

INTUITION™ INSTRUMENTS FOR SIGMA™ HP PARTIAL UNICONDYLAR KNEE REPLACEMENT

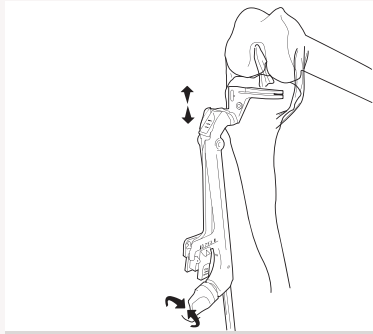
Surgical Technique



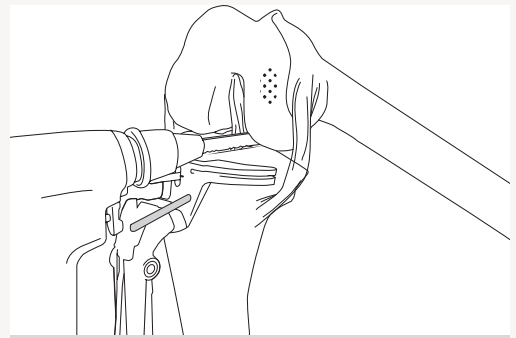
Quick start guide

Tibial Resection

- Instrumentation**
- Tibial Jig
 - Tibial Cutting Block
 - Stylus
 - Threaded Long Pin
 - Pixie Wing



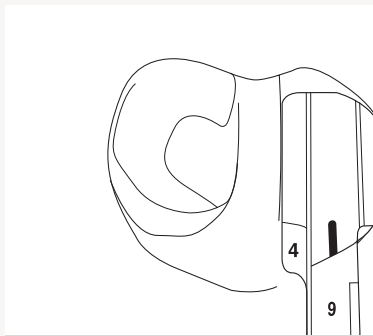
Set resection depth and orientation



Make Sagittal and Transverse resection

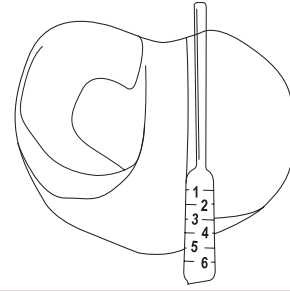
Tibial Sizing

- Instrumentation**
- Spacer
 - Tibial A/P Sizing Arm



Size tibia

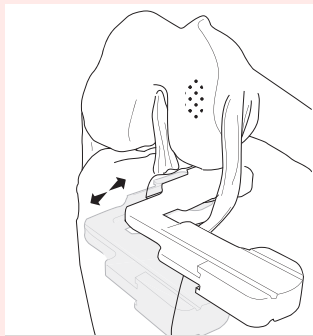
OR



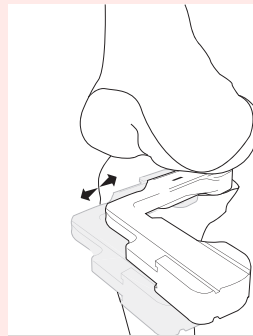
Size tibia

Gap Balancing

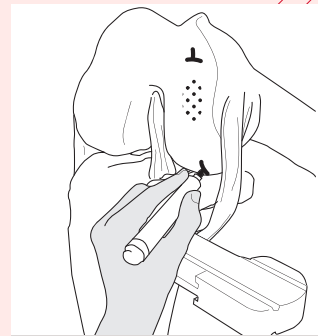
- Instrumentation**
- Spacer



Evaluate flexion gap



Evaluate extension gap



Mark centre in flexion and extension

Distal Resection

- Instrumentation**
- Distal Block
 - Spacer
 - Short Headed Pin

Use appropriate Distal Cut Block to restore the joint line, see page 19

0-6.7mm Matches Implant



1 DOWN 1mm less resection



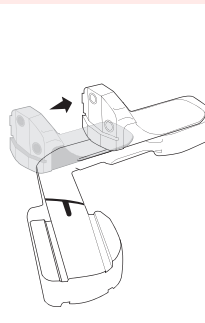
2 DOWN 2mm less resection



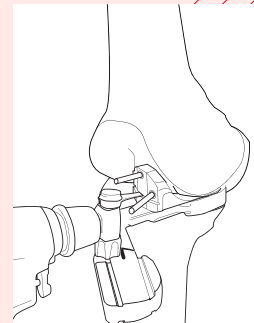
3 DOWN 3mm less resection



Select Distal Block based on matching flexion gap



Assemble Distal Block

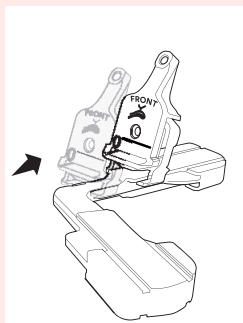


Pin and cut

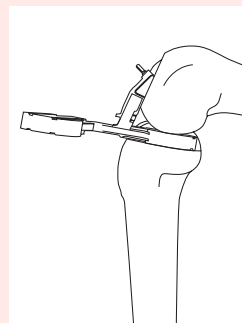
Posterior Resection

- Instrumentation**
- Posterior Blocks
 - Spacer
 - Short Headed Pin

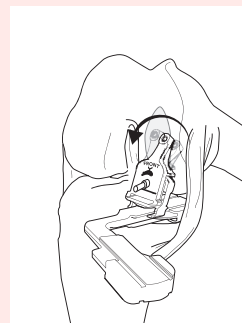
Set rotation of Posterior Block relative to tibia, and ensure Block is seated flush against the distal cut, see page 21.



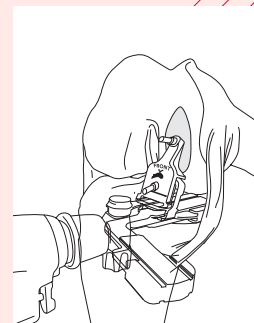
Assemble Block to Spacer



Flex beyond 90°



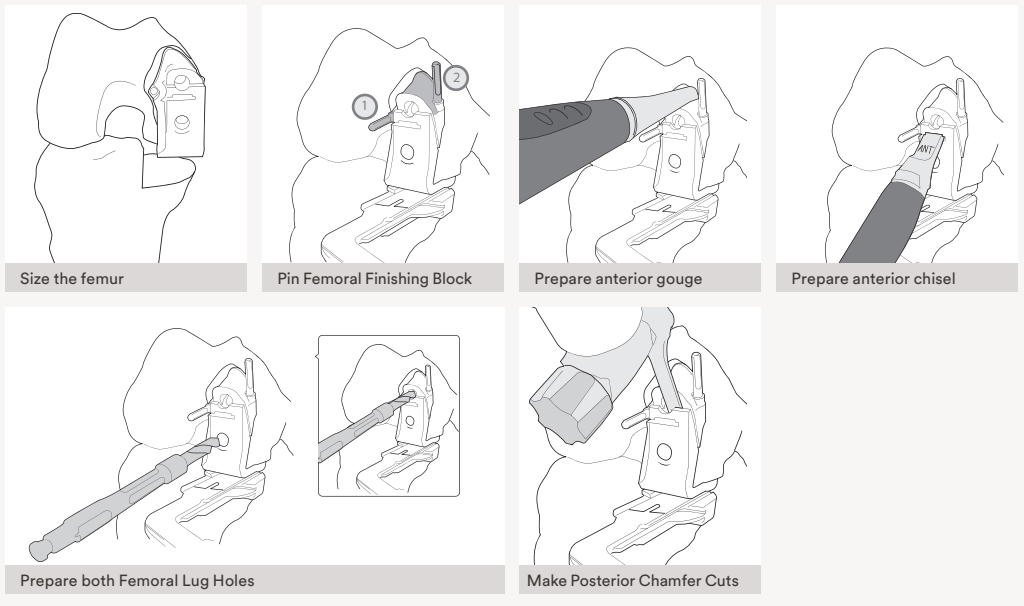
Set rotation and pin



Make Posterior Resection

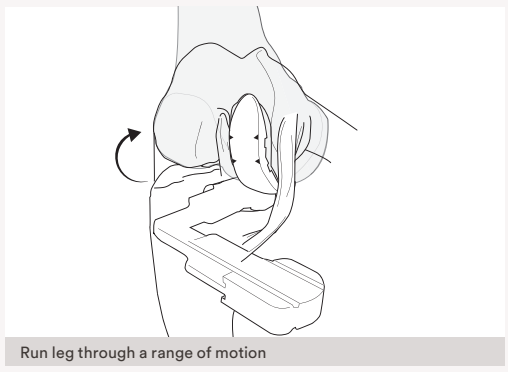
Femoral Preparation

- Instrumentation**
- Femoral Finishing Blocks
 - Spacer
 - Short Headed Pin
 - Gouge
 - Chisel
 - Femoral Peg Drill



Trialing

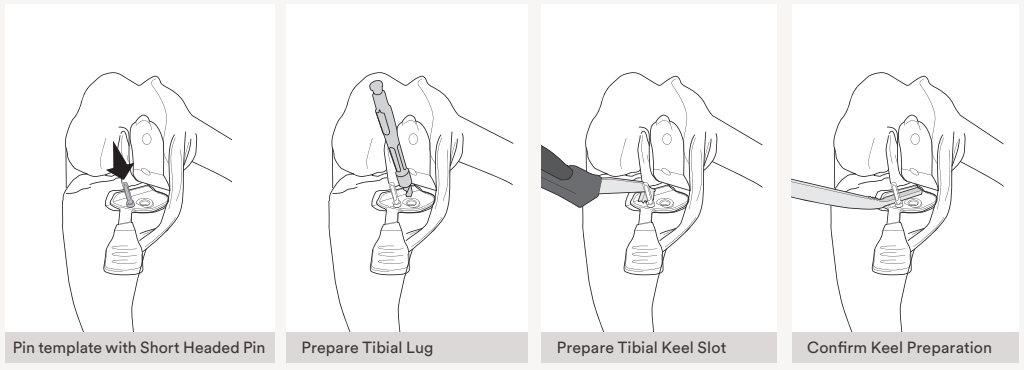
- Instrumentation**
- Femoral Introducer
 - Femoral Impactor
 - Femoral Trial
 - Spacer



Run leg through a range of motion

Tibial Preparation

- Instrumentation**
- Tibial Template
 - Short Headed Pin
 - Tibial Peg Drill
 - Keel Rasp
 - Keel Trial



Cementing

- Instrumentation**
- Femoral Introducer
 - Femoral Impactor
 - Tibial Impactor
 - Tibial Insert Trial

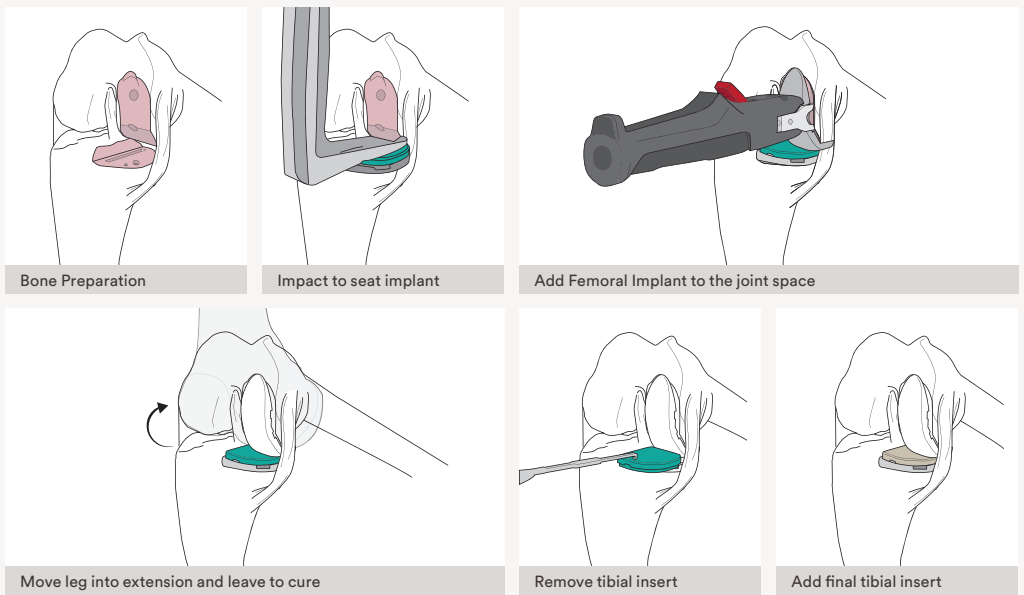


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■ Information

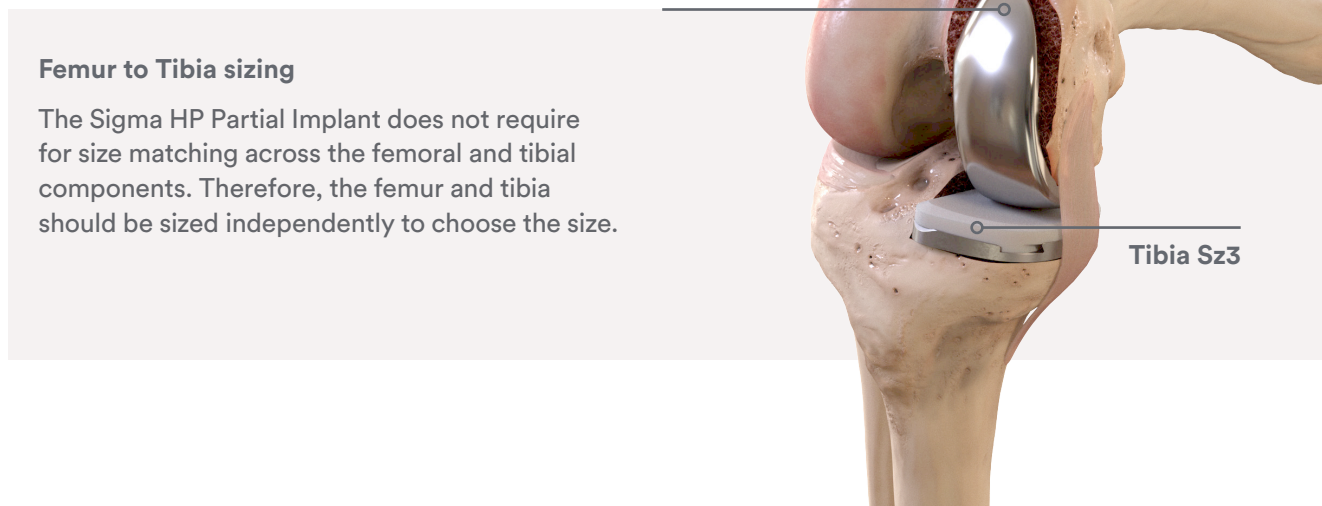
▲ CAUTION

Surgical Technique

System Compatibility

Tibial insert & femoral component size matching		Femoral Components					
		1	2	3	4	5	6
Tibial Inserts	1	✓	✓	✓	✓	✓	✓
	2	✓	✓	✓	✓	✓	✓
	3	✓	✓	✓	✓	✓	✓
	4	✓	✓	✓	✓	✓	✓
	5	✓	✓	✓	✓	✓	✓
	6	✓	✓	✓	✓	✓	✓

1. LM/ RL tibial insert/ is only compatible with LM/ RL femoral component.
2. RM/LL tibial insert/ is only compatible with RM/ LL femoral component.



