Uniglide™

Unicompartmental Knee Replacement

Mk III surgical technique

Corin

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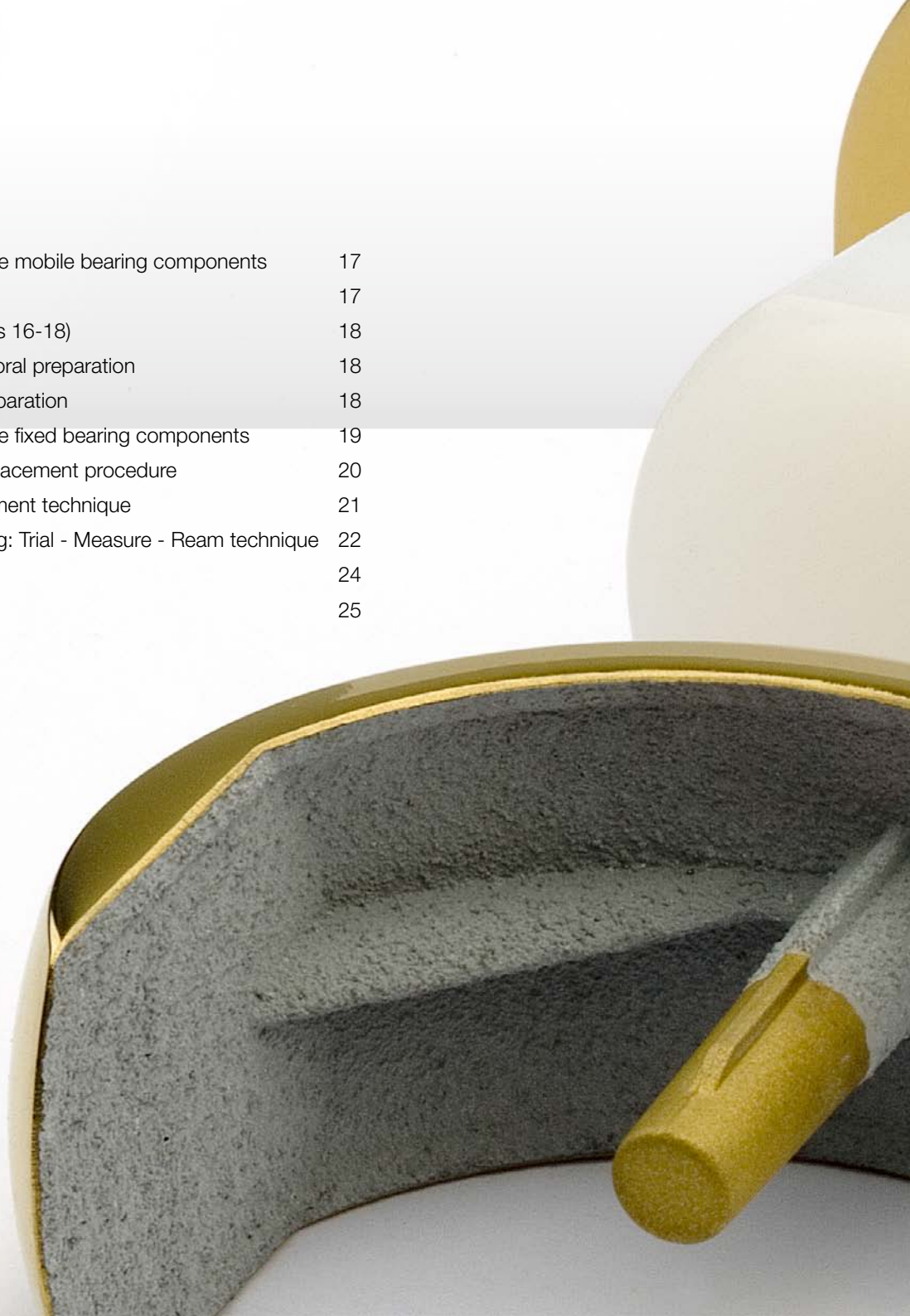
Contents



Uniglide™

History | Technology | Versatility

The unicompartmental knee replacement
for any surgical need

Uniglide™

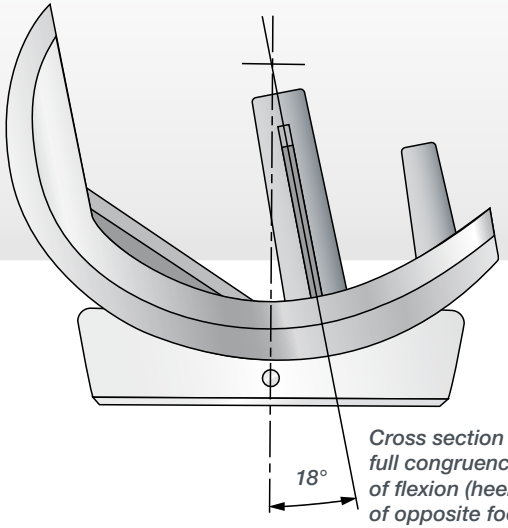
Introduction

The Uniglide Unicondylar Knee Replacement (UKR) is available as either a mobile or fixed bearing design.

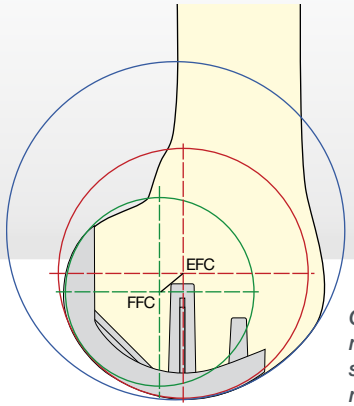
Fixed and mobile options are provided for medial compartment UKR. A fixed option is provided for the lateral compartment UKR.

The triple radius design of the femoral component offers bone conservation and maintains both the facet and load centres of the natural femur, thereby providing the promise of a more natural kinematic function.

The overall design and precise instrumentation make Uniglide an extremely effective and versatile unicompartmental knee system.



Cross section showing full congruency at 18° of flexion (heel strike of opposite foot)



Cross section of the medial femoral condyle showing the close match between the form of the Uniglide femoral component and the form of the femoral condyle

Congruency of the Uniglide mobile bearing

The outer form of the femoral component consists of three blended radii which closely match the form of the natural femur. The external geometry of the femoral component, coupled with the geometry of the meniscal mobile bearing, offers a compromise between congruency and preservation of the extension and flexion facet centres, thereby providing the combination of a highly congruent, low wear bearing with the promise of a more natural kinematic function.

A mobile bearing knee system allows a high degree of congruency to be coupled with a low degree of constraint. This provides, on the one hand, a high contact area and therefore low contact stresses which act to reduce wear, while on the other hand allowing the mobility required to accommodate knee kinematics without the transfer of shear and torsional forces to the tibia.

The Uniglide femoral component is fully congruent with the tibial insert for angles of flexion up to 18º. Beyond this angle the congruency gradually decreases as the knee goes into flexion and the radius of the femoral component decreases. Knee, studies have shown that the highest forces to the knee joint occur at flexion angles between 0° and 18°[1]. The design of the Uniglide knee retains full congruency during the most loaded part of the gait cycle, lowering contact stress and reducing wear.

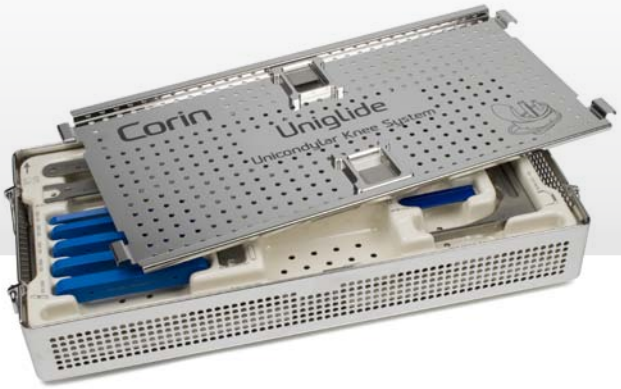
Restoring Biomechanics

The design of any joint replacement system can be optimised by fully understanding the loads and kinematics experienced in the joint being replaced.

The design of the Uniglide femoral component aims to restore the prearthrotic shape of the femoral condyle[2], so as to retain the natural loading pattern of the knee.

To this end the radii of the femoral component have been fashioned to closely replicate those found in the natural condyle. It has been shown[3] that the interactions between the shape of the condylar form and the knee ligaments act to move the centre of rotation of the femur posterior from the extension facet centre (EFC) and distal to the flexion facet centre (FFC) as the knee moves into flexion.

This change in rotation centres, and hence line of action of forces in the knee, are closely replicated by the Uniglide knee system.



