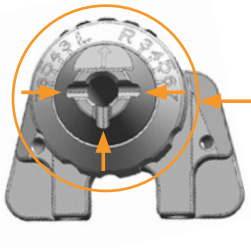


Figure 2

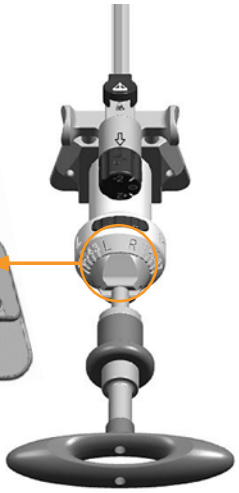


Figure 3

3. Attach the Distal Femoral Cutting Block onto the Bridge. Positioning the Block and the dial on the adjustable bridge at the primary ("0") resection level will ensure the cut will equal the distal thickness of the femoral prosthesis (Figure 4).

   Note The Distal Femoral Cutting Block is designed to pivot medial and lateral to accommodate various patient morphology.

   Tip If surgeon preference is to pin the -2mm pin holes initially, it is recommended to add the Wide Distal Cut Block to the set.

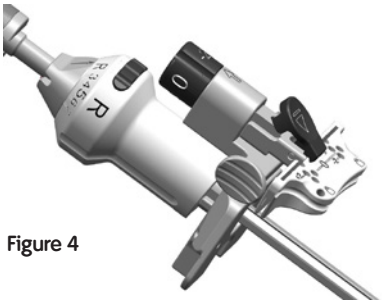


Figure 4

Adjustable Valgus Guide
74016210

Adjustable Valgus Bridge
74016203

T-Handle
71674576

IM Rod
Long 74016211
Short 74016212

Distal Cutting Block
Wide 74016204
Standard 74016205

Intramedullary alignment

1. Open the femoral canal with the 9.5mm Intramedullary Drill. The drill has a 12mm step to open the entry point further (Figure 5).

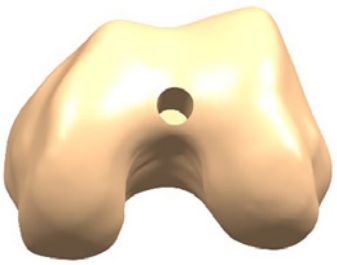


Figure 5

2. Slide the Intramedullary Rod of the alignment assembly into the femoral canal until the Valgus Guide contacts the distal femur (Figure 6).

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

   Tip To avoid a shallow distal resection, it is recommended to not push the Bridge all the way into the Valgus Guide until it has been seated on the distal surface.

   Tip Alternately, the Bridge can be assembled after seating the Valgus Guide onto the distal femur.

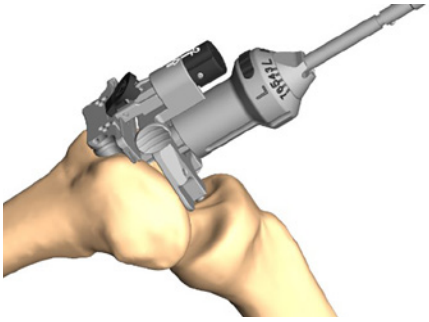


Figure 6

3. Push the button on the Valgus Guide and rotate ("L" for a left knee, "R" for a right knee) to set the valgus angle (3°, 4°, 5°, 6°, or 7°).

   Tip This angle may be set before inserting the IM rod into the canal.

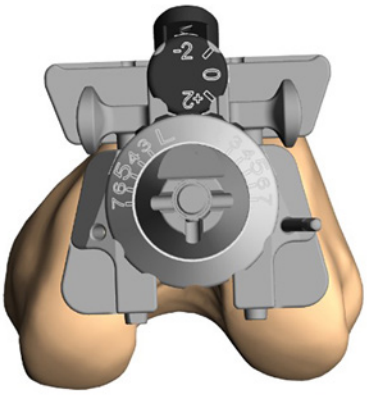


Figure 7

4. Orient rotation of the assembly neutral to the posterior condyles (Figure 7) insert a headed or non-headed 65mm SPEED PIN®(s) into one or both of the oblique pin holes.

   Note Distal Cutting Guide will pivot to conform to the anterior bone geometry.

Adjustable Valgus Guide
74016210

Adjustable Valgus Bridge
74016203

T-Handle
71674576

IM Rod
Long 74016211
Short 74016212

Distal Cutting Block
Wide 74016204
Standard 74016205

Intramedullary drill, 9.5mm
74012111

SPEED PIN
Non-Headed 65mm
74013480
Headed 65mm
74013472
MIS Headed 65mm
74016466

Distal resection

1. With the Adjustable Valgus Bridge dial set to 0mm, using non-headed 65mm SPEED PIN®(s), pin the Distal Femoral Cutting Block to the Anterior Femur using the holes marked '0'. Once adequate distal femoral resection is noted, headed or non-headed 65mm SPEED PIN(s) should be placed in one or both oblique pin holes for additional stability (Figure 8).

   Tip The resection level can be adjusted before pinning the Distal Block by using the dial on the Valgus Bridge. +2mm or -2mm can be dialed in prior to resection.

   Note Resection level can also be adjusted using the alternate pin holes on the Cutting Block, -2mm or +2mm of bone.

   Tip The chamfer on the -2mm pin holes of the Standard Distal Cutting Block may cause pins to become stuck in the Block. Place pin into pinhole before starting power.

   Tip The oblique pin holes on the Distal Cut Block may come in contact with the IM rod. If any resistance is present, stop and assess.

Figure 8

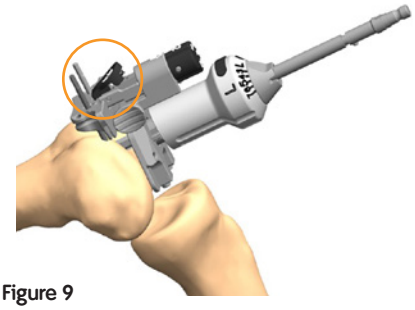


Figure 9

2. Push the button on the Valgus Bridge (Figure 9) to remove the alignment assembly from the incision site. Only the Distal 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 SPEED PIN(s), and reposition the Block through the pin holes marked +2mm and re-insert the oblique pin.

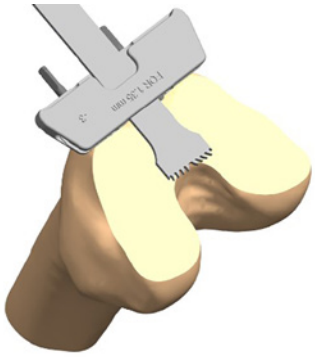


Figure 10

Adjustable Valgus Guide
74016210

Adjustable Valgus Bridge
74016203

T-Handle
71674576

IM Rod
Long 74016211
Short 74016212

Distal Cutting Block
Wide 74016204
Standard 74016205

SPEED PIN
Non-Headed 65mm
74013480
Headed 65mm
74013472
MIS Headed 65mm
74016466

Instrument assembly

Note Surgical Technique for alignment alternative using the Micro Instrumentation can be found on page 36.

Macro Extramedullary tibial alignment guide

1. Attach the EM Posterior Slope Guide to the Ankle Clamp (Figure 11) by depressing the button on the Slope Guide and slide to the desired position.

   Tip The neck on the Slope Guide should orient toward the arms and dials of the Ankle Clamp.

   Note Each tooth is 1mm apart.

Figure 11

2. Attach the Macro EM Tibial Alignment Tube to the EM Posterior Slope Guide by depressing the inferior button on the Alignment Tube (Figure 12) and sliding to the desired position. Once the button is released, the height will be locked in position.

   Tip The inferior button on Alignment Tube should face away from the arms of Ankle Clamp.

   Note Each tooth is 1mm apart.

Figure 12

3. Attach the appropriate hand Cutting Block to the Alignment Tube by depressing the superior button on the Alignment Tube (Figure 13).