The Instrument Kit

Medial and Lateral Instrumentation.

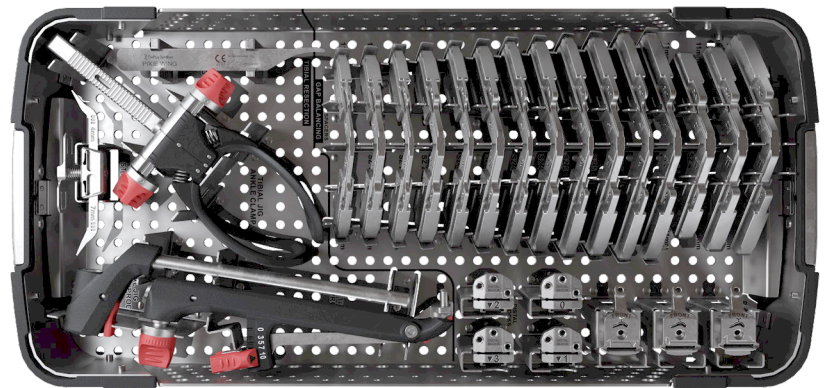
The INTUITION for HP Partial instruments can be used for Medial and Lateral UKA procedures.

The instrument markings prioritise use in a medial procedure, but can also be used in the contralateral procedure, for example:

Right Medial / Left Lateral (RM/LL)
Left Medial / Right Lateral (LM/RL)

Tray Layout

The instruments are positioned in the trays to allow progression through a procedure in order, with workflow sections denoted by solid lines in the base of the tray.

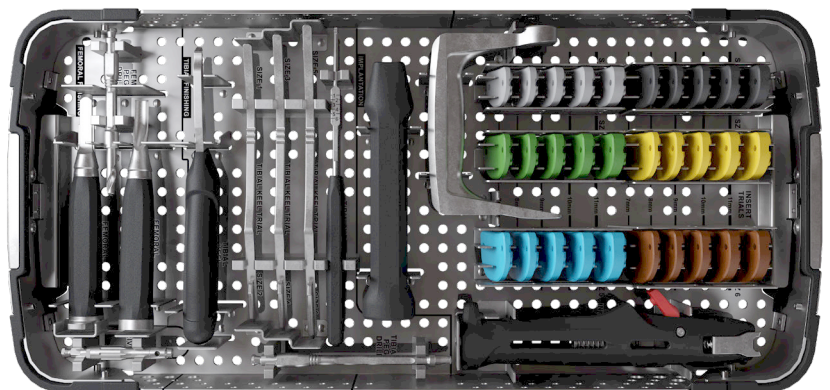


Tibial Resection + Gap Balancing



LM / RL Handed

RM / LL Handed



Implantation

Single Use Items

Pinning

The INTUITION™ for HP Partial System requires a single use pin pack to support stability and functionality. The pins are to be inserted and removed with the kitted HP Power Pin Driver.

Threaded Long Pin (3X)

These pins are best used to secure blocks against curved surface of uncut bone.



Short Headed Pin (2X)

These pins are best used to secure blocks against flat surface of cut bone.



■ Information:

It is recommended to use the Short Headed pins through the holes in the Posterior Cut Block, Femoral Finishing Blocks and Tibial Template to provide stability.

■ Information:

The system is designed to be used with a narrow (13mm) Saw blade of thickness 1.19mm



Starting the procedure

Approach and Exposure

Goal: Restore the patient's pre-morbid anatomy, alignment, and ligament balance.

Achieving the goal may mean leaving the patient in slight varus (medial uni) or slight valgus (lateral uni) as determined by correct ligament tension. Alignment over-correction and over-tightening of the collateral ligament tension should be avoided.

The incision should be done per clinical practice to allow good exposure. An incision that is too small could compromise vision or component placement. A longer incision is advised when first starting to use the procedure or if the patient is obese.

After the joint is exposed, make a final assessment of the extent of arthritic damage in all three compartments and the suitability of the joint for this procedure. Ligaments, including the Anterior Cruciate Ligament (ACL), should also be assessed.

Carefully resect the deep menisco-tibial layer of the medial or lateral capsule to provide good access to any tibial osteophytes. In order to reliably assess medial/lateral (M/L) alignment and joint stability, it is vital that all osteophytes are removed from the entire medial or lateral edges of the femur and tibia. Exposure can also be improved with excision of patellar osteophytes.

Excise any excess synovium to provide clear sight of the joint. If required, part of the fat pad may also be excised to improve exposure and allow inspection of the opposite compartment. Ligament releases should be avoided.

Clear intra-condylar notch osteophytes, particularly from the medial femoral condyle to allow for passing of the Reciprocating Saw for the sagittal cut of the tibia.

■ Information:

Minimally invasive approaches and small incisions don't always allow for the disease extent to be visible.



Tibial Resection

Instrumentation:



Cutting Block



Tibial Jig

Tibial Jig Assembly

- A** With the height adjustment knob fully unscrewed on the Tibial Proximal Uprod, slide the Tibial Distal Uprod into the Proximal Uprod.



Height adjustment

- B** Depress the A/P adjustment mechanism and slide the Tibial Ankle Clamp onto the Distal Uprod.



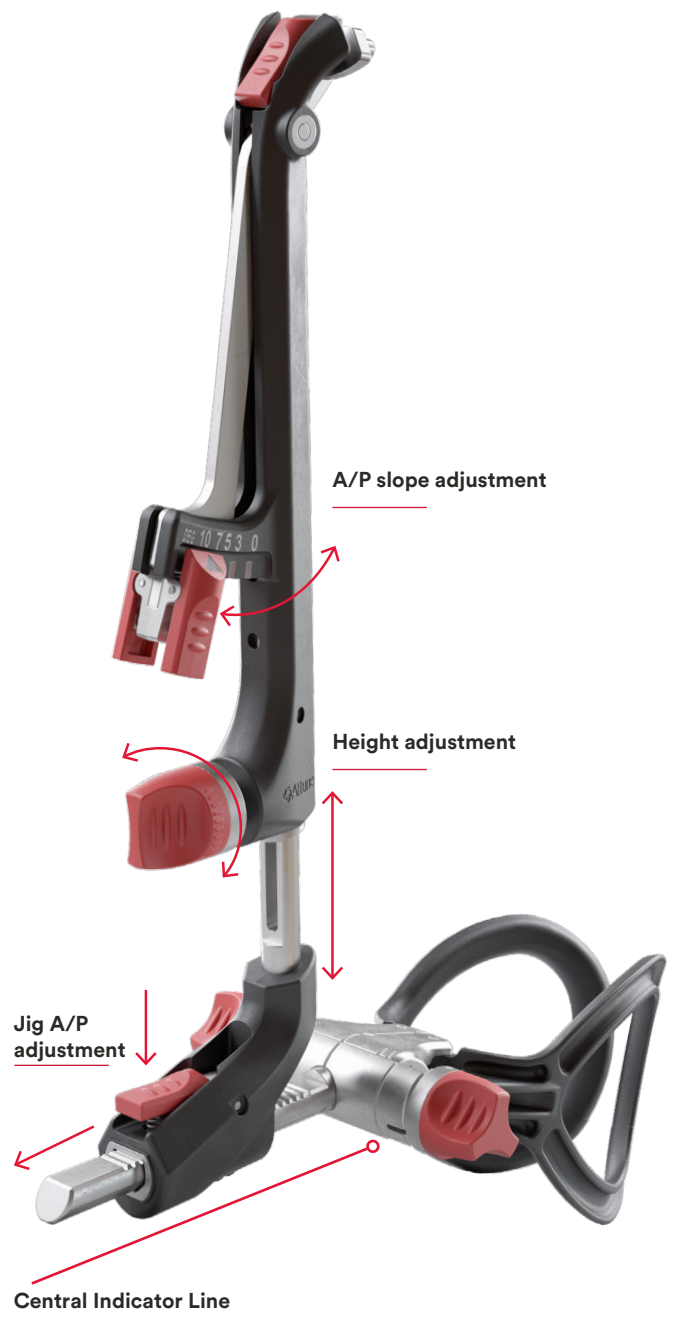
Ankle clamp

- C** Assemble the appropriate Tibial Cut block to the Proximal Uprod.



Setting the Tibial Jig to Neutral

- D** Prior to use the tibial jig components; Height Adjustment, A/P Adjustment, Sagittal Alignment, Varus / Valgus Alignment should all be set to neutral.



Tibial Resection

Instrumentation:



Pin Driver



Threaded Long Pin

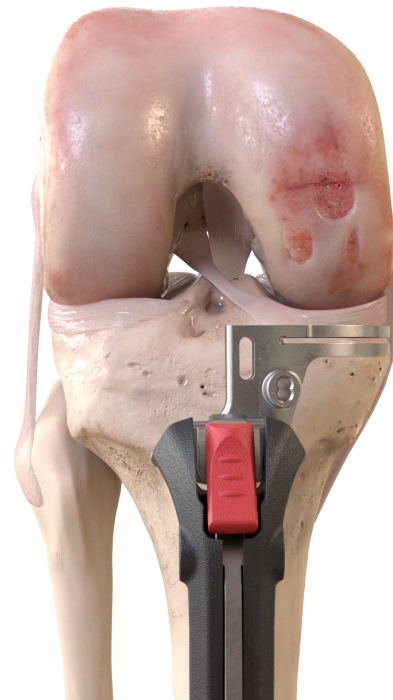
Tibial Alignment and Resection

- A Place the knee in 90° of flexion.
- B Place the Ankle Clamp around the malleoli in the neutral position.
- C The axis of the Proximal Up-Rod should be positioned with reference to the tibial axis.
- D Set the initial Varus/Valgus angle by aligning the centre of the Tibial Cut Block connection feature with roughly the medial and middle one third of the tibial tubercle.
- E Un-lock the Height Adjustment Knob to allow for the height of the Jig to be estimated.
- F Estimate the height and depth of resection.
- G Drive a Threaded Long Pin in to the slotted pin hole aligning to the central dash. This allows for 3mm movement in either direction if needed.



▲ CAUTION:

It is not recommended to use Short Headed Pins as they may pull the block out of the desired alignment.



Step 1:
Resection
Height & Pinning



Step 2:
A/P Slope



Step 3:
V/V Adjustment



Step 4:
Fine tuning
resection height



Step 5:
Divergent
Pinning



Step 6:
Sagittal &
Transverse Cuts

Tibial Slope Alignment

Instrumentation:



Pixie Wing

Tibial Alignment and Resection

Aim:

Match the patient's natural slope. Pre-operative x-rays can be used to approximate this.

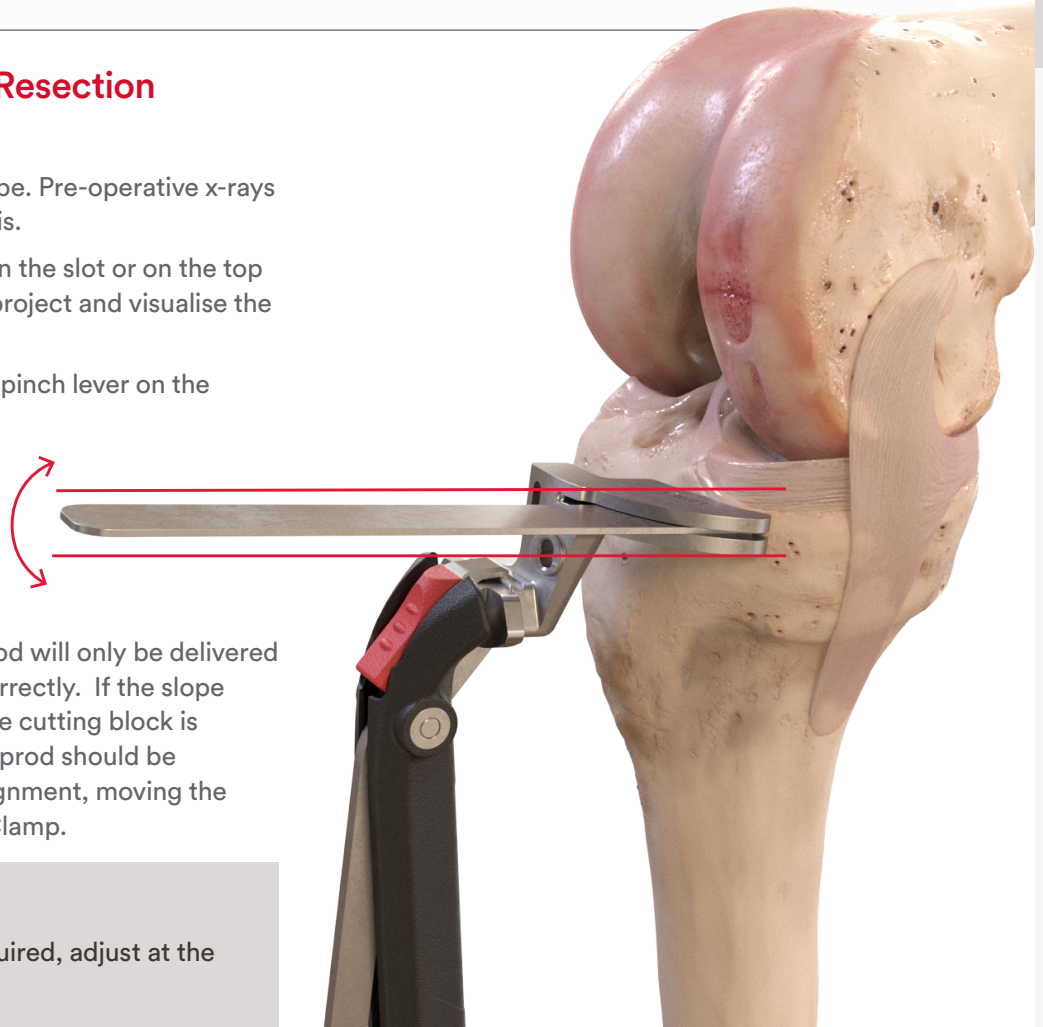
- A Use the Pixie Wing either in the slot or on the top of the Tibial Cut Block to project and visualise the tibial slope.
- B Adjust the slope using the pinch lever on the Proximal Uprod.

