

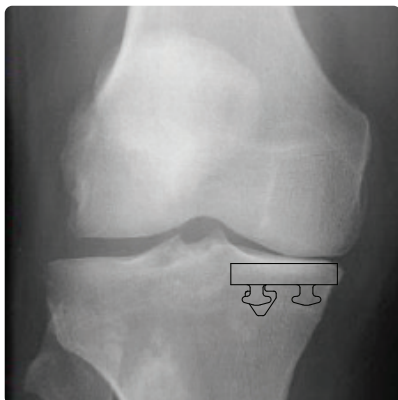
iBalance[®] UKA Efficiency System

Surgical Technique



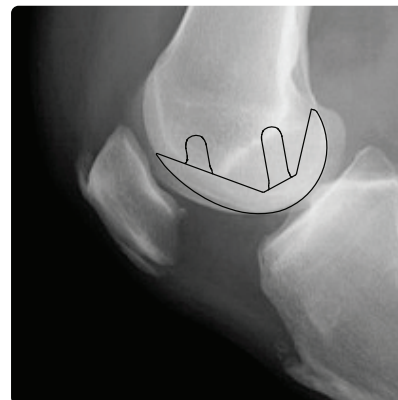
Preoperative Templating

Preoperative templating can be accomplished using conventional acetate templates (AR-501) or a variety of available third-party digital templating solutions.



Tibia

The tibia is templated on the AP and lateral radiographs. The tibial component should neither undermine the tibial eminence nor extend past the cortex. To maintain adequate cortical support of the implant, the tibial component should not be undersized.



Femur

The femur is templated on the lateral radiograph. The template should be superimposed over the operative condyle (medial shown in this example), and the component should match the curvature of the condyle as closely as possible without overhanging posteriorly.



Incision

When resurfacing the medial compartment, make a longitudinal incision extending from the superomedial border of the patella to the tibial tubercle; the quadriceps can be handled with a subvastus, midvastus, or mini parapatellar arthrotomy. When resurfacing the lateral compartment, make an incision lateral to the midline of the knee extending from the superolateral border of the patella to the tibial tubercle. Access the lateral compartment using a lateral parapatellar arthrotomy, incising the capsule and extending the arthrotomy along the distal edge of the vastus lateralis.

Note that the patellar tendon extends quite far across the lateral compartment. It is important to retract the tendon medially so the vertical saw cut can be made sufficiently medial for optimum component placement and to avoid unintentional external rotation.

Exposure

Depending on which compartment is being resurfaced, release the anterior soft tissue from the proximal tibial plateau to allow placement of a retractor between the tibia and collateral ligament. Often it is helpful to remove a small amount of the anterior fat pad. Any significant collateral release should be avoided.

Osteophyte Removal

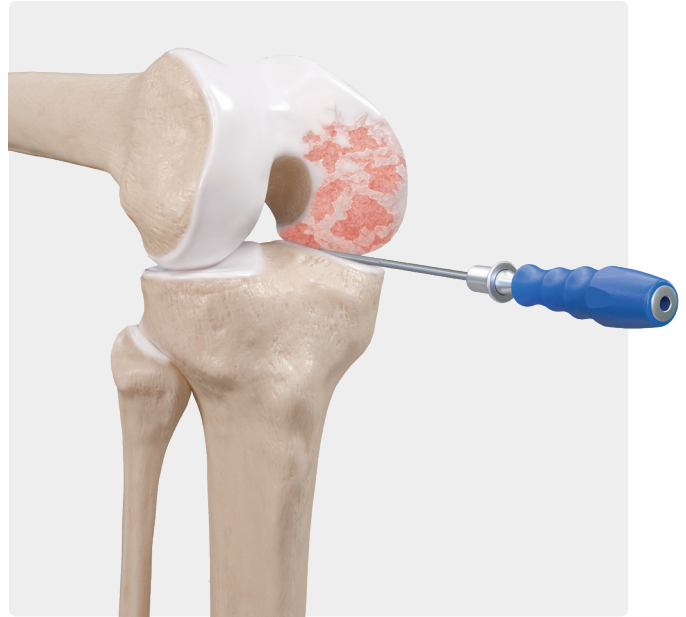
Prior to beginning the bony preparation of the tibia and femur, inspect the operative compartment and remove any peripheral osteophytes from the margins of the femoral condyle, intercondylar notch, and posterior tibial plateau.

Tibial Resection: Reusable Cutting Guide



1

Connect the blue inserter handle to the hook. Insert the hook into the joint space at the midline of the femoral condyle. Once past the posterior cortex, rotate the hook 90°.



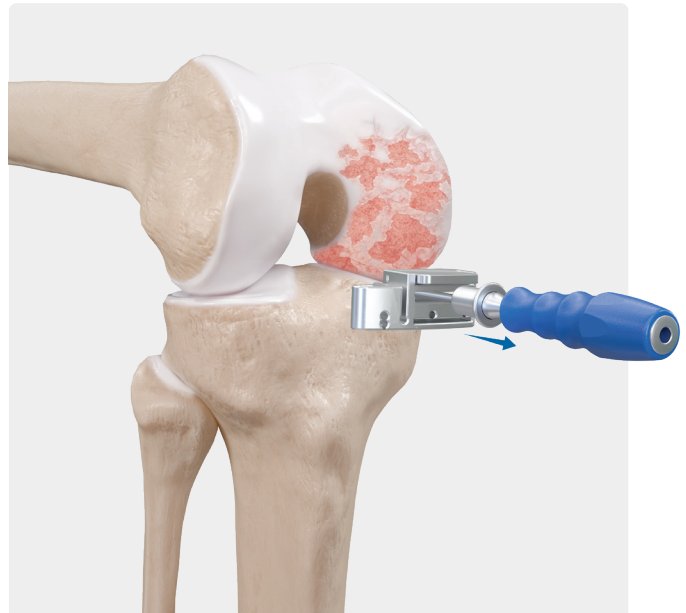
2

Note: When appropriately inserted, the hook defines the native tibial slope as referenced by the anterior and posterior aspect of the tibia as well as the appropriate tibial resection level by creating a 9 mm space from the posterior femur to the tibial resection.