Mobile bearing option

The concept of a mobile bearing unicondylar knee system has been established as offering a low contact-pressure system without introducing a degree of constraint which would transfer loads to the tibial plateau[4,5,6]. The design of the Uniglide mobile bearing offers the mobility required to accommodate the rotation and translation of the femoral condyles, while providing the stability against the bearing dislocation required of a modern mobile bearing knee system. The stability against the bearing dislocation is provided by the deep dish produced by the concave articulation surface of the meniscal bearing. The result is a bearing system where the forces required to cause a dislocation of the bearing is significantly higher than in the case of other mobile bearing unicondylar knee systems.

Component stability

The internal form of the femoral component consists of a double peg and stabilisation keel. The combination of a double peg and keel gives greater confidence in the rotational security of the femoral component when compared with single peg designs. When coupled with accurate femoral alignment instrumentation, this ensures the correct alignment of the femoral component during implantation. In addition to providing rotational stability, the keel section acts as a reinforcing rib to increase the strength of the femoral component.

Instrumentation design

The instrumentation for the Uniglide knee system has been designed to facilitate the use of a small incision without compromise to the accuracy of implant placement. The tibial cutting blocks are designed to allow the tibial cut to be made without significant displacement of the patella. This acts to reduce trauma to the extensor mechanism and also ensures soft tissue tensions encountered during the procedure are representative of the desired end result.

The femoral alignment guide, posterior femoral cutting blocks and femoral reamers have also been designed with a small incision in mind and as such can be used in the smaller wound with minimum impingement to the surrounding tissues.

Please see the surgical technique for further guidance on implantation of the Uniglide knee through a small incision.

Fixed bearing option

Despite the advantages inherent in a mobile bearing there are occasions when a fixed bearing option is indicated. The Uniglide knee system allows the choice of a mobile or fixed bearing option to be made intra-operatively. The Uniglide fixed bearing tibia is an all-polyethylene component which follows the proven design rationale of the St George Sled. The concept of the design follows the flat on round principle which provides a non congruent and low constraint design. This design eliminates the risk of bearing dislocation and is more forgiving for ligament instability versus a mobile design.

The fixed bearing device can be implanted using the standard instruments, with the addition of only a small number of trials and punches for the tibial preparation. This system offers the surgeon flexibility and means that the decision as to what type of implant is to be used may be delayed until the knee is open and a full assessment of its condition is made. The Uniglide fixed all polyethylene implants are available for both medial and lateral compartment UKR.

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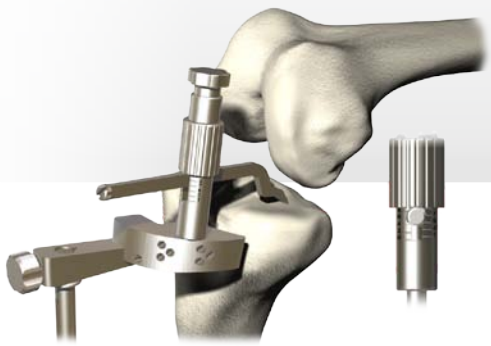
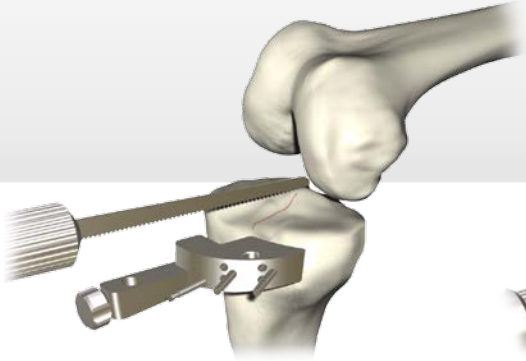
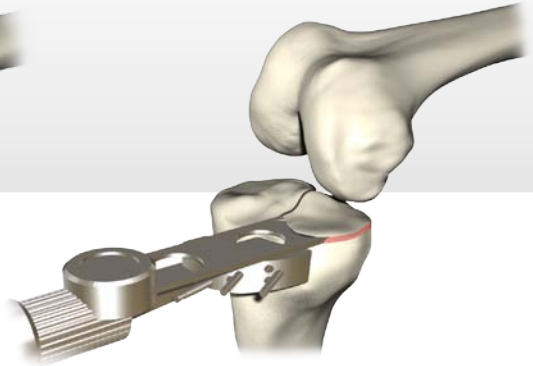
Operative summary



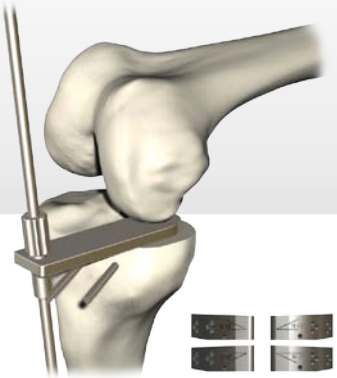
a. Tibial preparation



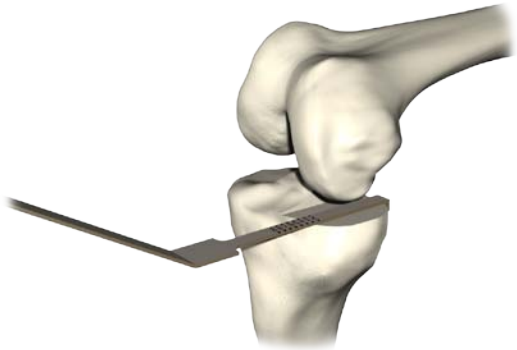
b. Sagittal cut



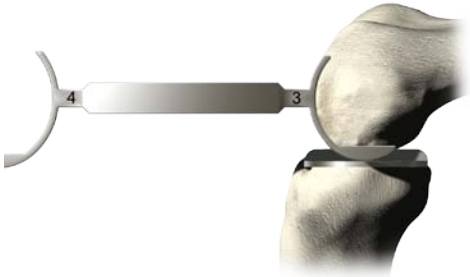
c. Tibial resection



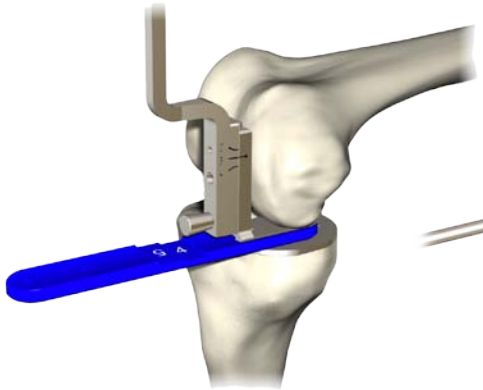
d. Check tibial alignment



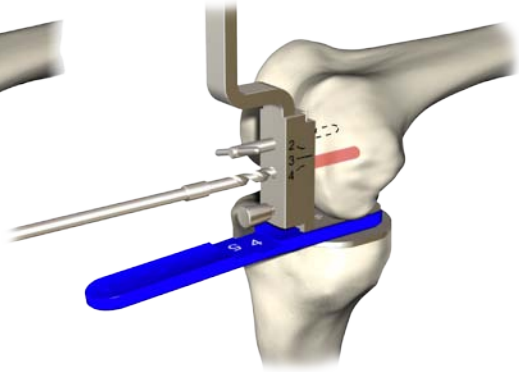
e. Tibial sizing



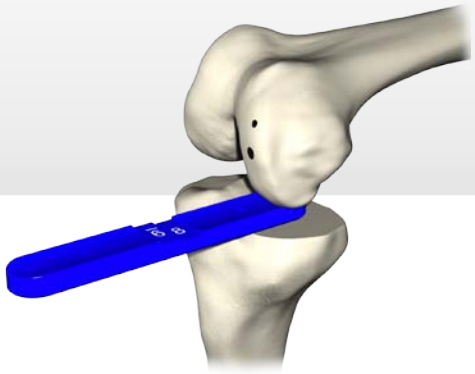
f. Femoral sizing



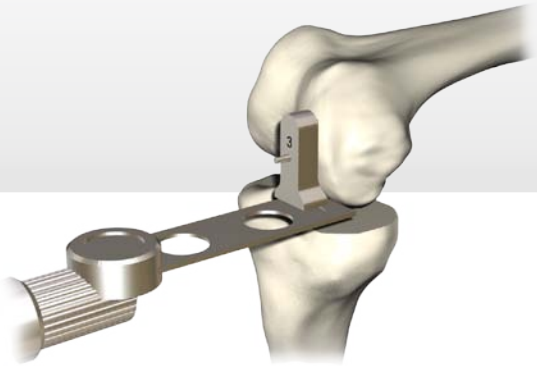
g. EM alignment of the femoral component