Information:

The angle on the Proximal Uprod will only be delivered if the rest of the jig is set up correctly. If the slope adjustment is changed after the cutting block is resting against the bone, the Uprod should be realigned to ensure correct alignment, moving the A/P mechanism at the Ankle Clamp.

CAUTION:

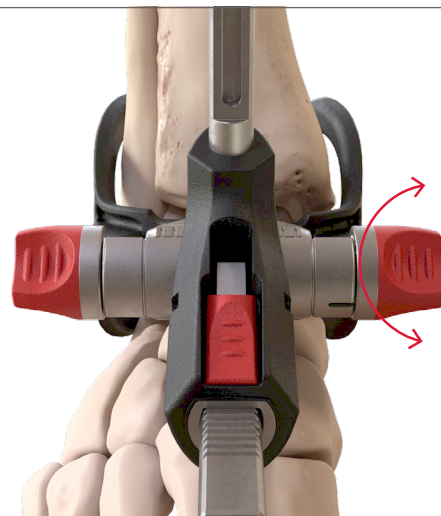
If more than 10° slope is required, adjust at the Ankle Clamp.



Tibial Alignment and Resection

- C Use the Varus/Valgus Adjustment Mechanism to align the Tibial Proximal Up Rod parallel to the long axis of the tibia to restore the joint line.

For many patients, this involves translating the V/V adjustment Mechanism until the second line from the lateral side of the ankle clamp lines up with the indicator line.



- ✓ Step 1: Resection Height & Pinning
- ✓ Step 2: A/P Slope
- ⌚ Step 3: V/V Adjustment
- > Step 4: Fine tuning resection height
- > Step 5: Divergent Pinning
- > Step 6: Sagittal & Transverse Cuts

Tibial Stylus

Instrumentation:



Stylus

Resection Height

Use the Tibial Stylus to fine tune the overall resection height. Both the stylus tip and foot need to be determined prior to use.

Wear Reference

Determine tibial wear reference point.

If referencing worn cartilage use the 4mm stylus tip.

If referencing un worn cartilage use the 7mm tip.

Foot Selection

If planning to resect through the slot place the foot marked SLOT CUT into the cutting block slot.

If planning to resect on the top of the block place the foot marked NON SLOT CUT into the cutting block slot.

Information:

There is a 4mm difference between cutting off the top of the block and through the slot which is the foot accommodates for.

- A Place the Fixed Stylus into the cutting block through the slot with the chosen foot and pointer facing into the joint space.
- B Fine tune the resection height and lock the height adjustment knob.



Pointer 7mm

Reference off of the unworn tibia. May be useful for lateral procedure as the wear is posterior.

Pointer 4 mm

Reference off of the worn tibia defect.

Foot

4mm difference between a Slotted and non-Slotted resection.

- ✓ Step 1: Resection Height & Pinning
- ✓ Step 2: A/P Slope
- ✓ Step 3: V/V Adjustment
- 🔄 Step 4: Fine tuning resection height
- Step 5: Divergent Pinning
- Step 6: Sagittal & Transverse Cuts

Tibial Resection

Instrumentation:



Pin Driver



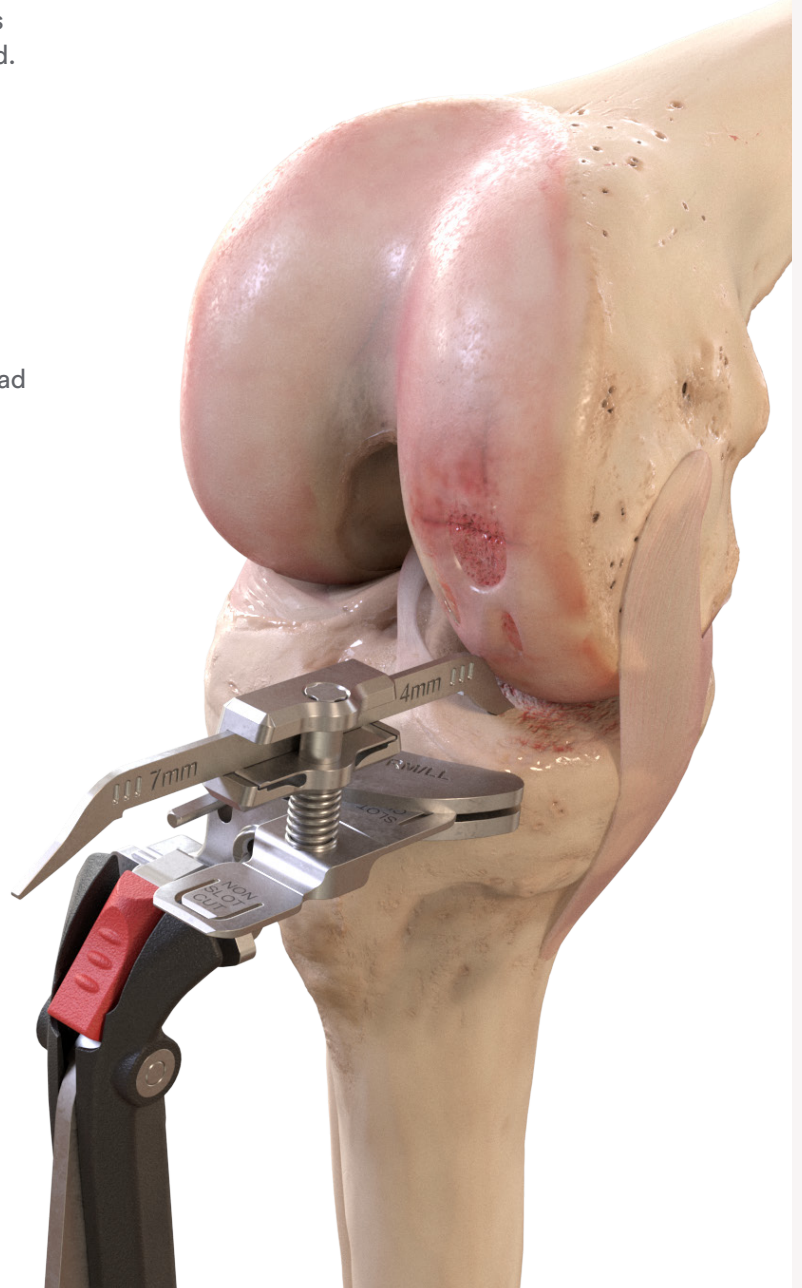
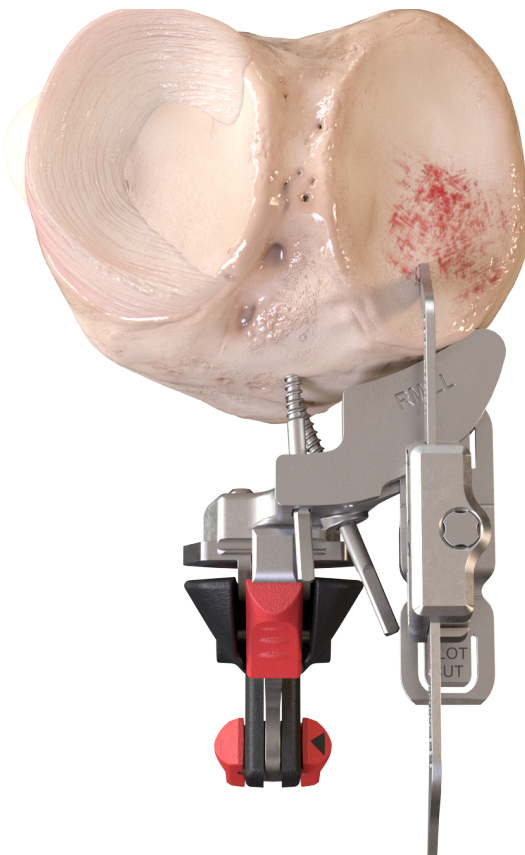
Threaded Long Pin

Divergent Pinning

- A Prior to inserting the Threaded Long Pin in the divergent hole make any fine tune adjustments (A/P, V/V and resection height) as this will fix the block position.
- B Add the pin to the bottom pin hole – this allows for relocating the block if a tibia recut is needed.
- C Confirm height adjustment knob is fixed.
- D Remove stylus.

Information

If the Stylus arm gets caught on the tibial plateau, remove it by twisting the foot out of the block instead of pulling the arm back.



Step 1:
Resection
Height & Pinning



Step 2:
A/P Slope



Step 3:
V/V Adjustment



Step 4:
Fine tuning
resection height



Step 5:
Divergent
Pinning



Step 6:
Sagittal &
Transverse Cuts

Tibial Resection

Tibial Resection

Sagittal Resection

- A Place the knee in 90° flexion.
- B Place the reciprocating saw blade between the lateral border of the medial femoral condyle and the ACL.
- C Make the resection.

▲ CAUTION:

- Be careful not to raise hand whilst cutting as this can lead to over resection which is associated with tibial fracture.
- Keep the sawblade vertical; the tibial implant construct aligns to the sagittal resection.

Transverse Resection

- D Keeping the knee in flexion and the Tibial Jig in place, add retractors to protect to the cruciate and collateral ligament along with other soft tissues.
- E Make the transverse cut dependent on your previous Stylus setting (slotted or non slotted cut)

▲ CAUTION:

Avoid under cutting the sagittal spine and meeting the cuts at a clean edge as additional resection can lead to cruciate ligament necrosis or tibial collapse.

- F Remove the block leaving the divergent pin in place incase a tibia recut is needed (see Appendix 1).

■ Information

The resected tibial fragment may be used to confirm the A/P Slope and give initial indication of tibial size.



Step 1:
Resection
Height & Pinning



Step 2:
A/P Slope



Step 3:
V/V Adjustment



Step 4:
Fine tuning
resection height



Step 5:
Divergent
Pinning



Step 6:
Sagittal &
Transverse Cuts

Tibial Sizing

Instrumentation:



Spacer



Tibial A/P Sizing Arm

Tibial Sizing

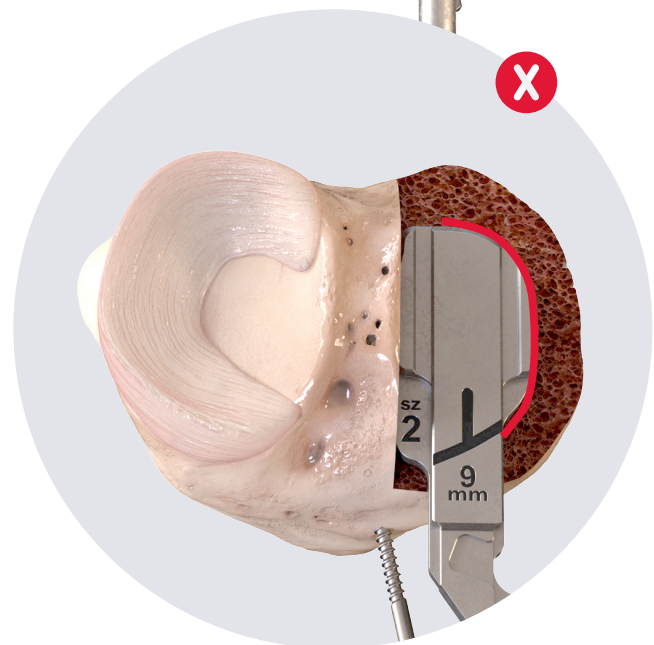
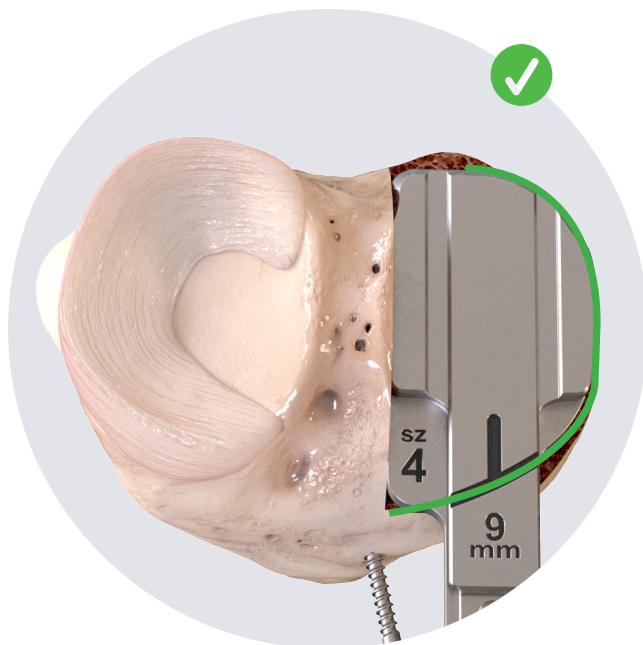
- A Flex the knee to 90°
- B Place the A/P Sizing Arm against the sagittal cut to estimate A/P tibial size.
- C Use Spacers to assess cortical coverage and confirm tibial size.

Information

Maximise A/P coverage. Up to 1mm medial overhang may be acceptable.

CAUTION:

Posterior Tibial Osteophytes may give an incorrect indication of A/P size when using the A/P Sizing Arm and should be removed.



Gap Balancing

Instrumentation:



Evaluate Flexion Gap

Medial compartment arthritis can be considered an extension disease therefore expect extension gap to be larger than flexion.

With the knee in flexion, use Spacers of the selected size to determine the flexion gap (7-11mm).