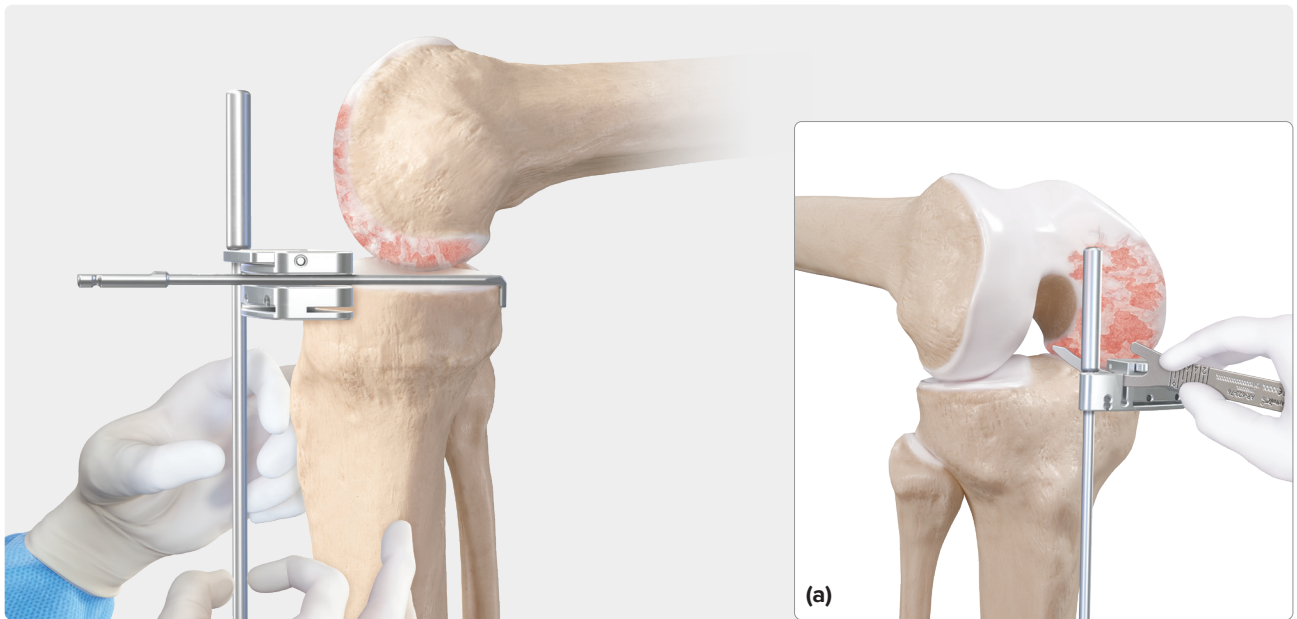


3

Choose the appropriate cutting block (LM/RM) and attach it onto the hook. Slide the cutting block toward the tibia, orient it correctly (Arthrex logo up), and temporarily lock it into place by pulling down the arm with the Arthrex logo. Remove the blue handle.



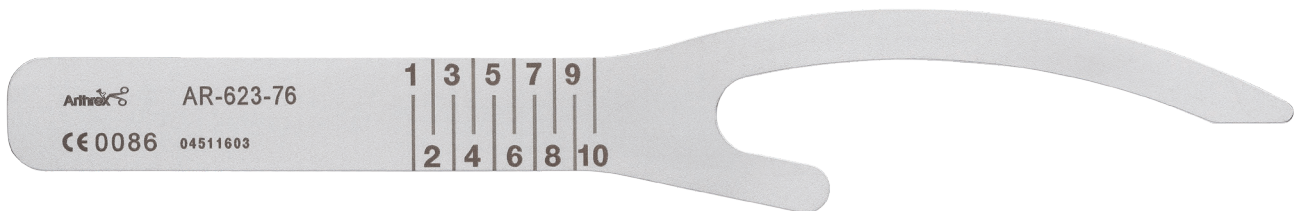
4



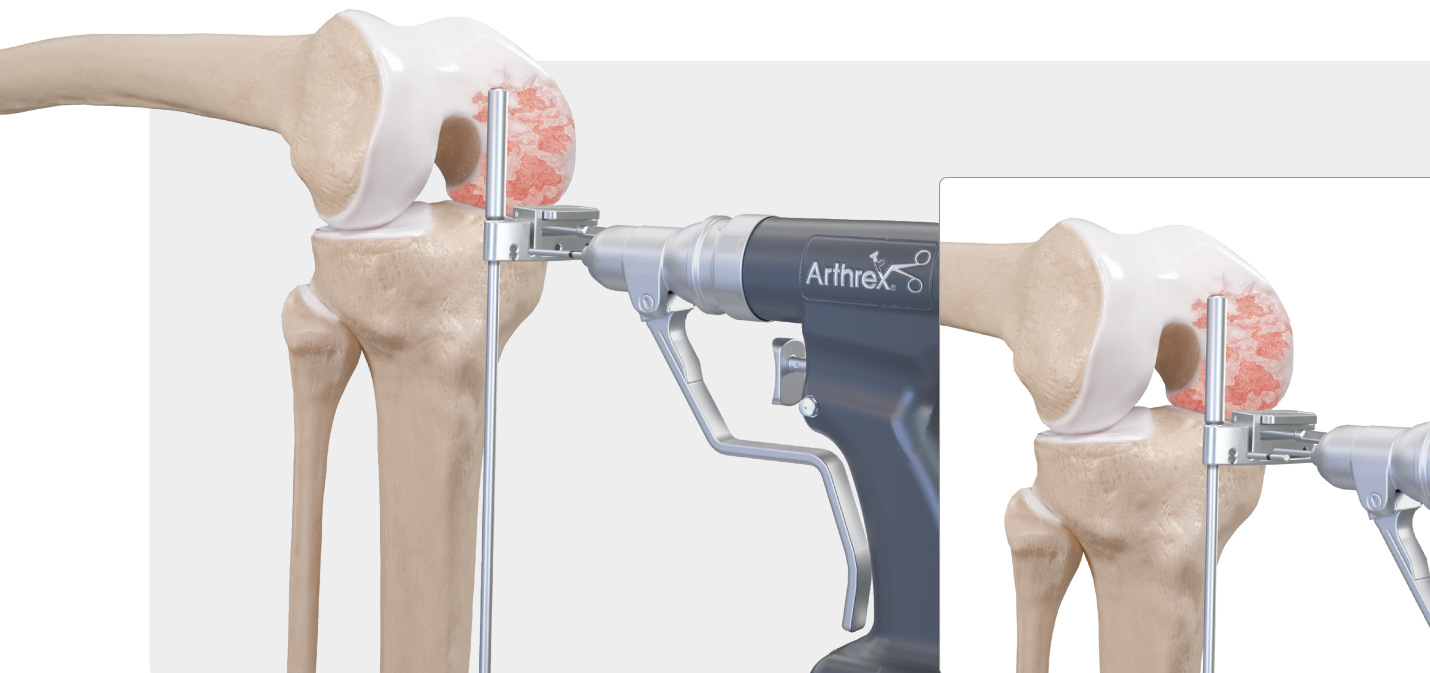
5

Insert a drop rod into the cutting block and rotate the cutting block about the hook as necessary until the cutting block is appropriately aligned.

Note: Use the drop rod for appropriate varus/valgus alignment. When helpful, ensure appropriate internal/external rotation as well as medial lateral positioning **(a)** with an angel wing **(b)**.



(b)



6

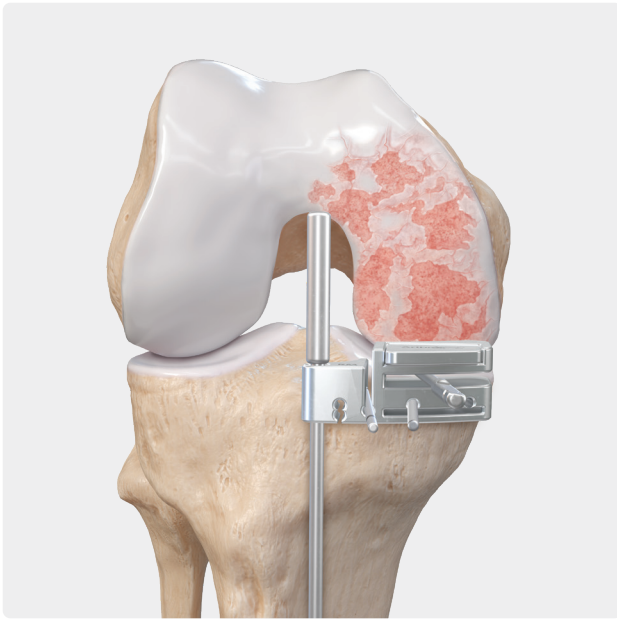
Verify that medial/lateral position is satisfactory and insert a pin into the lateral-most pin hole.

