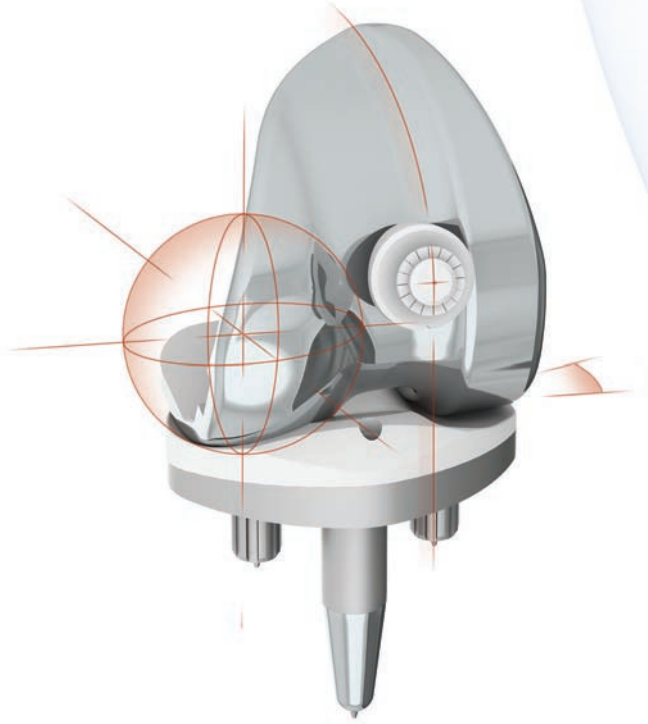
MatOrtho®



Medial Rotation Knee™

Anterior Cut First
Operative Technique

Physiological Stability and
Mobility for the Active Knee
Without Compromise

Forever **Active**

Contents

Procedure and instrumentation developed in collaboration with

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Patents

EP1329205 / US6869448

GB2306653 / US5800438

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Introduction

The Medial Rotation Knee™ was developed using clinical experience gained since the first condylar knee replacement was performed at the Royal London Hospital in 1968[1,2]. It has been in clinical use since 1994.

The tibiofemoral bearing design is based on the principle of medial rotation, which mimics the function of the normal healthy knee[3,4]. It comprises a prominent spherical medial condyle, similar to a ball-and-socket joint, which stabilises the medial condyle throughout flexion. The lateral side is a conforming cylinder that permits some laxity and can be thought of as a stabilising 'outrigger'.

The patellofemoral design has been designed with a trochlear groove that aids more normal patellar tracking[5], positioned lateral to the midline throughout flexion to reflect the natural position of the patella. The deep trochlear groove and smooth single radius allow for increased conformity and stability of the patella throughout flexion.

This combination of asymmetric tibiofemoral and patellofemoral articulations provides optimal knee kinematics, whilst maintaining intrinsic stability throughout the functional flexion range. This superior combination of stability and mobility is associated with improved high-end function[6] and low revision rate[7].

Indications

Severely painful and/or disabled joint resulting from osteoarthritis, traumatic arthritis, rheumatoid arthritis or a failed previous implant.

Contraindications

Active local or systemic infection, severe osteoporosis or severe neurological, vascular or muscular compromise such that knee replacement is inappropriate.

Severe bone loss or collateral ligament instability.

References

1. Freeman and Swanson (1972) JBJS; 54-B(1): 170-171
2. Freeman et al. (1978) JBJS; 60-B(3): 339-344
3. Iwaki et al. (2000) JBJS; 82-B: 1189-1195
4. Monoot et al. (2009) KSSTA; 17: 927-934
5. Rhee et al. (2012) JBJS; 94-B (SUPP IX) : 90
6. Hossain et al. (2011) CORR; 469(1): 55-63
7. NJR for England, Wales, Northern Ireland and Isle of Man, 12th Annual Report (2015)

Step 1

Preoperative assessment

The size and position of both tibial and femoral components can be assessed using the x-ray images and the Medial Rotation Knee™ knee templates provided for preoperative planning.

Radiological features to consider are: AFC (Anterior Femoral Condyles) offset, FC (Femoral Condyles) hypoplasia/ bone loss, tibial condylar bone loss/resection level.

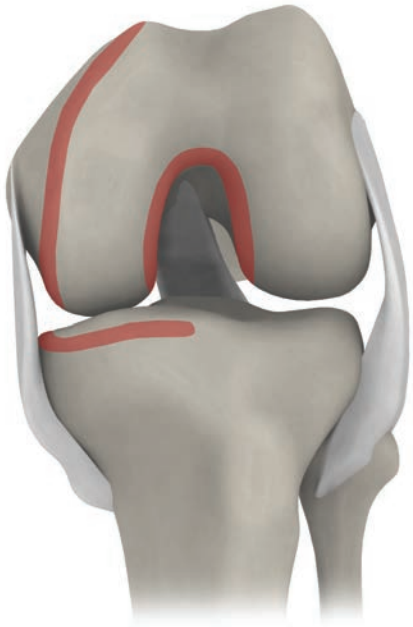
The appropriate size components are confirmed intraoperatively.

X-rays can be used to predict the amount of tibial resection from medial and lateral condyles.

Step 2

Exposure

Perform your standard approach to enable adequate visualisation of the relevant structures. Anterior subluxation of the tibia in relation to the femur in flexion is recommended.

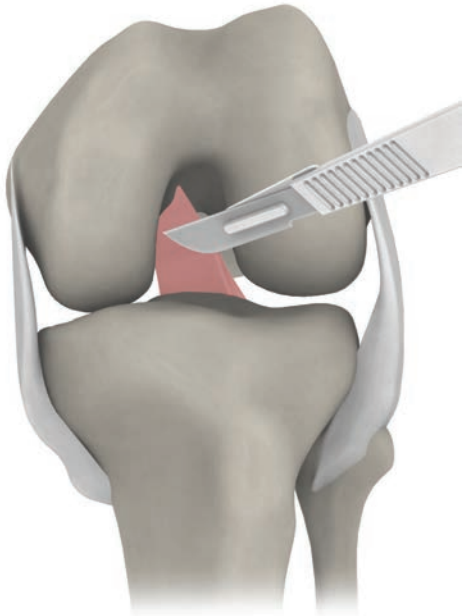


The following points should be observed:

1 Releasing the patellofemoral ligament and partial resection of the patella fat pad may facilitate patella eversion.

2 Marking Whiteside's line for femoral rotational assessment and the intercondylar axis of the tibia may enhance accuracy of Femoral Alignment Jig placement.

3 Removal of prominent anteromedial osteophytes from the femur along with clearance of the intercondylar notch will facilitate the subsequent steps.



Resect the posterior cruciate ligament for better access to the knee and to avoid limited range of motion.

Step 3

Assemble the Tibial Alignment Guide

Note: Preparation of the Tibial Alignment Guide is shown on page 27.

Take care to select the appropriate Tibial Cutting Block for the operated side.

The following sequence of steps is suggested for application of the Tibial Alignment Guide:

1 Ensure all locks are in the open position.

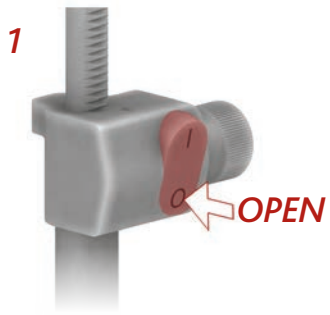
2 Place the Ankle Clamp above the malleoli, with the long axis of the guide positioned to the anterior and tighten the clamp.

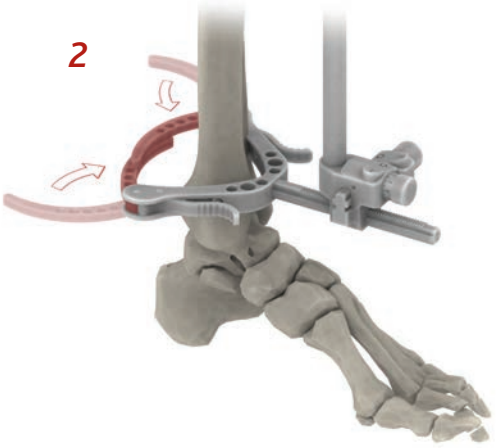
3 Rest the Proximal Aiming Arm in the centre of the tibial plateau with the Pins retracted. Engage the posterior spike in the posterior third of the tibial spine with gentle impaction.

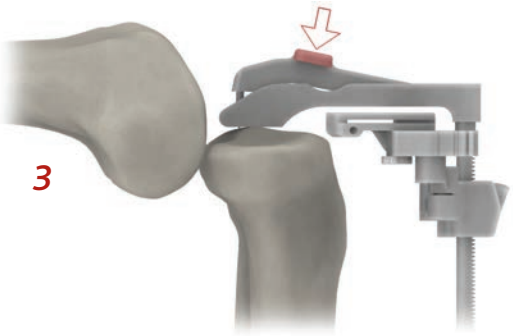
Confirm satisfactory rotation and engage the second Pin spike with further gentle impaction on the strike plate.

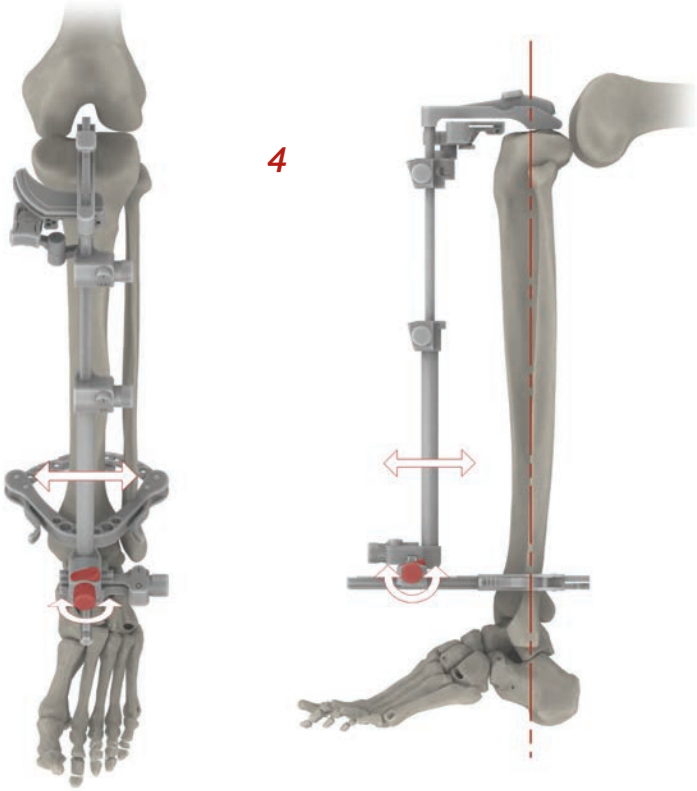
4 Using the adjusters, correct alignment in the saggital and coronal planes and sequentially engage each lock.

The tibial cutting plane is perpendicular to the long axis of the guide. Therefore, it is suggested that to achieve a neutral tibial slope, the axis of the guide should be parallel with the anatomical axis of the tibia.







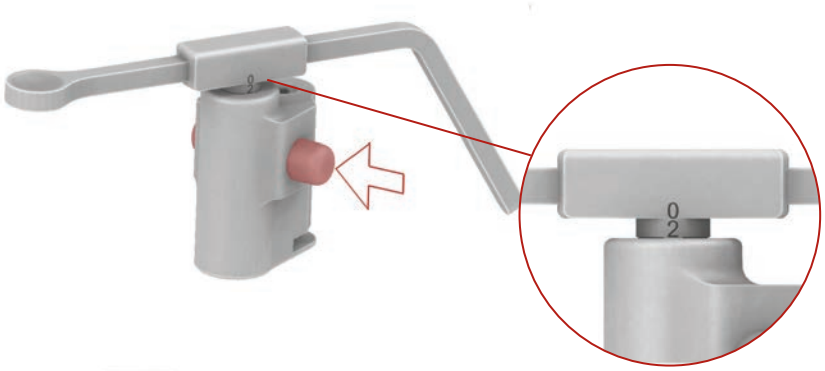


Step 4

Position Tibial Cutting Block

Set the resection level on the stylus adjuster and lock.

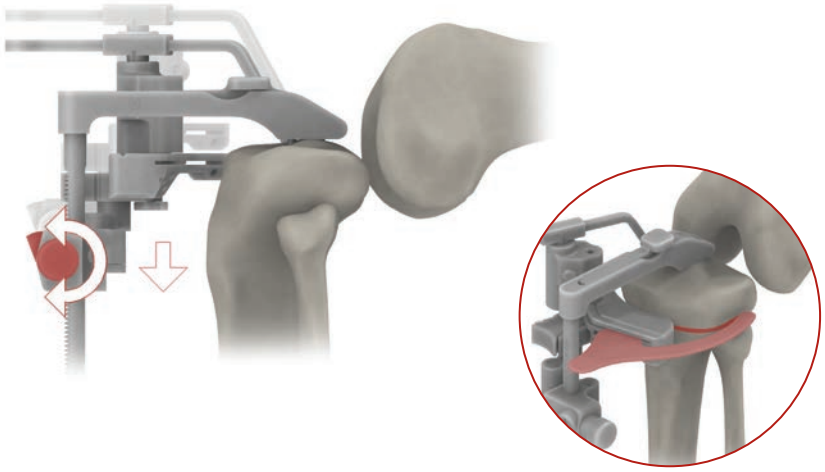
A typical resection level of 2mm below the subchondral plate will usually facilitate a 10.5mm tibial insert. Take care not to resect excessive bone at this stage.



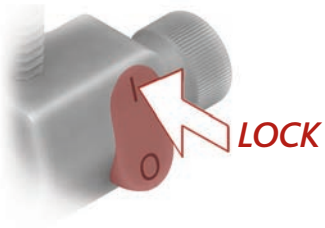
Attach the Tibial Stylus to the Tibial Cutting Block on the side of the chosen reference condyle.

Unlock the Tibial Cutting Block positioning arm and lower the Tibial Cutting Block until the stylus lightly contacts the chosen reference condyle.

An Angel Wing can be used at any time to visualise the cutting plane.



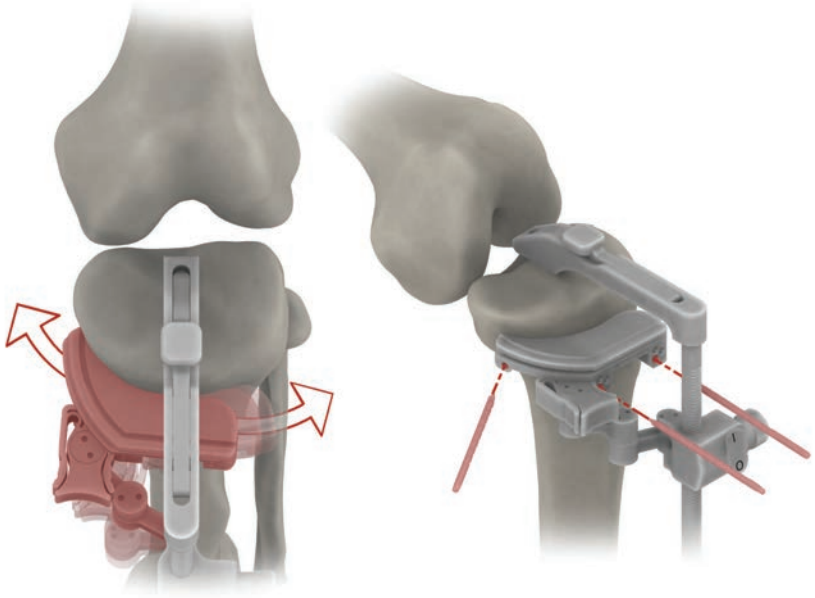
When the appropriate tibial resection height is obtained, lock the Tibial Cutting Block.



Manipulate the FreedomLink to obtain best-fit position of the cutting block on the medial tibial condyle.

Pin the Tibial Cutting Block through the two lowest anterior holes (0mm position) with long Precision Pins. Slide the Cutting Block towards the tibia as far as it will go and insert a medial oblique Pin.

Note: The resection plane is maintained in any position.