Figure 13

Ankle Clamp
74016241

EM Posterior Slope Guide
74016231

EM Macro Alignment Tube
74016231

Tibial Cutting Guide 3 Degree
Left 74016216
Right 74016217

Extramedullary alignment

1. Open the arms of the ankle clamp and attach alignment jig to the tibia. Adjust height and distance from tibia by depressing the buttons on the Macro Alignment Tube and EM Posterior Slope guide, respectively.
2. Once approximate resection level is set, use a headed 45mm SPEED PIN® to pin through the provisional slot in the Tibia Cutting Block (Figure 14).
3. Insert Adjustable Footed Tibia Stylus into the saw slot of the Cutting Guide (Figure 15).
4. Adjust the stylus to desired resection level by rotating the dial.

Note The dial on the stylus adjusts from 2mm – 13mm in 1mm increments.

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

Tip Depending on provisional position, it may be necessary to depress the inferior button of the Alignment Tube while setting resection depth via the stylus. Alternately, this resection level may be set prior to attaching the jig to the patient.

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.

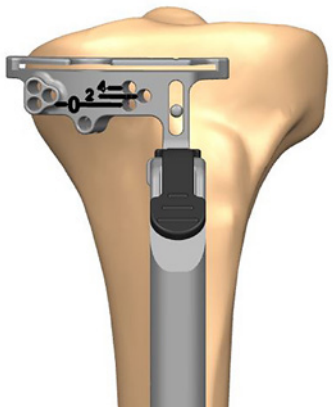


Figure 14

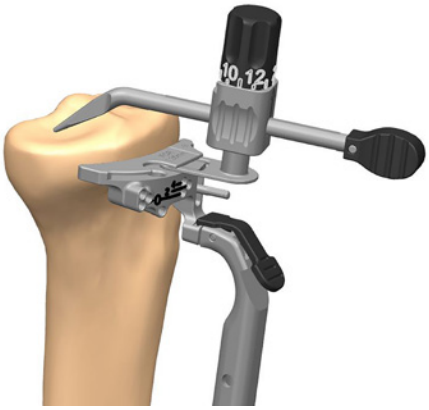


Figure 15

Ankle Clamp
74016241

EM Macro Alignment Tube
74016231

Adjustable Footed Stylus
71674576

Tibial Cutting Guide 3 Degree
Left 74016216
Right 74016217

SPEED PIN
Headed 45mm
74013471
MIS Headed 45mm
74016465

Proximal resection

1. With the Adjustable Tibia Stylus set to the desired resection level, using non-headed 65mm SPEED PIN®(s), pin the cutting guide in position through the holes marked '0.' For additional fixation, a headed or non-headed 65mm SPEED PIN(s) can be inserted through the oblique pin hole.

   Note To do an extramedullary alignment check, remove alignment tube and replace with the EM alignment guide handle. Place the extramedullary alignment rod through the EM alignment guide handle (Figure 16).

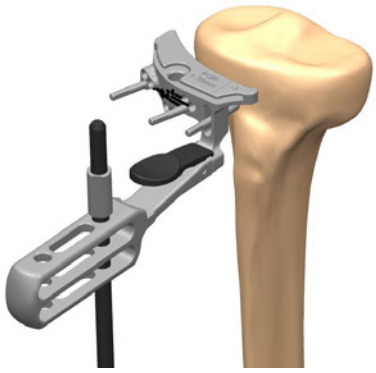


Figure 16

2. Remove the Tibia Stylus. Resect the proximal tibia (Figure 17) and remove the cutting guide.

   Note If an uncaptured saw cut is desired, the resection can be performed by cutting on top of the Block. An additional 3mm will be needed to account for this offset.

   Tip If additional resection is needed, the cutting guide can be shifted to the holes marked '2' or '4' for an additional +2mm or +4mm of resection, respectively.

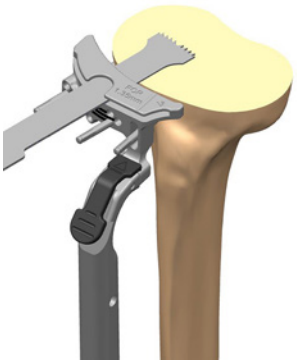


Figure 17

3. To remove assembly, depress the superior button on the Alignment tube to disengage from the Cutting Block.

EM Macro Alignment Tube
74016231

Adjustable Footed Stylus
71674576

Tibial Cutting Guide 3 Degree
Left 74016216
Right 74016217

SPEED PIN
Non-Headed 65mm
74013480
Headed 65mm
74013472
MIS Headed 65mm
74016466

EM Alignment Guide Handle
74016213

VNR Extramedullary Alignment Rod
71440302

Extension gap assessment

Note If performing a Posterior Stabilized surgery and the PCL has not already been removed, excise completely the entire PCL attachment from the femoral intercondylar notch with either a cautery or scalpel to prevent it from affecting the assessment. The femoral box prep will not completely detach all fibers of the PCL.

Tip Assess the extension gap prior to making the posterior cut as removing the posterior condyles can relax the posterior tissue and create a false sense of increased extension laxity.

Ensure that all posterior osteophytes are removed prior to assessing the extension gap. Posterior osteophytes at this stage may result in inaccurate balance once all resections are performed.

1. The 9mm end of the Extension Spacer Block should easily insert into the extension gap. (Figure 18).
2. In addition to using the 10mm end, shims (11mm, 12mm, 13mm, etc) can be added to the 9mm end to adjust thickness and determine extension space.

   Tip The Extramedullary Alignment Rod can be inserted through the Extension Spacer Block to check limb alignment.

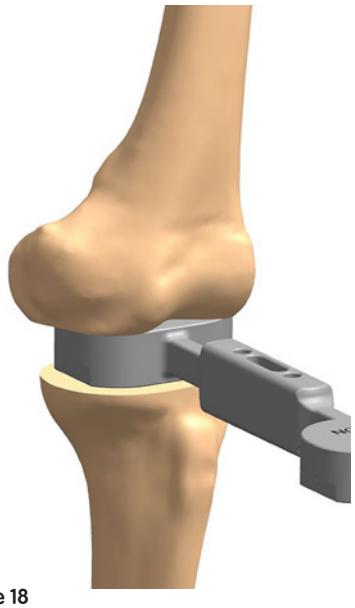


Figure 18

Extension Spacer Block
74016254

Spacer Plate Shim
11mm 74016257
12mm 74016258
13mm 74013721
15mm 74013722
18mm 74013723

VNR Extramedullary Alignment Rod
71440302

Femoral positioning and sizing

1. Flex the knee, approximately 90° so the posterior condyles are accessible.
2. Optional: Mark the A/P and epicondylar axes on the femur (Figure 19).
3. Place the appropriate sizing guide (left or right) flush against the resected distal femur. Ensure the posterior paddles are contacting the underside of both posterior condyles. Once correct position of sizing guide is established, place a pin through the hole just above the lateral paddle (Figure 20).
4. Ensure the medial paddle contacts the posterior medial condyle. Begin with the rotational knob set to 3°. If adjustment is needed, use a hex screwdriver to align laser marks (Figure 21) with epicondylar and/or A/P axis.
5. Ensure the Anterior/Posterior position is set to '0'.