Next, verify the medial/lateral position and place the medial-most pin.

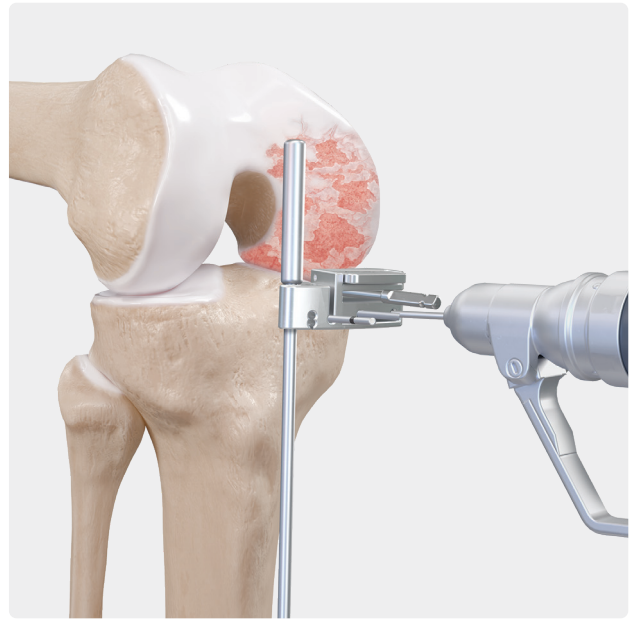
Note: Use only pins from the tibial resection pin caddy (a).



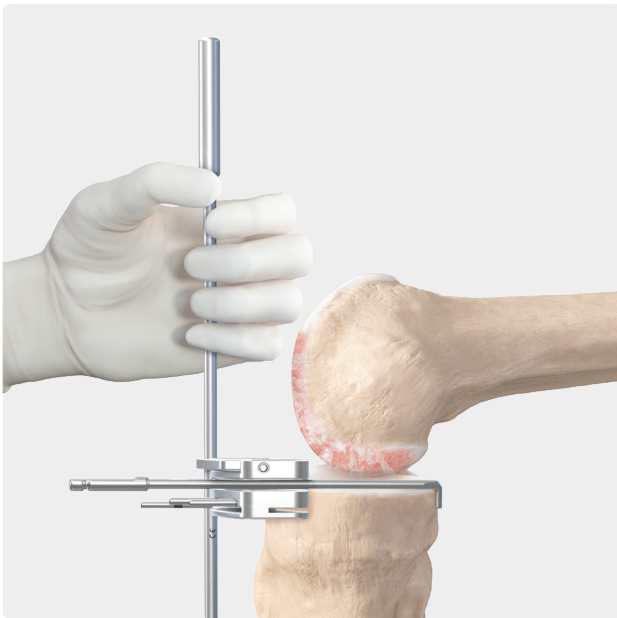
(a)



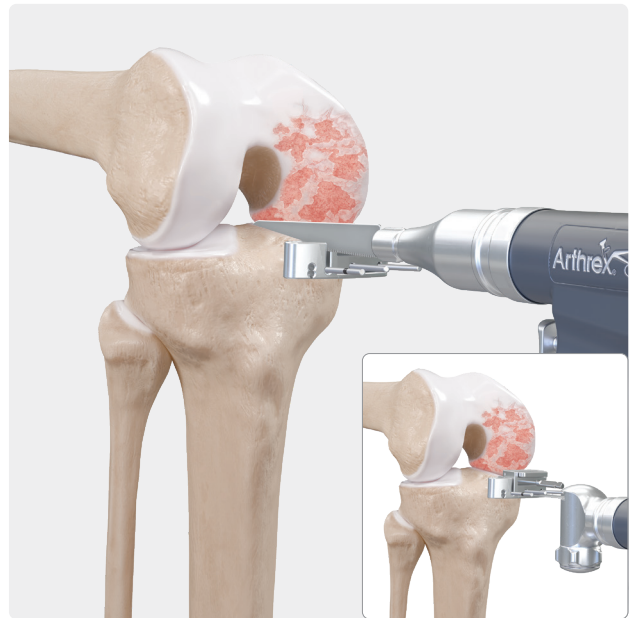
7



8



9



10

Verify that alignment is satisfactory **(7)**, then place the final pin **(8)**. Remove the drop rod and angel wing (if still in place) **(9)**, and ensure appropriate retraction is in place to protect the MCL. Perform both the vertical and horizontal resection using a standard reciprocating saw and then a 1.27 mm × 13 mm sagittal saw **(10)**.

Note: If deemed beneficial, the drop rod may remain in place during the tibial resection. A clamp may be used on the lateral pin during the vertical resection to avoid pin migration.

Complete Resection



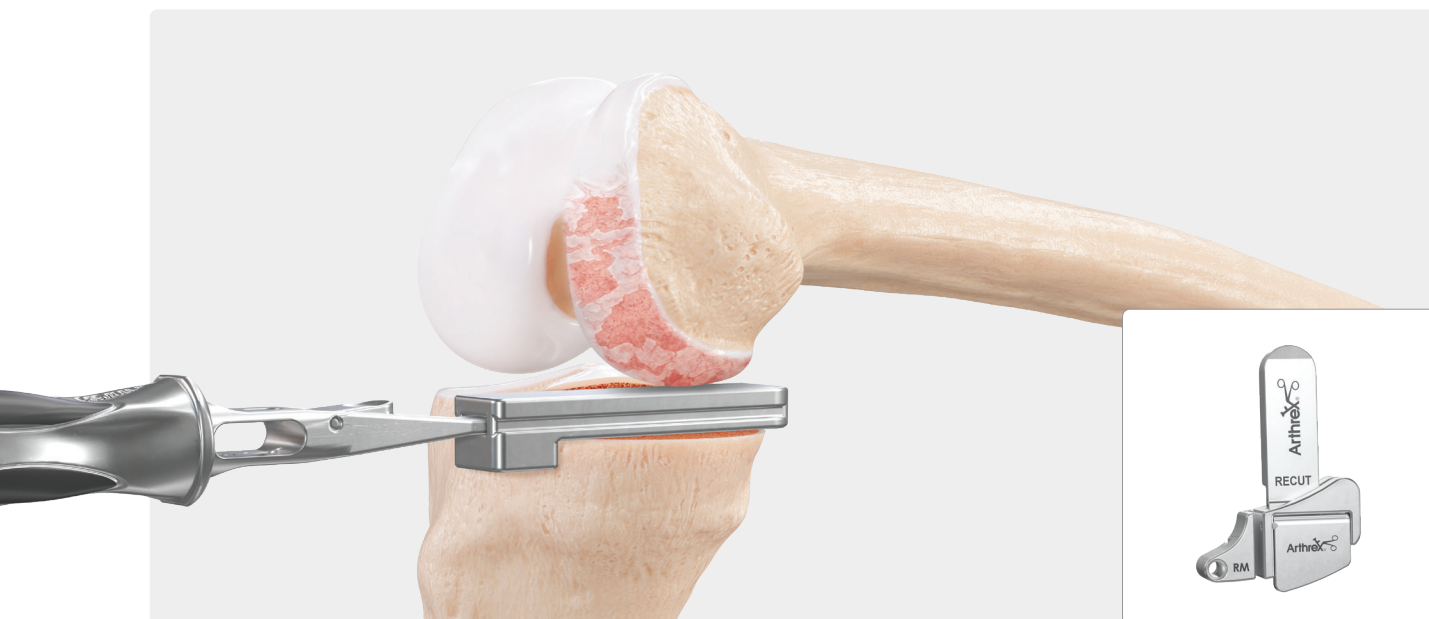
11

Provided a complete resection is performed, the hook/pin fixation in the tibial fragment may be used to facilitate bone removal.