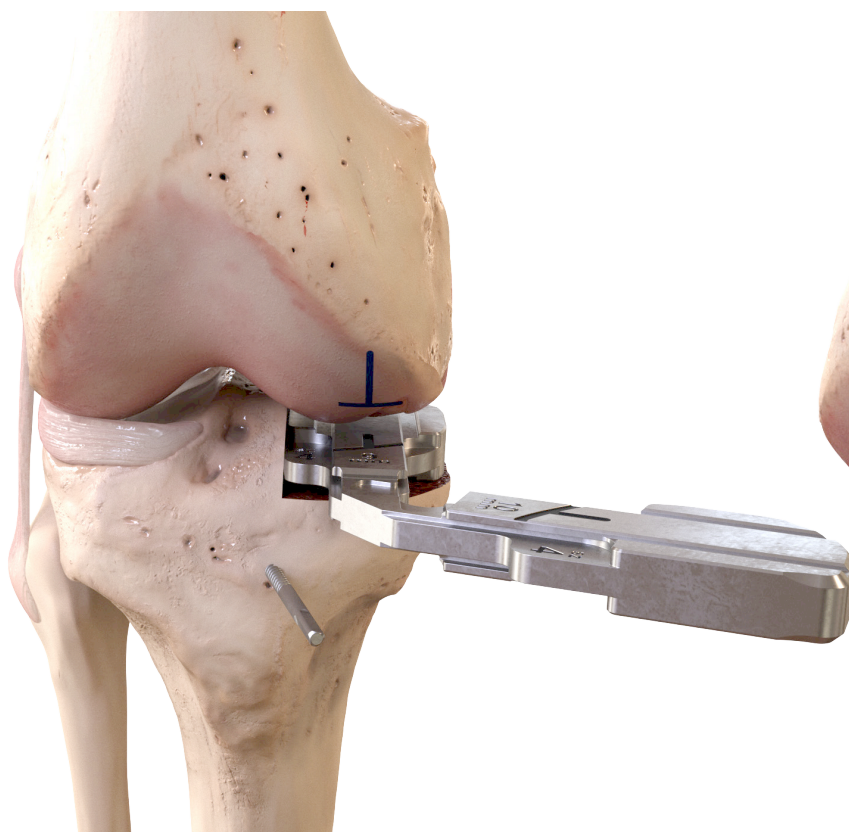
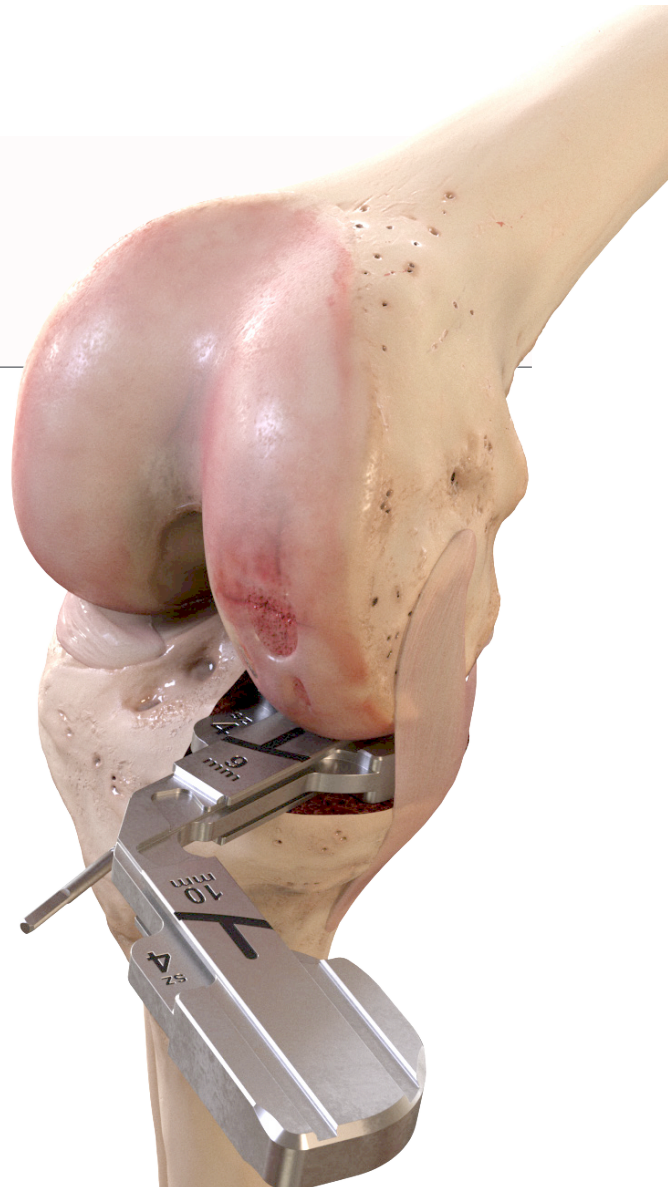
■ Information

The chosen Spacer thickness should feel firm but not over tight in the joint space. If a 7mm Spacer feels tight, consider the need for a tibial recut (see Appendix 1).

Marking for Femoral Rotation & Size

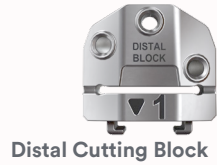
To aid in determining femoral rotation in subsequent steps, mark the centerline of the femur in flexion, and extension.

Also, mark a horizontal line corresponding to the anterior border mark on the Spacer in order to help with femoral sizing.



Gap Balancing

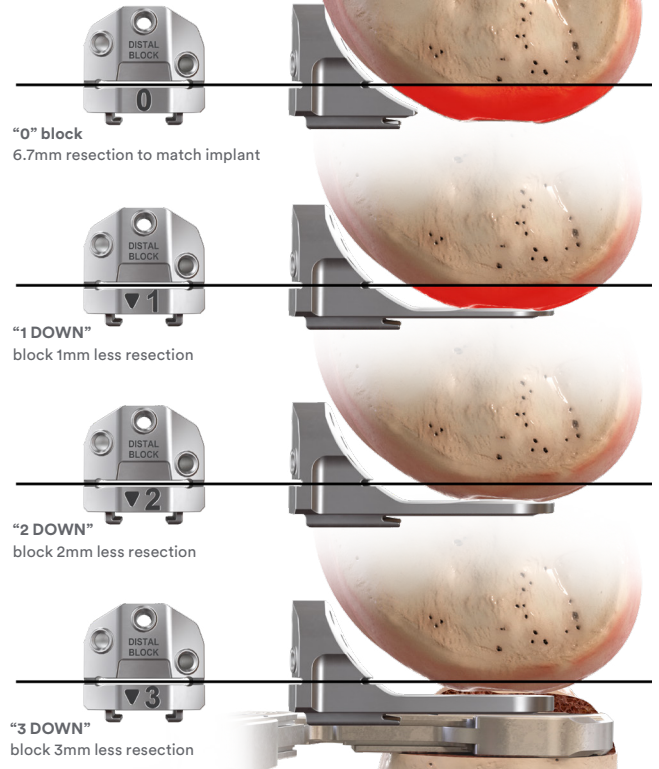
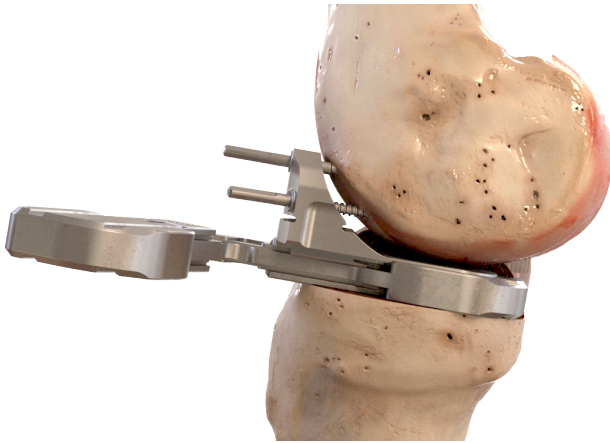
Instrumentation:



Evaluate Extension Gap

Using the Spacer selected from flexion, evaluate the extension gap.

- A If the extension gap matches the flexion gap, then the 0mm Distal Cutting Block should be used.
- B Commonly the extension gap is larger than the flexion gap, therefore the 1, 2 or 3mm Distal Cutting Block may be used to compensate for any articular defect. This resects less distal femur so that the extension gap matches the flexion gap, and restores the joint line.



Assembly of Distal Cut Block

Select the Distal Cutting Block and assemble to the Spacer:

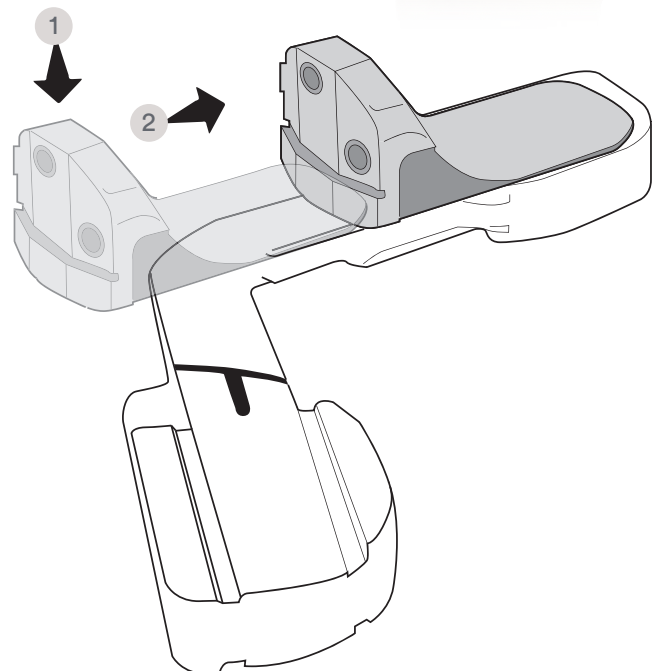
- C Align the feet of the Distal Cut Block to the side rails of the Spacer (1).
- D Once engaged, push the Distal Cut Block posteriorly (2).

Information

The Distal Cut Blocks number is independent of the Spacer size and does not need to match.

CAUTION:

The A/P position of the Spacer should represent intended implant coverage in order to accurately represent the gap. The Distal Cut Block does not need to be engaged at the end stop of the Spacer.



Distal Resection

Instrumentation:



Distal Resection

- With the knee in full extension, ensure the Spacer is correctly positioned (i.e. adjacent to the sagittal resection and in the intended A/P position for tibial coverage).
- Use a Threaded Long Pin to secure the Distal Cut Block to the bone using the central pin hole. If additional stability is needed, then a second long pin may be used in the medial divergent pin hole.

▲ CAUTION:

It is not recommended to use Short Headed Pins as they may pull the block out of the desired alignment.

- Make the Distal Femoral resection. Once the resection is complete, remove the Distal Cut Block and Spacer.

■ Information:

- It may be helpful to invert the oscillating saw.

▲ CAUTION:

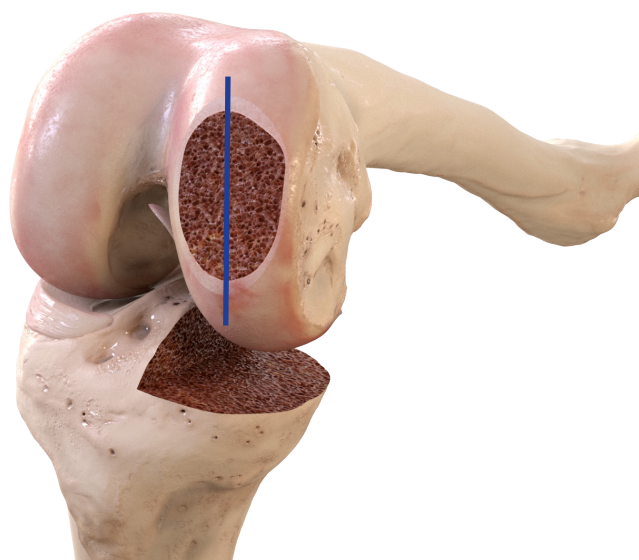
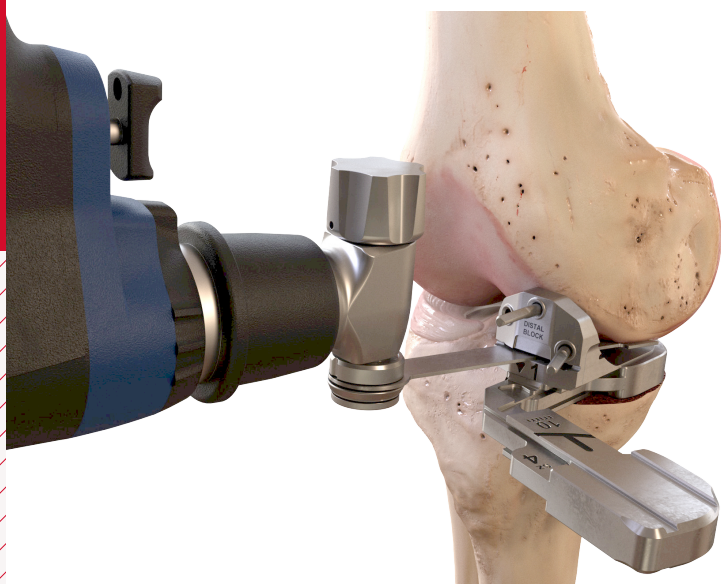
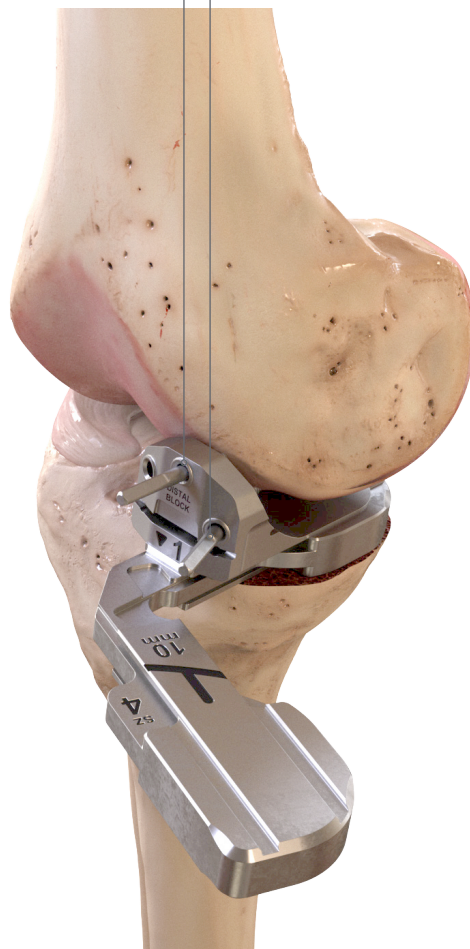
Do not apply pressure to the back of the knee during resection as this may reduce the distance between soft tissues and the saw.

- Remark the femoral centreline after completing the distal resection.

Central pin hole

Divergent pin hole

Use if extra stability is required



Posterior Resection

Instrumentation:



Spacer

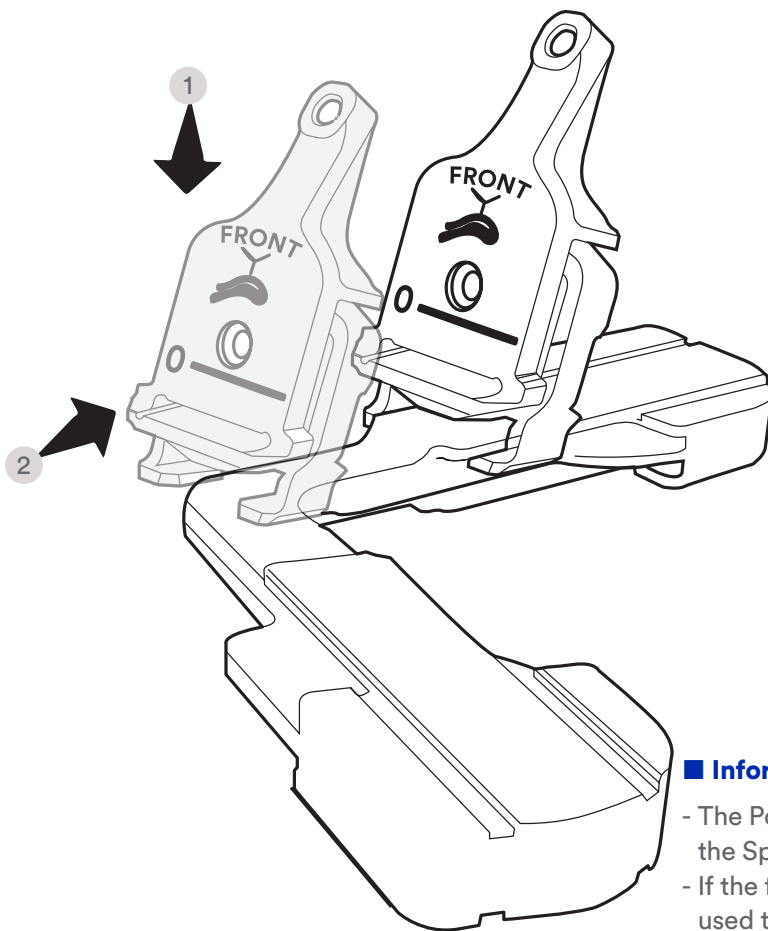


Posterior Cutting Block

Assemble Posterior Cut Block

Assemble the “0” Posterior cut block to the Spacer, ensuring “FRONT” is facing away from the bone.