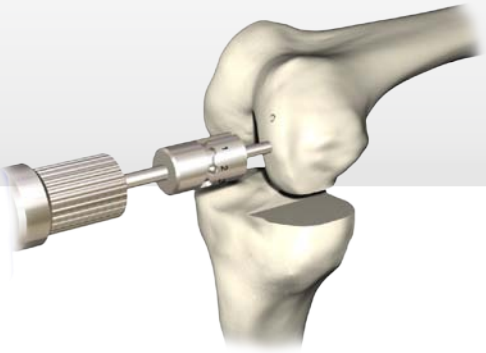
h. Femoral drilling



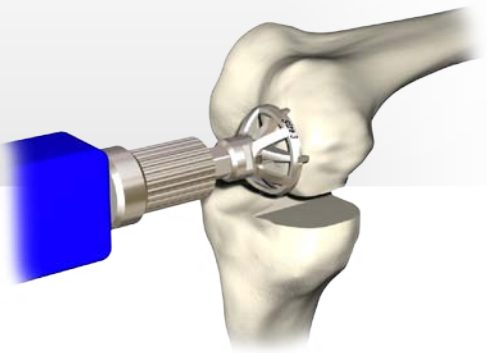
i. Measuring for deficiency



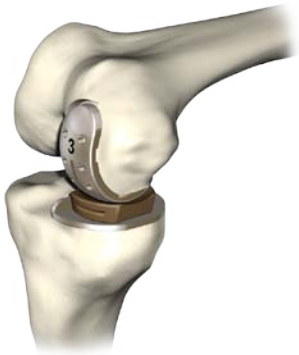
j. Femoral posterior resection



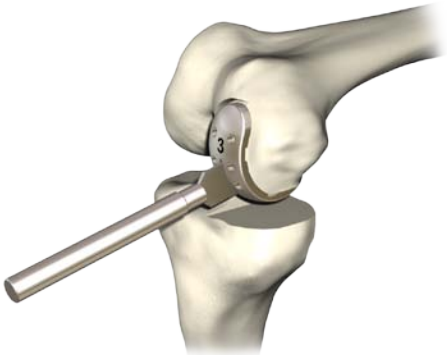
k. Starter reamer for femur



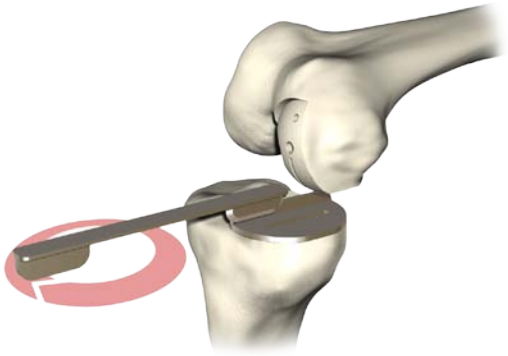
l. Distal reaming



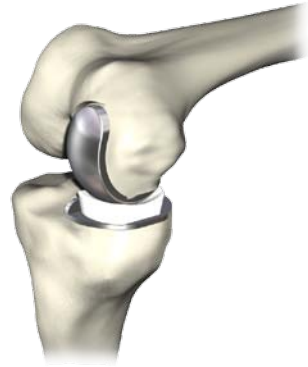
m. Trial reduction



n. Femoral preparation



o. Tibial preparation



p. Implantation

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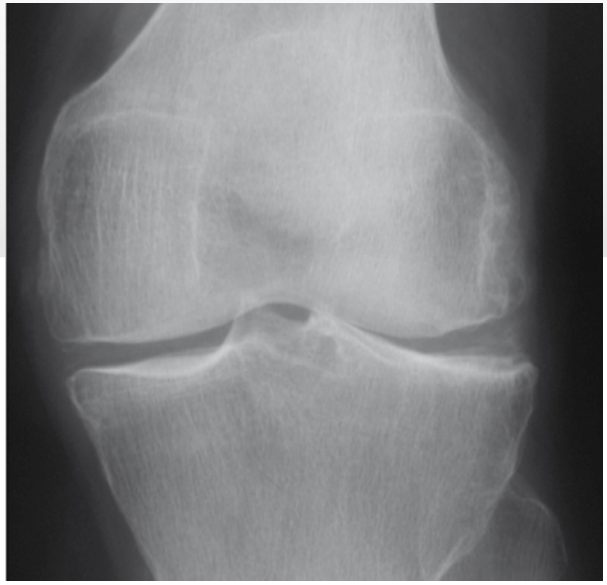
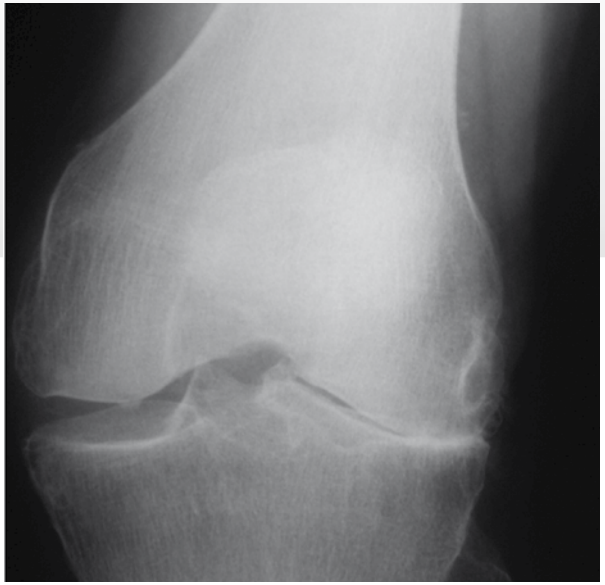
Indications

The Uniglide Mobile Bearing Unicondylar Knee System is indicated for use in patients with osteoarthritis limited to the medial compartment of the knee and is intended to be implanted with high viscosity bone cement.

The Uniglide Fixed Bearing Unicondylar Knee System is indicated for replacement of the articulating surfaces of one tibio-femoral compartment of the knee where this has been affected by primary degenerative disease, post traumatic degenerative disease or damage due to previous surgical intervention and the anterior and posterior cruciate ligaments are present and functionally intact. The device is indicated for use in the medial or lateral compartment of the knee and is intended to be used with bone cement.



Standing A-P



Schuss view

Pre-operative assessment

The Uniglide is indicated for knees with unicompartmental disease and intact ligaments, particularly the ACL. Some wear of the medial or central patello-femoral joint (PFJ) is acceptable, provided the patient does not have symptoms at that site. If the lateral side of the PFJ is involved, total or bicompartmental replacement should be considered. Small areas of full thickness wear on the lateral side are acceptable especially if due to impingement.

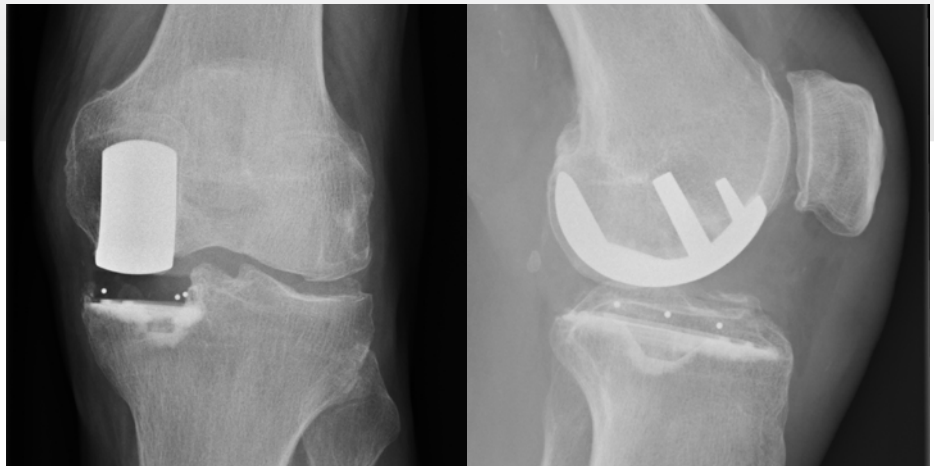
Inflammatory arthritis is a contraindication but obesity and modest chondrocalcinosis are not. Fixed flexion of greater than 10-15° cannot be corrected and is a contraindication, as is a significant fixed varus or valgus deformity.

ACL integrity can be assessed clinically and by ensuring that the area of worn articular cartilage does not extend to the back of the femur on the standing lateral radiograph.

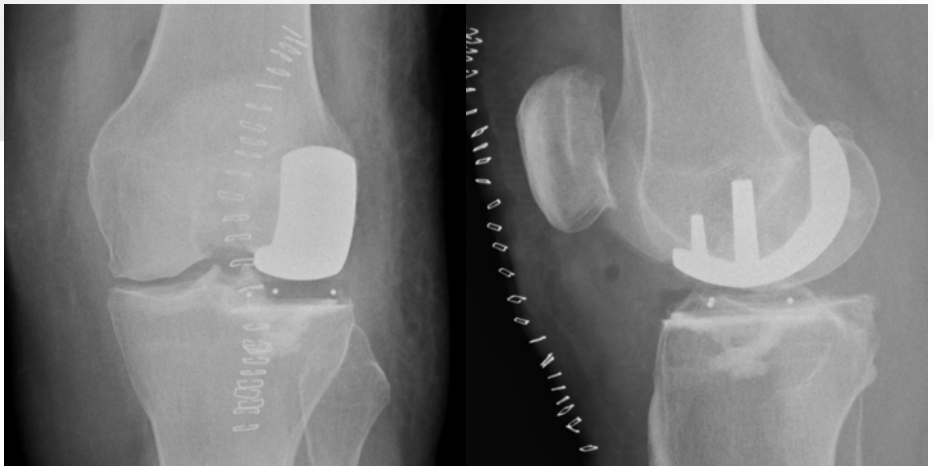
Cases with medial or lateral subluxation of the tibia on the femur should be viewed with caution since achieving correct tracking of the mobile bearing can be more difficult. Stress radiographs should be taken to ensure that correction occurs when the worn side is stressed open, as will occur with insertion of the prosthesis.