Soft-tissue attachments or residual bone bridges may still hamper removal, at which point the pins and hook can be removed prior to the resected tibial bone.

Note: The tibial fragment can be used to provisionally size the tibia using the D-ring trials.

Measure Flexion and Extension Space



12

Measure the flexion space by inserting a spacer block of the appropriate size into the compartment with the leg in approximately 90° of flexion. The space must measure at least 8 mm.

Note: If the space is less than 8 mm, use the shelf recutter to make a 1.5 mm recut. Ensure the recutter is properly oriented before placing pins and recutting.



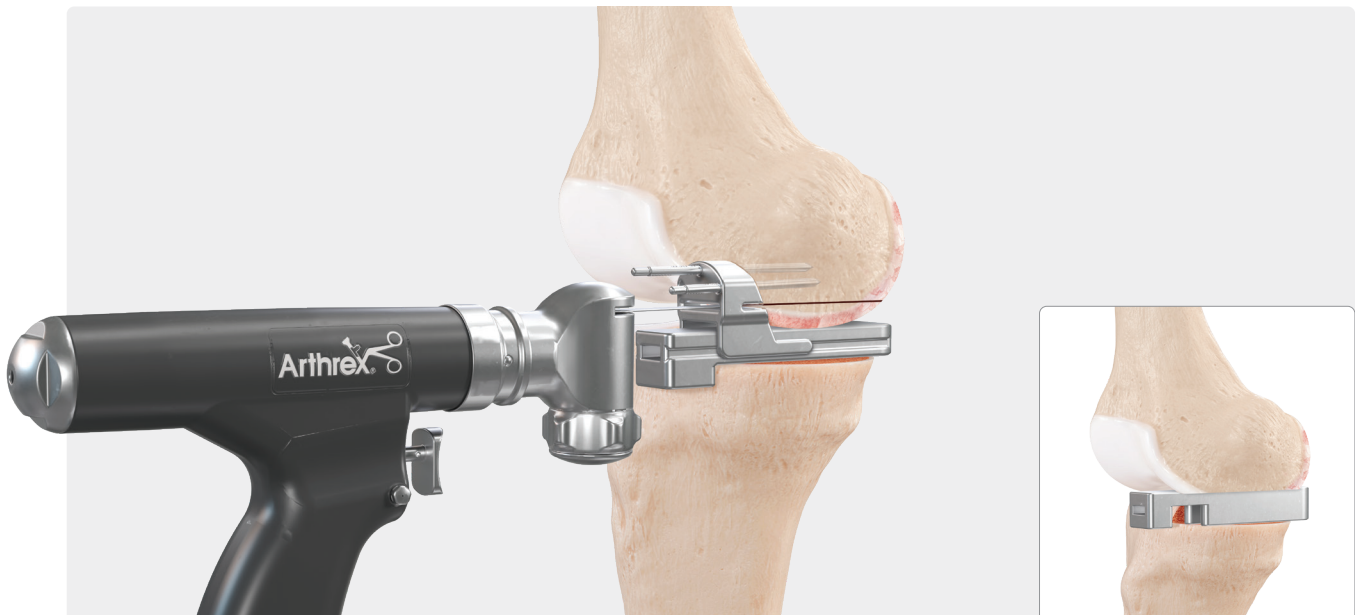
13

Measure the extension space by inserting a spacer block of the appropriate size into the compartment with the leg in extension (or as closely as possible). Care should be taken not to overstuff the compartment, resulting in overcorrected limb alignment.

Remove the quick-connect handle. Select the standard distal cutting block, drop it onto the rails of the spacer block, and pin into position.

Note: It is important to avoid making the distal femoral cut in significant flexion or hyperextension.

Distal Femoral Cut



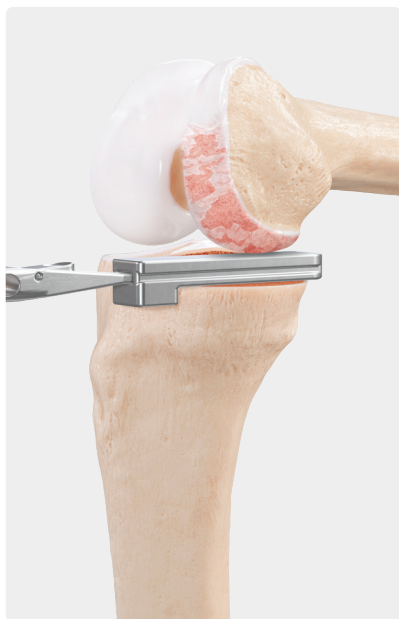
14

Ensure proper retraction is used to protect the collateral ligament. Perform the distal femoral cut using a 1.27 mm × 13 mm sagittal saw.

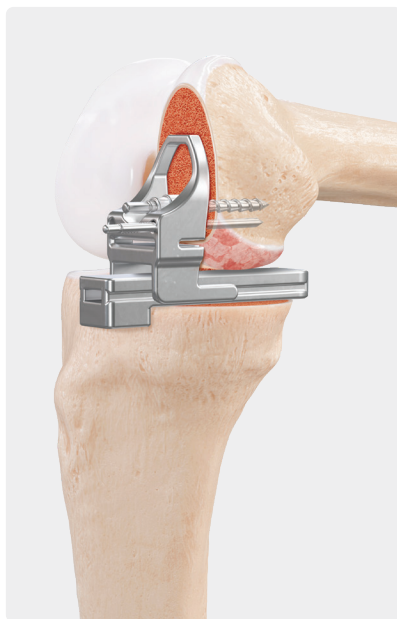
Once the distal femoral resection is complete, the newly created extension space may be checked using the composite space spacer block.

Note: If the composite space spacer block is too tight, use the distal femoral cut guide labeled +1 mm for a 1 mm recut.