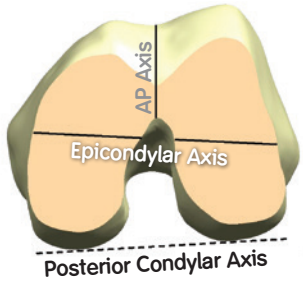


Figure 19

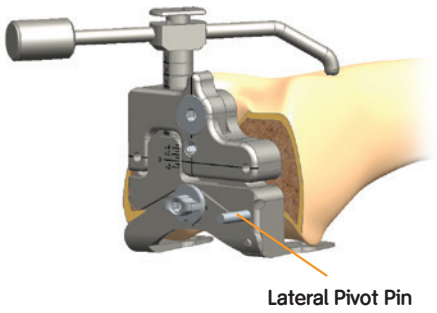


Figure 20

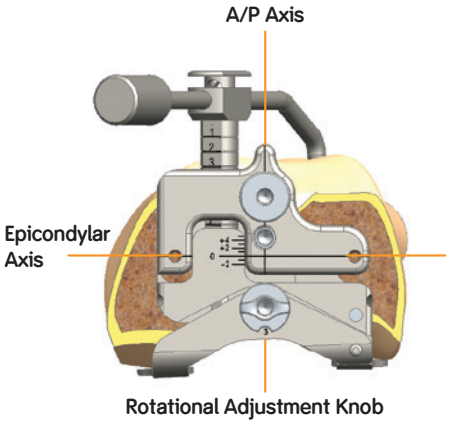


Figure 21

Sizing Guide
Left 71440007
Right 71440008

Sizing Stylus
71441140

Hex Screwdriver
115035

SPEED PIN
Non-Headed 65mm
74013480
Headed 65mm
74013472
MIS Headed 65mm
74016466

6. Attach the LEGION® Sizing Stylus to the guide.

   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 22).

7. Determine the size of the component from the graduations on the shaft of the stylus

   For Fixed Posterior Referencing, choose the larger size if in between sizes.

   For Adjustable Anterior Referencing, use the upper hex screw to shift the sizing guide. Shift anterior (up to '+4') for the next smaller size, or posterior (up to '-2') for the next larger size). Turn the locking hex screw to select this size and position.

   Note Anterior Shift (+) of the Sizing guide increases the posterior resection. Similarly, Posterior Shift (-) of the Sizing Guide takes more bone off the anterior cortex.

   Design Note The AP difference between LEGION TKS femoral implant sizes varies but ranges between 3-4mm. See page 27 for AP Box Dimensions.

8. Drill the locator holes to set the position for the Cutting Block.

9. Remove the pins and the sizing guide.

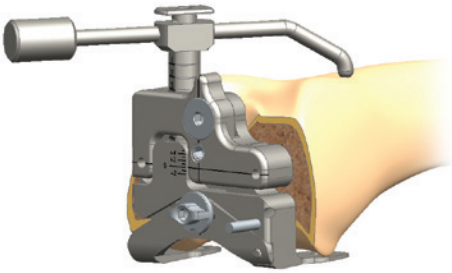
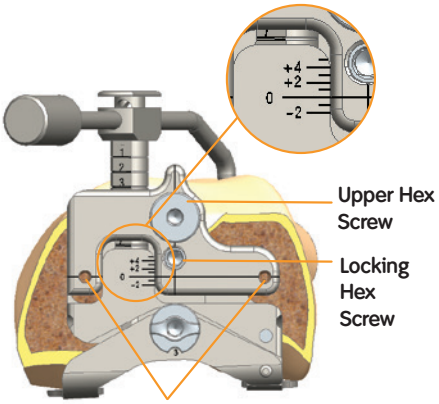


Figure 22



Sizing Guide
Left 71440007
Right 71440008

Sizing Stylus
71441140

Hex Screwdriver
115035

Femoral A/P resection

1. Position the fixed spikes on the A/P Cutting Block into the predrilled holes. Use a mallet to ensure the Cutting Block is flush with the resected distal femur.

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

2. 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 one or both of the holes on the medial or lateral side of the Block (Figure 23).

3. Complete the anterior, posterior and chamfer cuts (Figures 24-27). 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.

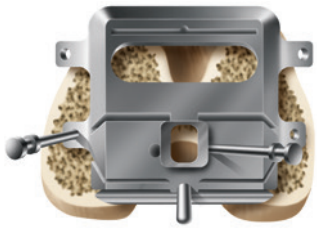


Figure 23

Figure 24

Figure 25

Figure 26

Figure 27

SPEED PIN
Non-Headed 65mm
74013480
Headed 65mm
74013472
MIS Headed 65mm
74016466

A/P Cutting Block
Size 5 71441153

Resected flexion gap assessment

1. The 9mm end of the Extension Spacer Block should easily insert into the flexion gap (Figure 28).
2. In addition to using the 10mm end, shims (11mm, 12mm, 13mm, etc) can be added to the 9mm end to adjust thickness and determine flexion space.

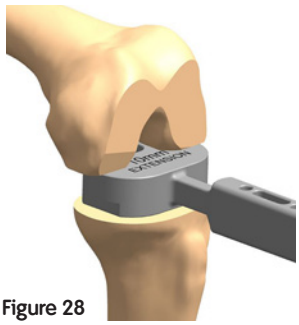


Figure 28

Extension Spacer Block
74016254

Spacer Plate Shim
11mm 74016257
12mm 74016258
13mm 74013721
15mm 74013722
18mm 74013723

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 29).
2. Drill new location holes through the downsizing drill guide (shifted 1, 2 or 3mm).
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 to properly identify the new holes.

Figure 29

Downsizing Drill Guide
71440860

Patellar Reaming option*

The recommended time to prepare the patella is after all tibial and femoral cuts are made, but prior to trial placement. In some cases, the patella is cut just after the arthrotomy to facilitate exposure.

Evert the patella, or at least partially evert the patella to 90°, measure its thickness and determine the appropriate diameter implant.

1. Measure the overall thickness of the patella with the caliper. Assess how much bone to remove based on selected patella implant thickness (Figure 30).

   Note It is recommended to leave at least 12mm of residual patella. Depth gages allows 10mm and 12mm depth of ream (Figure 34).

2. Attach the Reaming Patella Clamp with appropriate collet, based on patella diameter, to the patella and tighten the reamer guide on the patella.
3. Attach the Patella Reamer Shaft with depth stop to the drill and lower the reamer through the Patellar Clamp until the reamer dome contacts the patella.
4. Place the Depth Gage on the top of the patella collet around the reamer shaft. Use Biconvex side of depth gage if using biconvex patella implant. Use Resurfacing side if using resurfacing patella implant (Figure 31).
5. Lower the Patellar Depth Stop until it contacts the Patellar Depth Gage.
6. Remove the Depth Gage.
7. Ream the patella until the depth stop engages the patella clamp (Figure 31).

Figure 30

Figure 31

*Outcome data reported in some registries suggest that resurfacing the patella during primary TKA should be considered since it may decrease the rate of revision, provided the patient's anatomy.

Calipers
114943

Reaming Clamp
42404322

Reaming Collet

Depth Gage
42407380

Reamers

Depth Stop
71440427

Biconvex (inset) patella

8. If the Biconvex design is selected, use a towel clip to insert the appropriate diameter Biconvex Patella Trial into the recess in the patella. Use the Patella Caliper to reassess the patella thickness.

Patellar Reaming option *continued*

Resurfacing (onset) patella

9. If the Resurfacing design is selected, use the Caliper to reassess the patella thickness (Figure 32).
10. Remove the Patella Reamer Collet from the Patella Reamer Guide.
11. Select the appropriate diameter Resurfacing Patella Drill Guide and slide it onto the Patella Reamer Guide. Attach the Patella Reamer Guide Assembly to the reamed patella and tighten the guide onto the patella (Figure 33).
12. Use the Patella Peg Drill to drill the three pegs through the Patella Drill Guide until the drill bottoms out in the guide (Figure 33).
13. Remove the Patella Reamer Guide and drill guide from the patella.
14. Place the Resurfacing Patellar Trial onto the resected patella. Use the Patella Caliper to reassess the patella thickness.

Note To decrease the patella thickness further, depress the button on the depth stop to raise it on the Patella Reamer Shaft. Each tooth adjustment will ream an additional 1mm. Engage the Patella Reamer back into the Patella Reamer Collet and ream the patella until the Patellar Depth Stop engages the Patella Reamer Collet.