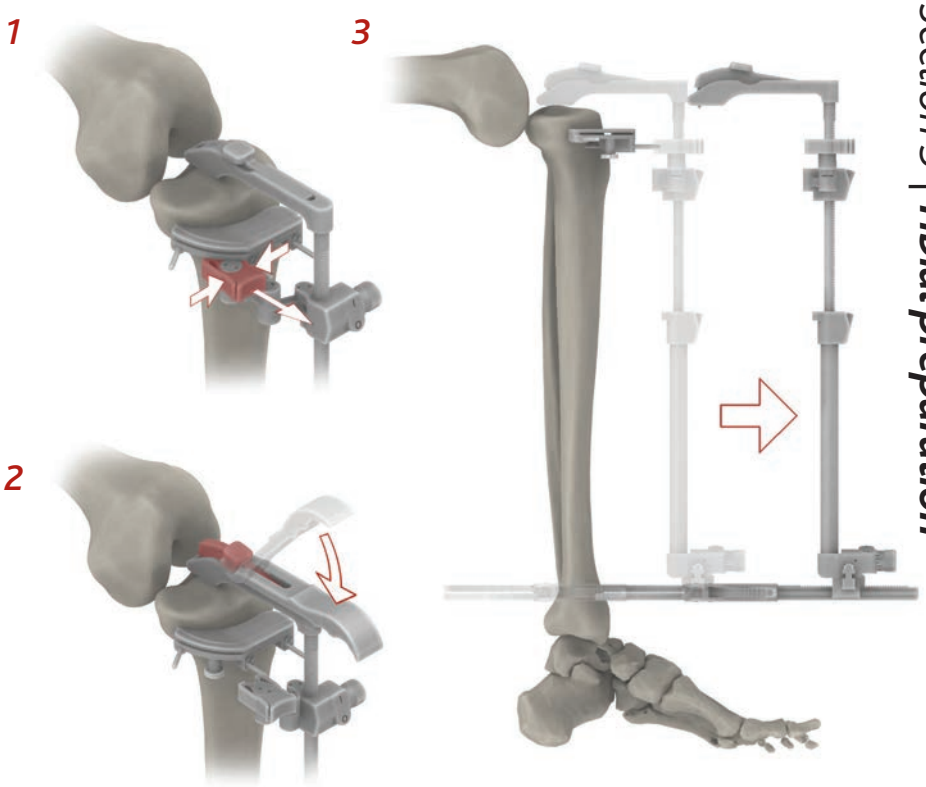


Step 5

Remove Tibial Alignment Guide

Release the Spring Clip from the Tibial Cutting Block.

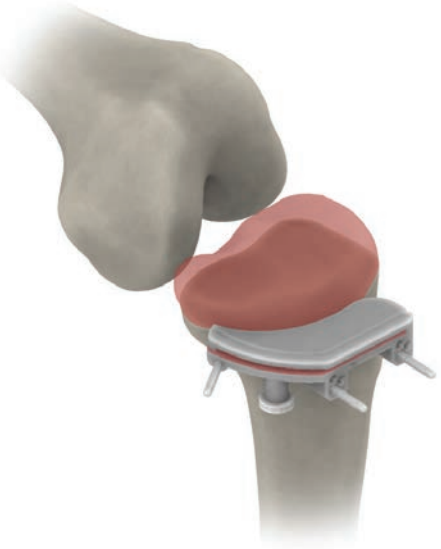
Using the Extractor Lever, disengage the proximal spiked arm, release the Ankle Clamp and remove the Tibial Alignment Guide.



Step 6

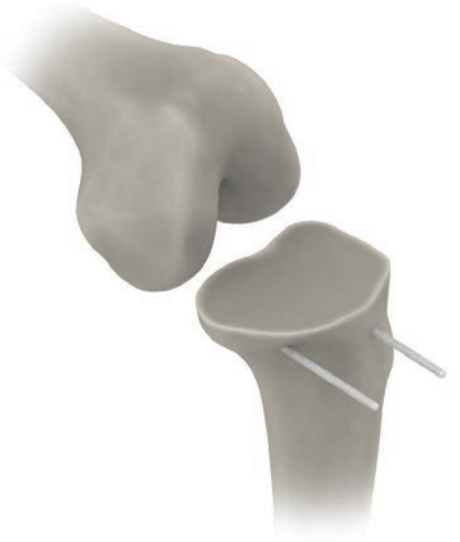
Resect tibia

Resect the tibia with a 1.27mm thick saw blade.



Remove the medial oblique Pin and the Cutting Block, leaving the parallel anterior pins in place in case additional resection is later required.

Check that the cut is complete and is flat. Remove any remaining tibial osteophytes.

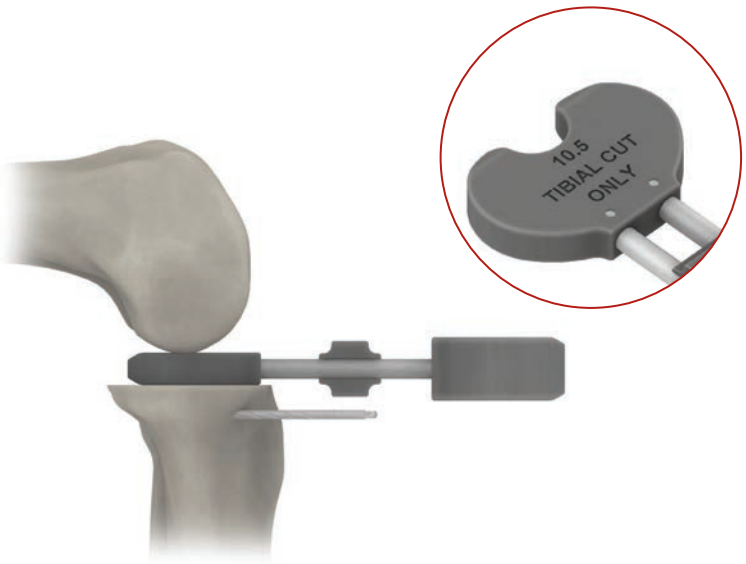


Step 7

Check tibial resection (optional)

Check alignment and that the minimum thickness of Tibial Component Assembly can be used.

With the leg at 90° flexion, insert the "Tibial Cut Only" end of the Dual-Ended spacer corresponding to the initially planned tibial component thickness. If it cannot be inserted, additional tibial resection is required.



Additional tibial resection (if required)

If additional resection is required, replace the Tibial Cutting Block on the two anterior Pins at the -2mm or -4mm position, depending on the additional resection required. Resect the tibia.

Recheck the knee in flexion with the "Tibial Cut Only" end of the Dual-Ended Spacer.

Correction of tibial resection angle (if required)

Check the tibial resection angle with the External Alignment Rod mounted on the Dual-Ended Spacer central carriage.

If the angle of tibia resection requires correction, reassemble the Tibial Alignment Guide on the tibia. With the Tibial Cutting Block adjuster switched to the unlocked position, reconnect the Tibial Cutting Block to the FreedomLink arm. Remove one anterior Pin and slide the Tibial Cutting Block onto the remaining Pin (if varus/valgus adjustment) or remove both pins (if posterior slope adjustment).

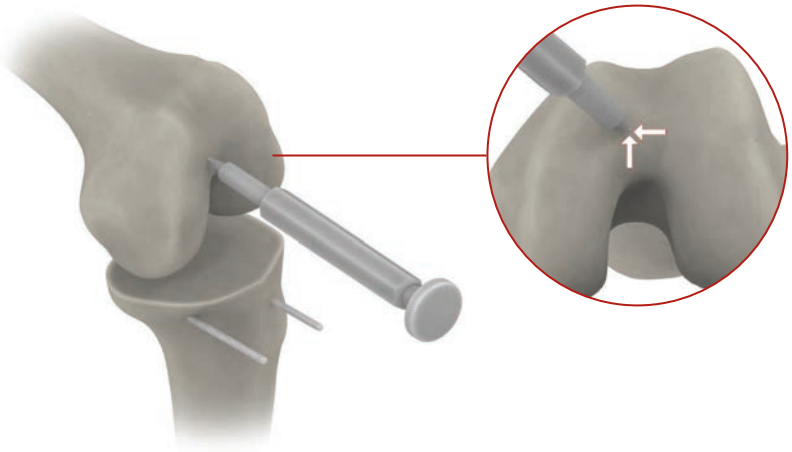
Adjust the alignment of the Tibial Guide as required.

Replace the anterior Pin(s). If the adjusted angle is small, it may be necessary to select an alternative hole to avoid re-pinning in the original position.

Step 8

Insert IM Rod

Punch an Intramedullary (IM) start hole 5-10mm anterior to the intercondylar notch and 5-10mm medial to the midline.

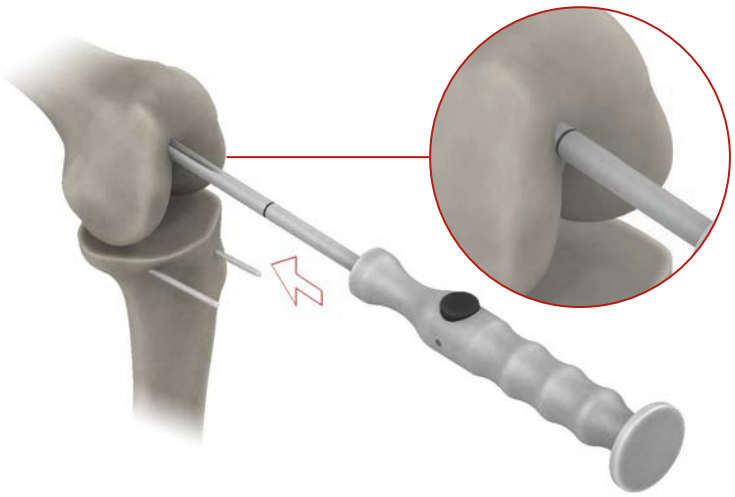


Advance the IM Drill along the femoral canal towards the end of the flutes.

The conical reamer design enables easy, self-guiding passage in the femoral canal. After breaching the subchondral bone, gentle hand guidance only is required. Do not expand the entry hole.

Advance the IM Rod until the depth reference line meets the distal femur.

Remove the Large Handle.



Step 9

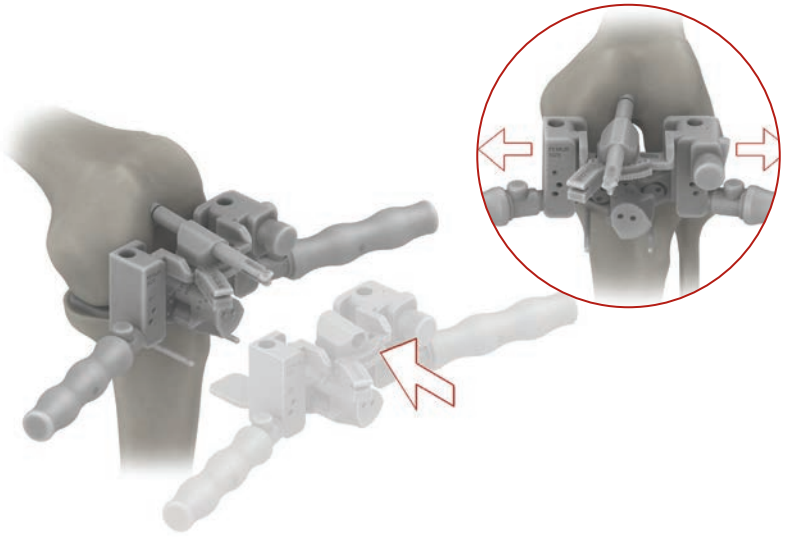
Assemble Anterior Femoral Alignment Jig

Note: Preparation of the Anterior Femoral Alignment Jig is shown on page 28.

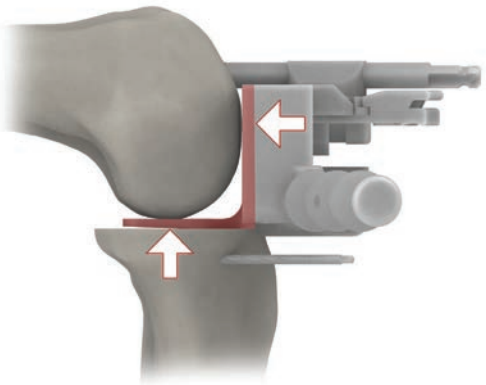
Set the External Rotation to the desired angle for the left or right leg. An External Rotation of 3° is the recommended default setting.

Set the valgus angle left or right as required. An angle between 5° and 7° is recommended.

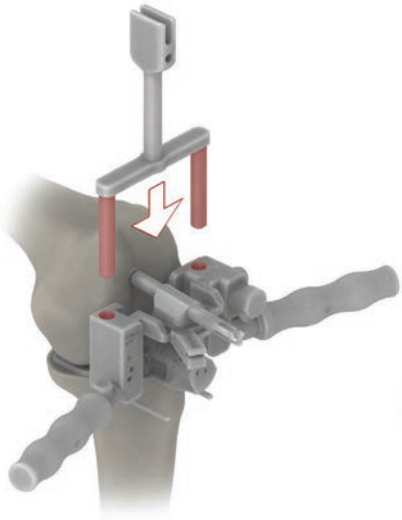
Slide the Femoral Alignment Jig over the IM Rod, through the hole of the Valgus Adjuster until the jig is positioned up against the distal femoral condyles.

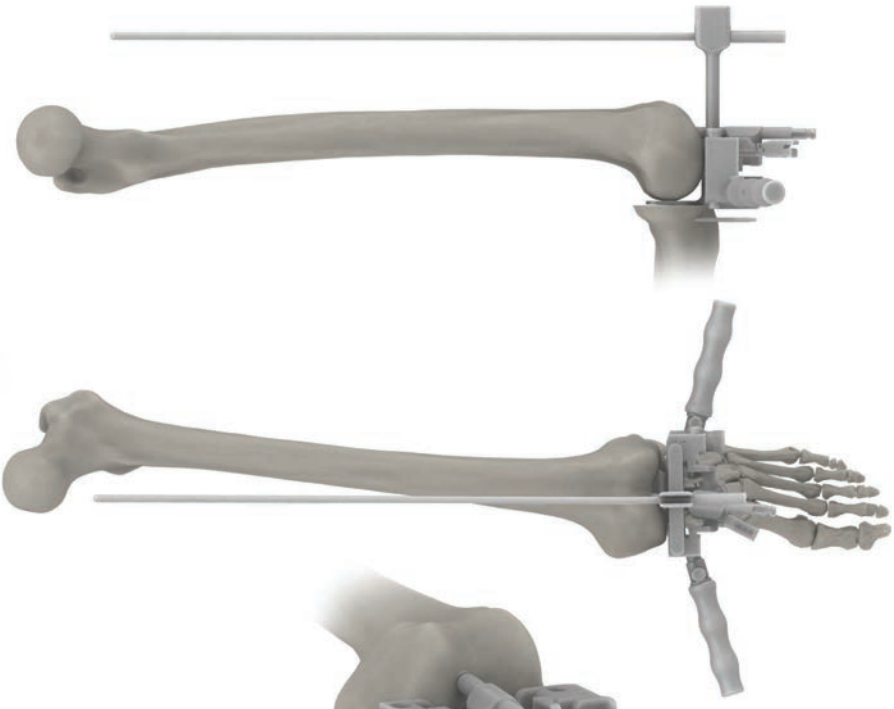


With the knee at 90° of flexion, allow the weight of the femur to sit down onto the posterior footplate and the cut tibia. Ensure that there is direct contact between the posterior femoral condyles and the footplate medially and laterally.

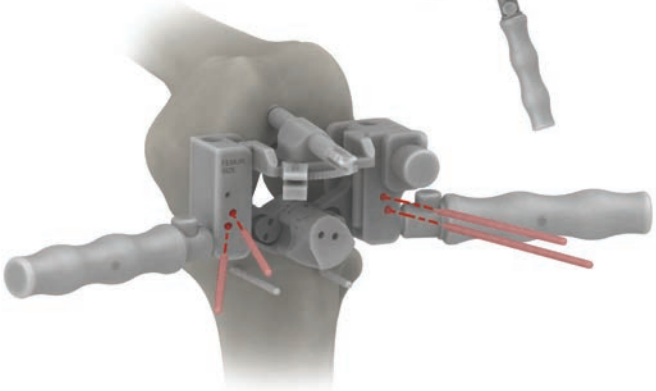


Optionally, check the femoral axis alignment using the External Alignment Rod Holder with the External Alignment Rod.