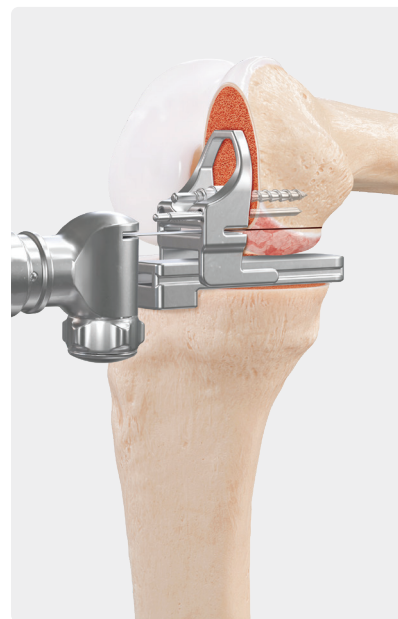
Posterior Femoral Cut



15a



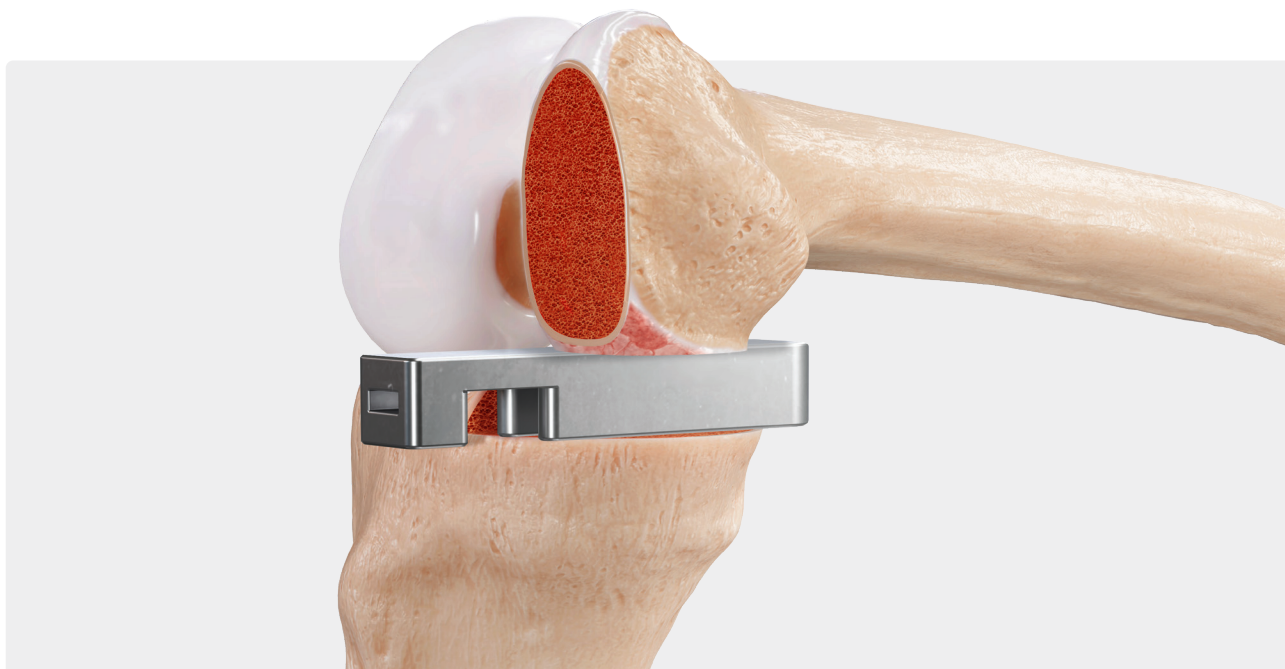
15b



15c

Move the knee back to a flexion position and insert the appropriate spacer block identified earlier. Then choose the posterior cutting block labeled STD and slide it onto the rails of the spacer block. Adjust flexion of the knee so that the posterior cutting block is flush with the distal femur and proximal tibia. Pin into position.

Note: Ensure proper retraction is used to protect the collateral ligament. Perform the posterior femoral cut using a 1.27 mm × 13 mm sagittal saw.

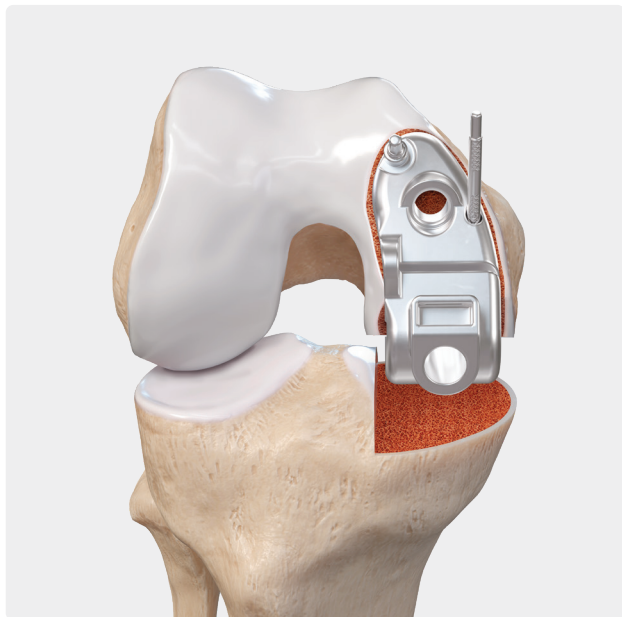


16

Once the posterior femoral resection is complete, the newly created flexion space may be checked using the composite space spacer block.

Note: If the composite space spacer block is too tight, use the posterior femoral cut guide labeled +1 mm for a 1 mm recut.

Femoral Sizing, Chamfer Cut, and Peg-Hole Preparation



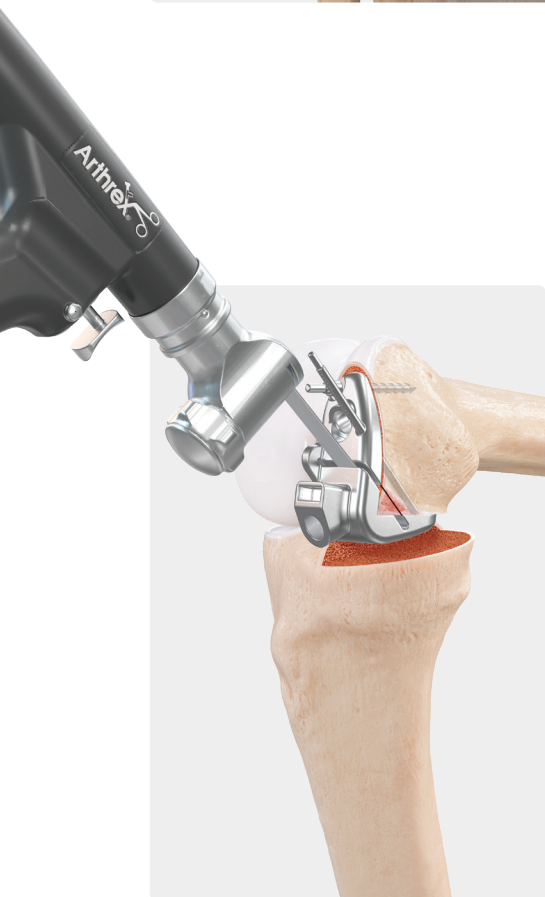
17

Using the chamfer and peg guide, size the femur and complete final preparation.

With the knee in flexion, place the guide on the distal and posterior resections, ensuring the guide is flush with each surface, including posteriorly. The profile of each size guide matches the profile of the corresponding femoral implant.

Align the lateral aspect of the guide flush with the lateral aspect of the medial condyle. When properly sized, there should be a 1-2 mm rim of exposed bone on the anterior and medial aspect of the distal resection. No overhang should be present.

Once the guide is properly oriented, pin the guide into place.