- A Align the feet of the Posterior Cut Block to the side rails of the Spacer (1).
- B Once engaged, push the Posterior Cut Block posteriorly (2).



Information:

- The Posterior Cut Blocks number is independent of the Spacer size and does not need to match.
- If the flexion gap is tight, the “1 UP” block may be used to open the flexion gap by an additional 1mm (see Appendix 2).
- The “1DOWN” block is provided to resect 1mm less posterior bone to compensate for posterior femoral defect in lateral UKA (see Appendix 3)

CAUTION:

The A/P position of the Spacer should represent intended implant coverage in order to accurately represent the gap. The Posterior Cut Block does not need to be engaged at the end stop of the Spacer.

Posterior Resection

Instrumentation:



Short Headed Pin



Spacer



Posterior Cutting Block

Set Femoral Rotation

- A** With the knee in flexion and the Spacer in contact with the tibial cut surfaces, adjust the rotation of the Posterior block using the centre line marked previously as a guide.

Information:

- The maximum rotation is $\pm 10^\circ$.
- Rotation should be set before pinning.

Posterior Resection

- B** Confirm that the Posterior Cut Block is firmly seated on the distal femoral cut and secure to the bone with a Short Headed Pin through the central hole. If additional stability is needed, then a second Short Headed Pin may be used in the divergent anterior hole.

CAUTION:

It is necessary to be flexed beyond 90° to ensure the Posterior Block is flush on distal femur and Spacer on tibia.

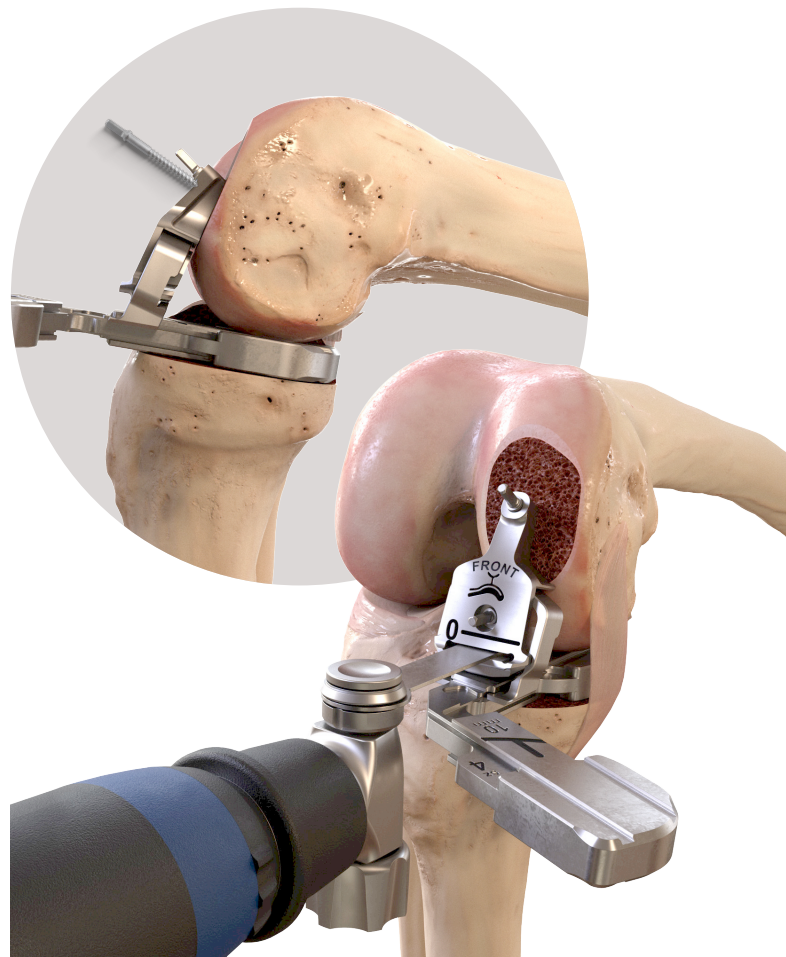
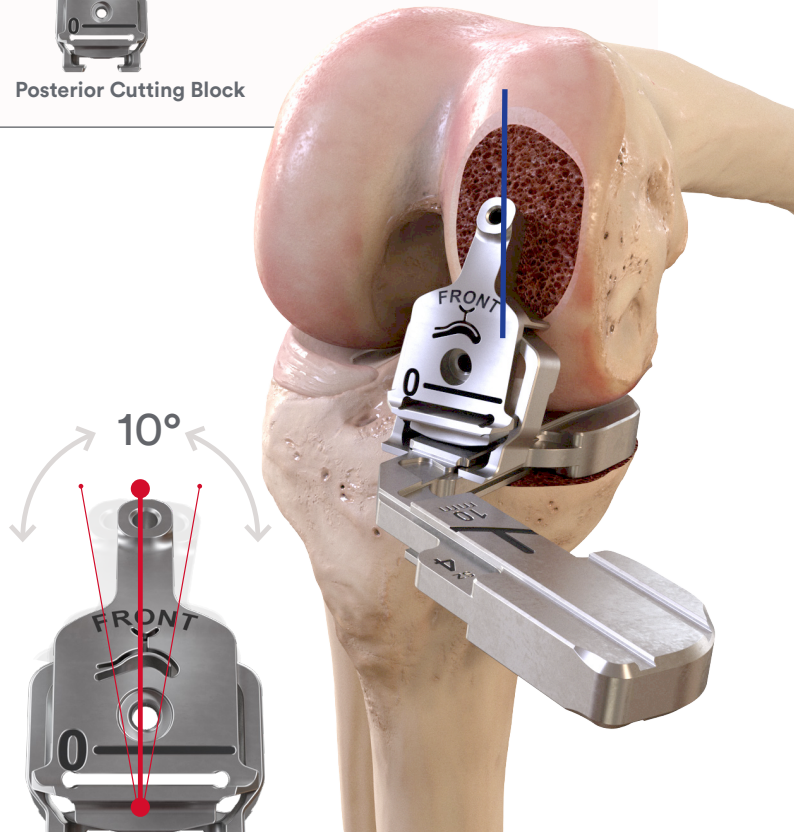
Information:

Short Headed Pins are recommended as they provide optimal stability against cut bone surfaces and facilitate saw blade excursion.

- C** Make the posterior femoral resection. Once the resection is complete, remove the Posterior Block and Spacer.

Information:

It may be helpful to invert the oscillating saw.



Femoral Finishing

Instrumentation:



Short Headed Pin



Spacer



Femoral Cutting Block

Femoral Size and Position

- A** Determine femoral size using the Femoral Finishing Blocks. The anterior tip of the block should not extend beyond the horizontal line which was marked when evaluating the extension gap.

Information:

If between sizes, the smaller of the 2 is generally selected.

- B** Adjust the M/L position of the Femoral Finishing Block:
- The width of the block and anterior tip geometry are representative of the implant so may be used to assess coverage.
 - Aligning the peg holes with the centreline which was marked previously will centralise the articular contact point in extension.

Information:

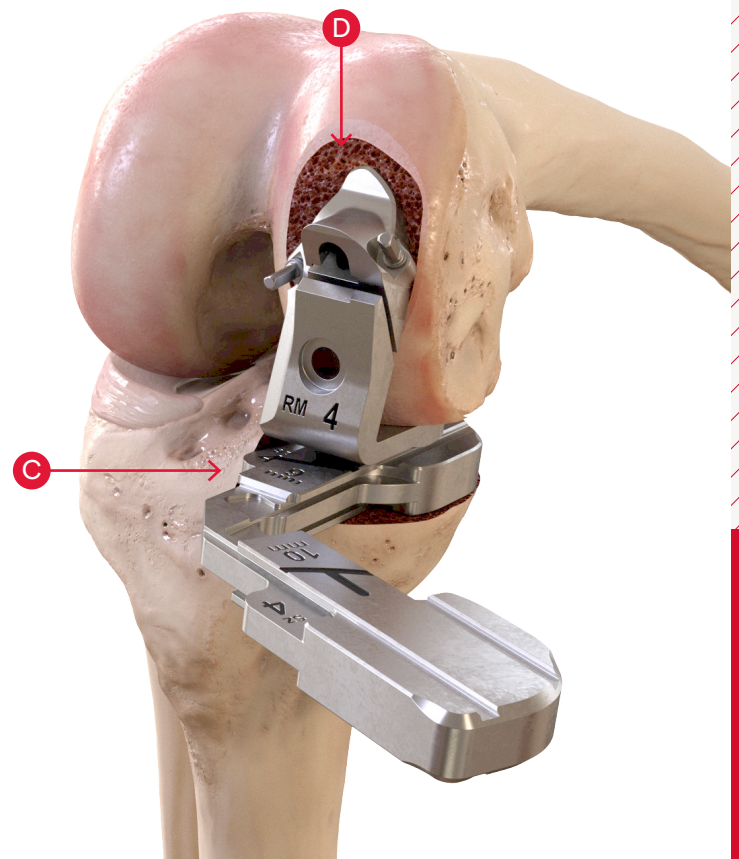
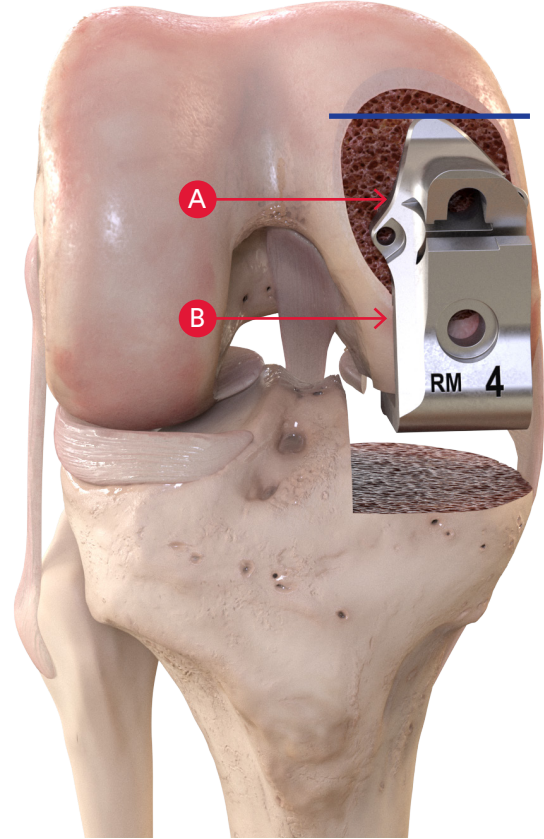
The posterior foot of the Femoral Finishing Block is representative of the final implant and may be used with the planned size and thickness of Spacer to confirm the final flexion gap.

Pin the Femoral Finishing Block

- C** Stabilise the Femoral Finishing Block using a Spacer; it may be preferable to use a Spacer which is thicker than the planned implant in order to compensate for the kinematic flexion laxity.
- D** Whilst ensuring the Block is seated on the distal and posterior cuts, use both Short Headed Pins to secure to the bone.

Information:

It is recommended to pin the hole closest to the intercondylar notch (lateral) first for optimal stability.



Femoral Preparation

Instrumentation:



Anterior Chisel



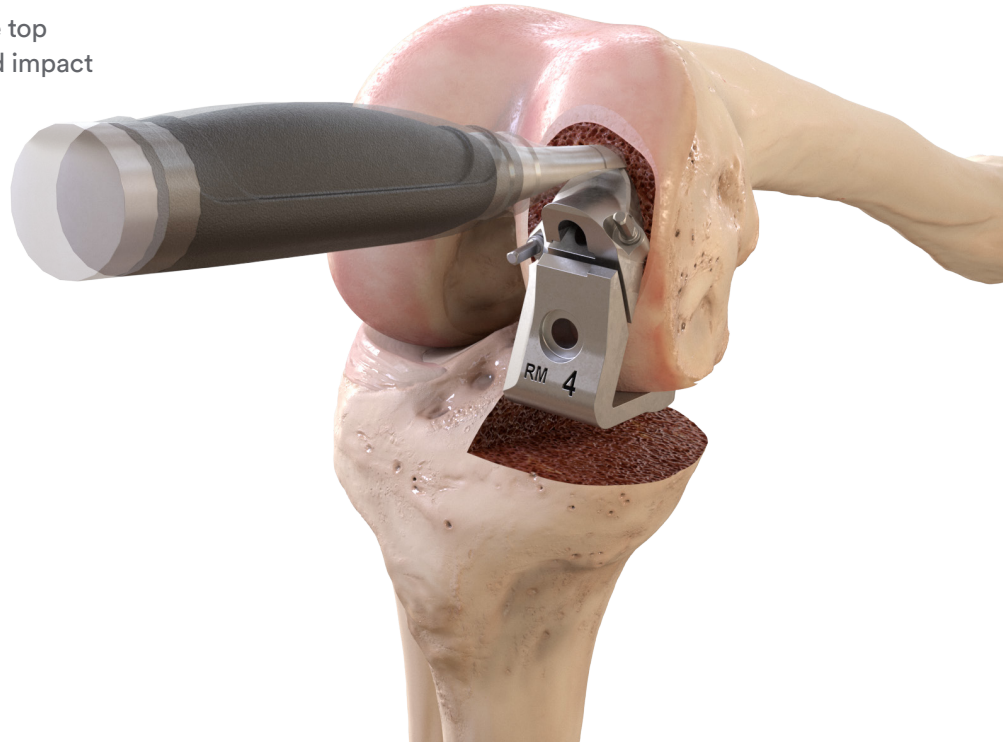
Anterior Gouge



Femoral Finishing Block

Anterior Femoral Preparation

- A Place the Anterior Gouge over the top of the Femoral Finishing Block and impact to the depth of the marked line