Secure the Femoral Alignment Jig with long Precision Pins.



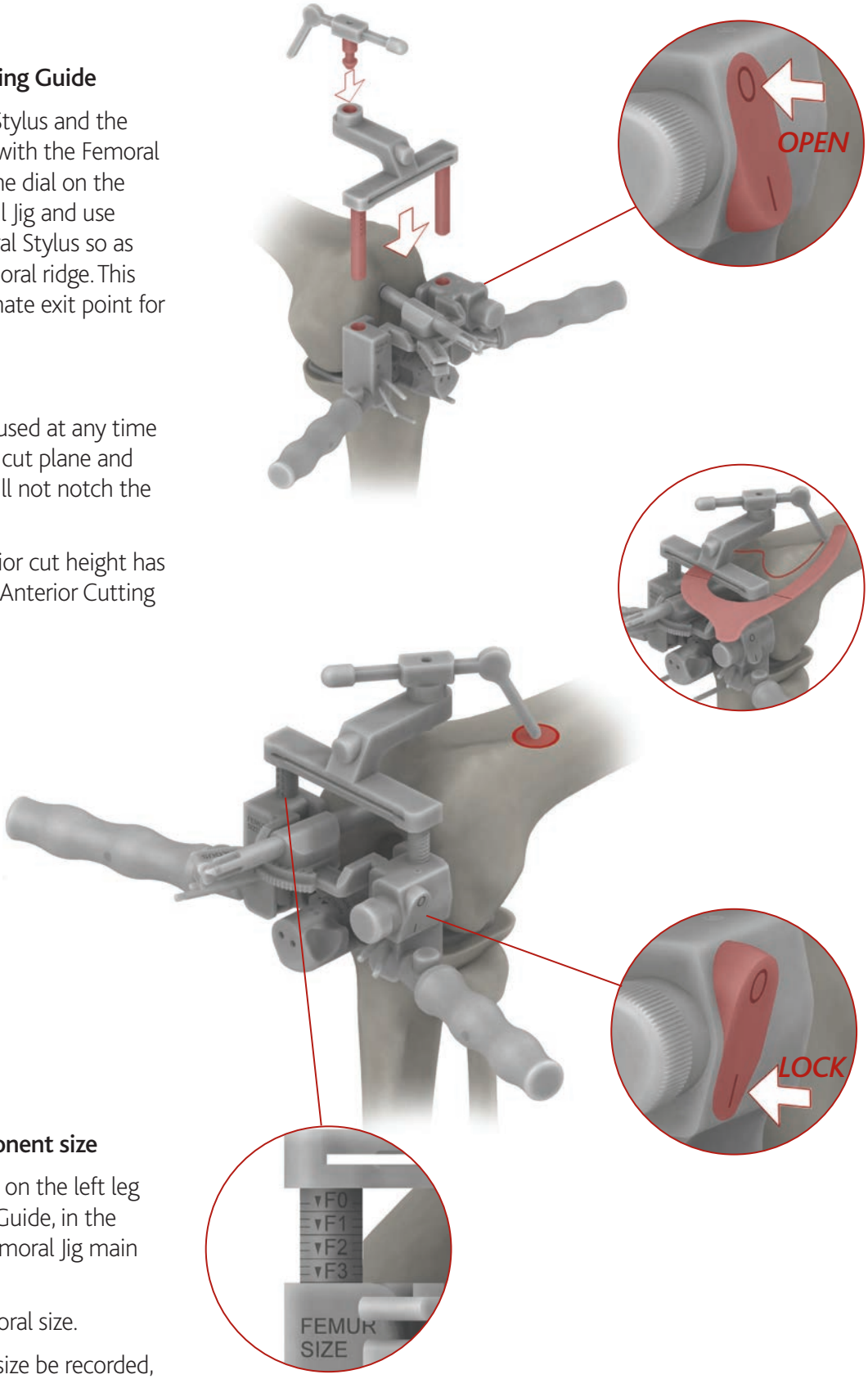
Step 10

Position Anterior Cutting Guide

Assemble the Femoral Stylus and the Anterior Cutting Guide with the Femoral Jig main body. Unlock the dial on the right side of the Femoral Jig and use it to position the Femoral Stylus so as to touch the lateral femoral ridge. This represents the approximate exit point for the cut.

The Angel Wing can be used at any time to visualise the anterior cut plane and to check that the cut will not notch the femur.

When the desired anterior cut height has been achieved, lock the Anterior Cutting Guide into position.



Step 11

Record femoral component size

The femur size is shown on the left leg of the Anterior Cutting Guide, in the intersection with the Femoral Jig main body upper surface.

Note the indicated femoral size.

Should an 'in-between' size be recorded, it is usually appropriate to record the smaller size but to still cut at the selected level.

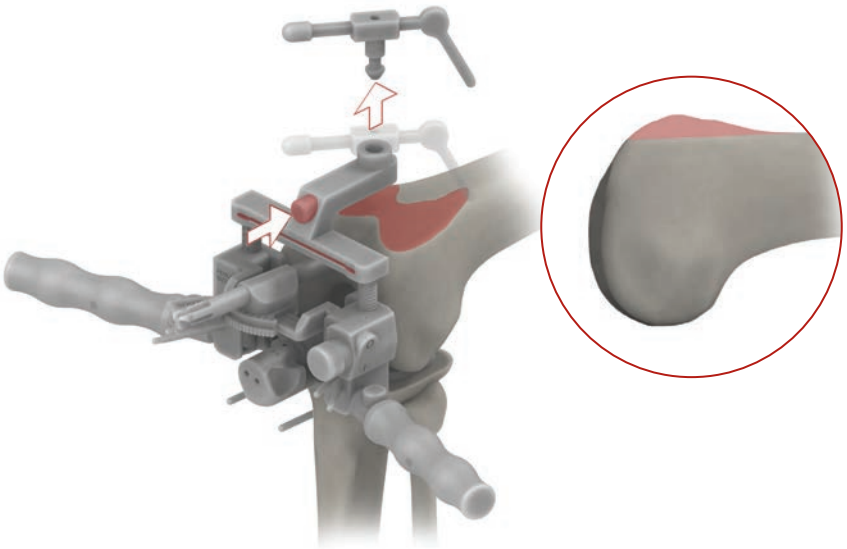
Step 12

Resect anterior femur

Remove the Femoral Stylus.

Cut the anterior femur and check that it is flat.

Unlock the Anterior Cutting Guide and remove from the Femoral Alignment Jig main body.



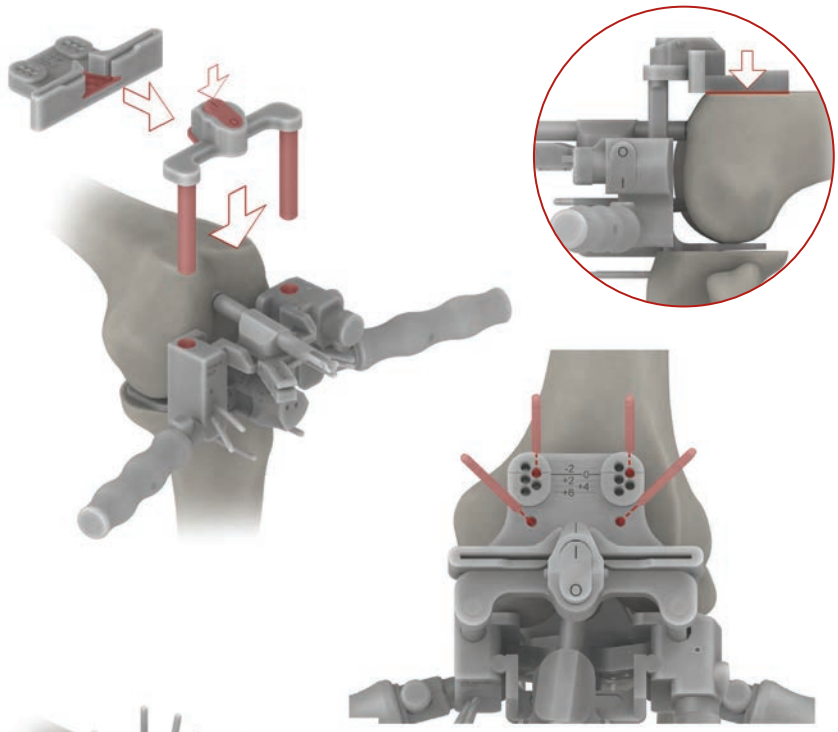
Step 13

Position Distal Cutting Guide

Attach the Distal Cutting Block to the Distal Cutting Block Guide and lock in place.

Slide the Distal Cutting Block Guide onto the Femoral Alignment Jig main body so that the Distal Cutting Block rests flat on the anterior cut.

Pin the Distal Cutting Block through the pin holes (at the 0mm position). Add additional oblique pins as required to ensure that the Distal Cutting Block is secure and in full contact with the bone.

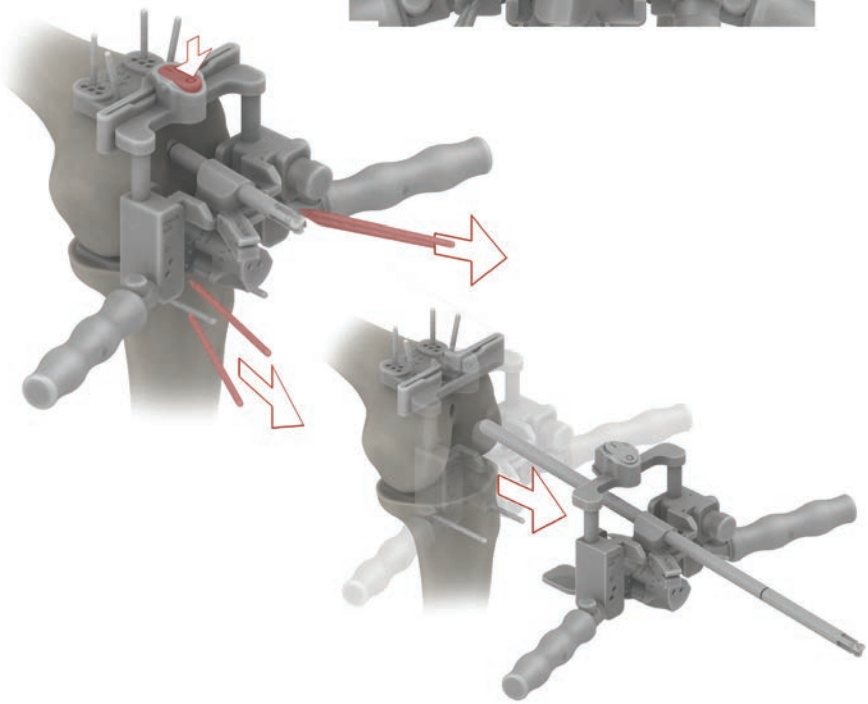


Step 14

Remove Distal Cutting Guide assembly

Unlock the Distal Cutting Block Guide.

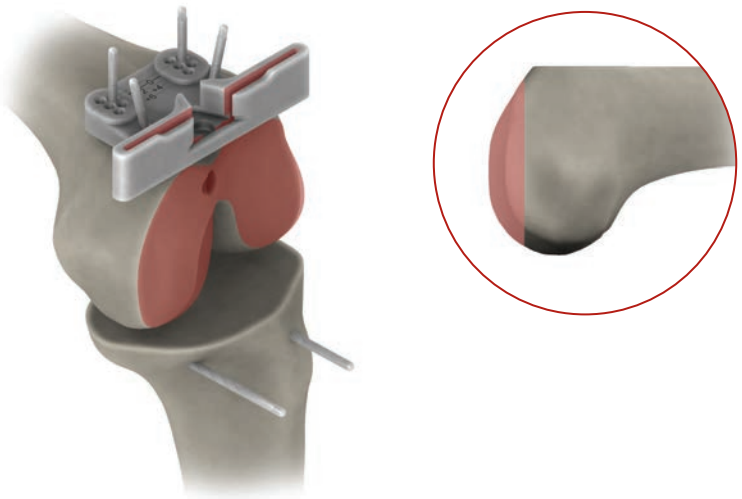
Remove the pins of the Femoral Alignment Jig and slide the jig off the femur with the IM Rod, leaving only the Distal Cutting Block for resection.



Step 15

Resect the distal femur

Cut the distal femur and check that it is flat.



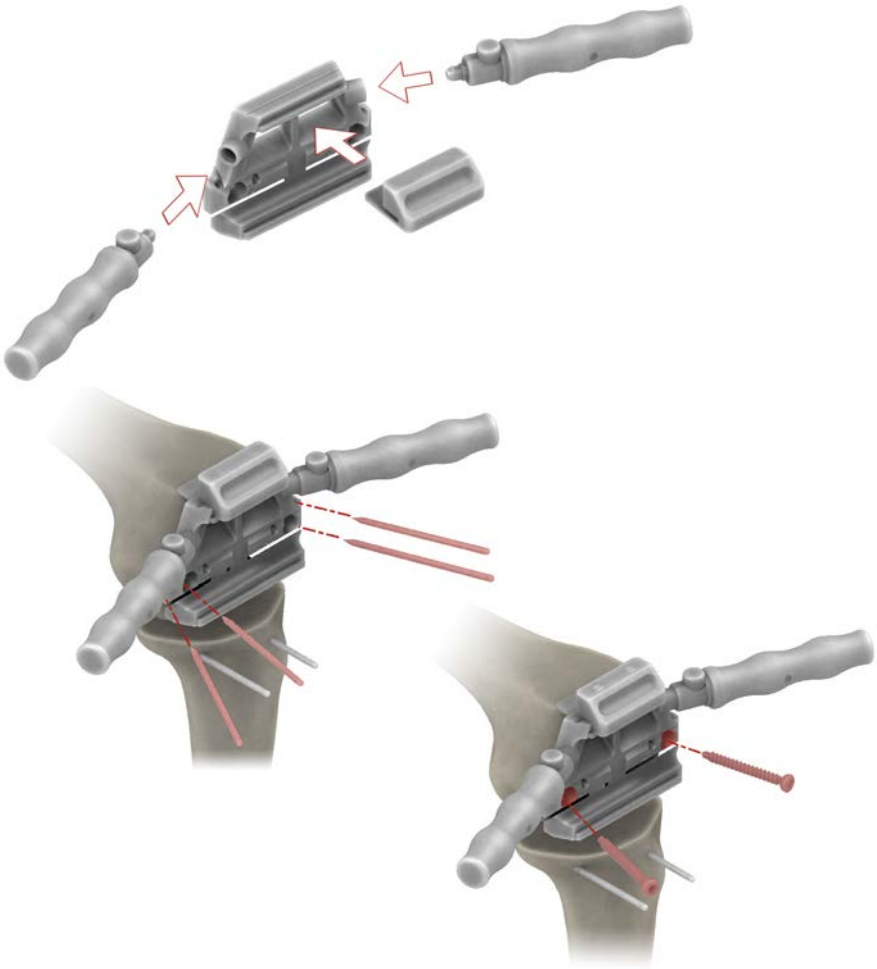
Step 16

Placing the Multicut Block

Assemble the relevant size femoral Multicut Block with the Standard Anterior Reference Plate and, optionally, the Small Handles.

Place the Multicut Block so that it lies flush with the anterior and distal femur cuts.

Secure the Multicut Block with medial and lateral pins or, optionally, with screws.

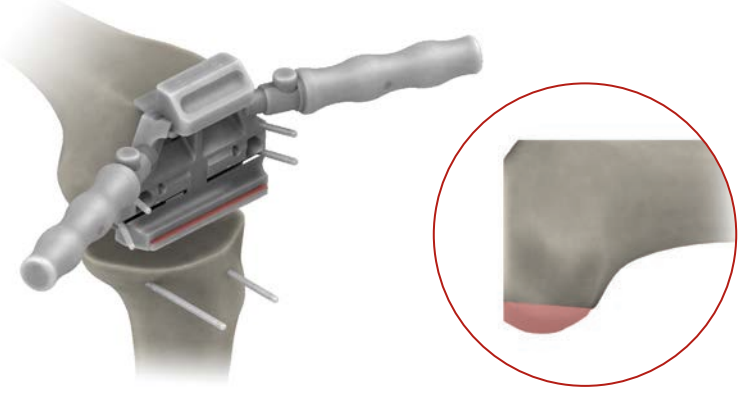


Step 17

Resect the posterior condyles

Resect the posterior femoral condyles.