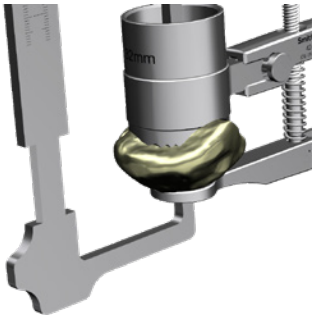


Figure 32

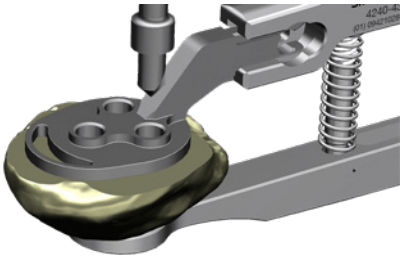


Figure 33

Peg Drill
74014748

Peg Drill Guide
4240436X

Patellar Resection option

1. Measure the overall thickness of the patella with the Caliper and assess how much bone to remove based on selected patella implant thickness (Figure 34).

   Note Round patella options come in 9mm and/or 7.5mm. See chart below for Oval patella options.

2. Determining the depth of cut (usually based on patella implant thickness) and dial in the stylus on the patella saw guide to have the corresponding resection level. Clamp the patella between the jaws of the guide (Figure 35).

   Note It is recommended to leave at least 12mm of residual patella to minimize the risk of fracture.

3. Resect the patella through slots of the dedicated saw guides (Figure 35).
4. Assess size (diameter) of the patella with the sizing guides.
5. Select the appropriate diameter Resurfacing Patella Drill Guide and slide it onto the Resection Patella Clamp. Attach the Assembly to the resected patella and tighten to the patella.
6. Use the Patella Peg Drill to drill for the three peg holes through the Patella Drill Guide until the drill bottoms out in the guide (Figure 36).
7. Remove the Patella Reamer Guide and Drill Guide from the patella.
8. Place the Resurfacing Patellar Trial onto the resected patella. Use the Caliper to reassess the patella thickness.

Figure 34

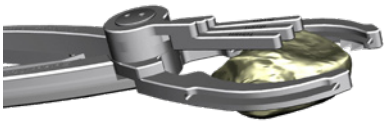


Figure 35

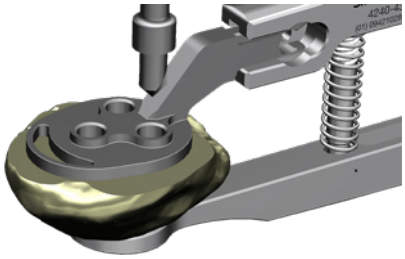


Figure 36

Oval Patellar sizing options

Oval Resurfacing implant

Diameter	Thickness
29mm	8.5mm
32mm	9.0mm
35mm	9.0mm
38mm	9.5mm
41mm	10.0mm

Classic Patella Saw Guide
42404211

Sizing Guides
74015461

Resection Clamp
42404321

Peg Drill Guide
4240436X

Peg Drill
74014748

LEGION® CR and PS Trialing and Preparation

1. Select the baseplate trial based upon best fit and coverage on the resected tibia. Typically, this is one size below the femoral component size. Set position of the tibial baseplate based upon the anatomic landmarks of the tibia (best fit coverage and medial third of the tubercle). Alignment can be confirmed at this point by dropping an alignment rod through the EM Alignment Guide Handle. Pin the baseplate using one or two short headed pins (Figure 37).

   Tip If desired, for additional fixation, a headed 45mm SPEED PIN® can be used in the anterior medial pin hole.

2. Flex the knee to 90° and insert the Femoral Trial using the Femoral Trial Impactor (Figure 38).
3. Pin the femoral trial through the anterior flange (Figure 39). Loosen the lock knob of the Femoral Trial Impactor and remove anteriorly, leaving the trial in place.
4. For Cruciate Retaining femorals, prepare the femoral lug holes through the femoral trial with the Femoral Lug Drill (Figure 40).
5. For Posterior-Stabilized femorals, insert the appropriate size Housing Resection Collet. 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 (Figure 41).

Figure 37

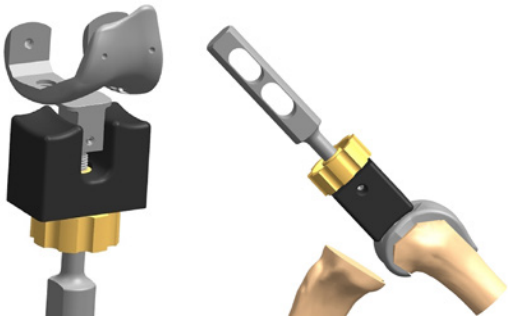


Figure 38

Figure 39

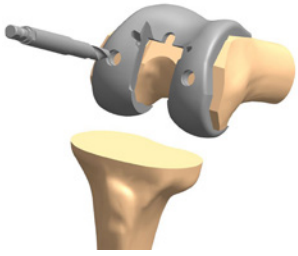


Figure 40

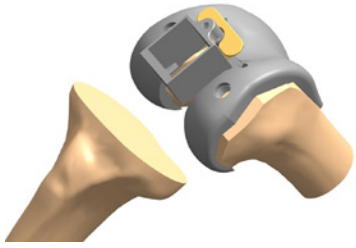


Figure 41

Universal Tibia Baseplate Trial
74033814

EM Alignment Guide Handle
74016213

Femoral Trial Impactor
71440009

Legion CR Ream-Through Femoral Trial Left size 5 71433345

SPEED PIN
Non-Headed 65mm
74013480
Headed 65mm
74013472
MIS Headed 65mm
74016466

Femoral Lug Dril
74016421

Housing Resection Collet
Size 1-2
71434423
Size 3-8
71434424

6. Insert the PS Box Reamer into the Resection Collet and ream until the reamer contacts the Collet (Figure 42). Ream in the posterior position first, then slide collet anterior and ream again.

   Tip If the power equipment has "Drill" and "Reamer" settings, ensure "Drill" setting is selected and allow the PS Box Reamer to reach maximum speed before engaging the bone.

7. Connect the Modular Box Chisel (Figure 43) to the Modular Impact Handle. Insert the Chisel into the Collet and impact until flush. Slide collet and chisel again. Use underside of strike plate to remove.
8. Remove Resection Collet.
9. Remove any remaining bone debris within the box preparation area.
10. Select the appropriately sized Femoral Trial Cam Module (matching the femoral trial size selected.)
11. Insert the arms of the femoral cam module into the anterior aspect of the femoral trial box and rotate posteriorly until seated (Figure 44).

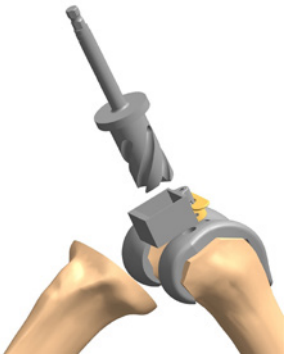


Figure 42

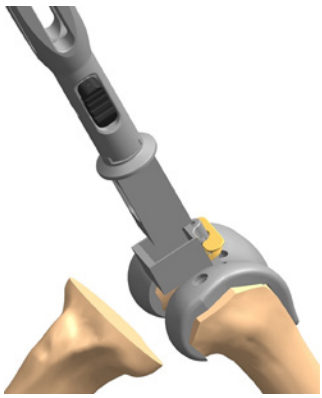


Figure 43

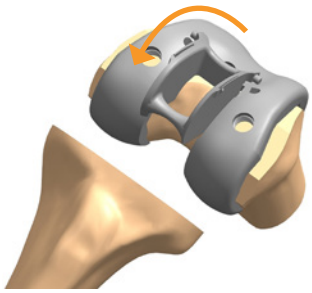


Figure 44

PS Box Reamer
74016269

Modular Impact Handle
74016242

Modular Box Chise
74016248

Femoral Cam Trial Size 5 71433365

Femoral and Tibia Trialing

1. Place the appropriate size and desired thickness Articular Insert Trial onto the Tibia Baseplate Trial.

   Tip Connect the Articular Insert Trial Adapter to the EM Alignment Guide Handle to aid in trial insertion (Figure 45). .