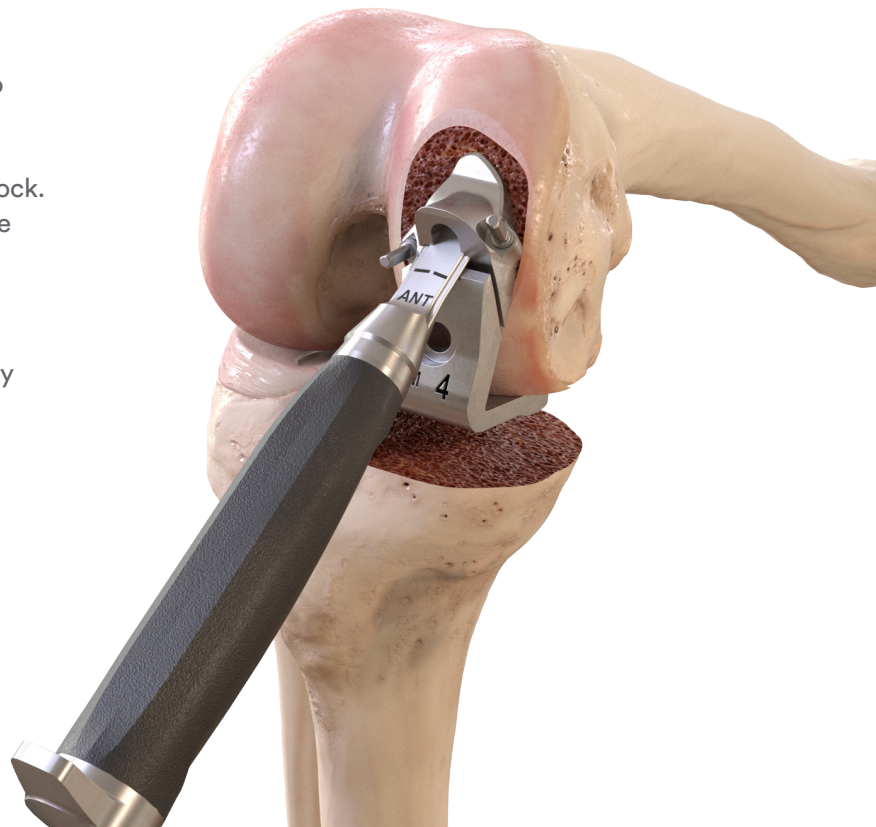
Anterior Chamfer

- B Place the Chisel in the “T” slot of the block to prepare the anterior chamfer.

Tap until the mechanical stop is reached in the block. The chevron markings on the Chisel should not be visible when it is seated.

■ Information:

There is an audible change when the Chisel is fully seated to the mechanical stop.



Femoral Preparation

Instrumentation:



Femoral Peg Drill

Peg Hole Preparation

- A Drill the 2 peg holes using the Femoral Peg Drill.

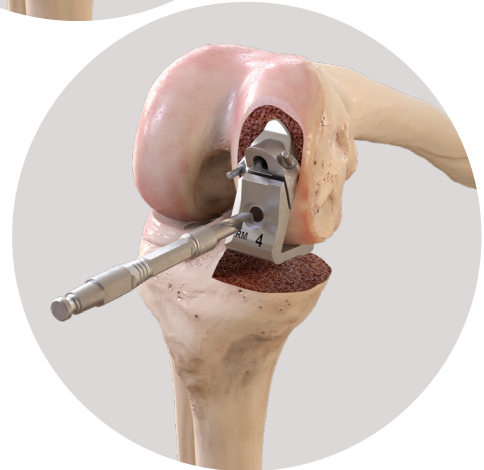
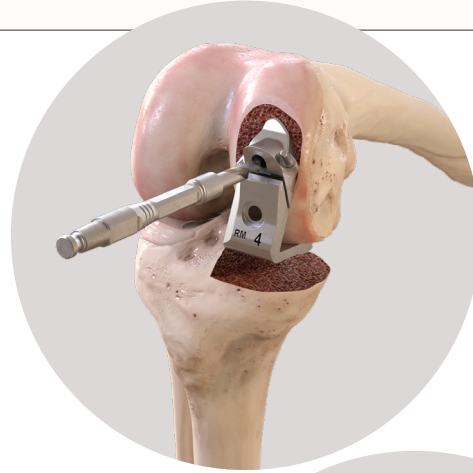
▲ CAUTION:



✓ Femoral Peg Drill



✗ Tibial Peg Drill



Posterior Chamfer

- B Complete the posterior chamfer cut.

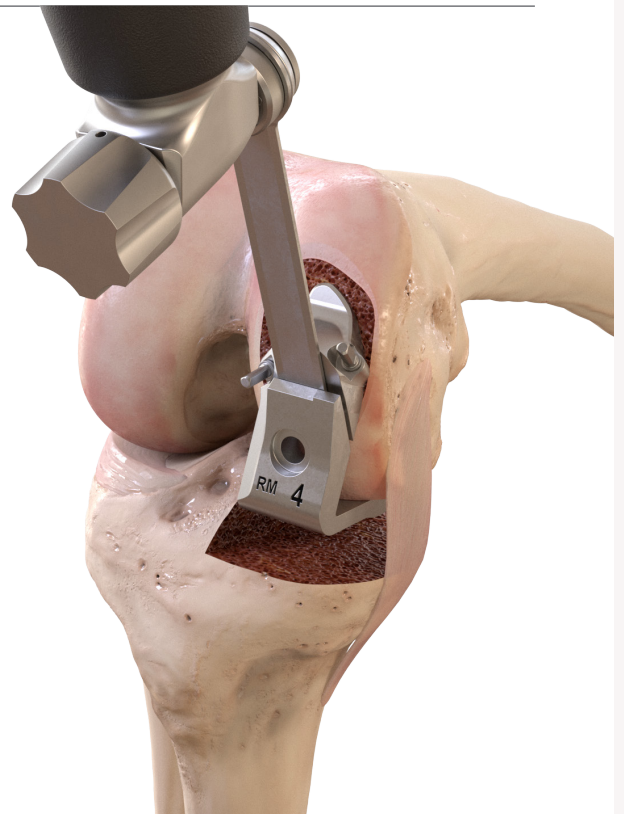
▲ CAUTION:

The saw slot is not fully captured. Therefore it is recommended to use retractors to protect collateral, and cruciate ligaments and other soft tissues.

■ Information:

When completing the posterior chamfer cut the saw blade may contact the metal at the back of the block.

- C Remove the cutting block, fragments of bone and perform any necessary clean up.



Trialling

Instrumentation:



Femoral Introducer



Femoral Trial



Spacer

Femoral Trialing

■ Information:

The Femoral Trial may be inserted by hand or with the Femoral Introducer.

- A Assemble the appropriate Femoral Trial to the Femoral Introducer.
- B Introduce the Femoral Trial to the joint.

■ Information:

The patella may need retracting to facilitate insertion.

- C Tap the Femoral Introducer to seat the Femoral Trial.

■ Information:

The hole on the back of the Femoral Introducer is for manufacturing and not for another instrument to assemble in to.

■ Information:

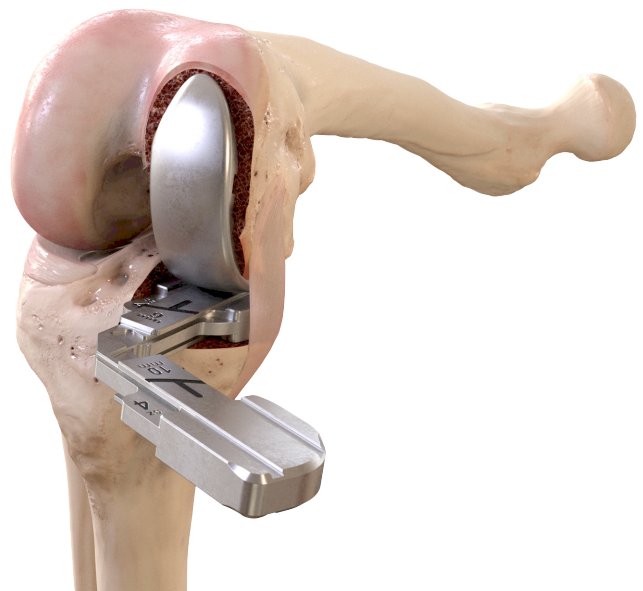
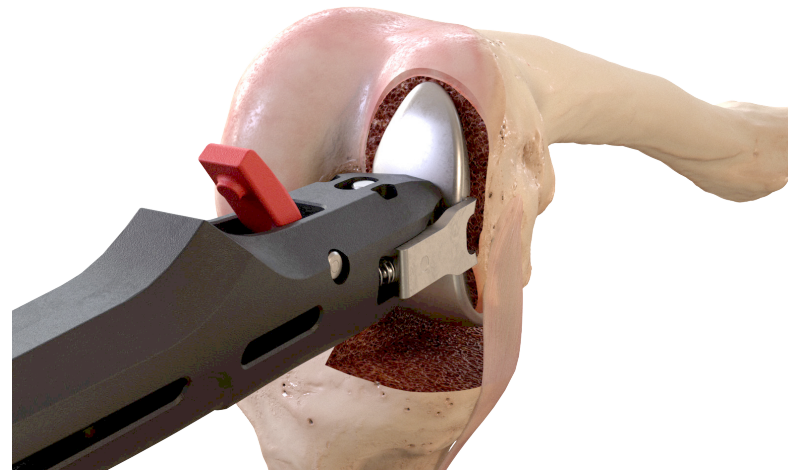
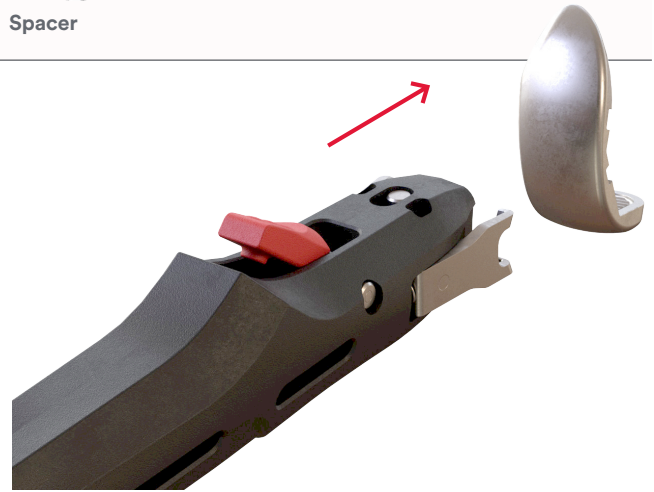
The Femoral Impactor may be used to aid in seating the Femoral Trial.

- D Insert the size and thickness Spacer selected previously during gap balancing.

■ Information:

The Spacer represents the final insert and tray thickness.

- E Perform a trial reduction. In the event that both gaps are tight at this point, consider the need for a tibial recut (see Appendix 1).
- F Remove the Femoral Trial with the Femoral Introducer prior to moving on to Tibial Preparation.



Tibial Preparation – Sizing, Pinning and Peg Preparation

Instrumentation:



Optional: Size the tibia

With the knee flexed, use the Tibial A/P Sizing Arm to locate the posterior of the tibial plateau at the sagittal resection.

- A Read the Tibial A/P size from the scale.
- B Select the appropriately sized Tibial Template.

Position Tibial Template

Raising the Tibial A/P Sizing Arm whilst maintaining posterior contact, slide the Tibial Template underneath until it reaches the appropriate posterior location.

Information:

There are spikes on the posterior aspect of the Tibial Template that may result in the need to lift posteriorly to locate the instrument.

- C Press down posteriorly to engage the spikes.

Information:

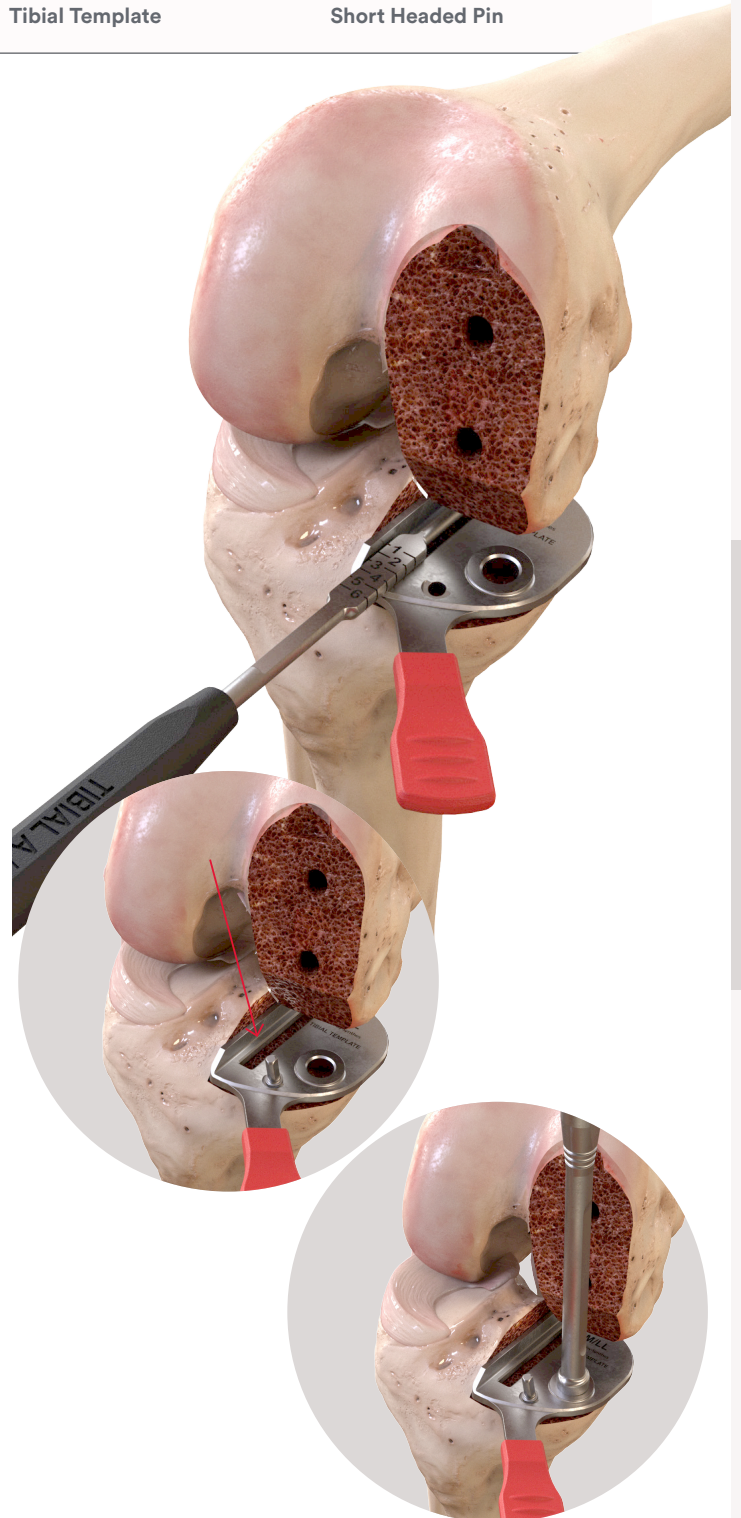
The Tibial Impactor may be used to aid in seating the spikes posteriorly.