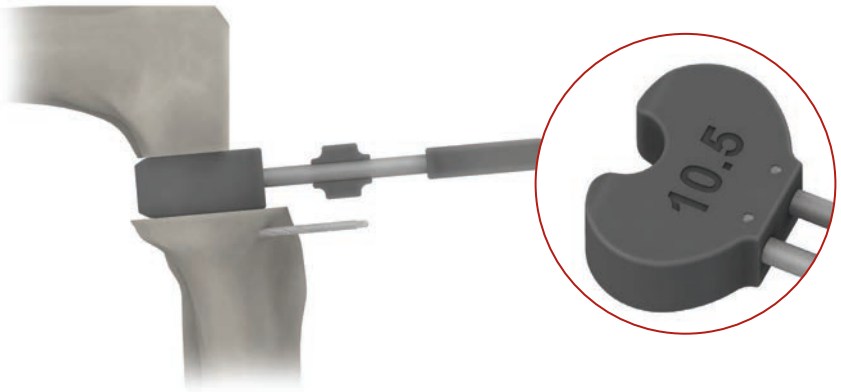
Remove the Multicut Block. Clear away posterior osteophyte, loose bodies or meniscal remnant.



Step 18

Option 1: Assess joint space using Dual-Ended Spacers

With the leg in flexion, insert the thicker end of the relevant Dual-Ended Spacer, which represents the thickness of the tibial and femoral components' assembly.



Check laxity by manipulating tibia between varus and valgus. If the joint exhibits excessive laxity, increase the size of Dual-Ended Spacer.

Extend the leg and insert the same Dual-Ended Spacer. Check alignment (using the External Alignment Rod) and that the leg fully extends. If the knee cannot be fully extended, release any posterior adhesions.

If, following soft tissue releases, the knee cannot be fully extended, further distal resection will be required.

If an imbalance is observed in laxity between flexion and extension such that the joint is tight in flexion, pack the distal cut.

If the minimum available thickness of the Spacer is tight in flexion, resect more tibia.

Note: It is common to allow 1-2mm more laxity in flexion for good ROM.

Option 2: Assess joint space using the Magic Spacer

The space between the paddles represents the thickness of the tibial and femoral components' assembly. Each click of the trigger on the Magic Spacer represents a 2.5mm increase, relating to each Tibial Bearing thickness.

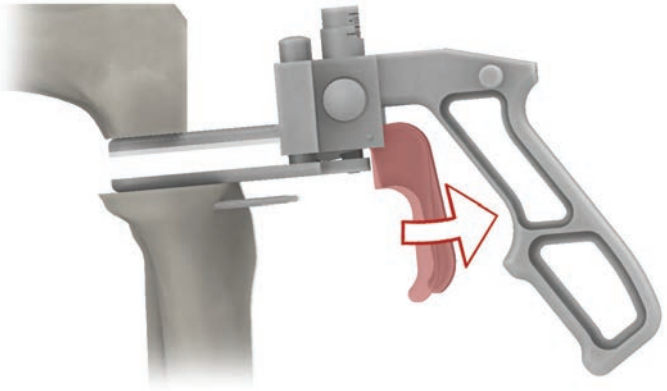
With the knee in flexion at 90°, fit the Magic Spacer and tension gently to only just fit (distract the joint to achieve stability but not a tight space).

If the indicated space is less than the thinnest insert, take further cuts from the tibia and repeat this step until it is achieved. The measurement indicated is the correct tibia thickness to use and should not be changed.

With the knee in extension, fit and tension the Magic Spacer. Check for stability in varus/valgus and release the tight side if necessary. Check the leg alignment with the External Alignment Rod.

If the space set in extension does not match the space already set in flexion, either cut more or pack out the distal femur. This is indicated by the direction and amount of variance shown by the measurements.

If satisfied with tension, stability and alignment, observe the Tibial Bearing size on the scale. Any imbalance between flexion and extension spaces will be indicated by the difference in millimetres between measurements.

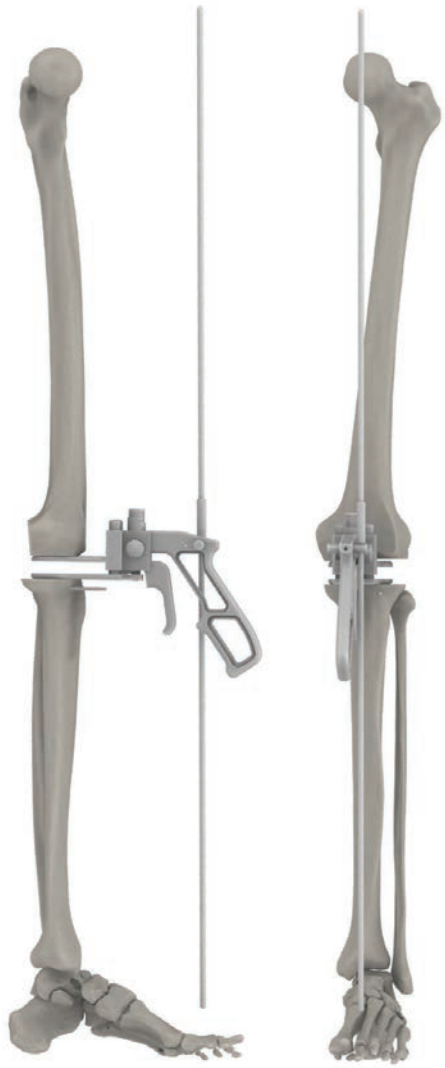


Additional distal femur resection (if required)

If additional resection of the distal femur is required, replace the Distal Cutting Block on the two anterior Pins to remove more bone as required.

Resect the distal femur.

Recheck the knee in flexion and extension with the relevant Dual-Ended Spacer or Magic Spacer. It should indicate the same space in flexion and extension and the knee should be stable in both.



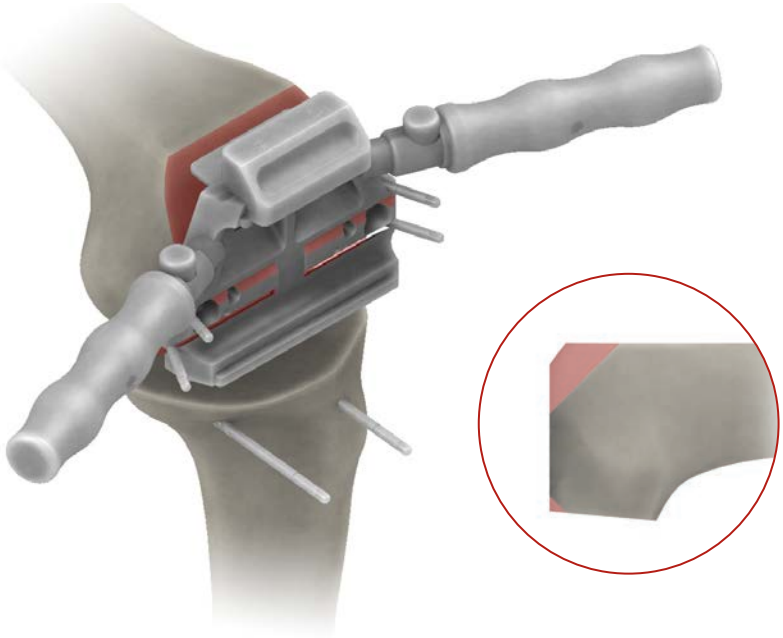
Step 19

Complete chamfer cuts

Replace the Multicut Block with the Anterior Reference Plate so that it lies flush with the anterior and distal femur cuts.

Resect posterior followed by anterior chamfer.

If any additional distal resection was performed following joint space assessment, repeat the posterior cut to ensure a good fit.



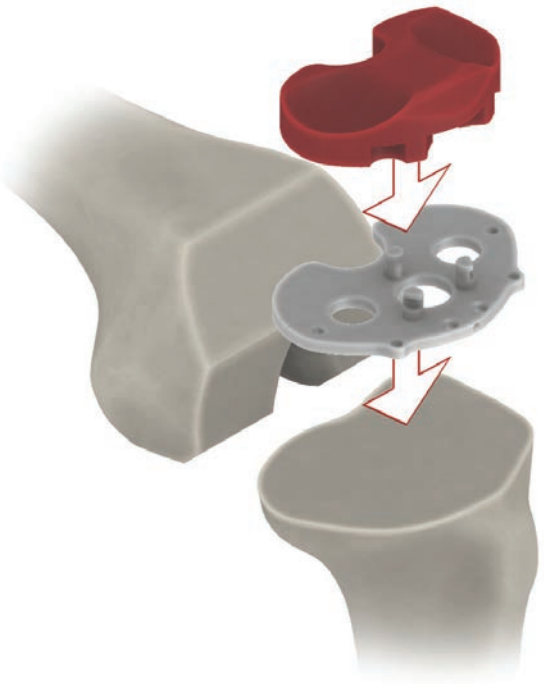
Step 20

Trial reduction

Note: For the All-Poly Tibial Component, go to Appendix A, page 25.

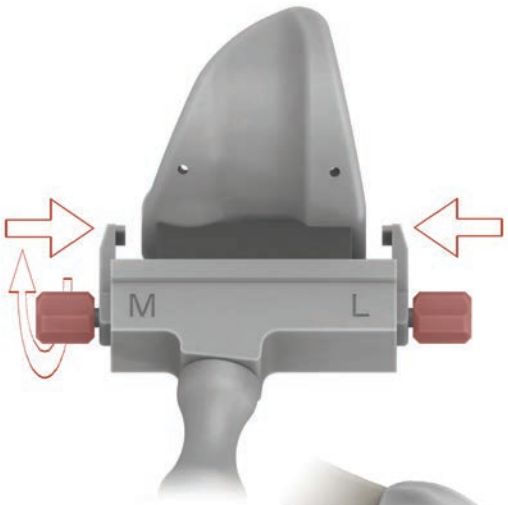
Select the appropriate Tibial Guide that best fits the tibia without overhang. This will be the size used and does not need to match the femur size.

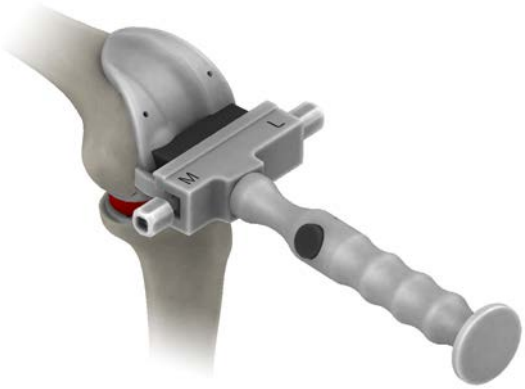
Fit the correct side and suitable thickness Tibial Trial Insert according to the assessment of joint space.



Using the Femoral Introducer/Extractor, place the appropriate Femoral Trial with the knee in deep flexion and then extend the knee a few degrees as the component engages.

Check the fit and ML position.



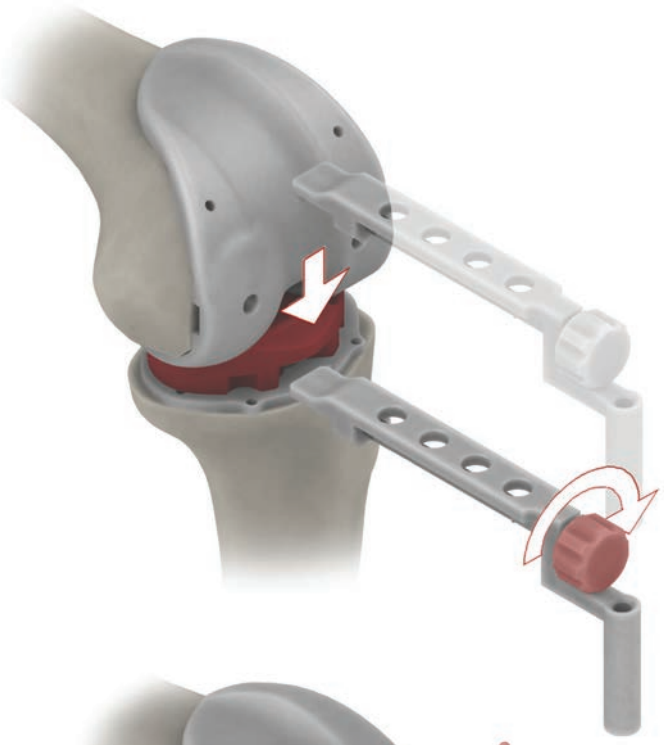


Test for extension and flexion with the patella reduced. The knee should be entirely stable in full extension and have only limited laxity in flexion.

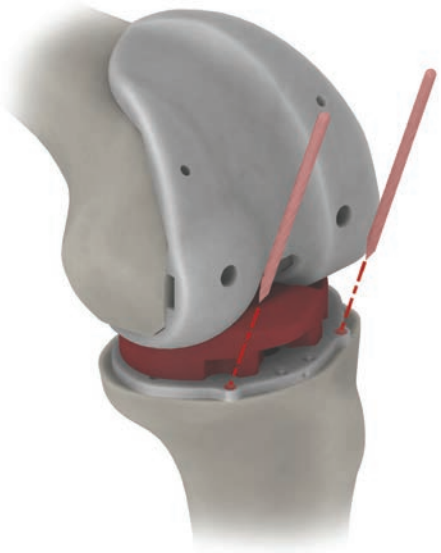
If excessive laxity is observed, remove the Tibial Trial Insert. Replace with a thicker Trial Insert and recheck stability, ensuring full unrestricted extension remains possible.

The Tibial Trial should find its best fit position on the tibia as a "meniscal trial", enabling correct rotation in both flexion and extension.

Optionally, assess the tibial rotation using the Tibia Area Guide Handle and the External Alignment Rod.



Once satisfied with the position of the Tibial Trial, pin the Tibial Guide in place through the lugs either side of the centre.



Step 21

Femoral finishing

A. Pegged Femur

Once satisfied with the position of the Femoral Trial, drill the medial and lateral femoral peg holes using the Peg Drill.

Optionally, pin the Femoral Trial in position while drilling.

Remove the Femoral Trial and Tibial Trial Insert.

B. Stemmed Femur

Fit the appropriate side and size Femoral Drill Guide in alignment with the location marks. Check that it fits and pin in place. This operation will fix the medial-lateral position of the Femoral Component.

Drill the stem hole to full depth using the Femoral Stem Drill.

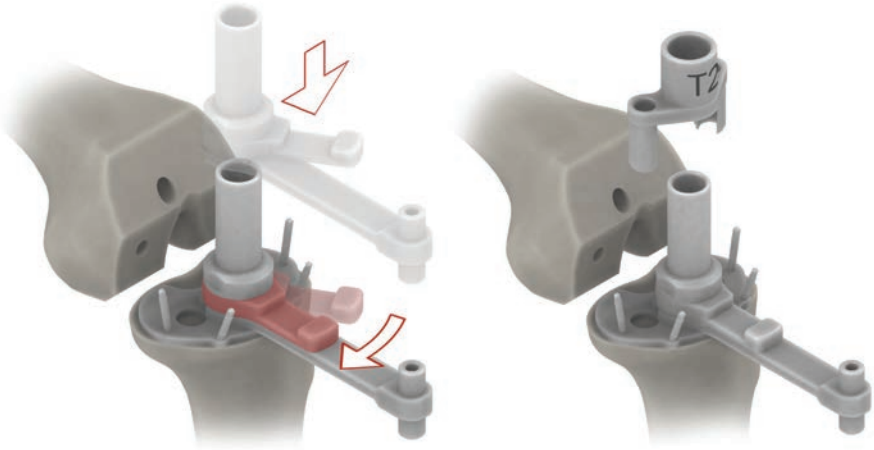
Remove the drill, pins and Femoral Drill Guide, then in a similar way to step 20, use the Femoral Introducer/Extractor to position the appropriate Femoral Trial.