   Note To trial thicknesses 11mm and higher, assemble the appropriate thickness Universal Insert Spacer with the 9mm Articular Insert Trial.

2. Perform trial range of motion and assess laxity and balance, and optionally, Tibial Baseplate Trial position. (Figure 46).

   Optional Extend the knee fully, attach the EM Handle to the baseplate trial. Pass an alignment rod through the handle to assess full-leg alignment.

3. Once the trial assessment is completed and the correct insert thickness has been determined, take the leg into full extension (Figure 47). Mark the location of the laser etch lines on the anterior cortex of the tibia to reference the baseplate rotation.

   Tip In most cases, rotational alignment of the tibial baseplate based upon 1) best fit and coverage, 2) the medial third of the tubercle, and 3) the cautery mark will all match.

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

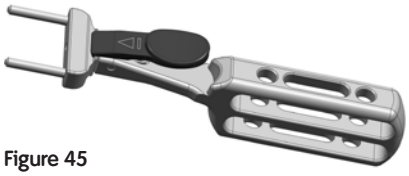


Figure 45

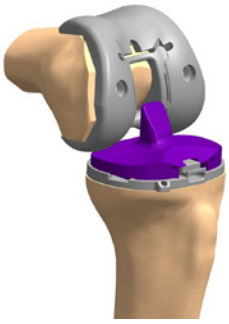


Figure 46

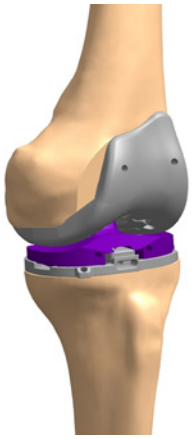


Figure 47

Insert Trial
71434623

Universal Tibia Baseplate Trial
74033804

Articular Insert Trial Adapter
74016259

EM Alignment Guide Handle
74016213

Universal Insert Spacer
74016263

Universal Pin Driver
71513331

4. Once the trial assessment is complete, and final implant positions are determined, remove the Insert Trial and Femoral Trial.
5. Use the Tibial Drill to prepare the canal.

   Note An alternative method to setting tibial rotation is to use the tibia trial bullet. This can be used once the central canal has been prepared but before the keel preparation. With the tibial trial not pinned to the tibial surface, insert the bullet through the baseplate trial into the prepared canal, insert desired articular insert trial and appropriate femoral trial. Assess baseplate rotation and mark correct position. Then pin the baseplate trial, remove bullet, and prepare keel.
6. Connect the appropriate size Modular Fin Punch to the Modular Impact Handle (Figure 48). Impact through the baseplate trial. Use the underside of the strike plate to remove.

   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.
7. Remove the two short bone spikes and anterior pin, if used, with the JOURNEY® II TKA Removal Tool, and remove the baseplate trial.

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

Figure 48

Modular Impact Handle
74016242

JOURNEY II Removal Tool
74012826

Modular NP Fin Punch
74016245

11mm Tibial Drill
71440040

Tibia Plug
71442196

Final implantation and closure

Femoral Component

1. Flex the knee to 90°, apply generous amounts of cement to the dry inside surfaces of the femoral component and onto the prepared surfaces of the bone.

   Tip Care should be taken to avoid excess cement on the posterior aspect of the femur and femoral component. Excess cement that extrudes posteriorly is difficult to remove.

2. Place the Femoral Component onto the Femoral Impactor (Figure 49) and then the assembly onto the femur (Figure 50). Use the Femoral Impactor to seat the implant.
3. Connect the Modular LEGION® Femoral Impactor to the Modular Impact Handle for final impactions (Figure 51).
4. Remove excess cement. Extend the knee to remove cement anteriorly without retracting the proximal soft tissue.

Figure 49

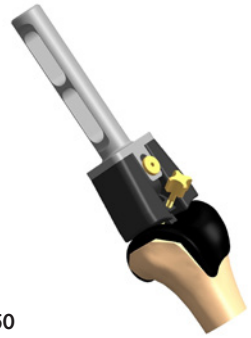


Figure 50

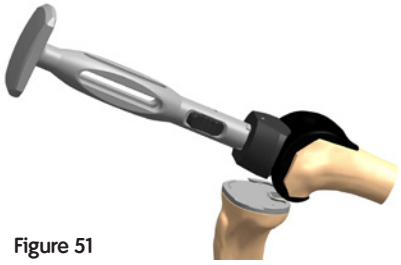


Figure 51

OXINIUM® CR Impactor (Universal Impactor)
71440890

PS Femoral Impactor
71440005

Modular Impact Handle
74016242

Modular LEGION Femoral Impactor
74016250

Tibial Component

1. Maximally flex the knee
2. Suction the keel prep hole and avoid contaminating the implant cement interface surface with fat or other fluids prior to cement application.
3. Apply generous amounts of cement to the dry underside of the baseplate, keel and into the keel prep hole.
4. Connect the Modular Tibia Impactor to the Modular Handle. Use a mallet to fully seat the Tibial Baseplate Component onto the proximal tibia (Figure 52).

   Optional Instrument Use the Locking Tibia Impactor and a mallet to introduce the Tibial Baseplate Component onto the prepared proximal tibia. Release the locking tabs from the center island of the Baseplate Component. Finish with Modular Handle and Modular Tibia Impactor.
5. Remove excess cement.

   Tip Place the tibial insert trial onto the Tibia implant and extend the leg to pressurize the cement.

Figure 52

Modular Impact Handle
74016242

Modular Universal Tibial Impactor
74016249

JOURNEY II Locking Tibia Impactor
74016268

Patellar implantation

1. Assemble the Patellar Cement Clamp to the Patellar Reamer Guide.
2. Apply bone cement to the patella component and onto the prepared surface of the patella.
3. Place the patellar implant onto the prepared patella.
4. Clamp the patellar implant into the bone and remove the extruded cement (Figure 53).

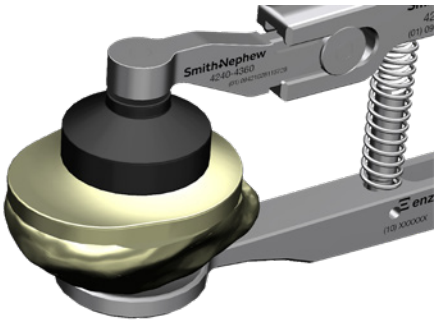


Figure 53

LEGION® CR and PS Articular Insert

1. Clear any debris from the locking mechanism.
2. 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.
3. Insert the tip of the Articular 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 (Figure 54).

   Note Make sure the tool is level with the plane of the baseplate.
4. 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.
5. Alternately, 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 55).