Especially on the lateral side, the severity of the disease will not be appreciated unless a Schuss Rosenberg radiographic view is taken. Without these views, cases appropriate for lateral unicompartmental replacement are frequently missed.

It is recommended that the fixed bearing device is used on the lateral side, unless the surgeon is very experienced.



Fixed bearing Uniglide
– medial compartment



Fixed bearing Uniglide
– lateral compartment

Preparation

The leg should be draped free with the foot exposed, and usually with a tourniquet in place. At least 120° of flexion must be possible, either by hanging the tibia or on the operating table.

The X-rays should be templated, but final measurement and sizing are performed intra-operatively.

Incision

Any of three incisions may be used for a medial bearing:

1. A full medial arthrotomy with the patella dislocated laterally. This allows total inspection of the joint and best access for implant insertion.

   Note: The patella must be reduced when checking tension and meniscal tracking.

2. A limited medial arthrotomy, probably with a mid or subvastus proximal approach, allowing subluxation but not dislocation of the patella.
3. Small incision approach, in which an 8-10cm medial approach is made, but the patella is left in situ and the quadriceps muscle is not violated.

It is recommended that surgeons inexperienced with mobile bearing unicondylar knee replacement initially use incision 1 or 2.

Approach

With all incisions, especially a small incision, it is essential that the patella tendon is assessed and if necessary partially released, the fat pad retracted (or excised as necessary) in order to allow a correctly directed initial sagittal tibial cut.

The knee should be extended at this stage to allow inspection of the articular surfaces and to verify the integrity of the ACL. A thick superior synovial fold should be divided to aid extensor mechanism retraction.

It is also strongly recommended that early in the procedure, osteophytes are removed from both sides of the femoral condyle to correctly define its width and avoid encroachment on the ACL or collateral ligaments.

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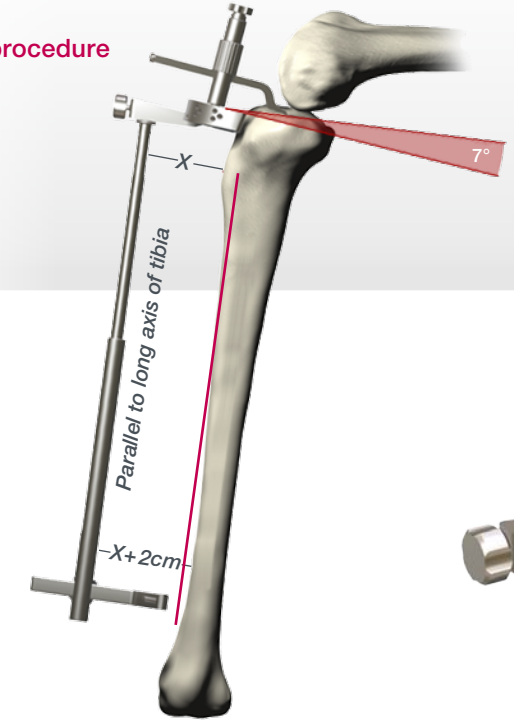
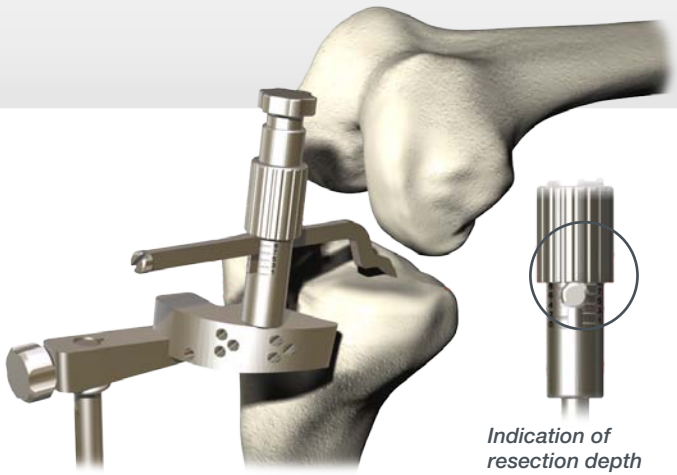
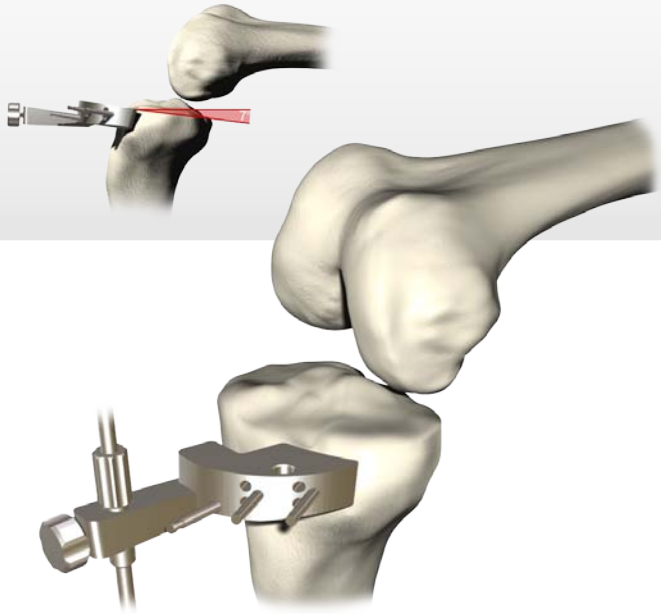
Medial procedure







Step 1. Tibial preparation

Place the tibial alignment cutting block against the anterior aspect of the tibia and align the jig as shown. Initially, correct rotation should be achieved so that the jig rests in the sagittal plane and the tibial clamp points towards the medial malleolus.

Surgeons should try to replicate the individual patient's tibial slope, (distally, the cutting jig should be approximately 1-2cm further from the front of the tibia than proximally). A 7° posterior slope is built into the jig.

Insert the stylus into the cutting block and adjust the height to resect the desired amount of bone. With a worn tibia 2mm is adequate, whilst with minimal wear a 7mm resection will typically be required.

Fix the cutting block with two parallel pins.

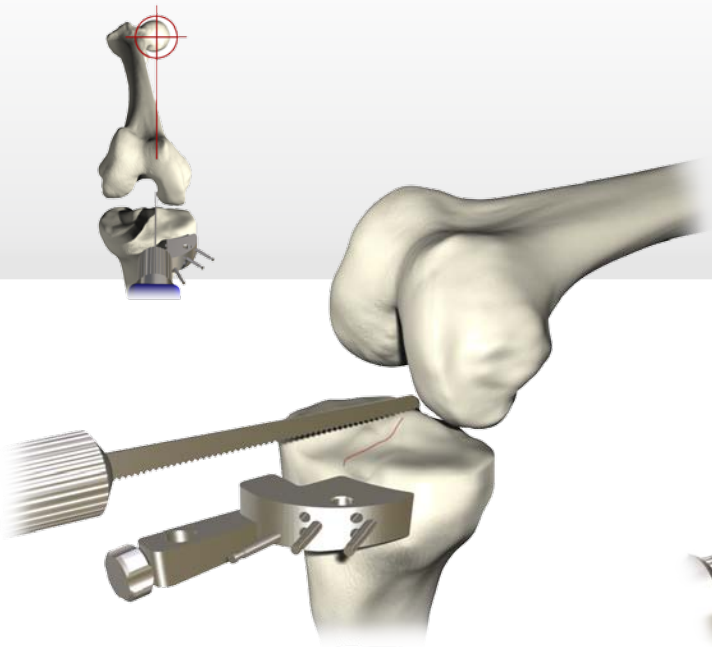
Ideally the surgeon should pre-operatively measure the individual patient's tibial slope on a lateral X-ray in order to replicate it.