Step 22

Assemble Tibial Finishing Guide

Secure the Tibial Guide with two additional 50mm Precision Pins.

Place and lock the Tibial Stem Drill Guide onto the Tibial Guide together with the chosen size Tibial Peg Drill Guide.

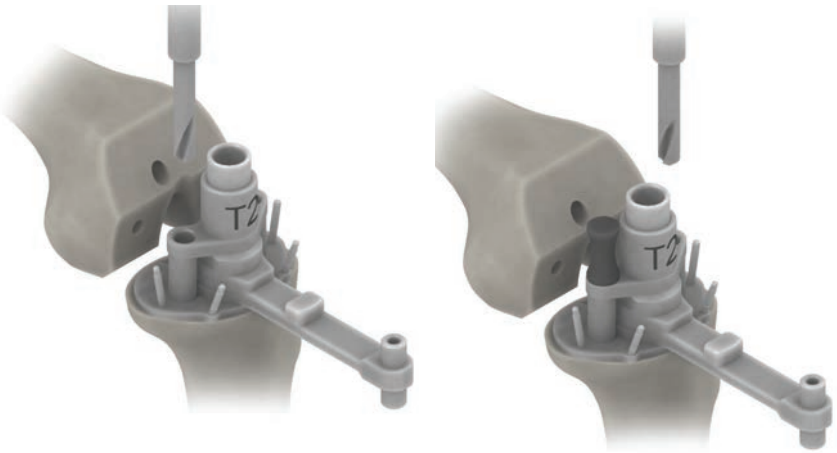


Step 23

Drill for stem and pegs

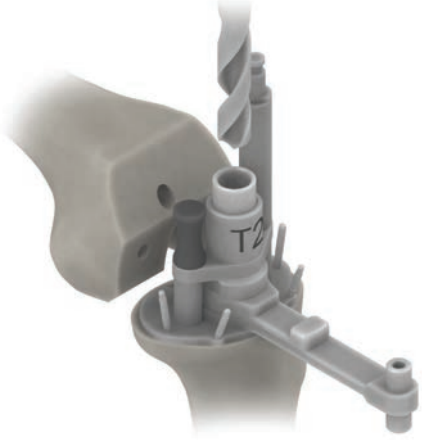
Drill the two peg holes to full depth using the Tibial Peg Drill. Insert the Tibial Plug in the first hole to stabilise the assembly while drilling the second peg hole.

Leave the Peg Drill and Tibial Plug in place to increase the stability of the assembly. Ensure the Tibial Guide remains flat on the tibia.



Drill to full depth the central hole in the Tibial Guide with the appropriate length Tibial Stem Drill.

Remove all components.



Step 24

Assemble Patella Clamp

Select one of three patella diameters (20, 25 or 30mm).

Open the Patella Clamp fully and attach the corresponding Insert into the Clamp.

Evert the patella laterally and position the Clamp medially on the patella, centred on the patella ridge.

Note: The Insert is shaped to approximately match the ridge to aid positioning. Squeeze the grip to fix in position.

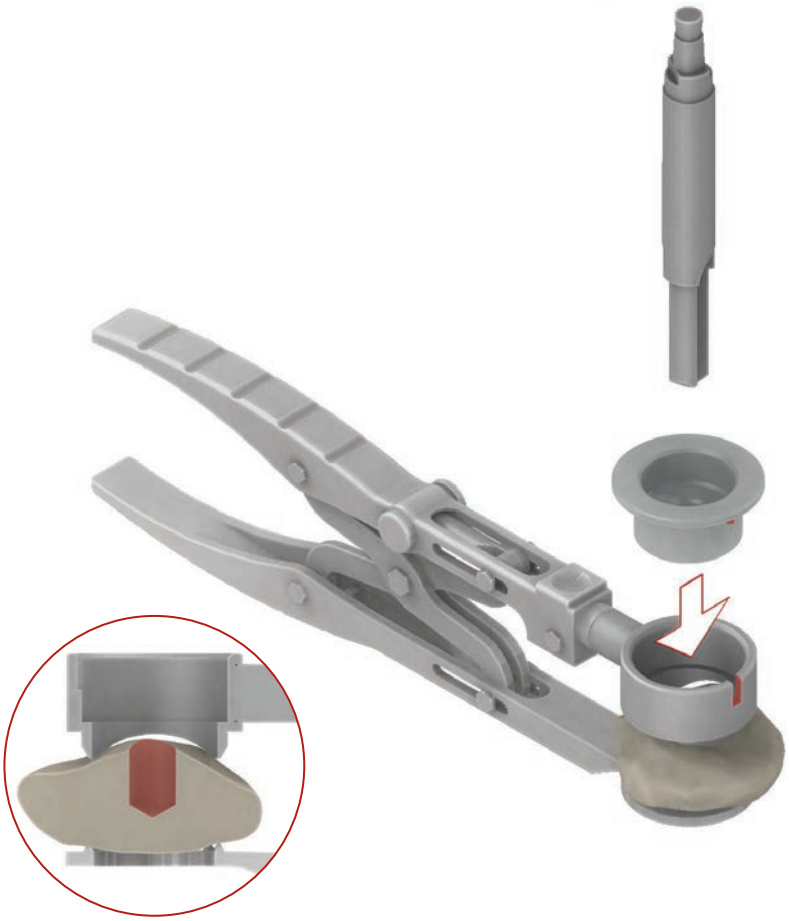
Step 25

Drill peg hole

Insert the Patella Peg Drill Guide into the Patella Clamp Insert, ensuring that the anti-rotation pin engages and the collar sits flush with the top of the Insert.

Insert the Patella Peg Drill in the Drill Guide and drill to the depth stop, holding the clamp firmly at all times. Remove the Patella Peg Drill Guide and clear the central hole of all bone debris.

Note: The bottom of the drilled hole will act as a depth stop for the counter bore cutters, therefore it is important to remove all debris.

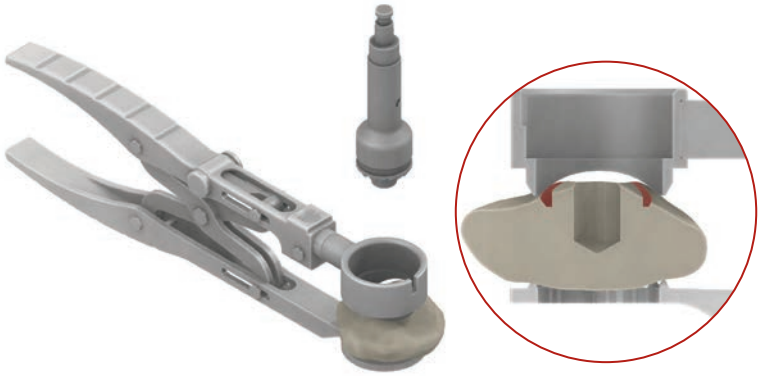


Step 26

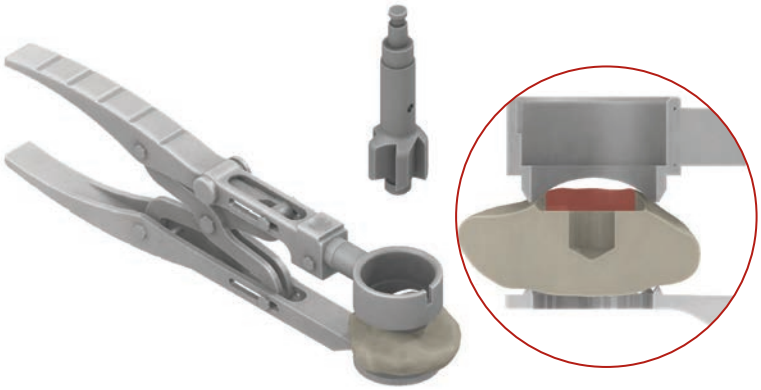
Cut bore profile

The bore is prepared in two steps to ease cutting effort and reduce heat build-up with hard sclerotic bone.

Select the corresponding size of Ring Cutter and advance until the central peg bottoms in the pre-drilled hole.



Select the corresponding size of Milling Cutter and advance until the central peg bottoms in the pre-drilled hole.



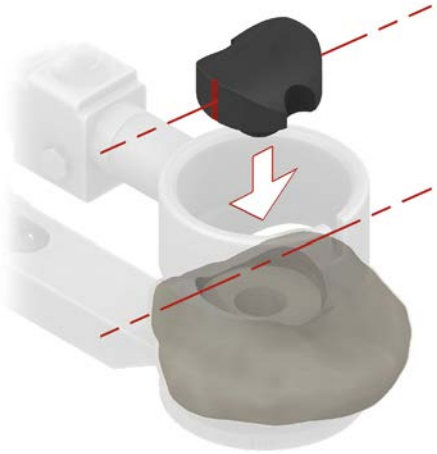
Step 27

Patella Trial

Insert the corresponding size of Patella Trial. Ensure the notch is aligned with the native patella ridge.

Check that the articulating surface of the trial is level with or slightly proud of the bone surface.

If the trial is excessively proud, freehand drill the central hole a little deeper. Deepen the counter bore with the Milling Cutter until the central peg bottoms in the deepened hole. Re-insert the Patella Trial.



Step 28

Trial reduction

Perform a full trial reduction with the Femoral and Tibial Trials. If necessary trim the patella bone further to match the femur articulation. The patella should be completely stable without the need for stay sutures or finger support.

Remove all trial components. Recesses for forceps are provided to aid removal of the Patella Trials.

Step 29

Tibial component assembly

Note: This step is not required for All-Polyethylene Tibial components.

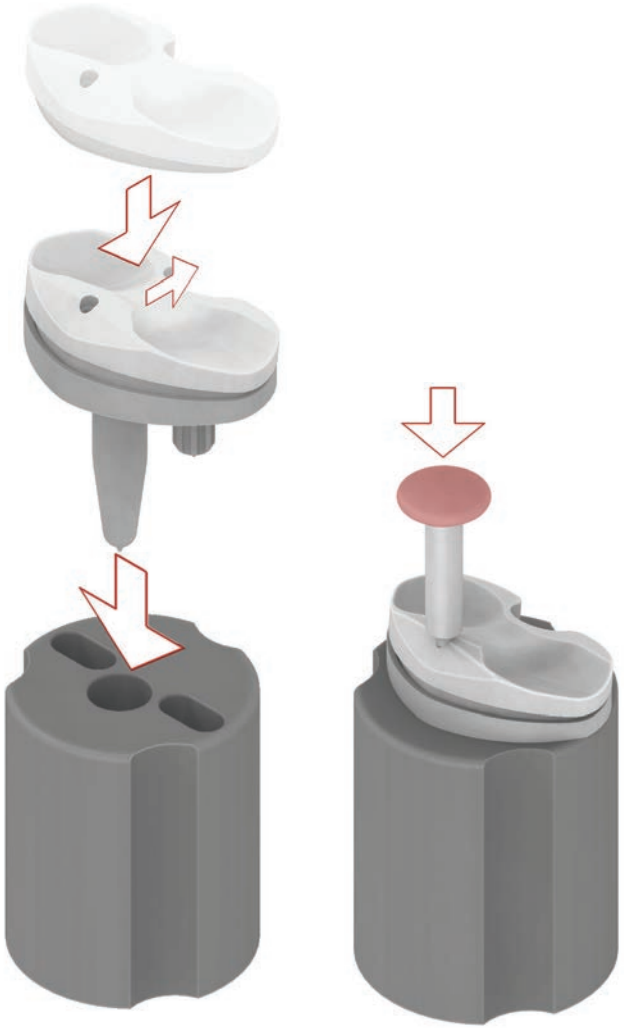
Locate the Tibial Assembly Support on a sterile, stable surface. Place the Tibial Tray component in the Tibial Assembly Support. Insert the Tibial Bearing by locating the posterior feet into the posterior undercuts of the Tibial Tray.

Push the Bearing Impactor Pin into the hole on the anterior aspect of the Tibial Bearing.

Hold the assembly support and implant and strike the Bearing Impactor Pin with a hammer so that the bearing is fully seated in the Tibial Tray.

Remove the Bearing Impactor Pin from the Tibial Bearing. The combined Tibial Tray and Bearing assembly is now ready for implantation.

Note: A small anterior gap of less than 1mm may remain visible when fully seated



Step 30

Tibial implantation

Clean the resected bone surface with a bone brush or pressurised lavage. Use suction to remove any debris and liquid. Dry thoroughly.

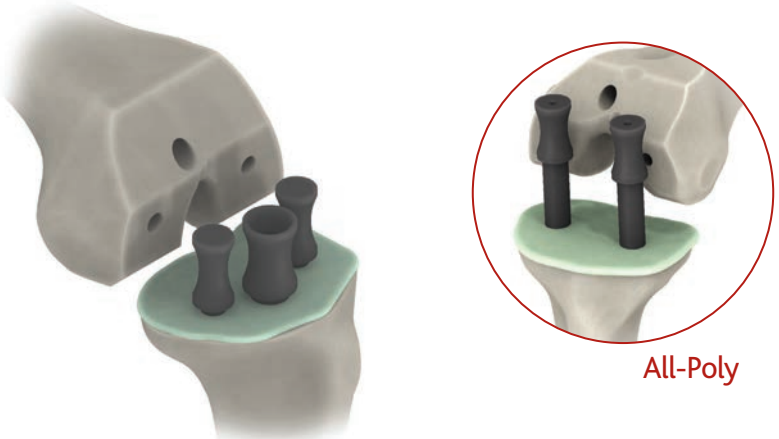
Place bone cement on the tibial bone; applied with a syringe.

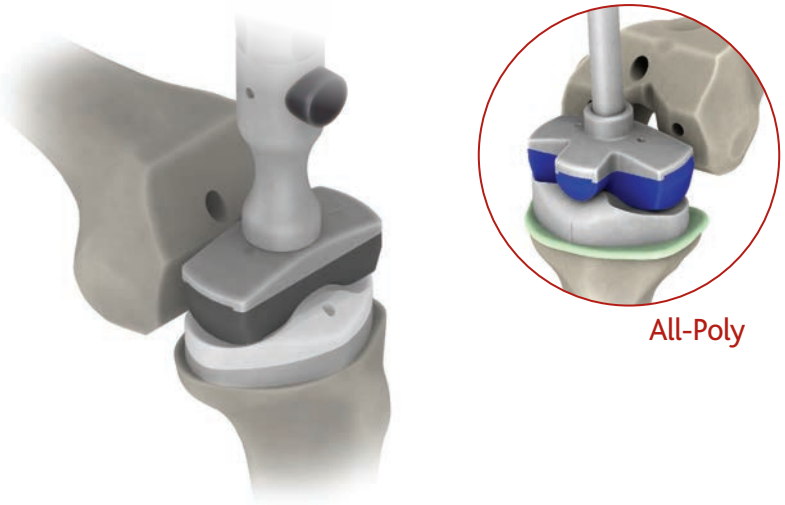
The polished stem and fluted pegs are designed to be used without cement. The Tibial Plugs may be used to prevent cement seeping into the stem and peg holes.

Assemble the Tibial Impactor with the Large Handle.

Insert the Tibial Tray and Bearing assembly carefully into the proximal tibia and impact carefully using the Tibial Impactor.

Remove the excess cement fully and carefully.



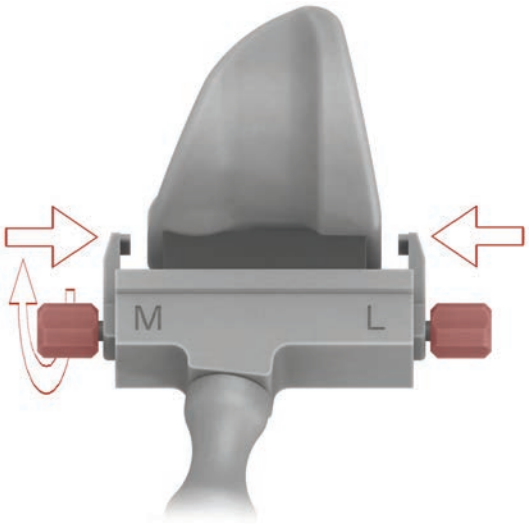


Step 31

Assemble femoral component

Attach the Femoral Introducer/Extractor to the Large Handle. Retract the clamp arms by using the knobs.