Pinning:

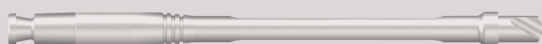
- D Secure the Tibial Template on the tibia with the Short Headed Pin.

Lug Preparation:

- E Prepare the tibial peg hole using the Tibial Peg Drill.



CAUTION:



✓ Tibial Peg Drill



✗ Femoral Peg Drill

CAUTION:

The Femoral Lug Drill has a similar appearance but will over-prepare the depth of the tibial peg hole.

Tibial Preparation – Manual Rasp

Instrumentation:



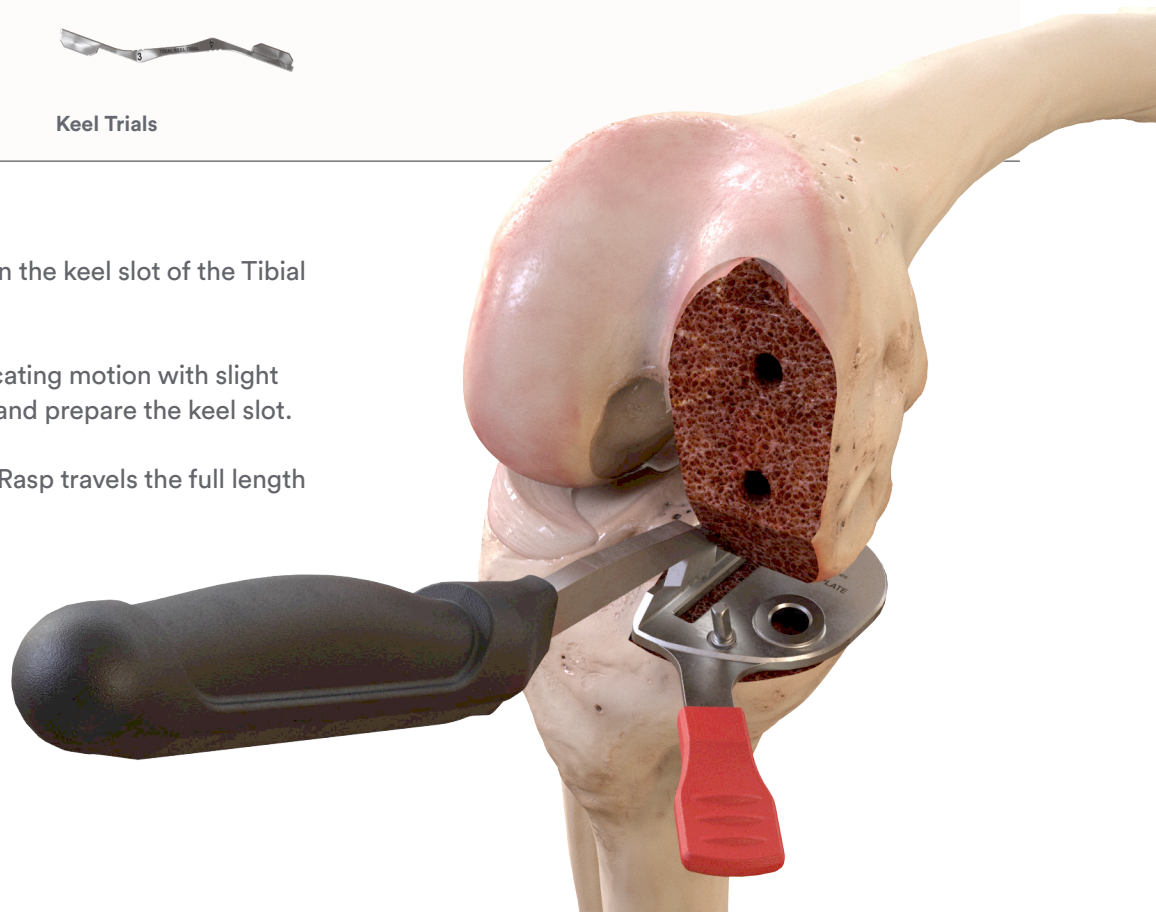
Keel Rasp



Keel Trials

Keel Preparation

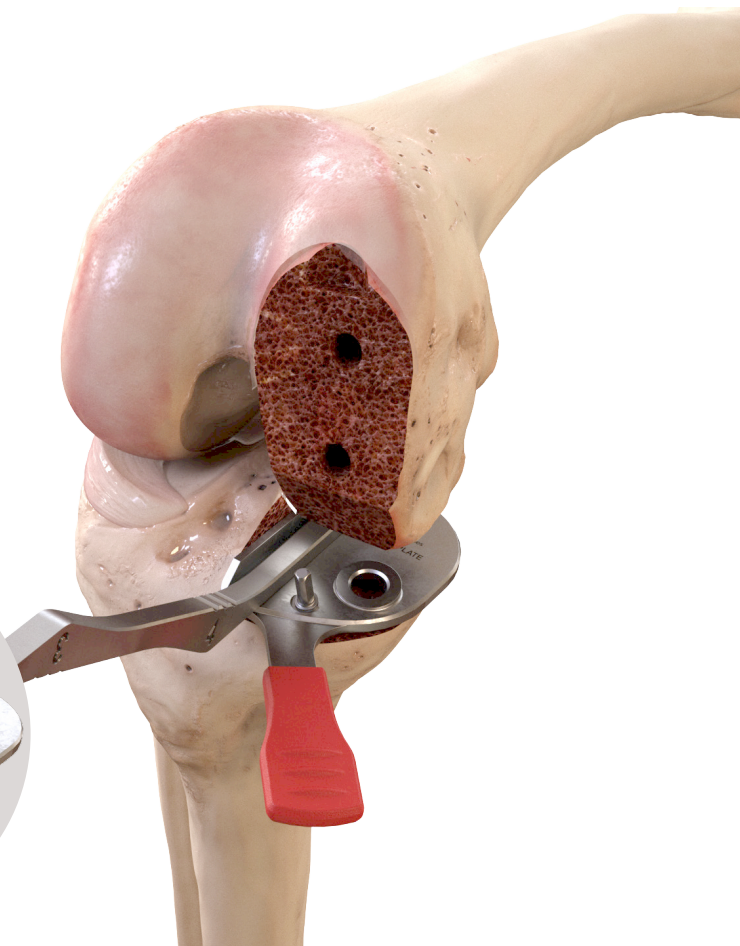
- A Place the Keel Rasp in the keel slot of the Tibial Template.
- B Use a gentle reciprocating motion with slight downward pressure and prepare the keel slot.
- C Ensure that the Keel Rasp travels the full length of the slot.



Optional Keel Trialling

Keel Trials can be used to ensure the keel slot is fully prepared.

- D Place the Keel Trial in the keel slot of the Tibial Template
- E Confirm that the Keel Trial sits flush along the slot



Cementing Practices

Cementing Technique

During cementing of implants, movement of the components should be minimized while the cement is curing.

Prepare the sclerotic bone to ensure a continuous cement mantle with good cement interdigitation of 2mm - 4mm.

This can be done by drilling holes and cleansing the bone with pulsatile lavage, taking care to dry the bone afterwards.

Cement should be applied to the cleaned and dried prepared bone surfaces (femur and tibia individually). Also, it is critical to ensure that cement fully covers the keel and peg of the tibial tray and backside surfaces and pegs of the femoral implant.

■ Information:

For additional information on cementing, please refer to the “Guidance for Cementing Total Knee Replacements” document. During cementing of implants, movement of the components should be minimized while the cement is curing.

▲ CAUTION:

Blood lamination can reduce the mechanical properties of the cement¹; therefore, it is vital to choose cement that reaches its working phase quickly. If applying cement to both the implant and bone, implantation should be completed early in its dough state to ensure good cement - cement adhesion and reduce the risk of dry laminations which can weaken the cement.

Application of the cement to the roughened implant surface early in the dough state has been demonstrated to increase the fixation strength of the cement to the implant.²

Ensure all cement is recovered from the posterior aspect of the tibia. You may use the Tibial A/P Sizing Arm for this purpose. It is recommended to hold the knee in extension whilst the cement is curing. It is not recommended to complete range of motion evaluations until the cement has fully cured.



Tibial Implantation

- A Ensure the Tibial Plateau is free from bone debris by lavaging the joint space.
- B Pressurize cement into the cut tibial bone surface taking special care to pressurize cement into the tibial peg hole and keel, and any supplemental drill holes made in sclerotic bone.
- C Apply a layer of cement to the underside of the Tibial Tray.
- D Introduce the implant by hand at a 45° angle, engaging the most posterior aspect of the tibial keel in to the prepared channel first.
- E Reduce the implant into proper position from posterior to anterior. This sequence promotes the flow of cement from the posterior to the anterior as the implant is seated.



Tibial Implantation

Instrumentation:

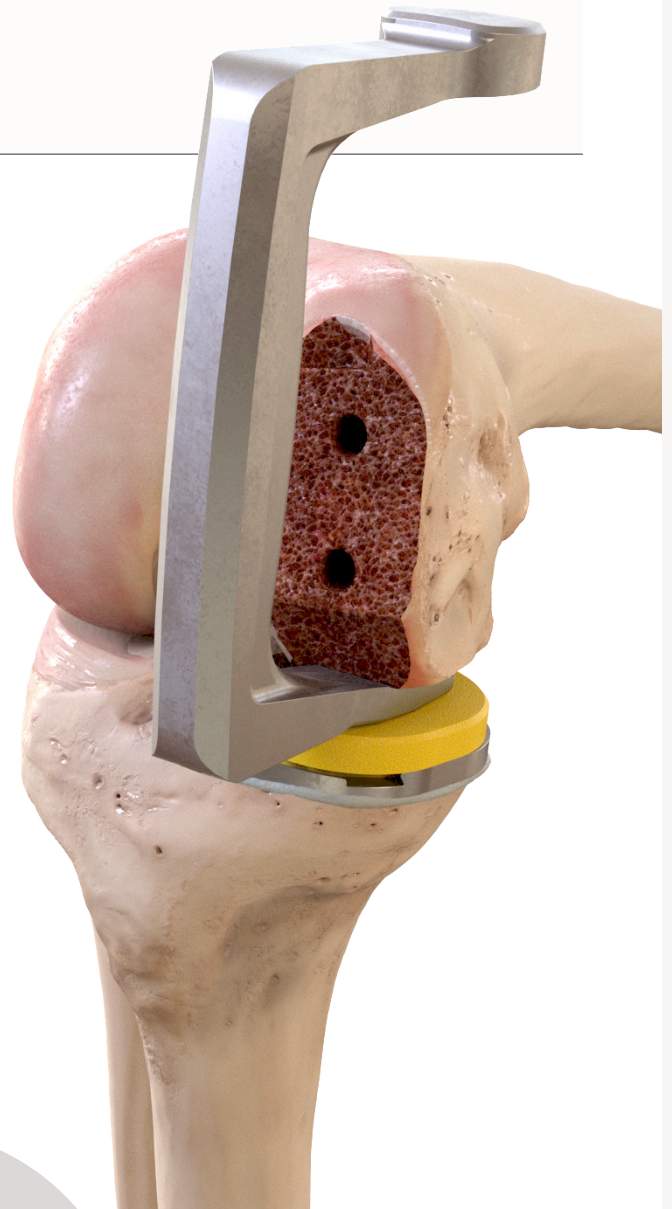


Tibial Insert Trial



Tibial Impactor

- A Select the Tibial Insert Trial that corresponds to both the size and thickness of the tibial insert determined during trialing.
- B Insert the Tibial Insert Trial into the Tibial Tray either by hand or with an ancillary tool. Ensure the Tibial Insert Trial is fully seated in the Tibial Tray.
- C Add the Tibial Impactor on top of the Tibial Insert Trial and impact the Tibial Tray ensuring it is fully seated.
- D Clear any extruded cement from the joint space, ensuring it is fully cleared around the posterior aspect of the tibial tray and at the sagittal tibial cut surface.



Information:

The Tibial A/P Sizing Arm is useful for removing extruded cement around the tibial tray, particularly in the posterior aspect.

Ensure cement does not enter the tibial insert fixation groove.

CAUTION:

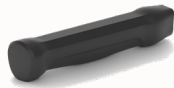
It is not recommended to impact with the Tibial Impactor directly onto the implant surface.

Femoral Implantation

Instrumentation:

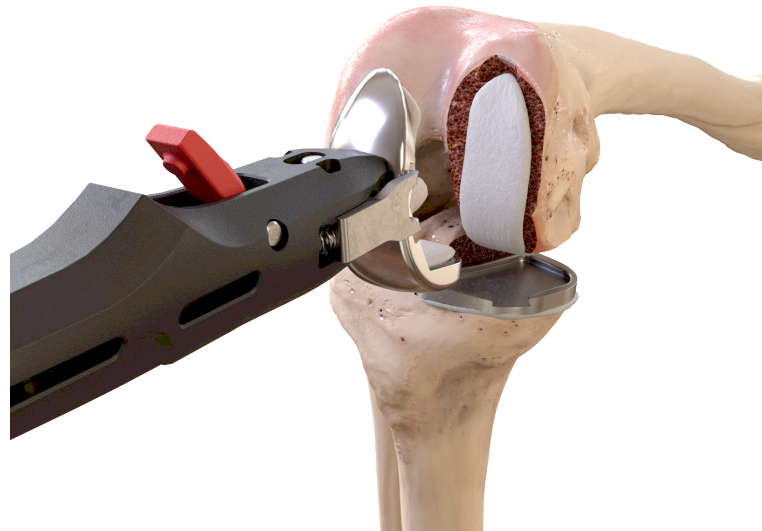


Femoral Introducer



Femoral Impactor

- A Ensure the femur is free from bone debris.
- B Connect the femoral implant to the Femoral Introducer.
- C Apply an even layer of cement on the femoral implant, minimizing the amount applied posteriorly.
- D Pressurize cement into the cut bone surface taking special care to pressurize cement into the femoral peg holes and any supplemental drill holes made in sclerotic bone.
- E With the knee flexed 100-110°, introduce the implant onto the femur and tap the Femoral Introducer to seat the implant initially. The patella may need to be retracted to facilitate insertion.
- F Release the Femoral Introducer.
- G Using the Femoral Impactor, impact the femoral implant ensuring it is fully seated.
- H Clear any extruded cement from the joint space.