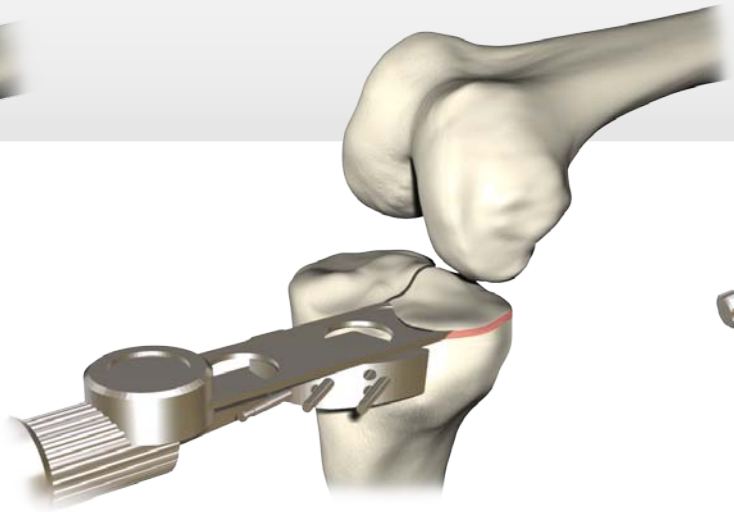
Remove the stylus

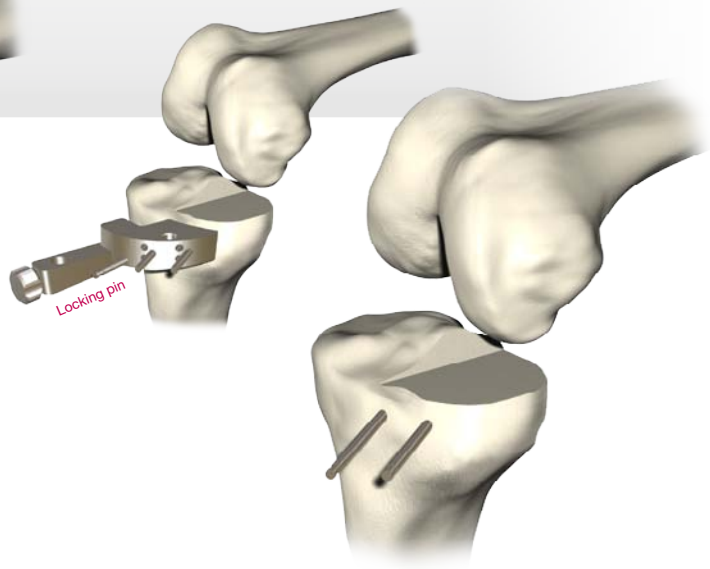
The tibial cut should have a 7° posterior slope relative to the long axis of the tibia, and should be neutral for varus/valgus.

The tendency is always to make a varus cut.

Remove the tibial alignment jig and check that the alignment is correct using the alignment check rod. When satisfied that correct alignment has been achieved, further impact the original two fixation pins and fix the block with the A-P locking pin.







Step 2. Sagittal cut

The sagittal cut is made parallel to the guide and down onto the tibial cutting block with the reciprocating saw pointing towards the femoral head. This cut should be made as close as possible to the ACL. The direction of this cut is crucial to avoid later tracking problems. For this reason it is advised that the head of the femur is marked with a clip.

Note: The posterior cortex needs to be cut but this must be done done cautiously so as not to over-resect the posterior tibia.

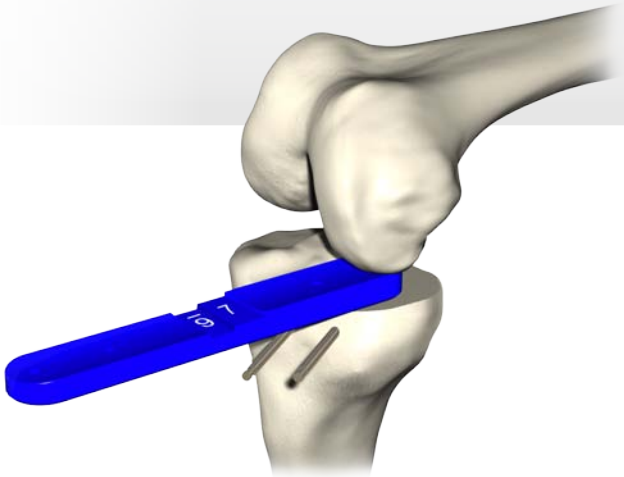
Step 3. Tibial resection

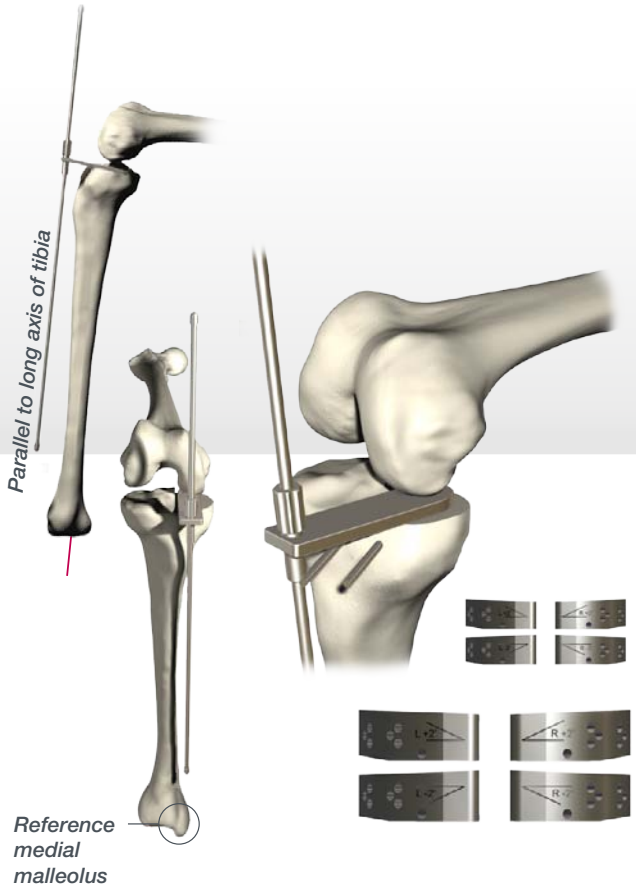
Resect the top of the tibia taking great care not to undercut the ACL. Remove the resected bone. This is most easily done with the knee in 20°-30° of flexion.

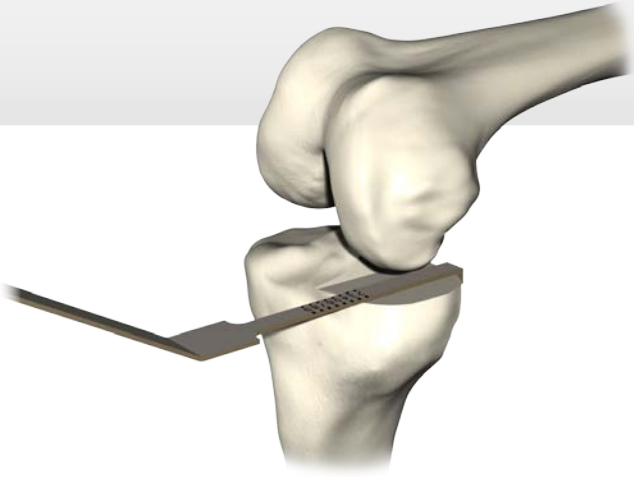
It is recommended that the resected bone is 'loosened' as far as possible with an osteotome before grasping and dividing the surrounding soft tissue. On occasions removal can be difficult, particularly in the presence of significant posterior osteophytes. By looking at the resected bone you can check the slope is correct by ensuring an even thickness anterior and posterior.

Remove the locking pin and block but leave the parallel pins in situ.

⚠ It is possible to undercut the ACL at this point. This should be avoided.







Check that there is adequate space in flexion for at least a 7mm spacer lollipop to be inserted easily. The 7mm spacer lollipop here represents a combined tibial tray and insert thickness. If the spacer lolliopop cannot be inserted easily, further tibial resection will be required.

7mm = 4mm insert + tibial template thickness

Step 4. Check tibial alignment

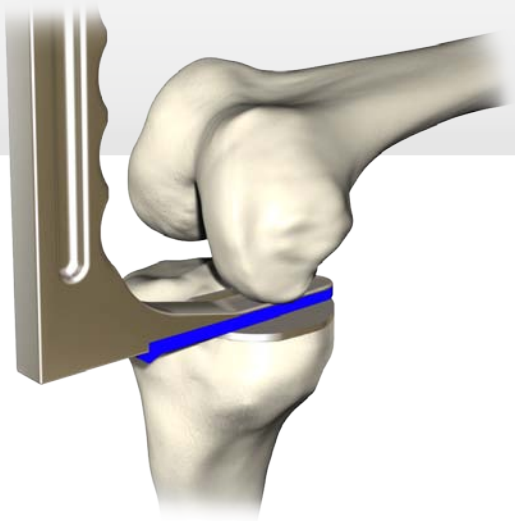
Place the check plate on the cut surface and ensure correct alignment using the rod, which should be directed towards the medial malleolus of the tibia and should indicate a 7° posterior slope.

Make any adjustments necessary. Minor (2°) errors of varus/valgus can be corrected by placing the varus/valgus cutting block on the pins and recutting. The amount removed will be minimal but makes an important difference since the rest of the procedure depends on this being correct.