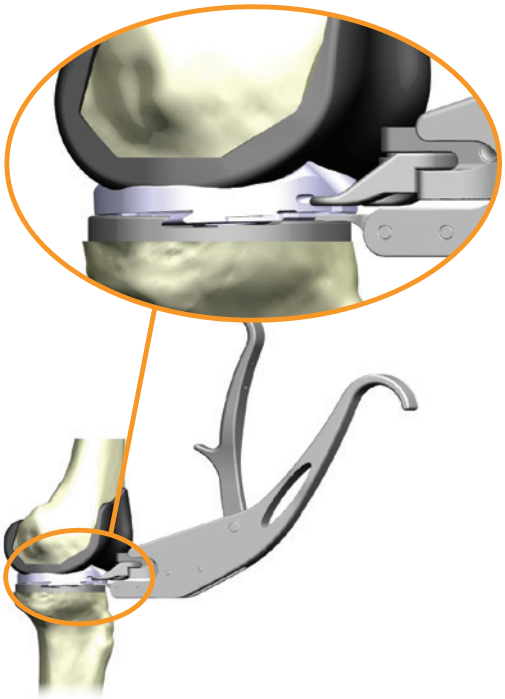


Figure 54

Figure 55

Cement Clamp
42404360

Resection Clamp
42404321

Articular Insert Assembly Tool
74018911

Articular Inserter/Extractor
71440194

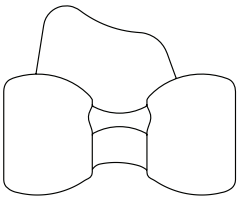
Closure

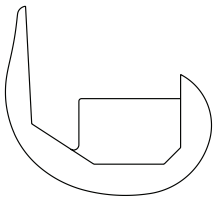
1. Close the arthrotomy by placing three O-Vicryl™ sutures at the superior border of the patella just distal to the VMO. A stitch is placed to close the VMO fascia. The remainder of the arthrotomy is closed in the standard fashion.
2. Perform routine subcutaneous and skin closure.

Tip Closing the knee in flexion may benefit early rehab.

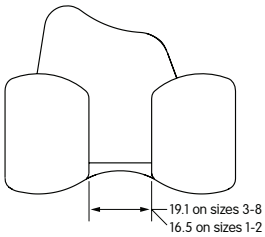
Femoral component dimensions

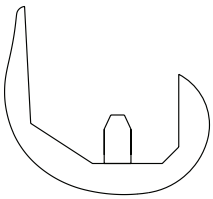
LEGION® CR
Femoral Component



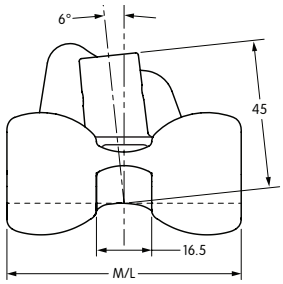


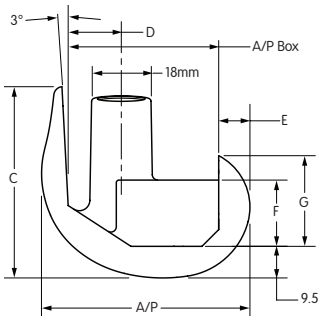
LEGION PS
Femoral Component





LEGION RK
Femoral Component

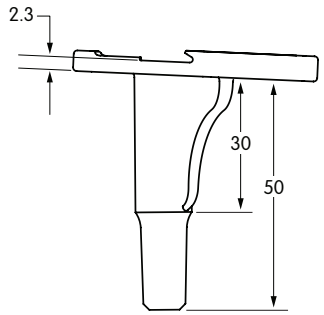




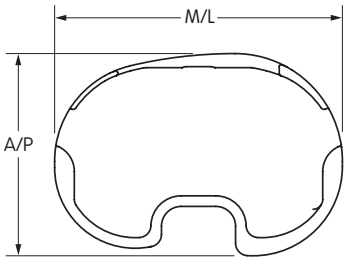
Size	M/L	A/P	C	D	E	F	G	A/P Box
2	58	50	50	12.3	9.5	17.1	24.4	34.3
3N	58	54	50	13.6	9.5	18	25.3	38.1
3	62	55	52	13.6	9.5	18.0	25.3	38.1
4N	62	58	52	14.8	9.5	19.6	26.2	41.7
4	66	59	55	14.8	9.5	19.6	26.2	41.7
5N	66	61	54	15.9	9.5	19.8	27	45
5	70	62	57	15.9	9.5	19.8	27.0	45.0
6N	70	65	56	17	9.5	20.6	28.6	48.3
6	74	66	59	17.0	9.5	20.6	28.6	48.3
7	77	70	61	18.6	11.5	20.2	31.1	50.3
8	80	75	62	19.8	11.5	20.6	32.7	54.9

Tibial Baseplate dimensions

Cemented Baseplate - Male tapered

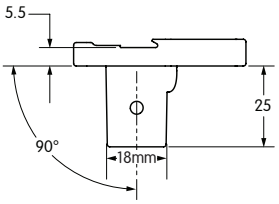


Note 3° of baseplate slope plus approximately 4° of insert slope yields an effective 7° posterior slope with the final implant



Size	A/P	M/L
1	42	60
2	45	64
3	48	68
4	50	71
5	52	74
6	54	77
7	56	81
8	59	85

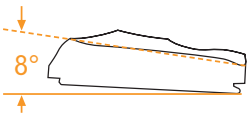
Cemented Baseplate - Female tapered



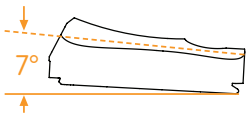
Note 0° of baseplate slope plus approximately 4° of insert slope yields an effective 7° posterior slope with the final implant

Average slope for articular inserts

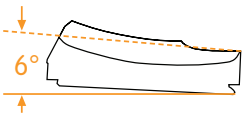
CRHF



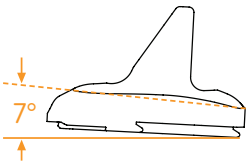
CR



DD



PSHF



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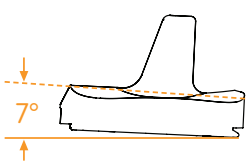
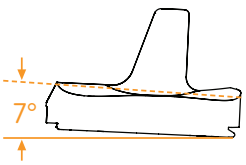


Constrained

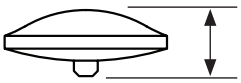


Note The composite posterior slope is defined by the bone resection plus the insert slope. The primary baseplate bone resection is made at 3° posterior slope relative to its taper, whereas the revision (RK) baseplate bone resection is made with no posterior slope relative to its taper.

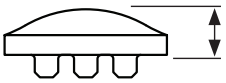
Design	Thickness (mm)									
Cruciate Retaining High Flex* (CRHF*)	9	10	11	12	13	15	18			
Cruciate Retaining* (CR*)	9		11		13	15	18			
Deep Dished* (DD*)	9	10	11	12	13	15	18	21		
Posterior Stabilized High Flex* (PSHF*)	9	10	11	12	13	15	18	21	25	
Posterior Stabilized* (PS*)	9		11		13	15	18	21	25	
Constrained (Con)	9		11		13	15	18	21	25	30
Cruciate Retaining All-Poly (CR All-Poly)	9		11		13	15				
Posterior Stabilized All-Poly (PS All-Poly)	9		11		13	15				

*XLPE available in certain thicknesses

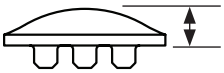
Patellar dimensions



Biconvex



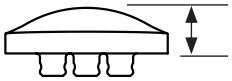
Resurfacing



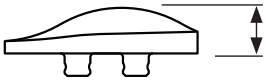
7.5mm Resurfacing

	Thickness (mm)	Diameter				
Biconvex	13	23	26	29	32	
Resurfacing	9*		26	29	32	35
Resurfacing 7.5mm**	7.5		26	29	32	35

* 13mm including peg height.
** 12mm including peg height. The 7.5mm round resurfacing patella can be used with LEGION®, GENESIS® II and JOURNEY® II TKA systems. Trials available through InVentures.