Assemble the femoral component with the Femoral Introducer/Extractor, ensuring that the clamp arms locate into the notches on either side of the femoral component. Secure by rotating the knobs until hand-tight.



Step 32

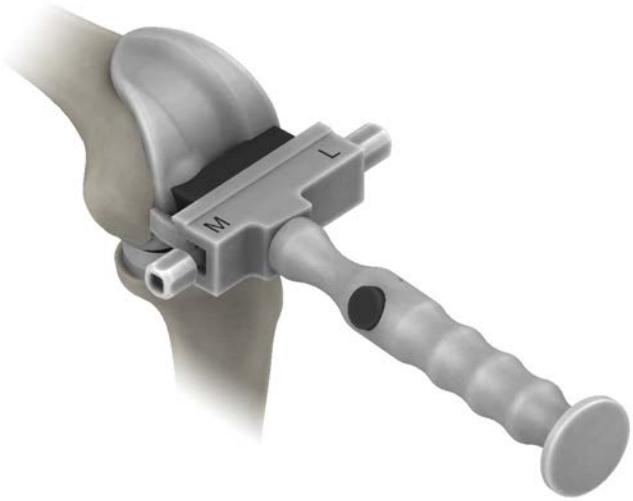
Femoral implantation

Place cement on the femoral component and push firmly onto the femur in deep flexion.

Note: Femoral fluted pegs are designed to be used without cement.

Extend the knee a few degrees as the component engages. Ensure the axis of the Large Handle is in line with the axis of the femoral shaft and impact.

Release the Femoral Introducer from the femoral component by rotating the side knobs.



Carefully extend the knee by 3 to 4° and fully impact the component into place using the Femoral Impactor assembled with the Large Handle.

Extend the knee carefully to fully seat the component in the cement. Do not flex the knee beyond 90° during cement cure. Remove all excess cement fully and carefully.

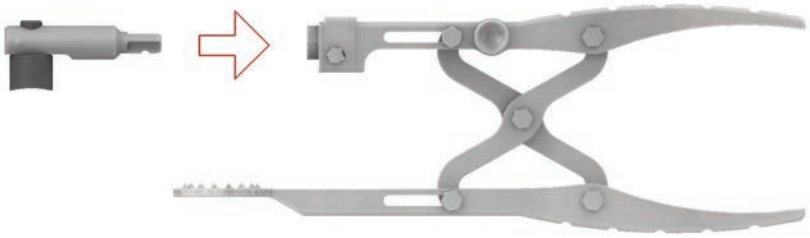
Step 33

Implant patella component

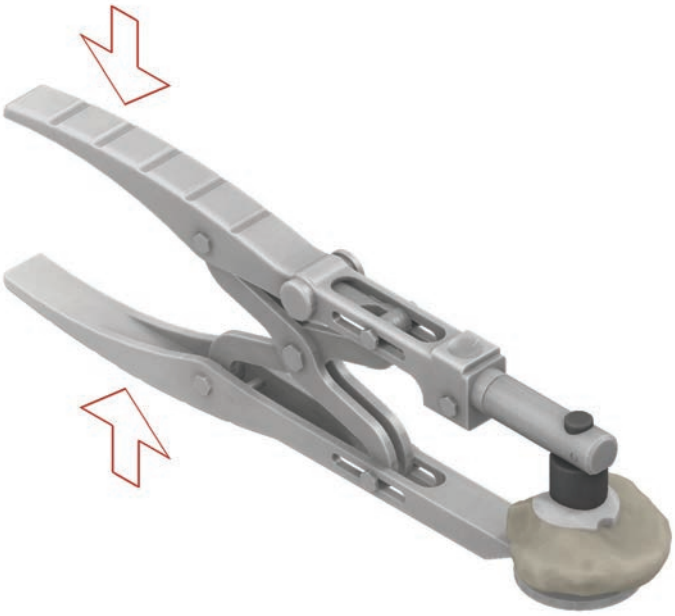
Assemble the Patella Compressor with the Patella Clamp.

Place the Patella Implant into the counter bored hole, with the notch in line with the patella tendon.

Position the Patella Clamp over the Patella Implant and squeeze firmly to fully seat the component.



Note: If the quality of prepared bone requires it, a small amount of cement can be added to the back of the patella component. If using cement, implant with the Patella Compressor.



Step 34

Final seating

Place the knee carefully into full extension and elevate the patient's leg to fully seat the components and allow cement to set. Flex the knee again to remove all excess cement.

Step 35

Closure

Thoroughly irrigate the joint space. Achieve haemostasis and close the tissues in layers, according to standard procedure.

Tibial finishing: All-Polyethylene Tibia

Overview

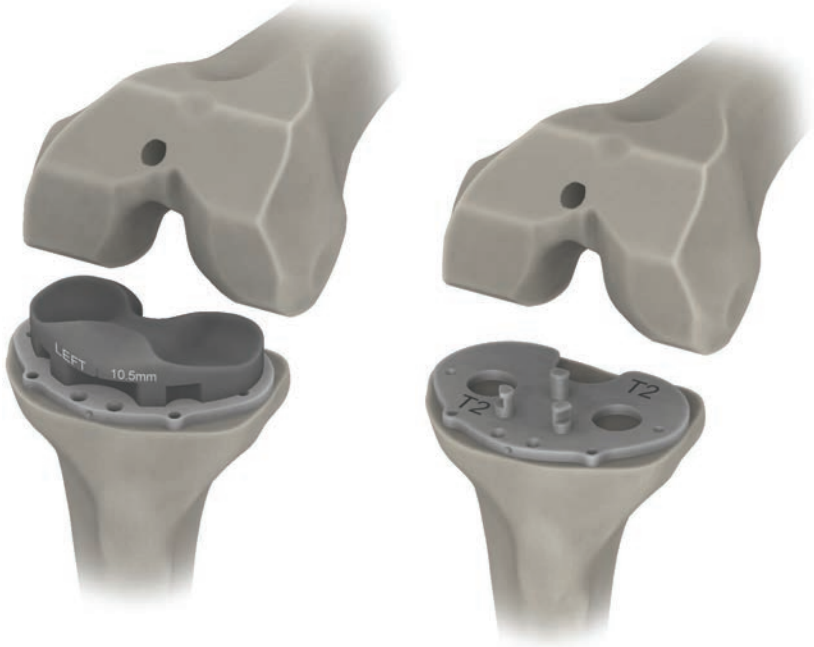
All-Polyethylene Tibial components use two pegs for fixation, which have a different size and diameter to the metal tray pegs. For this reason, unique instruments and the following steps are required to perform the Trial Reduction and Tibial Finishing steps.

Step 20

Trial reduction

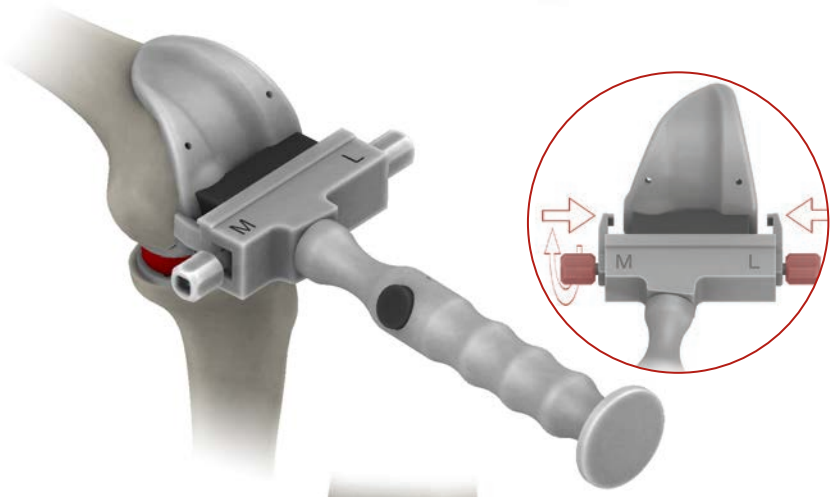
Choose the appropriate All-Poly Tibial Guide that fits the tibia without overhang. This will be the size used and does not need to match the femur size.

Fit the All-Poly Tibial Trial, checking for correct left or right orientation and chosen thickness.



Using the Femoral Introducer/Extractor, place the appropriate Femoral Trial with the knee in deep flexion and then extend the knee a few degrees as the component engages.

Check the fit and ML position.



Test for extension and flexion with the patella reduced. The knee should be entirely stable in full extension and have only limited laxity in flexion.

If excessive laxity is observed, remove the Tibial Trial Insert. Replace with a thicker Trial Insert and recheck stability, ensuring full, unrestricted extension remains possible.

The Tibial Trial should find its best fit position on the tibia as a "meniscal trial", enabling correct rotation in both flexion and extension.

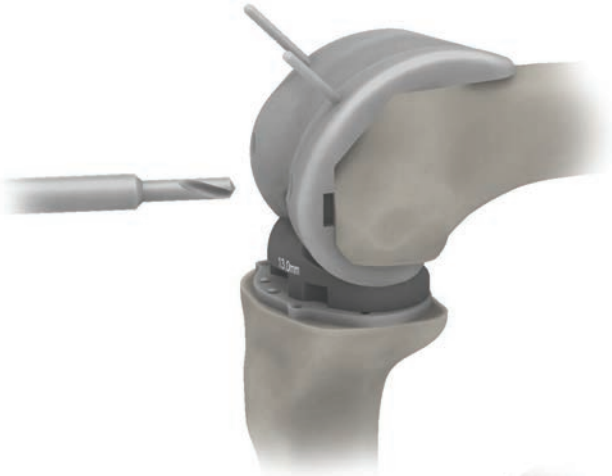
Step 21

Femoral finishing

Once satisfied with the position of the Femoral Trial, drill the medial and lateral femoral peg holes using the Peg Drill.

Optionally, pin the Femoral Trial in position while drilling.

Remove the Femoral Trial and Tibial Trial Inserts.



Step 22

Tibial finishing

Place the All-Poly Tibial Guide Handle onto the All-Poly Tibial Guide and lock.

Assess the rotation position of the Tibial Guide using the External Alignment Rod.

Once satisfied with the position, pin the Tibial Guide in place.

Step 23

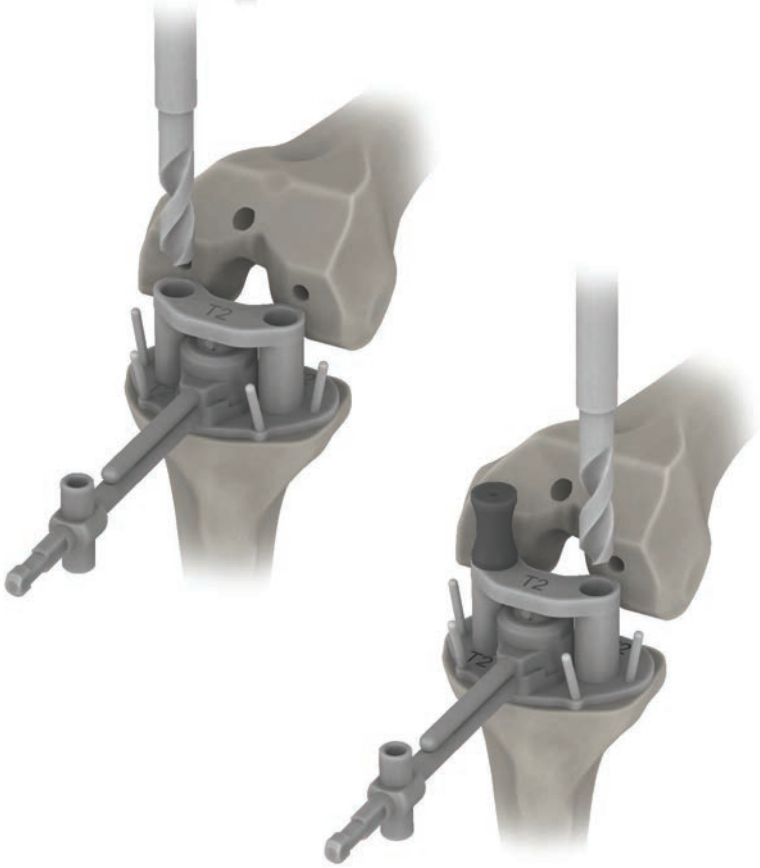
Fit the appropriate size of All-Poly Tibial Drill Guide to the handle, ensuring that both tubular drill guides are securely located in the Tibial Guide.

Drill the first peg hole to depth, ensuring that the Tibial Guide maintains its position and remains flat on the tibia.

To help secure the assembly when drilling the second peg hole, an All-Poly Tibial Plug is provided to fill the drilled peg hole.

Drill the second peg hole to depth, ensuring that the Tibial Guide maintains its position and remains flat on the tibia.

Remove all components and now go to Step 24, page 20.

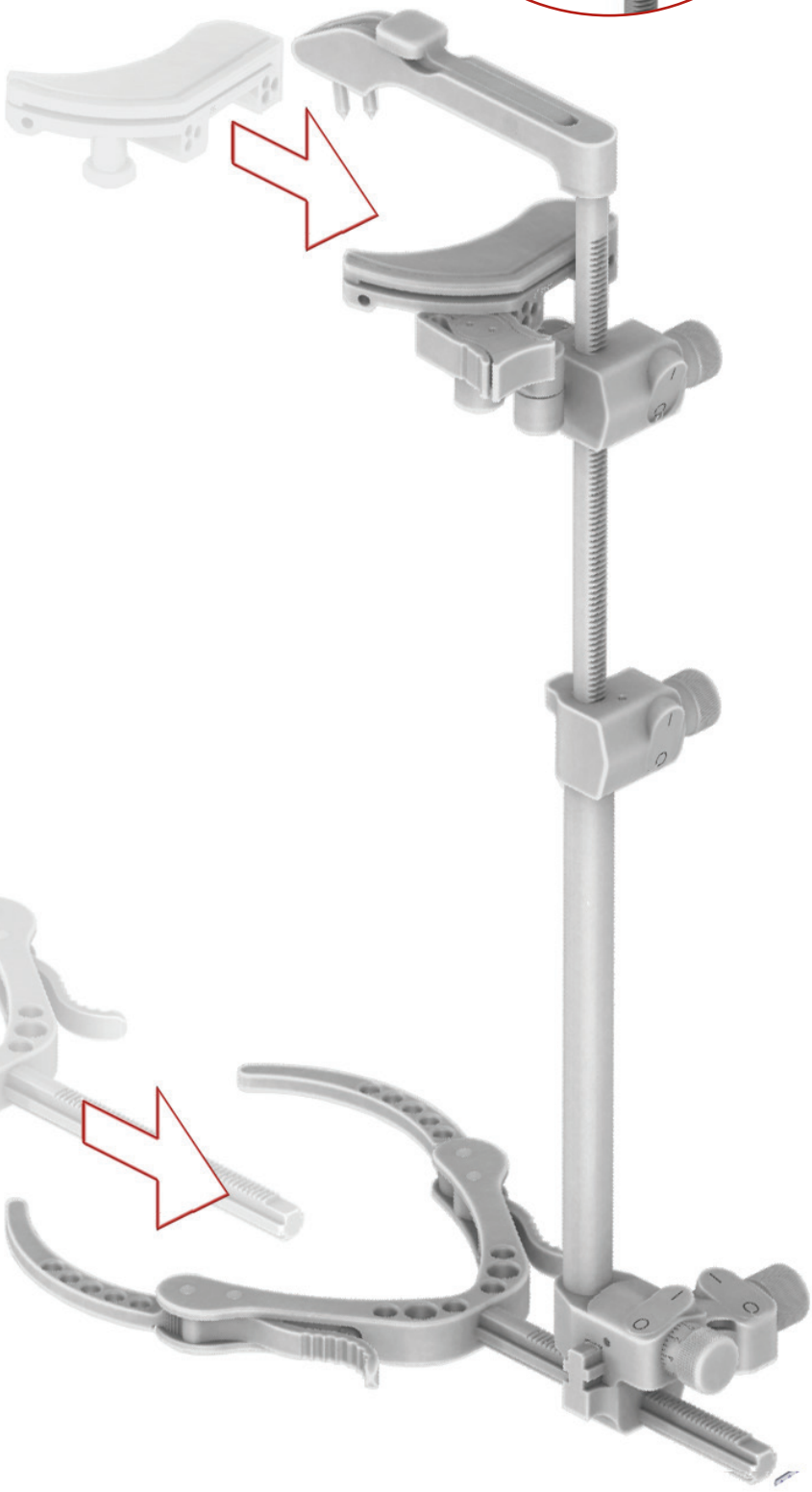


Tibial Alignment Guide preparation

Assemble the Ankle Clamp with the main body of the Tibial Alignment Guide.