Step 5. Tibial sizing

Measure the tibial size using the feeler gauge for A-P measurement, and check the indicated tibial trial against the resected tibial plateau, ensuring that it gives full cover, especially posteriorly and medially.

The tibial trial must not overhang medially more than 2mm. If this happens either a smaller size must be used or further bone must be resected centrally, being careful not to damage the ACL.



Impact the tibial trial firmly using the C-arm impactor. If the joint space is tight, the plastic foot may be removed to ease its insertion.

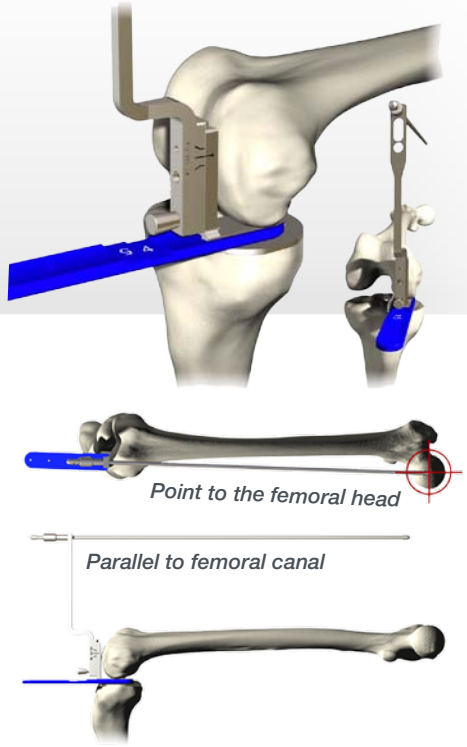
Note: Choose the appropriate size and use the dedicated fixed or mobile tibial template to prepare the tibia.

Step 6. Femoral sizing

Pre-operative templating should be checked using the femoral sizing guides, and the appropriate size selected. If borderline, choose the smaller size.

The fit for the femoral component is referenced off the posterior condyle and the anterior limit should not extend into the patello-femoral joint.

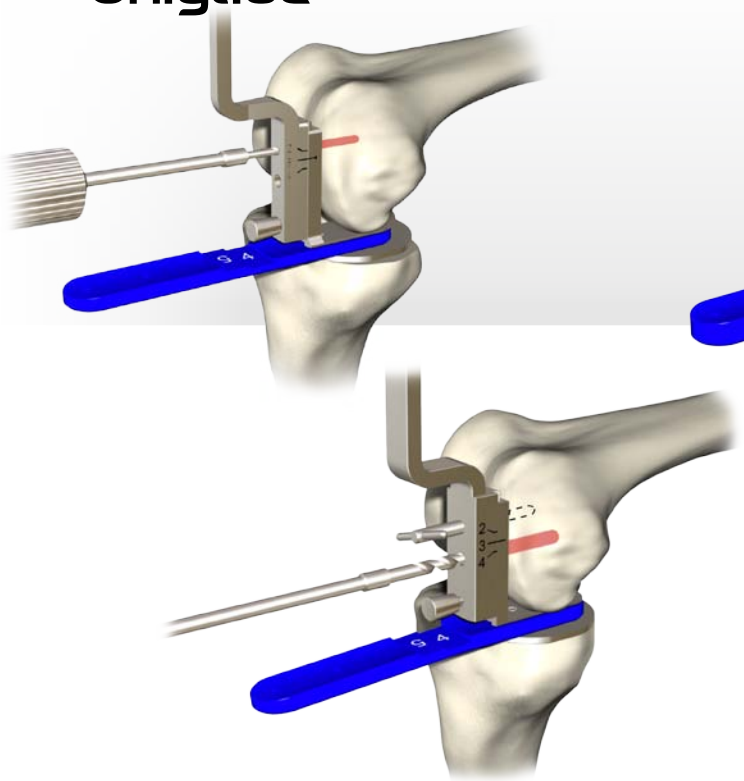
Note: The following steps show the setting of femoral alignment using an extra medullary alignment technique. An alternative technique utilising intra medullary instrumentation is shown in Appendix A.

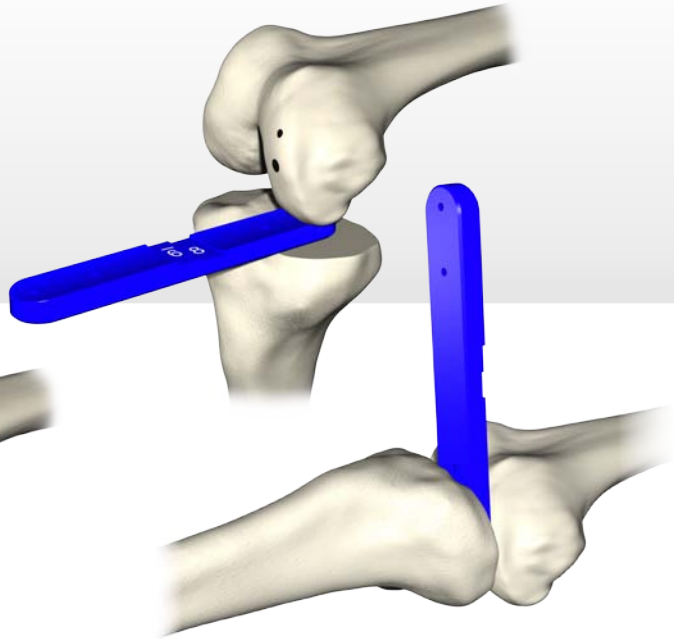


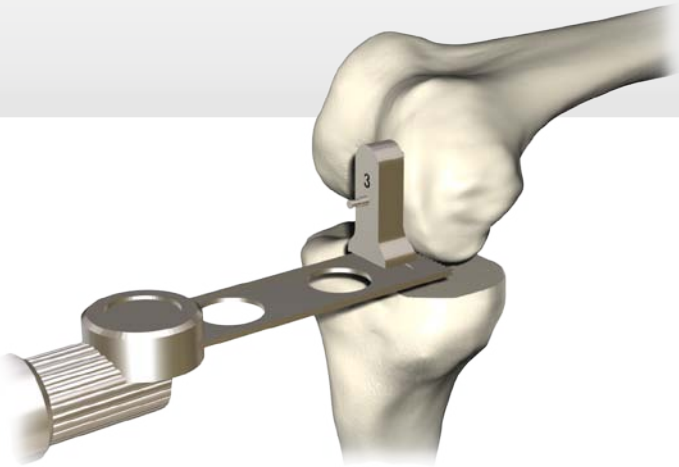
Step 7. EM femoral alignment

Set the femoral alignment jig to the selected size and place it on a lollipop which loosely fills the flexion gap, normally 4 or 5mm. This must be parallel to the edge of the tibial trial. Insert the rod through the anterior hole and align with the femoral shaft in the sagittal plane by adjusting the degree of knee flexion (which should be 97°), erring on the side of flexion rather than extension.

In the coronal plane, the rod should point to the femoral head. If the patella is reduced the tibia must not be rotated to achieve this. If the patella has been reflected, the tibia may need to be rotated back to its correct position. Ensure that the holes will be centred on the femoral condyles.







Step 8. Femoral drilling

Once correct alignment has been achieved, with the knee at 97°, drill the smaller femoral anchorage hole and insert the T-pin or leave the drill in situ. Drill the larger posterior hole to its stopped depth. Remove the femoral alignment jig.

Deficiency = Extension gap - Flexion gap

Step 9. Femoral reaming: Measure - Ream - Trial technique

Step 9 (i). Measuring for deficiency

Any deficiency in the distal femoral condyle is determined by measuring the existing flexion and extension gaps using the spacer lollipops. The degree of deficiency is the extension gap minus the flexion gap. This measured deficiency is used in step 15 to set the initial depth for distal femoral reaming.

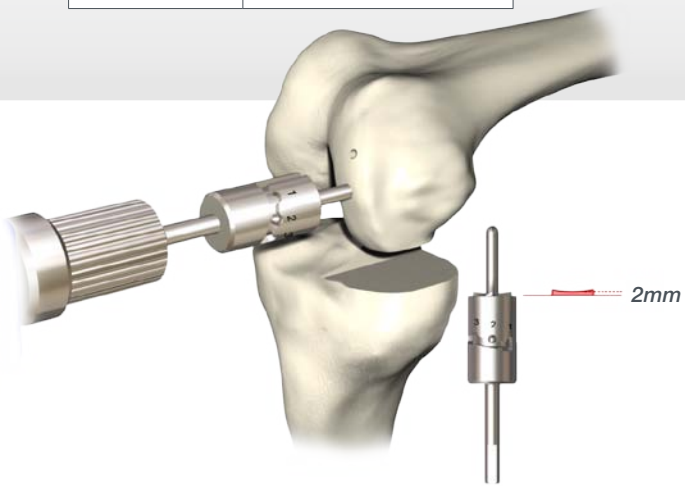
Note: An alternative sequence (Trial-Measure-Ream Technique) to that described in step 9 for achieving the correct depth of reaming is presented in Appendix B.