18a



18b



18c

Use proper retraction to protect the collateral ligament. Perform the captured chamfer cut using a 1.27 mm × 13 mm sagittal saw. Create the anterior and posterior lug holes using the femoral step drill.

Femoral Sizing, Chamfer Cut, and Peg-Hole Preparation



19a

Once the tibial and femoral cuts have been made, use the D-ring tibial trials, tibial bearing trials, and femoral component trials to assess the fit and position of the implants and the proper tensioning of the compartment.

In extension, the joint should be stable but not excessively tight as this can cause the contralateral compartment to be overstressed.



19b



19c

The correct tibial bearing thickness should allow the joint space to open up 1-2 mm under varus/valgus stress.

In flexion, the joint space should also open up 1-2 mm under stress. Anterior lift off of the tibial trial in flexion can indicate excess tightness in flexion.

Tibial Sizing and Preparation



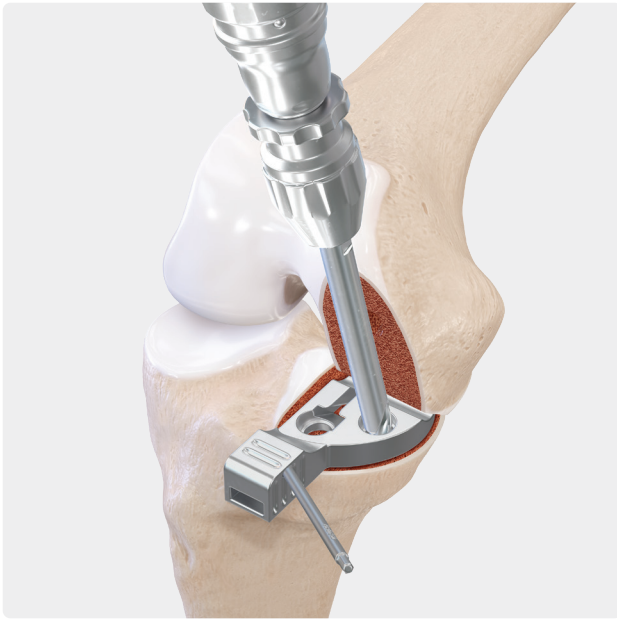
20

Choose the tibial sizing and finishing guide that matches the tibial trial used in the previous step. With the knee in flexion, place the guide on the proximal tibial resection. The profile of each size guide matches the profile of the corresponding tibial implant. Size the tibia independent of the prepared femoral size and ensure the exposed tibial bone is well covered without overhang.

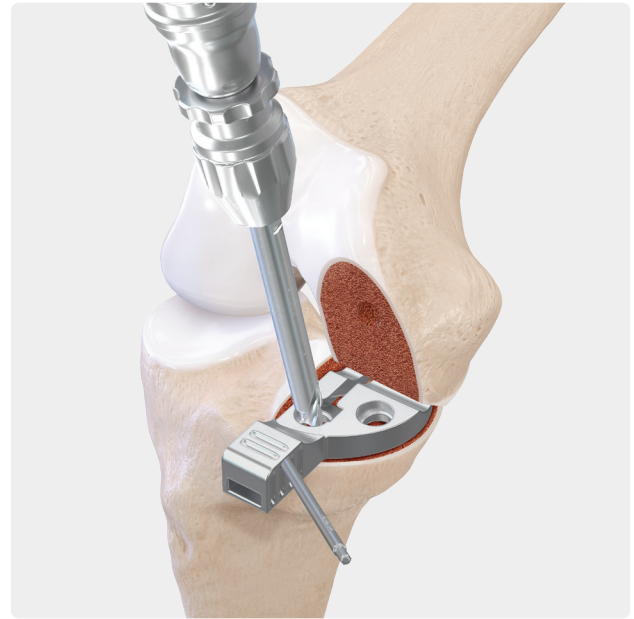
There are multiple methods of primary and secondary fixation of the tibial preparation guide.

Provisional fixation can be achieved through spikes on the bottom of the tibial preparation guide.

Primary fixation can be achieved by inserting a cross pin to fixate the device.



21a



21b

Use the tibial peg step drill to create the two tibial peg holes.



22a



22b

Insert the keel punch into the designated slot on the tibial guide. Mallet the keel punch down into the tibial plateau until the positive stop engages. Impact the keel punch until the tip is flush with the guide.

Implantation



23

Tibial Component

Implant the tibial component first. Apply cement to the backside of the component and the prepared tibial bone in the conventional technique. Manually place the tibial tray component onto the prepared tibia. Insert the keel of the tibial tray component into the prepared slot in the tibia, keeping the tibial tray parallel to the tibial resection and pushing the component from anterior to posterior and down into the prepared tibial surface at an angle of approximately 30°. Finish seating the tibial tray component using the tibial tray impactor. Remove excess cement from around the component using the cement removal tool.

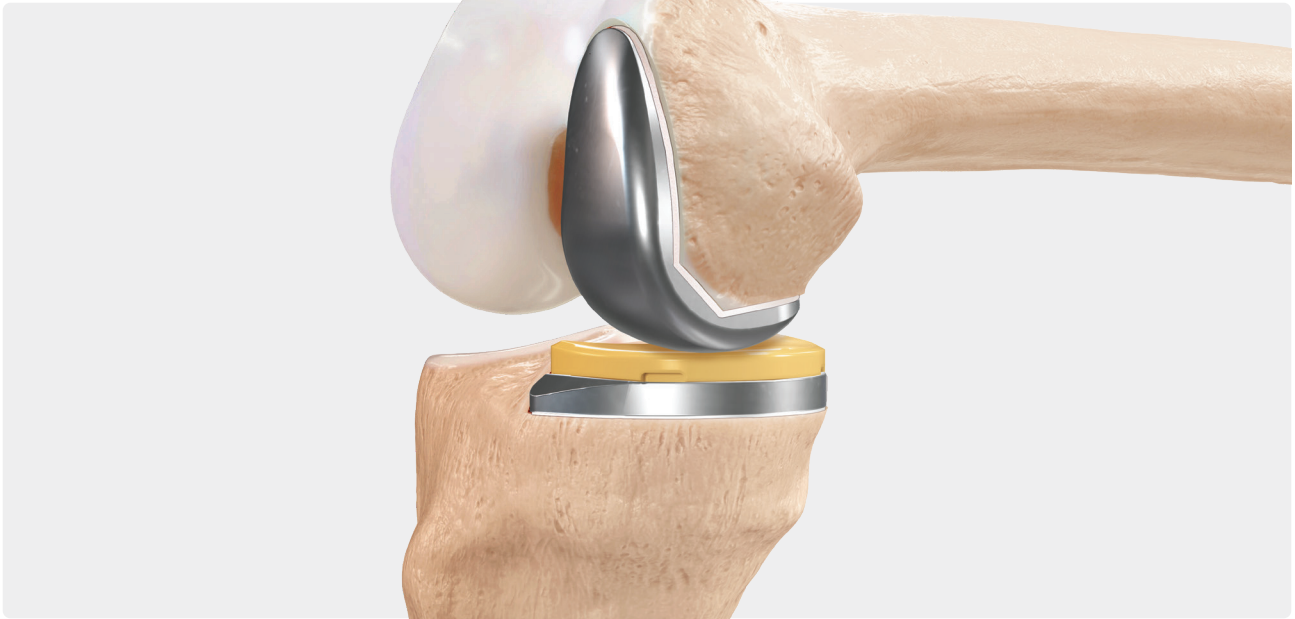
Optional: Time permitting, inserting a provisional tibial bearing before the femoral component can be beneficial to ensure easy insertion of the final polyethylene implant.