■ Information:

Femoral Implantation may be completed by hand without use of the Femoral Introducer.

Cement Pressurisation

Instrumentation:



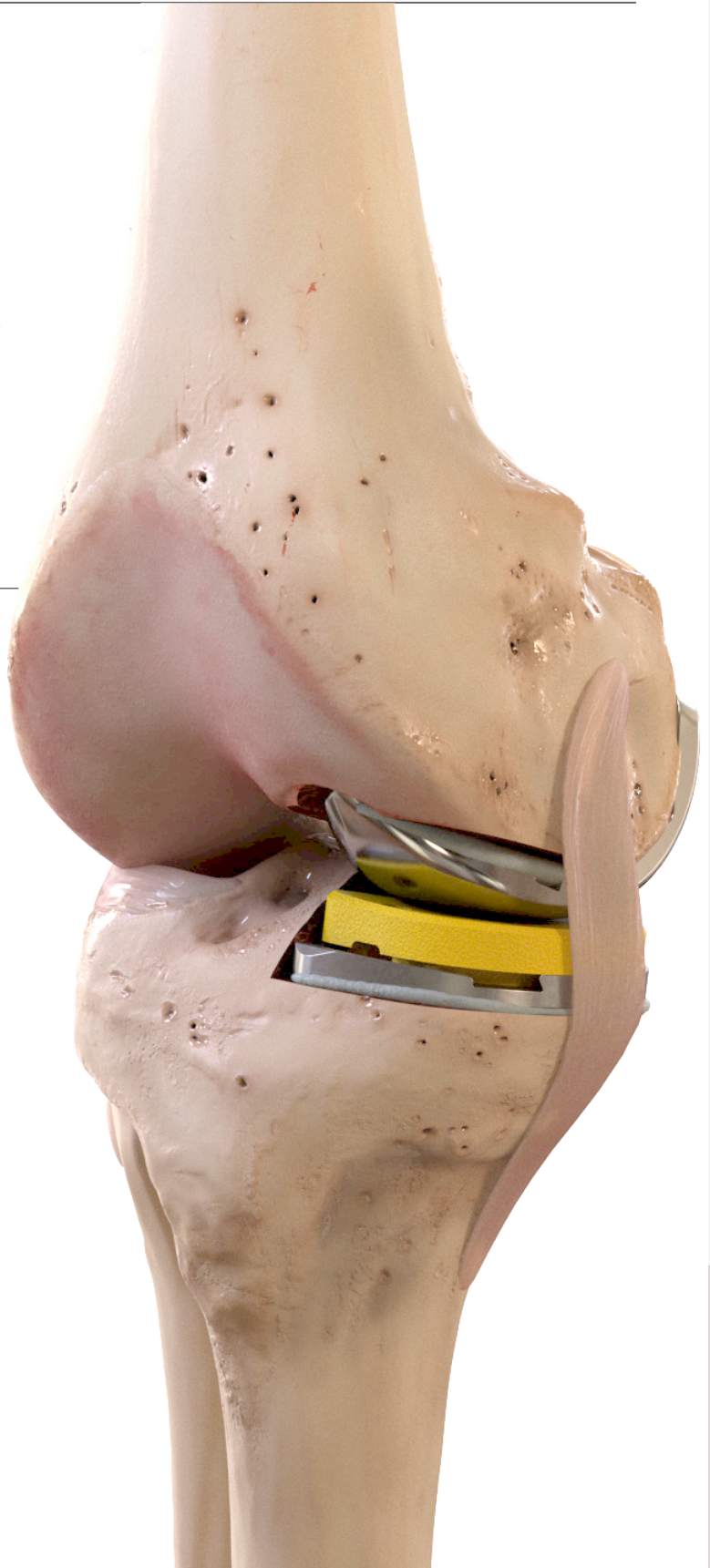
Tibial Insert Trial

- A With the leg in flexion, introduce the appropriate Tibial Insert Trial
- B With the femoral Implant in place, put the leg in extension.
- C Leave the Tibial Insert Trial in situ with the leg in extension until the cement is fully cured. This will maintain compression and component position until the cement hardens.

Colour coding

The below table depicts the different colours that can be used to identify the parts by size.

Colour Reference	Size SZ	Instruments
Light Grey	1	
Black	2	
Green	3	Spacers
Yellow	4	Tibial Insert Trials
Blue	5	
Brown	6	



Implantation and Closure

Instrumentation:



Tibial Sizing Arm



Tibial Insert Trial

- A After the cement hardens, place the leg into flexion and remove the Tibial Insert Trial.

The Tibial A/P Sizing Arm may be used through the hole to remove the Tibial Insert Trial. Alternatively, ancillary instruments may be used to extract the Tibial Insert Trial.

- B Introduce and engage the final Tibial Insert by hand.

- C Closing procedures can now be initiated.



▲ CAUTION:

Take care that all excess cement has been removed prior to wound closure.

Appendix 1 - Tibial Re-cut

Tibial Recut

If during Gap Balancing the flexion and extension gaps are equally tight, i.e. the 7mm Spacer cannot be inserted in to the joint space, a tibial recut may be required.

- A Place the Tibial Cut Block back onto the divergent pin through the top hole of the figure of 8. This will cut an additional 2mm.
- B Reconnect the Tibial Jig to the Cutting Block.
- C Check A/P and V/V slope are suitable.
- D Relocate a pin into the previously made slotted pin hole. (This will now be located further up the slot).

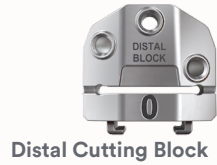
■ Information:

Use the Pixie Wing to aid in repositioning the Tibial Cut block to match the tibial slope.



Appendix 2 - Alternative Gap Management

Instrumentation:



Alternative Gap Management

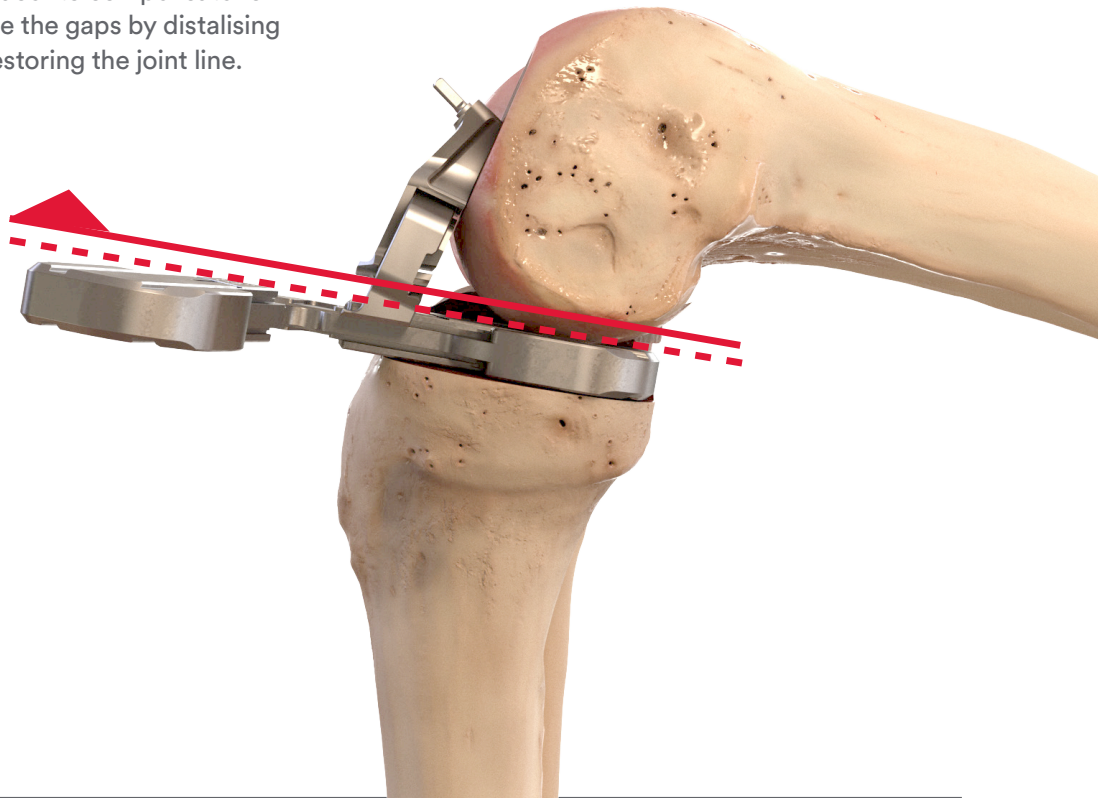
- A With the knee in full extension, use Spacers of the selected size to determine the extension gap (7- 11mm).
- B To aid in setting femoral rotation later, mark the projected centerline of the tibia onto the distal femur. Also mark a horizontal line corresponding to the anterior border mark on the Spacer, to aid in femoral sizing later.

Assemble the 0mm Distal Cutting Block and proceed to distal resection.

■ Information:

Medial compartment arthritis can be considered an extension disease so the extension gap can be expected to be larger than the flexion gap. If using the “0” Distal Cut Block with a Spacer that fills the extension gap results in a tight flexion gap, the “1UP” Posterior Cut Block may be used to resect 1mm more posterior femur to open the flexion gap.

Alternatively, the 1, 2 or 3mm Distal Cutting Blocks may be used with a thinner Spacer to compensate for an articular defect and equalize the gaps by distalising the femoral component and restoring the joint line.



Appendix 3 - Lateral Uni-Condylar Replacements Workflow

Instrumentation:



Spacer



Posterior Cutting Block

The INTUITION for HP Partial instrument system accommodates both medial and lateral procedures. During a lateral procedure the following points should be considered.

Patella retraction is typically more difficult than in a medial Unicondylar Knee Replacement due to the anatomical location of the tibial tuberosity.

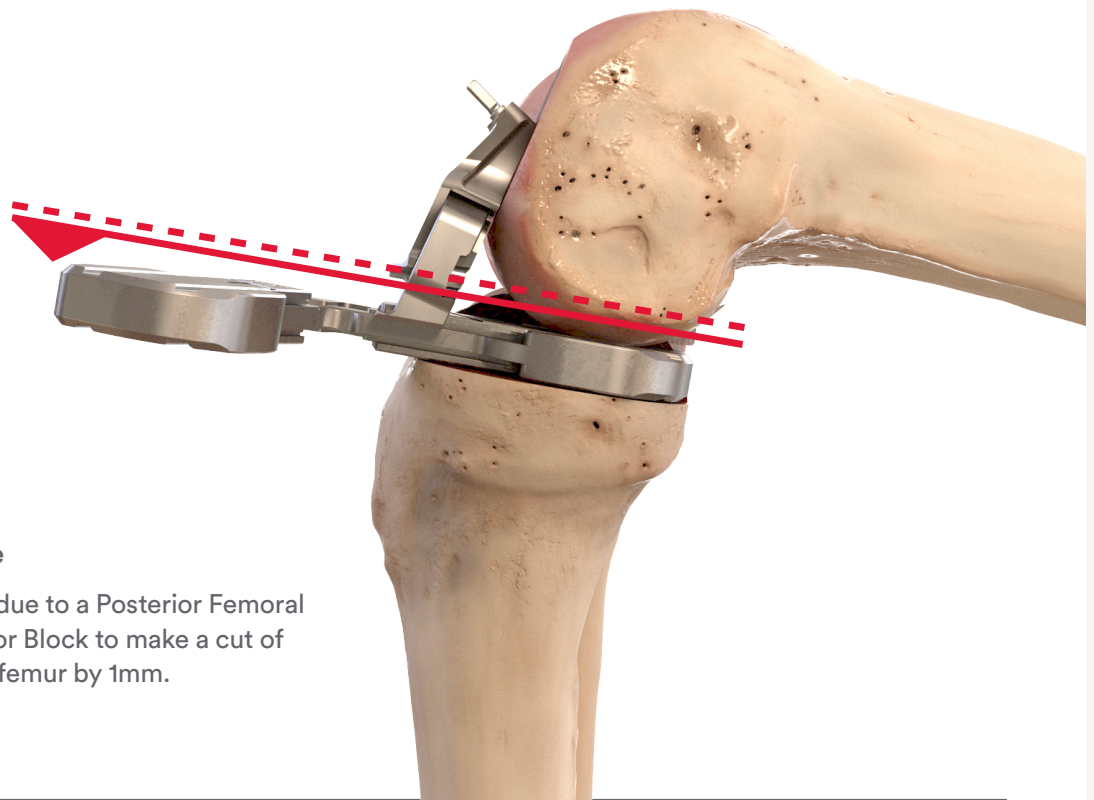
The patella tendon will typically be in line with the tibial sagittal resection. Internal rotation of the tibial component at 90° flexion may appear excessive at first, but this is a result of femoral roll-back and the lateral position of the tibial tuberosity/ patella tendon.

The cut is typically in line with the remnant meniscal horn attachment sites. Whilst conducted in flexion, the sagittal resection should be verified correct in extension. A sagittal recut may be required. As the patella tracks laterally in the intercondylar notch, care must be taken to avoid impingement of the femoral component with the patella.

The 7mm end of the Tibial Stylus may be used to determine the tibial resection level, measuring from intact tibial plateau.

Ligament balancing is different in a lateral UKR than a medial UKR. As the lateral collateral ligament is slightly more lax than the medial collateral ligament in the normal knee, and the lateral collateral ligament is easier to tension, it is very important NOT to overstuff the lateral compartment. There should be approximately 2-3mm opening in the lateral compartment.

Plan the femoral resection to avoid the popliteus on the posterior condyle cut. Use the "1 DOWN" Posterior Cut Block to resect the posterior condyle, if it is worn and replace the worn condyle. Consider femoral rotation; the lateral femoral condyle is anatomically different than the medial condyle and the contact position is different.



Lateral Unicondylar Knee

If the flexion gap is loose (due to a Posterior Femoral defect) use the 1▼ Posterior Block to make a cut of 6.7mm to posteriorize the femur by 1mm.

REFERENCES

1. Jansson, V., Zimmer, M., Kühne, J. H., Ishida, A. (1993). Blood lamination in bone cement--effect of cementing technique. Der Unfallchirurg, 96 (7): 390-394.
2. Shepard, M. F., Kabo, J. M., Liebermann, J. R. (2000). Influence of cement technique on the interface strength of femoral components. Clinical Orthopaedics and Related Research, Number 381, 26-35.

Please refer to the instructions for use for a complete list of indications, contraindications, warnings and precautions. Please also refer to the package insert(s) or other labeling associated with the devices identified in this surgical technique for additional information.

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