Oval Patella



Oval Patella
(90° rotated view to show anatomic flange)

Oval Patella sizing options

Diameter (mm)	29	32	35	38	41
Thickness (mm)	8.5	9.0	9.0	9.5	10

LEGION® Implant compatibility guide

	Femoral Component			Sizes
	LEGION CR	LEGION PS	LEGION RK	
LEGION RK Distal Femoral Wedges	CoCr femoral component only	Yes	Yes	Sizes 2-8; 5, 10, 15mm
LEGION HK Distal Wedges	No	No	No	Sizes 3-5 and 7; 5, 10, 15, 20mm
LEGION RK Posterior Femoral Wedges	CoCr femoral component only	Yes[1]	Yes	Sizes 1-8; 5, 10mm
LEGION RK "L" Femoral Wedges Sizes 2-8	CoCr femoral component only	Yes	Yes	Sizes 2-8; 5 distal x 5mm posterior 10 distal x 5mm posterior 15 distal x 5mm posterior
LEGION RK "L" Femoral Wedges Sizes 3-8	CoCr femoral component only	Yes	Yes	Sizes 3-8; 5 distal x 10mm posterior 10 distal x 10mm posterior 15 distal x 10mm posterior
GENESIS® II All-Poly Tibia	Yes	Yes	No	Sizes 1-8
GENESIS II Tibial Baseplate – Male Tapered	Yes	Yes	Yes	Sizes 1-8
LEGION RK Tibial Baseplate – Female Tapered	Yes	Yes	Yes	Sizes 1-8

Note While other implant combinations may be theoretically possible, the information in this table is intended to communicate those combinations that are recommended, based on regulatory approvals, technical merit and strategic product focus.

	Femoral Component			Sizes
	LEGION CR	LEGION PS	LEGION RK	
Standard Inserts; - Cruciate Retaining (CR) - Posterior Stabilized (PS)	Yes	Yes	Yes – PS only	CR – Sizes 1-8; 9, 11, 13, 15, 18mm PS – Sizes 1-8; 9, 11, 13, 15, 18, 21, 25mm
Deep Dished (DD)	Yes	No	No	Size 1-8; 9, 11, 13, 15, 18, 21mm
Cruciate Retaining High Flex (CRHF) Posterior Stabilized High Flex (PSHF)	Yes – Deep Flex	Yes – High Flex	Yes – PS High Flex only	CR – Sizes 1-8; 9, 11, 13, 15, 18mm PS – Sizes 1-8; 9, 11, 13, 15, 18, 21, 25mm
Posterior Stabilized High Flex (PSHF) in XLPE Cruciate Retaining High Flex (CRHF) in XLPE	Yes	Yes	Yes – PS only	CR – Sizes 1-8; 9, 11, 13, 15mm PS – Sizes 1-8; 9, 11, 13, 15mm
Constrained (Con)	No	Yes[1]	Yes[2]	Sizes 1-8; 9, 11, 13, 15, 18, 21, 25, 30mm
LEGION Press-Fits Stems	No	No	Yes	120mm; 9, 10, 11, 12, 13, 14, 15, 16, 18, 20, 22, 24mm 160mm; 9, 10, 11, 12, 13, 14, 15, 16, 18, 20, 22, 24mm 220mm; 10, 11, 12, 13, 14, 15, 16, 18, 20, 22, 24mm 280mm; 10, 11, 12, 13, 14, 15, 16, 18, 20, 22, 24mm
LEGION Cemented Stems	No	No	Yes	120mm; 10, 12, 14, 16, 18, 20mm 160mm; 10, 12, 14, 16, 18, 20mm

[1] In patients with good femoral bone quality and when used in conjunction with a tibial stem
[2] When used in conjunction with a tibial stem

LEGION® CR and PS Femorals Articular Insert interchangeability

Cruciate Retaining Inserts (CR): completely interchangeable with all sizes of femoral components.

Posterior Stabilized (PS), Deep Dished (DD), Constrained (Con), Posterior Stabilized High Flex (PSHF) and Cruciate Retaining High Flex (CRHF): Limited interchangeability; chart applies.

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

Alternate Femoral alignment - Fixed

IM assembly

1. Attach the appropriate Fixed Valgus Bushing (4-7 Degrees) to the Fixed Valgus Guide Base.

   Tip Position the bushing such that the appropriate hand ("LT" or "RT") orients toward "ANTERIOR" on the Valgus Guide.

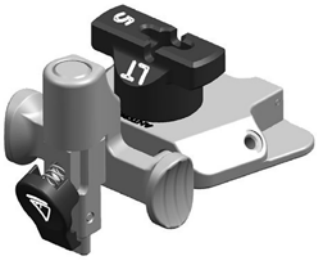


Figure 1

2. Attach the desired Valgus Bridge to the Valgus Guide Base (Figure 1).

   Note The Valgus Bridge was designed to move anterior and posterior within the Valgus Guide to accommodate various patient morphology

3. Attach the IM rod to the T-handle and insert through the alignment assembly (Figure 3). IM rod will lock into the alignment assembly in one of four places (see Figure 2).

   Note There are two locking positions on the IM Rod. If the alignment assembly can make a full rotation around the IM Rod, the second lock has not engaged. Remove the IM Rod and reengage.

Figure 2

Figure 3

4. Attach the Distal Femoral Cutting Block onto the Bridge. Positioning the Block and the dial on the adjustable bridge at the primary ("0") resection level will ensure the cut will equal the distal thickness of the femoral prosthesis (Figure 4).

   Note The Distal Femoral Cutting Block is designed to pivot medial and lateral to accommodate various patient morphology.

   Tip If surgeon preference is to pin the -2mm pin holes initially, it is recommended to add the Wide Distal Cut Block to the set.

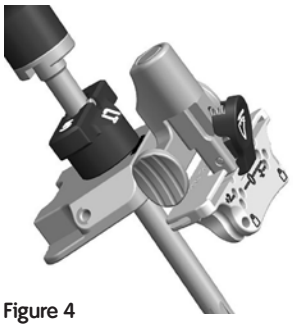


Figure 4

Fixed Valgus Bushing
4 Degrees 74016206
5 Degrees 74016207
6 Degrees 74016208
7 Degrees 74016209

Fixed Valgus Guide Base
74016200

Fixed Valgus Bridge
74016202

T-Handle
71674576

IM Rod
Long 74016211
Short 74016212

Distal Cutting Block
Wide 74016204
Standard 74016205

Intramedullary alignment

1. Open the femoral canal with the 9.5mm Intramedullary Drill. The drill has a 12mm step to open the entry point further (Figure 5).

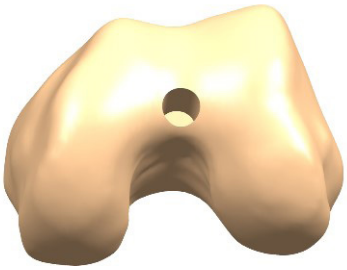


Figure 5

2. Slide the Intramedullary Rod of the alignment assembly into the femoral canal until the Valgus Guide contacts the distal femur (Figure 6).

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

   Note To avoid a shallow resection, it is recommended to not push the Bridge all the way into the Valgus Guide until it has been seated on the distal surface.

   Tip Alternately, the Bridge can be assembled after seating the Valgus Guide onto the distal femur.

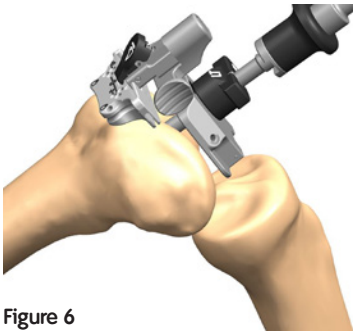


Figure 6

3. Orient rotation of the assembly neutral to the posterior condyles (Figure 7) insert a headed or non-headed 65mm SPEED PIN®(s) into one or both of the oblique pin holes.

   Note Distal Cutting Guide will pivot to conform to the anterior bone geometry.

Figure 7

Fixed Valgus Bushing
4 Degrees 74016206
5 Degrees 74016207
6 Degrees 74016208
7 Degrees 74016209

Fixed Valgus Guide Base
74016200

Fixed Valgus Bridge
74016202

T-Handle
71674576

IM Rod
Long 74016211
Short 74016212

Distal Cutting Block
Wide 74016204
Standard 74016205

Intramedullary drill, 9.5mm
74012111

Distal resection

1. Using non-headed 65mm SPEED PIN®(s), pin the Distal Femoral Cutting Block to the anterior femur using the holes marked '0'. Once adequate distal femoral resection is noted, headed or non-headed 65mm SPEED PIN(s) should be placed in one or both oblique pin holes for additional stability (Figure 8).