24

Femoral Component

Implant the femoral component with the leg in deep flexion. Apply cement to the backside of the component and the prepared femoral bone in the conventional technique. Manually finish seating the femoral component using the femoral impactor. Remove excess cement from around the component using the cement removal tool.



25

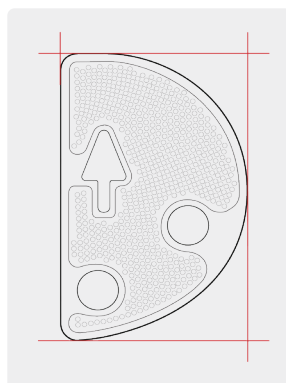
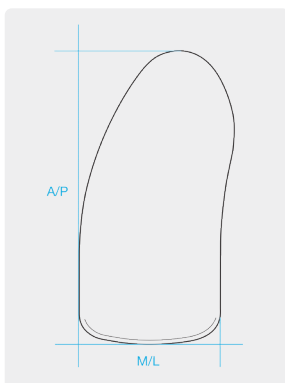
Tibial Component

Determine the final thickness of the tibial bearing component by using a tibial bearing trial placed in the definitive tibial tray component. As described in steps 19a, 19b, and 19c, the correct tibial bearing thickness should allow the joint space to open up 1-2 mm under varus/valgus stress (in both flexion and extension).

Place a tibial insert trial into the tibial component, reduce the knee, and bring it into full extension while the bone cement cures. Insert the tibial bearing implant after the cement has fully cured. Remove the tibial bearing trial using the tibial bearing trial puller instrument. Insert the final tibial bearing component into the tibial tray component anteriorly with the articulating surface facing the femoral component. Slide the tibial bearing component posteriorly until the posterior slot on the bearing engages the posterior lip on the tibial tray. Push the anterior edge of the tibial bearing down into the tibial tray component using thumb pressure until it snaps into place.

Note: A 5° clearance is built into the tibial bearing to facilitate insertion. A small gap at the anterior aspect between the tibial bearing and the tibial tray is normal once the bearing is fully seated.

Implant Dimensions



Femoral Components Sizing

	M/L	A/P
Size 1	19 mm	42 mm
Size 2	21 mm	45 mm
Size 3	22.75 mm	47 mm
Size 4	24.25 mm	50 mm
Size 5	25.5 mm	52 mm
Size 6	26.5 mm	54 mm

Tibial Component Sizing

	M/L	A/P
Size 1	24 mm	42 mm
Size 2	26 mm	45 mm
Size 3	28 mm	48.5 mm
Size 4	30 mm	51.5 mm
Size 5	32 mm	54.5 mm
Size 6	34 mm	58 mm

Ordering Information

Femoral Components

Femoral Components, size 1-6, LM	AR-501-UFLA – LF
Femoral Components, size 1-6, RM	AR-501-UFRA – RF

Polyethylene Components, Vitamin E

Tibial Bearing, size 1, 8 mm, Vit-E	AR-521-TBA8
Tibial Bearing, size 1, 9 mm, Vit-E	AR-521-TBA9
Tibial Bearing, size 1, 10 mm, Vit-E	AR-521-TBA0
Tibial Bearing, size 1, 11 mm, Vit-E	AR-521-TBA1
Tibial Bearing, size 1, 12 mm, Vit-E	AR-521-TBA2
Tibial Bearing, size 1, 14 mm, Vit-E	AR-521-TBA4
Tibial Bearing, size 2, 8 mm, Vit-E	AR-521-TBB8
Tibial Bearing, size 2, 9 mm, Vit-E	AR-521-TBB9
Tibial Bearing, size 2, 10 mm, Vit-E	AR-521-TBB0
Tibial Bearing, size 2, 11 mm, Vit-E	AR-521-TBB1
Tibial Bearing, size 2, 12 mm, Vit-E	AR-521-TBB2
Tibial Bearing, size 2, 14 mm, Vit-E	AR-521-TBB4
Tibial Bearing, size 3, 8 mm, Vit-E	AR-521-TBC8
Tibial Bearing, size 3, 9 mm, Vit-E	AR-521-TBC9
Tibial Bearing, size 3, 10 mm, Vit-E	AR-521-TBC0
Tibial Bearing, size 3, 11 mm, Vit-E	AR-521-TBC1
Tibial Bearing, size 3, 12 mm, Vit-E	AR-521-TBC2
Tibial Bearing, size 3, 14 mm, Vit-E	AR-521-TBC4
Tibial Bearing, size 4, 8 mm, Vit-E	AR-521-TBD8
Tibial Bearing, size 4, 9 mm, Vit-E	AR-521-TBD9
Tibial Bearing, size 4, 10 mm, Vit-E	AR-521-TBD0
Tibial Bearing, size 4, 11 mm, Vit-E	AR-521-TBD1
Tibial Bearing, size 4, 12 mm, Vit-E	AR-521-TBD2
Tibial Bearing, size 4, 14 mm, Vit-E	AR-521-TBD4
Tibial Bearing, size 5, 8 mm, Vit-E	AR-521-TBE8
Tibial Bearing, size 5, 9 mm, Vit-E	AR-521-TBE9
Tibial Bearing, size 5, 10 mm, Vit-E	AR-521-TBE0
Tibial Bearing, size 5, 11 mm, Vit-E	AR-521-TBE1
Tibial Bearing, size 5, 12 mm, Vit-E	AR-521-TBE2
Tibial Bearing, size 5, 14 mm, Vit-E	AR-521-TBE4
Tibial Bearing, size 6, 8 mm, Vit-E	AR-521-TBF8
Tibial Bearing, size 6, 9 mm, Vit-E	AR-521-TBF9
Tibial Bearing, size 6, 10 mm, Vit-E	AR-521-TBF0
Tibial Bearing, size 6, 11 mm, Vit-E	AR-521-TBF1
Tibial Bearing, size 6, 12 mm, Vit-E	AR-521-TBF2
Tibial Bearing, size 6, 14 mm, Vit-E	AR-521-TBF4