Assemble the Left or Right Tibial Cutting Block into the spring clip at the end of the FreedomLink arm.

Position the Tibial Cutting Block to the medial side and raise the Cutting Block Mount to sit directly beneath the Intercondylar Proximal Arm. Lock the Cutting Block Mount ClickLock.



Use the dial of the ML adjuster at the bottom of the jig to adjust the ML position at the ankle so that it is centralised. Lock the ML adjuster ClickLock.

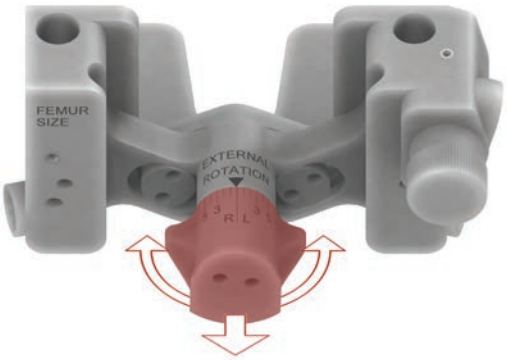
Adjust the AP position at the ankle so that it is approximately midway between extents. Lock the AP adjuster ClickLock.

Open the arms of the Ankle Clamp fully.

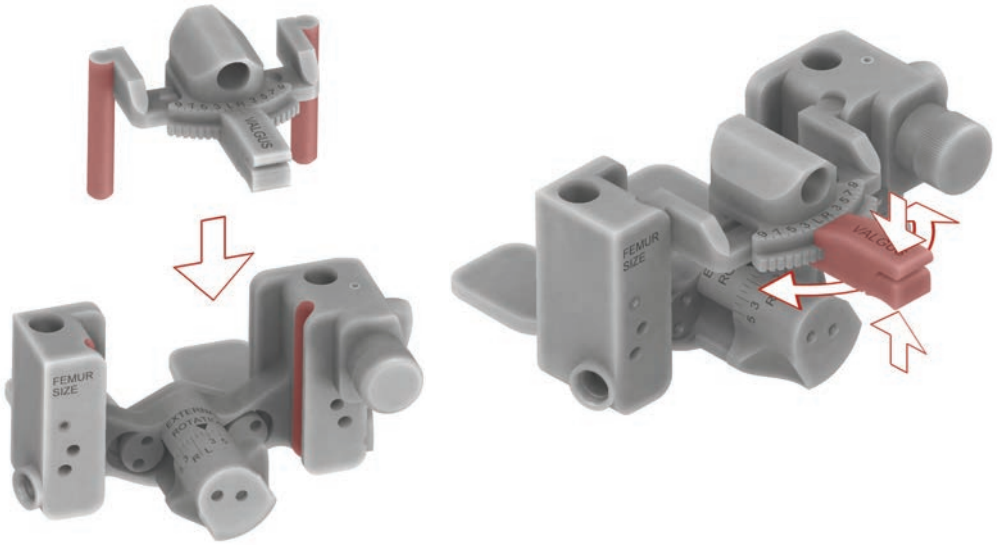
Ensure the Main Body ClickLock is in the unlocked position.

Anterior Femoral Alignment Jig preparation

Set the external rotation of the main body footplate to 3° to the left or right (external rotation) as required. The operating surgeon has the option to modify this setting for individual cases.



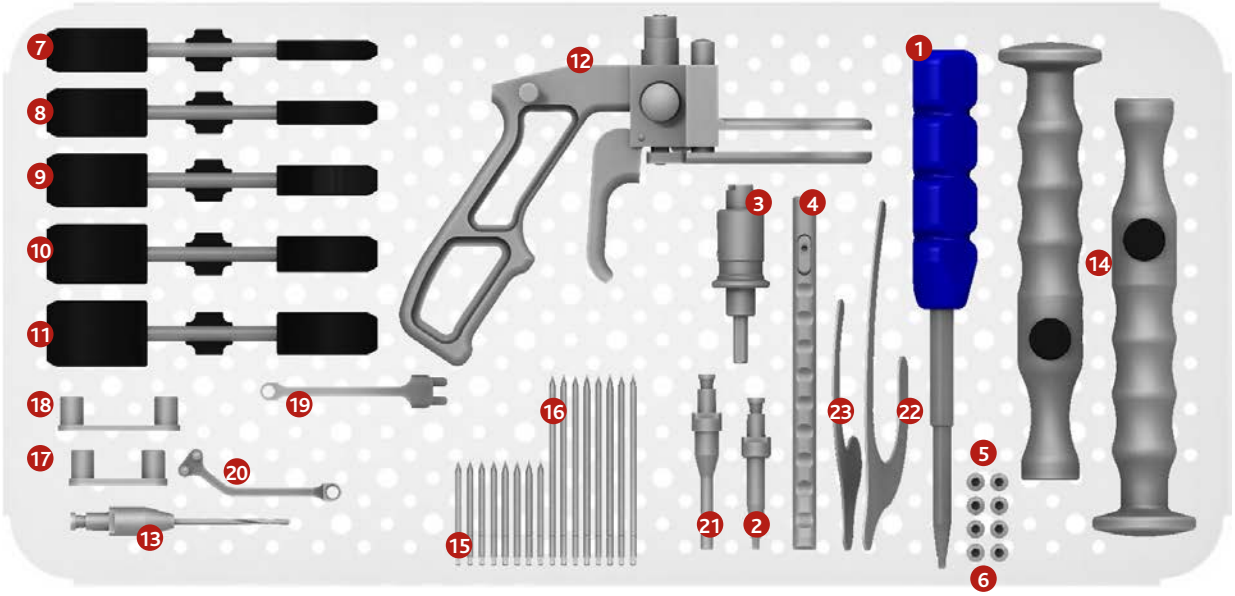
Assemble the Valgus Adjuster onto the Main Body. Set the valgus angle to 6° left or right as required. The operating surgeon has the option to modify this setting for individual cases.



If normally required by the operating surgeon, assemble with the two small handles.

Tray 1

Balancing and Core Instruments

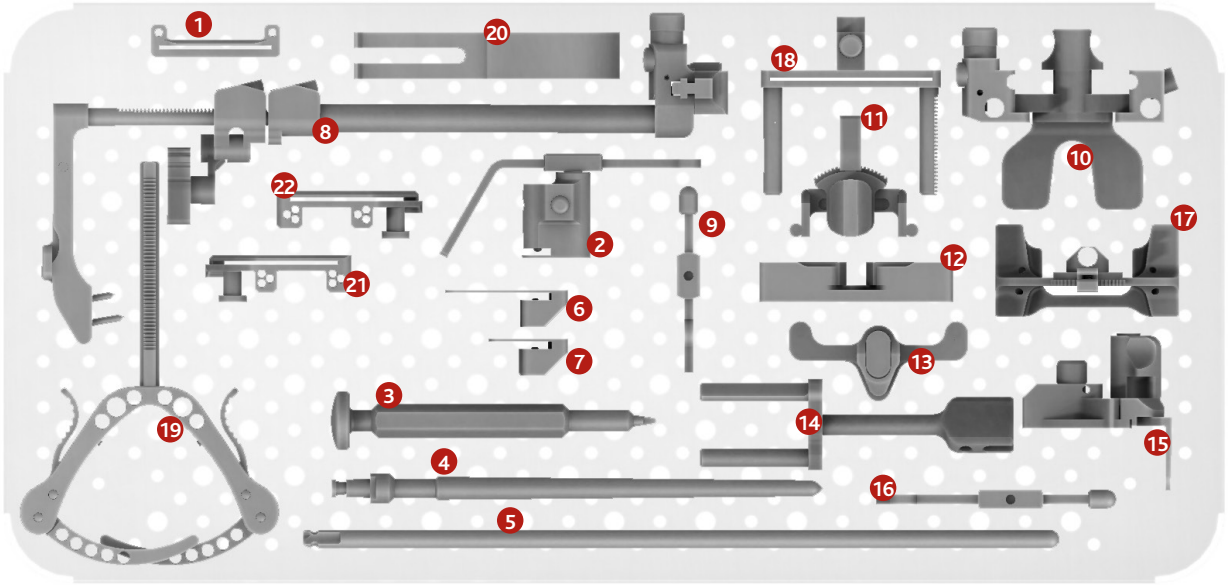


Item	Part number	Description	Qty
1	231-301	Screw Pin Driver	1
2	231-302	Power Screw Pin Driver	1
3	231-303	Jacobs/Hudson Adaptor	1
4	231-304	Pin Inserter/Extractor	1
5	231-317	Screw Pins 25mm	4
6	231-318	Screw Pins 45mm	4
7	255-019	Dual Ended Spacer - 8mm*	1
8	255-020	Dual Ended Spacer - 10.5mm	1
9	255-021	Dual Ended Spacer - 13mm	1
10	255-022	Dual Ended Spacer - 15.5mm	1
11	255-023	Dual Ended Spacer - 18mm	1
12	255-024	Magic Spacer	1
13	255-033	Pin Drill - Short version	1
14	293-253	Quick Release Impaction Handle	2
15	255-035	Precision Pin 50mm	6
16	255-036	Precision Pin 70mm	6
17	293-302	Pin Guide	1
18	255-032	Pin Guide - Distal Holes	1
19	293-303	Femoral Alignment Guide Mount	1
20	293-305	Tibial Alignment Guide Mount	1
21	255-003	Pin Driver	1
22	255-012	MRK Femoral Angel Wing	1
23	293-516	Tibial Angel Wing	1

* Not available in the USA

Tray 2

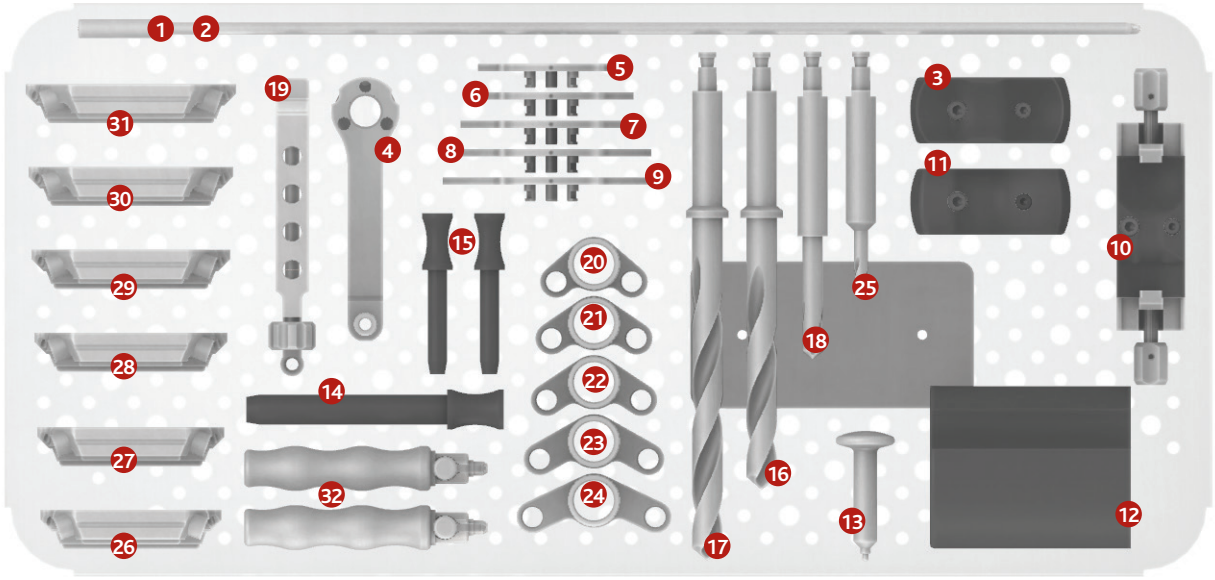
Femoral and Tibial Alignment



Item	Part number	Description	Qty
1	293-625	Tibial Re-cutting Guide	1
2	255-002	Tibial Stylus	1
3	231-316	IM Awl	1
4	231-106	IM Drill	1
5	255-005	IM Rod	1
6	255-006	Anterior Reference Plate Extended	1
7	255-008	Anterior Reference Plate Standard	1
8	255-009	Tibial Alignment Guide Main Body	1
9	255-041	Femoral Stylus	1
10	255-042	Anterior Femoral Alignment Jig	1
11	255-043	Valgus Adjuster	1
12	255-045	Distal Cutting Block	1
13	255-046	Distal Cutting Block Guide	1
14	255-047	External Alignment Rod Holder	1
15	255-048	Femoral Sizing Jig	1
16	255-049	Femoral Sizing Jig Stylus	1
17	255-050	Distal Femoral Alignment Jig	1
18	255-051	Anterior Cutting Guide	1
19	293-208	Tibial Alignment Guide Ankle Clamp	1
20	293-281	Spike Extractor	1
21	293-510	Tibial Cutting Block Left	1
22	293-511	Tibial Cutting Block Right	1

Tray 3

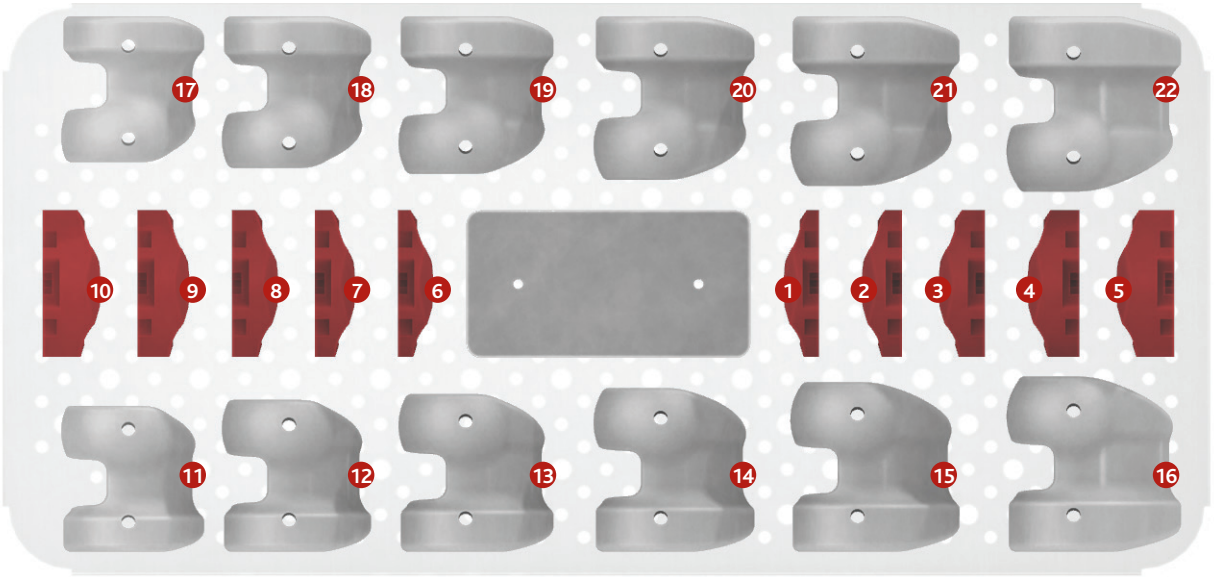
Preparation and Implantation



Item	Part number	Description	Qty
1	255-001	External Alignment Rod - 5mm	1
2	255-004	External Alignment Rod Extension - 5mm	1
3	255-010	Tibial Impactor	1
4	255-011	Tibial Stem Drill Guide	1
5	256-011	Tibial Guide Size T1	1
6	256-012	Tibial Guide Size T2	1
7	256-013	Tibial Guide Size T3	1
8	256-014	Tibial Guide Size T4	1
9	256-015	Tibial Guide Size T5	1
10	255-017	Femoral Introducer Extractor	1
11	255-018	Femoral Impactor	1
12	255-025	Tibial Assembly Support	1
13	255-026	Bearing Impactor Pin	1
14	256-002	Tibial Plug Large	1
15	256-003	Tibial Plug Small	2
16	256-005	Tibial Stem Drill 50mm	1
17	256-006	Tibial Stem Drill 80mm	1
18	256-007	Tibial Peg Drill	1
19	255-016	Tibia Area Guide Handle	1
20	256-021	Tibial Peg Drill Guide T1	1
21	256-022	Tibial Peg Drill Guide T2	1
22	256-023	Tibial Peg Drill Guide T3	1
23	256-024	Tibial Peg Drill Guide T4	1
24	256-025	Tibial Peg Drill Guide T5	1
25	256-136	MRK Femoral Peg Drill	1
26	256-510	Multicut Block Size 0	1
27	256-511	Multicut Block Size 1	1
28	256-512	Multicut Block Size 2	1
29	256-513	Multicut Block Size 3	1
30	256-514	Multicut Block Size 4	1
31	256-515	Multicut Block Size 5	1
32	293-242	Universal Small Handle	2