   Note Resection level can be adjusted using the alternate pin holes on the Cutting Block, -2mm or +2mm of bone.

   Tip The chamfer on the -2mm pin holes of the Standard Distal Cutting Block may cause pins to become stuck in the Block. Place pin into pinhole before starting power.

   Tip The oblique pin holes on the Distal Cut Block may come in contact with the IM rod. If any resistance is present, stop and assess.

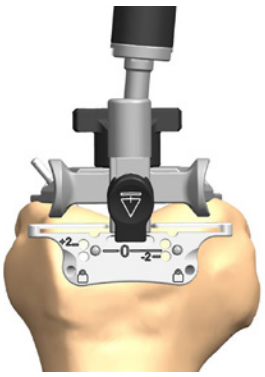


Figure 8

2. Push the button on the Valgus Bridge (Figure 9) to remove the alignment assembly from the incision site. Only the Distal Cutting Block should remain on the femur.

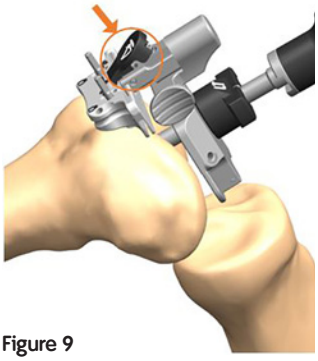


Figure 9

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 SPEED PIN(s), and reposition the Block through the pin holes marked +2mm and re-insert the oblique pin.

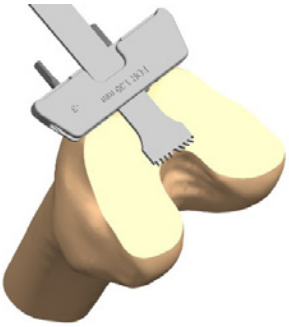


Figure 10

Fixed Valgus Bushing
4 Degrees 74016206
5 Degrees 74016207
6 Degrees 74016208
7 Degrees 74016209

Fixed Valgus Guide Base
74016200

Fixed Valgus Bridge
74016202

Distal Cutting Block
Wide 74016204
Standard 74016205

SPEED PIN
Non-Headed 65mm
74013480
Headed 65mm
74013472
MIS Headed 65mm
74016466

Alternate Tibia alignment - Micro

Micro Alignment Assembly

1. Attach the EM Posterior Slope Guide to the Ankle Clamp (Figure 1) by depressing the button on the Slope Guide and slide to the appropriate position

   Tip The neck of the Slope Guide should orient toward the arms and dials of the Ankle Clamp.

   Note Each tooth is 1mm apart.

Figure 1

2. Attach the Micro EM Tibial Alignment Tube to the EM Posterior Slope Guide by depressing the inferior button on the Alignment Tube (Figure 2) and sliding to the desired position. Once the button is released, the height will be locked in position.

   Tip The inferior button on Alignment Tube should face away from the arms of Ankle Clamp.

   Note Each tooth is 1mm apart.

Figure 2

3. Attach the EM Tibial Alignment Guide Micro Head Dial to the Alignment Tube by depressing the button on the Micro Head Dial sliding it onto the Alignment Tube (Figure 3).
4. Attach the appropriate hand Cutting Guide Head to the Micro Adjustment Tibial Alignment Dial by engaging the threads and rotating the black dial (Figure 3).

   Tip Adjust the Tibial Cutting Guide Head so that the "0" mark is aligned with the Micro Adjustment Tibial Alignment Dial.

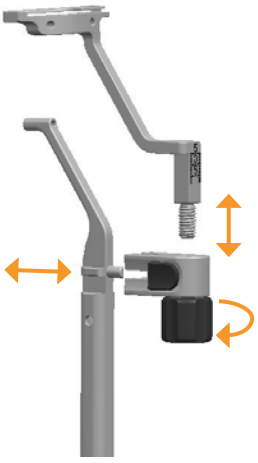


Figure 3

The 3 Degree Micro Head comes standard in the set. The 5 Degree Micro Head will be added to the set upon request.

Ankle Clamp
74016241

EM Posterior Slope Guide
74016231

EM Tibial Alignment Tub Micro
74016233

Tibial Cutting Guide Head 3 Degree
Left 74016237
Right 74016238

EM Tib Align Guide Micro Head
74016236

Extramedullary alignment

1. Open the arms of ankle clamp and attach alignment jig to tibia. Adjust height and distance from the tibia (slope) by depressing the buttons on the Micro Alignment Tube and EM Posterior Slope Guide, respectively.
2. Once approximate resection level is set, use a headed 45mm SPEED PIN® to pin through the provisional pin hole in the EM Micro Tibial Alignment Tube Micro.
3. Insert the 2 and 10mm Pegged Tibial Stylus into the hole of the Cutting Guide (Figure 4).
4. Reference the desired condyle with the desired stylus level. Stylus arms rotate to reference desired location.
5. Adjust the cutting guide to the desired amount of resection by rotating the dial.

   Note The Dial allows for 13mm of total proximal-distal adjustment.

Figure 4

EM Tibial Alignment Tub Micro
74016233

Tibial Cutting Guide Head 3 Degree
Left 74016237
Right 74016238

EM Tib Align Guide Micro Head
74016236

Tibial Stylus 2 and 10mm Pegged
74016229

SPEED PIN Headed 45mm
74013471
MIS Headed 45mm
74016465

Proximal resection

1. With the 2 and 10mm Pegged Tibia Stylus set to the desired resection level, using non-headed SPEED PIN®(s), pin the cutting guide through the holes.
2. Remove the Tibia Stylus. Resect the proximal tibia (Figure 5) and remove the cutting guide.

   Tip If an uncaptured saw cut is desired, the resection can be performed by cutting on top of the Block. An additional 3mm will be needed to account for this offset.

   Tip If additional resection is needed, the cutting guide can be adjusted by rotating the black dial.

Figure 5

EM Tibial Alignment Tub Micro
74016233

Tibial Cutting Guide Head 3 Degree
Left 74016237
Right 74016238

EM Tib Align Guide Micro Head
74016236

SPEED PIN
Non-Headed 65mm
74013480
Headed 65mm
74013472
MIS Headed 65mm
74016466

Alignment substitutions

Standard offering		Available substitution	
Cat. No	Description	Cat. No	Description
74016205	Distal Femoral Cutting Block	74016204	Distal Femur Cutting Block Wide
74016216	Tibial Cutting Guide 3 Degree Left	74016218	Tibial Cutting Guide Five Degree Left
74016217	Tibial Cutting Guide 3 Degree Right	74016219	Tibial Cutting Guide Five Degree Right
74016216	Tibial Cutting Guide 3 Degree Left	74016226	Tibial Cutting Guide Zero Degree Symmetric
74016217	Tibial Cutting Guide 3 Degree Right		
74016216	Tibial Cutting Guide 3 Degree Left	74016227	Tibial Cutting Guide Three Degree Symmetric
74016217	Tibial Cutting Guide 3 Degree Right		
74016216	Tibial Cutting Guide 3 Degree Left	74016228	Tibial Cutting Guide Five Degree Symmetric
74016217	Tibial Cutting Guide 3 Degree Right		
74016232	Macro EM Tibial Alignment Tube	74016234	EM Tibial Alignment Tube Legacy
74016237	Tibial Cutting Guide Head 3 Degree Left	74016239	Tibial Cutting Guide Head Five Degree Left
74016238	Tibial Cutting Guide Head 3 Degree Right	74016240	Tibial Cutting Guide Head Five Degree Right
74013723	18mm Spacer Plate	74013724	21mm Spacer Plate
74013723	18mm Spacer Plate	74013725	25mm Spacer Plate
74016255	Standard Flexion Spacer Block	74016256	Wide Flexion Spacer Block

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