Tibial Components

Tibial Tray Components, size 1-6, LM	AR-511-T1L – T6L
Tibial Tray Components, size 1-6, RM	AR-511-T1R – T6R

iBalance® UKA Efficiency Instrumentation Set	AR-621-S
iBalance UKA Efficiency Instrument Case	AR-611-44
iBalance UKA Reusable Tibial Cutting Guide Left	AR-621-TRL
iBalance UKA Reusable Tibial Cutting Guide Right	AR-621-TRR
iBalance UKA Reusable Tibial Cutting Guide Hook	AR-621-TRH
iBalance UKA Tibia Recut Shim	AR-621-TRS
iBalance UKA Alignment Rod 12"	AR-621-9
UKA Spacer Block 8 mm	AR-621-SB08
UKA Spacer Block 9 mm	AR-621-SB09
UKA Spacer Block 10 mm	AR-621-SB10
UKA Spacer Block 11 mm	AR-621-SB11
UKA Spacer Block 12 mm	AR-621-SB12
UKA Spacer Block +2 mm Shim	AR-621-SM02
UKA Spacer Block Composite	AR-621-SB
iBalance UKA Bilateral Distal Cutting Block, Std	AR-621-DCB
iBalance UKA Bilateral Distal Cutting Block, +1 mm	AR-621-DCB1
iBalance UKA Bilateral Distal Cutting Block, -1 mm	AR-621-DCB2
iBalance UKA Bilateral Posterior Cutting Block, Std	AR-621-PCB
iBalance UKA Bilateral Posterior Cutting Block, +1 mm	AR-621-PCB1
iBalance UKA Bilateral Posterior Cutting Block, -1 mm	AR-621-PCB2
iBalance UKA Bilateral +2 mm ReCUT	AR-621-RCB
UKA Quick-Connect Handle	AR-611-8
Mini AO Quick-Connect Handle	AR-13221AOC
Threaded Pin, headed, short	AR-611-15
iBalance TKA, trocar pin, smooth	AR-613-50
Pin Caddy	AR-611-16
2.4 mm × 75 mm Fixation Pin	AR-611-41
2.4 mm × 90 mm Fixation Pin	AR-611-42
Tibia Resection Guide Pin Caddy	AR-611-43
Porous UKA Peg and Chamfer Guide, size 1, LM/RL	AR-621-CL1
Porous UKA Peg and Chamfer Guide, size 2, LM/RL	AR-621-CL2
Porous UKA Peg and Chamfer Guide, size 3, LM/RL	AR-621-CL3
Porous UKA Peg and Chamfer Guide, size 4, LM/RL	AR-621-CL4
Porous UKA Peg and Chamfer Guide, size 5, LM/RL	AR-621-CL5
Porous UKA Peg and Chamfer Guide, size 6, LM/RL	AR-621-CL6
Porous UKA Peg and Chamfer Guide, size 1, RM/LL	AR-621-CR1
Porous UKA Peg and Chamfer Guide, size 2, RM/LL	AR-621-CR2
Porous UKA Peg and Chamfer Guide, size 3, RM/LL	AR-621-CR3
Porous UKA Peg and Chamfer Guide, size 4, RM/LL	AR-621-CR4
Porous UKA Peg and Chamfer Guide, size 5, RM/LL	AR-621-CR5
Porous UKA Peg and Chamfer Guide, size 6, RM/LL	AR-621-CR6
iBalance UKA Bilateral Femoral Trial, size 1	AR-621-FT1
iBalance UKA Bilateral Femoral Trial, size 2	AR-621-FT2
iBalance UKA Bilateral Femoral Trial, size 3	AR-621-FT3
iBalance UKA Bilateral Femoral Trial, size 4	AR-621-FT4
iBalance UKA Bilateral Femoral Trial, size 5	AR-621-FT5
iBalance UKA Bilateral Femoral Trial, size 6	AR-621-FT6
iBalance UKA, femoral peg drill, dia. 260	AR-611-11
iBalance UKA, tibial keel punch	AR-611-9
iBalance UKA, tibia peg drill	AR-611-10

iBalance® UKA, tib prep guide, size 1, LM/RL	AR-611-T1L
iBalance UKA, tib prep guide, size 2, LM/RL	AR-611-T2L
iBalance UKA, tib prep guide, size 3, LM/RL	AR-611-T3L
iBalance UKA, tib prep guide, size 4, LM/RL	AR-611-T4L
iBalance UKA, tib prep guide, size 5, LM/RL	AR-611-T5L
iBalance UKA, tib prep guide, size 6, LM/RL	AR-611-T6L
iBalance UKA, tib prep guide, size 1, RM/LL	AR-611-T1R
iBalance UKA, tib prep guide, size 2, RM/LL	AR-611-T2R
iBalance UKA, tib prep guide, size 3, RM/LL	AR-611-T3R
iBalance UKA, tib prep guide, size 4, RM/LL	AR-611-T4R
iBalance UKA, tib prep guide, size 5, RM/LL	AR-611-T5R
iBalance UKA, tib prep guide, size 6, RM/LL	AR-611-T6R
UKA Tibial Impactor, gen 2	AR-621-6
iBalance SportsPlasty™ UKA, femoral impactor	AR-611-6
Meniscal Allograft Dilating Rasp, slot	AR-2963BR
iBalance SportsPlasty UKA, angel wing, narrow body	AR-623-76
iBalance TKA, pin driver	AR-613-91
iBalance UKA, tibial trailing shim	AR-611-7
iBalance UKA, tibial bearing trial, size 1, 8 mm thickness	AR-601-TBA8
iBalance UKA, tibial bearing trial, size 1, 9 mm thickness	AR-601-TBA9
iBalance UKA, tibial bearing trial, size 1, 10 mm thickness	AR-601-TBA0
iBalance UKA, tibial bearing trial, size 2, 8 mm thickness	AR-601-TBB8
iBalance UKA, tibial bearing trial, size 2, 9 mm thickness	AR-601-TBB9
iBalance UKA, tibial bearing trial, size 2, 10 mm thickness	AR-601-TBB0
iBalance UKA, tibial bearing trial, size 3, 8 mm thickness	AR-601-TBC8
iBalance UKA, tibial bearing trial, size 3, 9 mm thickness	AR-601-TBC9
iBalance UKA, tibial bearing trial, size 3, 10 mm thickness	AR-601-TBC0
iBalance UKA, tibial bearing trial, size 4, 8 mm thickness	AR-601-TBD8
iBalance UKA, tibial bearing trial, size 4, 9 mm thickness	AR-601-TBD9
iBalance UKA, tibial bearing trial, size 4, 10 mm thickness	AR-601-TBD0
iBalance UKA, tibial bearing trial, size 5, 8 mm thickness	AR-601-TBE8
iBalance UKA, tibial bearing trial, size 5, 9 mm thickness	AR-601-TBE9
iBalance UKA, tibial bearing trial, size 5, 10 mm thickness	AR-601-TBE0
iBalance UKA, tibial bearing trial, size 6, 8 mm thickness	AR-601-TBF8
iBalance UKA, tibial bearing trial, size 6, 9 mm thickness	AR-601-TBF9
iBalance UKA, tibial bearing trial, size 6, 10 mm thickness	AR-601-TBF0

iBalance UKA, base plate trial, size 1	AR-611-34
iBalance UKA, base plate trial, size 2	AR-611-35
iBalance UKA, base plate trial, size 3	AR-611-36
iBalance UKA, base plate trial, size 4	AR-611-37
iBalance UKA, base plate trial, size 5	AR-611-38
iBalance UKA, base plate trial, size 6	AR-611-39
iBalance UKA, tibial trial handle	AR-611-18
iBalance UKA, trial bearing puller	AR-601-TBPO

This description of technique is provided as an educational tool and clinical aid to assist properly licensed medical professionals in the usage of specific Arthrex products. As part of this professional usage, the medical professional must use their professional judgment in making any final determinations in product usage and technique. In doing so, the medical professional should rely on their own training and experience and should conduct a thorough review of pertinent medical literature and the product's directions for use. Postoperative management is patient-specific and dependent on the treating professional's assessment. Individual results will vary and not all patients will experience the same postoperative activity level or outcomes.



Arthrex manufacturer, authorized representative, and importer information (Arthrex eFUs)



US patent information