Tray 4

Trials

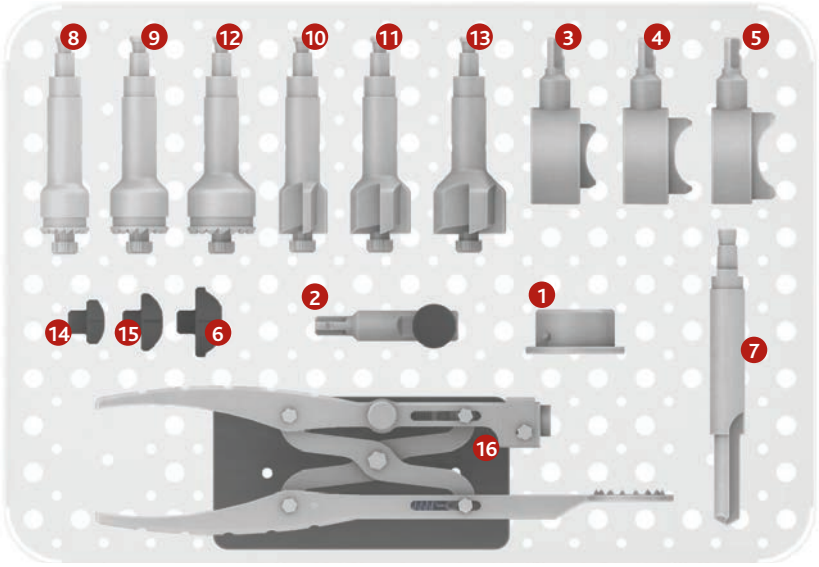


Item	Part number	Description	Qty
1	256-031	Tibial Insert Trial Left 8mm*	1
2	256-032	Tibial Insert Trial Left 10.5mm	1
3	256-033	Tibial Insert Trial Left 13mm	1
4	256-034	Tibial Insert Trial Left 15.5mm	1
5	256-035	Tibial Insert Trial Left 18mm	1
6	256-041	Tibial Insert Trial Right 8mm*	1
7	256-042	Tibial Trial Insert Right 10.5mm	1
8	256-043	Tibial Trial Insert Right 13mm	1
9	256-044	Tibial Trial Insert Right 15.5mm	1
10	256-045	Tibial Trial Insert Right 18mm	1
11	256-160	Femoral Trial Left Size 0	1
12	256-161	Femoral Trial Left Size 1	1
13	256-162	Femoral Trial Left Size 2	1
14	256-163	Femoral Trial Left Size 3	1
15	256-164	Femoral Trial Left Size 4	1
16	256-165	Femoral Trial Left Size 5	1
17	256-170	Femoral Trial Right Size 0	1
18	256-171	Femoral Trial Right Size 1	1
19	256-172	Femoral Trial Right Size 2	1
20	256-173	Femoral Trial Right Size 3	1
21	256-174	Femoral Trial Right Size 4	1
22	256-175	Femoral Trial Right Size 5	1

* Not available in the USA

Tray 5

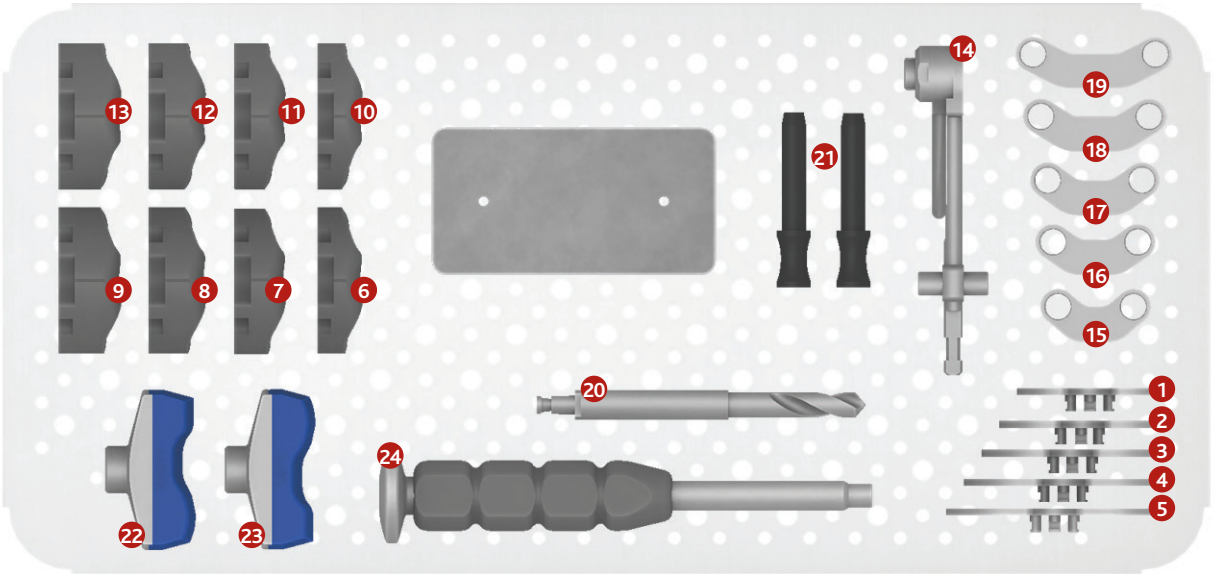
Patella Instruments



Item	Part number	Description	Qty
1	255-007	Patella Peg Drill Guide	1
2	255-028	Patella Compressor	1
3	255-029	Insert For 20mm Patella	1
4	255-030	Insert For 25mm Patella	1
5	255-031	Insert For 30mm Patella	1
6	256-233	Patella Trial 30mm	1
7	256-430	Inset Patella Drill	1
8	256-431	Inset Patella Ring Cutter 20mm	1
9	256-432	Inset Patella Ring Cutter 25mm	1
10	256-433	Inset Patella Milling Cutter 20mm	1
11	256-434	Inset Patella Milling Cutter 25mm	1
12	256-435	Inset Patella Ring Cutter 30mm	1
13	256-436	Inset Patella Milling Cutter 30mm	1
14	256-531	Patella Trial 20mm Thickness Reduced	1
15	256-532	Patella Trial 25mm Thickness Reduced	1
16	290-200	Patella Clamp	1

Tray 6

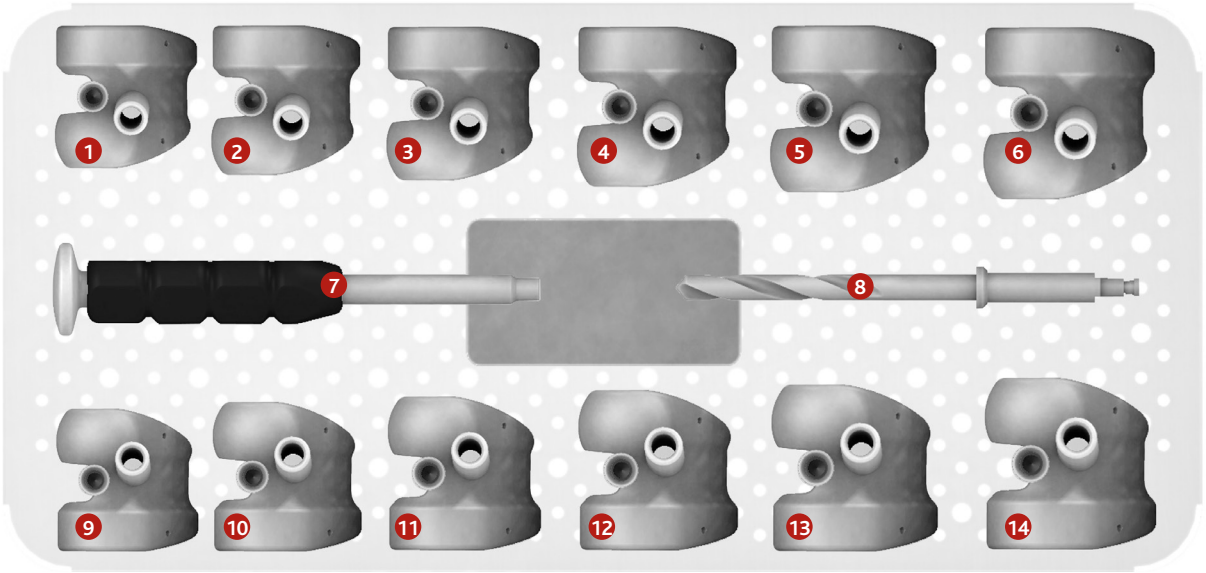
All-Poly Instruments



Item	Part number	Description	Qty
1	256-051	All-Poly Tibial Guide, Size T1	1
2	256-052	All-Poly Tibial Guide, Size T2	1
3	256-053	All-Poly Tibial Guide, Size T3	1
4	256-054	All-Poly Tibial Guide, Size T4	1
5	256-055	All-Poly Tibial Guide, Size T5	1
6	256-057	All-Poly Tibial Trial, Left 10.5mm	1
7	256-058	All-Poly Tibial Trial, Left 13.0mm	1
8	256-059	All-Poly Tibial Trial, Left 15.5mm	1
9	256-060	All-Poly Tibial Trial, Left 18.0mm	1
10	256-062	All-Poly Tibial Trial, Right 10.5mm	1
11	256-063	All-Poly Tibial Trial, Right 13.0mm	1
12	256-064	All-Poly Tibial Trial, Right 15.5mm	1
13	256-065	All-Poly Tibial Trial, Right 18.0mm	1
14	256-076	MRK™ All-Poly Tibial Guide Handle	1
15	256-077	All-Poly Tibial Drill Guide, Size T1	1
16	256-078	All-Poly Tibial Drill Guide, Size T2	1
17	256-079	All-Poly Tibial Drill Guide, Size T3	1
18	256-080	All-Poly Tibial Drill Guide, Size T4	1
19	256-081	All-Poly Tibial Drill Guide, Size T5	1
20	256-082	All-Poly Tibial Peg Drill	1
21	256-083	All-Poly Tibial Plug	2
22	256-085	MRK™ All-Poly Tibial Impactor Right	1
23	256-086	MRK™ All-Poly Tibial Impactor Left	1
24	231-132	Impaction Handle	1

Tray 7

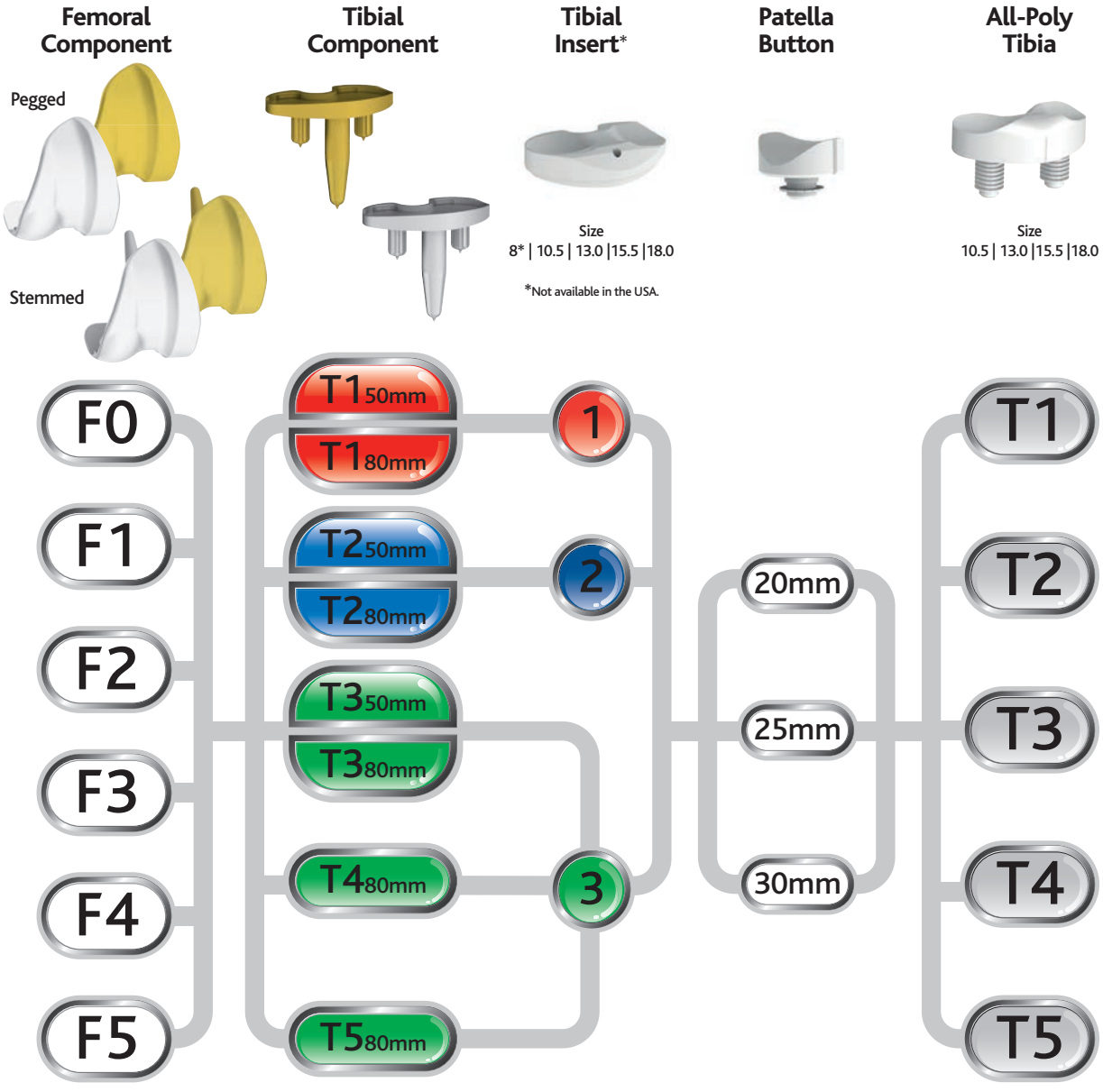
Stemmed Femoral Trials Instrument Set



Item	Part number	Description	Qty
1	256150	Femoral Drill Guide Size 0 Right	1
2	256151	Femoral Drill Guide Size 1 Right	1
3	256152	Femoral Drill Guide Size 2 Right	1
4	256153	Femoral Drill Guide Size 3 Right	1
5	256154	Femoral Drill Guide Size 4 Right	1
6	256155	Femoral Drill Guide Size 5 Right	1
7	231132	Impaction Handle	1
8	256134	Femoral Stem Drill	1
9	256140	Femoral Drill Guide Size 0 Left	1
10	256141	Femoral Drill Guide Size 1 Left	1
11	256142	Femoral Drill Guide Size 2 Left	1
12	256143	Femoral Drill Guide Size 3 Left	1
13	256144	Femoral Drill Guide Size 4 Left	1
14	256145	Femoral Drill Guide Size 5 Left	1

Size compatibility chart

Primary size should be taken from the femur measurement (step 11, page 11).



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Part No. ML-300-136-L | issue 4

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