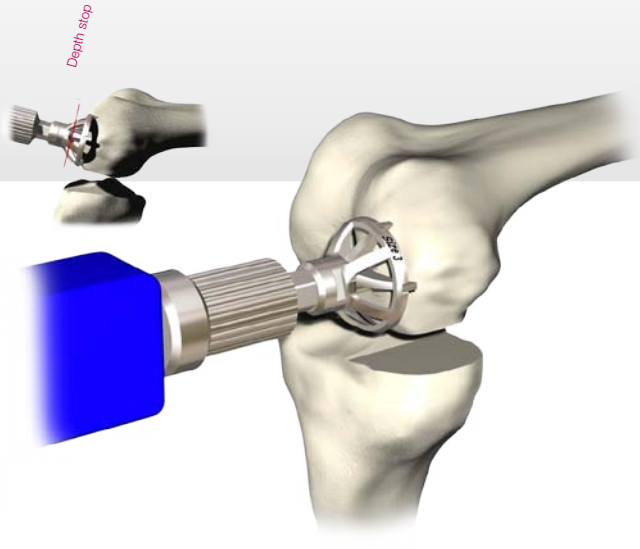
Step 9(ii). Femoral preparation

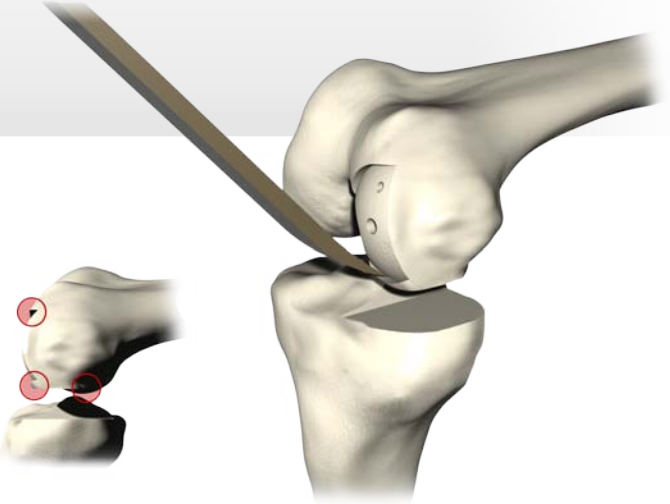
Position the appropriate sized femoral cutting block using the pre-drilled holes and resect the posterior condyle. 6mm of bone and cartilage is resected. This cut must be done accurately.

Remove the block.

Distal deficiency	*Starter reamer setting*
3mm	*only use spherical shaping reamer of correct size*
2mm	*1*
1mm	*2*
0mm	*3*







Step 9(iii). Starter reamer for femur

Set the resection depth on the small starter reamer according to the difference in flexion and extension gaps – i.e. set the resection depth to 3mm minus the deficiency measured in step 9(i). Remove cartilage or bone from the distal femur to the set depth. This is typically 2mm, but the reamer allows 1, 2 or 3mm resection to suit the condition of the distal femoral condyle.

Step 9(iv). Distal reaming

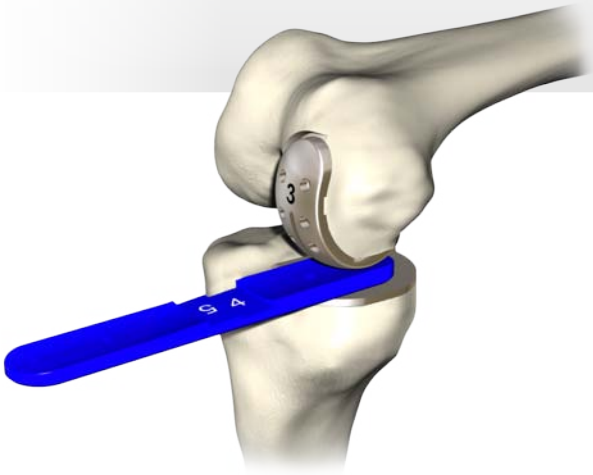
Take the correct sized spherical shaper reamer and ream the distal femur until the level set by the starter reamer has been reached .

Care must be taken to accurately align the reamer in the guide hole and maintain alignment whilst reaming. The reamer has a stop to prevent excess bone removal.

Step 10. Further femoral preparation

Remove any excess bone posterior to the reamed surface so that the prosthesis can be seated. Remove any posterior femoral osteophytes using the chisel provided.

Note: The first 11 steps apply to both the mobile and fixed bearing operative techniques. Continue to follow Steps 12 to 15 for the mobile bearing option. Advance to Step 16 for the fixed bearing option.



Step 11. Femoral trial

Position the femoral trial and tibial template and check the flexion and extension gaps using the spacer lollipops. The gaps must be equal. Remove the lollipop whilst bringing the knee from flexion to extension to avoid trauma to the ACL.

Normally, the initial suggested 2mm distal ream is adequate, but it may be necessary to ream the distal femur further. This is done in small steps, initially using the starter reamer, followed by the spherical reamer, regularly checking the flexion and extension gaps with the spacer lollipop until equality is achieved.

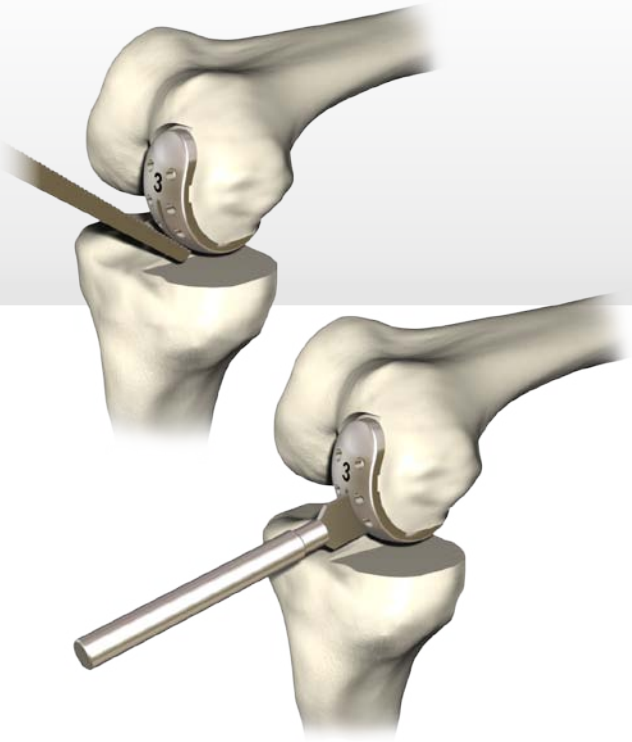
⚠ **The bearing trial can be difficult to take out and removal of the femoral trial component may be necessary. A trial insert introducer/extractor has been included in the kit to aid with this step.**

Mobile bearing option (Steps 12-15)

Step 12. Trial reduction

With the femoral and tibial trial components in place, test the tracking by insertion of a trial bearing. This can be done in mid flexion by moving the knee from flexion to extension with valgus stress. Alternatively the trial bearing can be inserted at the same time as the femoral trial component, provided there is adequate flexion on the tibial cut.

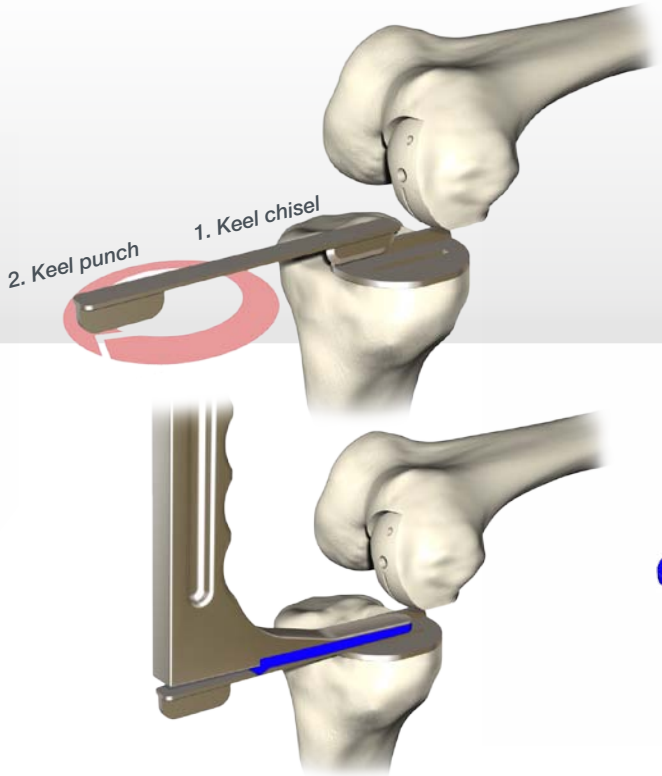
A tight fit should be obtained, but the knee must not be forced into over-correction and the bearing trial must move smoothly, without lifting in flexion.

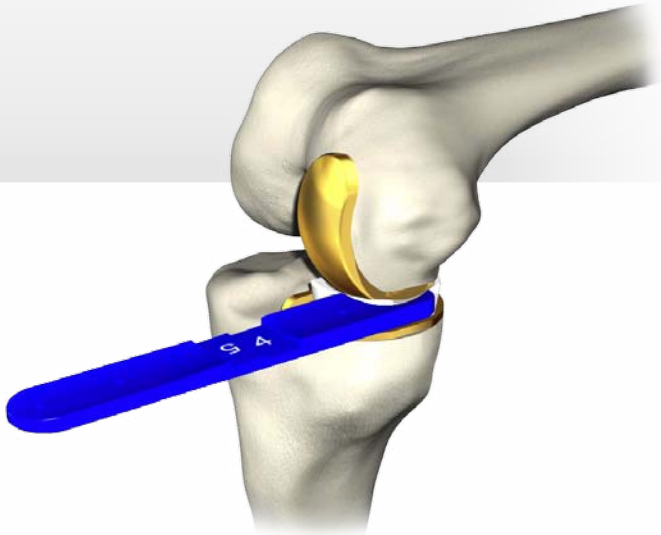


Step 13. Final femoral preparation

Position the femoral trial and use a reciprocating saw to create the femoral keel groove. The keel cutter should be used to complete the cut, ensuring that it is sunk to the correct mark. It is also possible to prepare keying holes for cement fixation using a drill.

⚠ **If satisfactory tracking cannot be obtained, check that there is no residual meniscus or posterior osteophyte causing maltracking.**





Step 14. Tibial preparation

Position the tibial trial and initiate the keel groove with a reciprocating saw or burr. Bony debris generated can be removed with the keel pick ensuring that it can be sunk to the full depth. The correct size tibial keel chisel/punch should be used next, with the tibial template *in situ,* impacting down fully with the C-arm impactor. The chisel should be used first, then the punch.

Note: To ensure sufficient bone removal to seat the definitive tibial tray flush against the resected surface, the final tibial preparation is done after removing the tibial template with the tibial punch, sinking it to maximum depth.

⚠ Take care not to injure the anterior or posterior cortex.

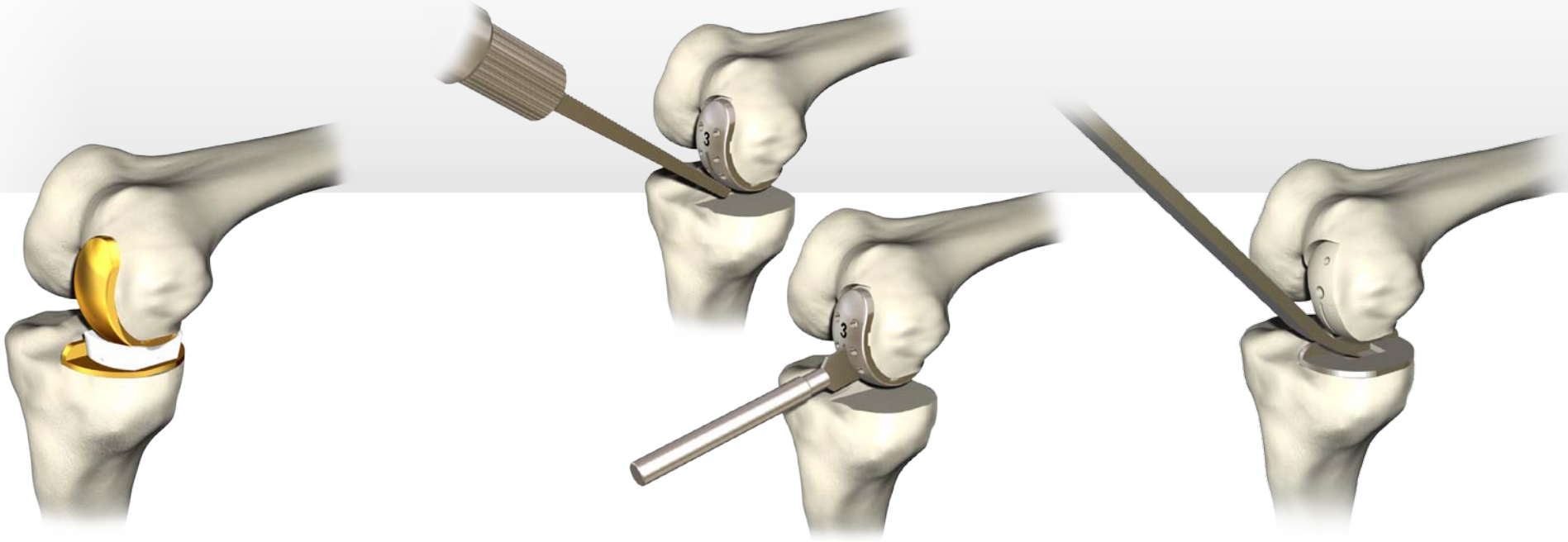
Step 15. Implantation of definitive mobile bearing components

Implantation of device components can then be performed using bone cement.

It is advisable to place the cement on the component rather than the bone, since this avoids displacing cement to the back of the joint.

Place the tibial component in position first, followed by the femoral component.

Note: Ensure the tibial component sits flush against the resected bone.



Maintain the knee in mid-flexion during cement polymerisation, with an adequate lollipop in place. Do not insert a bearing trial at this stage as it can be very difficult to remove. Assess the meniscal thickness using the lollipops and keep in mind the tension achieved with the trial components in place.

Once the cement has polymerised, insert the appropriate mobile bearing, moving the knee from flexion to extension with valgus stress to ease insertion.

Fixed bearing option (Steps 16-18)

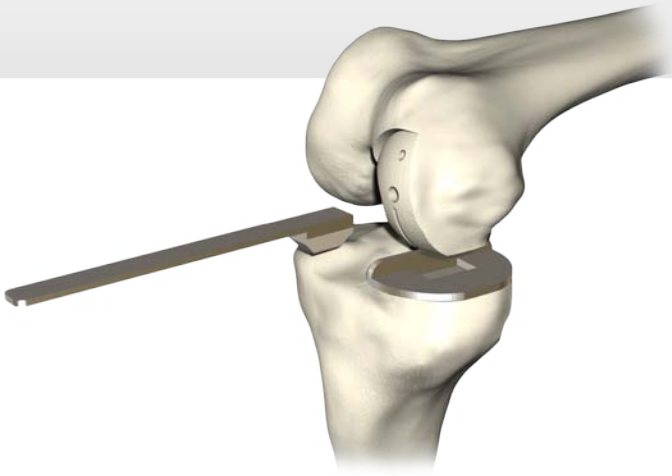
Step 16. Fixed bearing final femoral preparation

Femoral preparation for this fixed bearing is exactly the same as the mobile bearing, step 13.

Position the femoral preparation trial and initiate the keel groove with a reciprocating saw. Complete the cut with the keel cutter, ensuring that it can be sunk to the appropriate mark. It is also possible to prepare keying holes for cement fixation using a drill.

Step 17. Fixed bearing tibial preparation

Take the appropriate size fixed tibial trial (size 3, 5 or 7) and remove bone from the anchorage hole using an osteotome. The burr and keel pick may also be used.



Use the punch (size 3, 5 or 7) to ensure an adequate recess has been created to accommodate the keel of the fixed bearing tibial component.

Step 18. Implantation of definitive fixed bearing components

The all polyethylene fixed bearing component must be cemented into place. Place the tibial component in position first, followed by the femoral component. Maintain the knee in mid-flexion during polymerisation. Great care must be taken not to displace cement to the back of the knee. To prevent this, it is advisable to place the cement on the component rather than the bone.

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Lateral unicompartmental replacement procedure

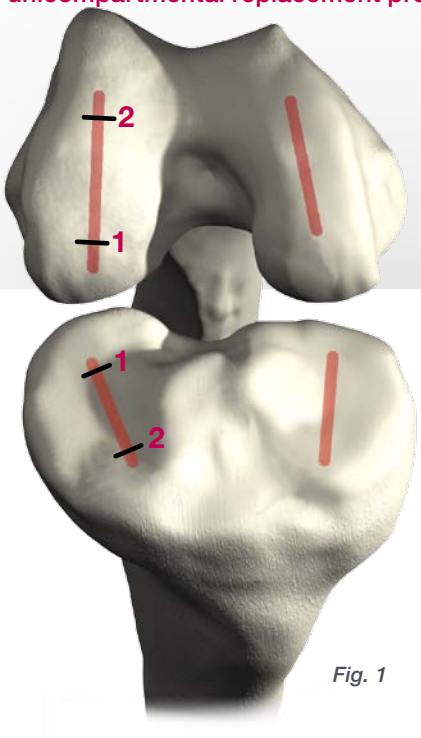
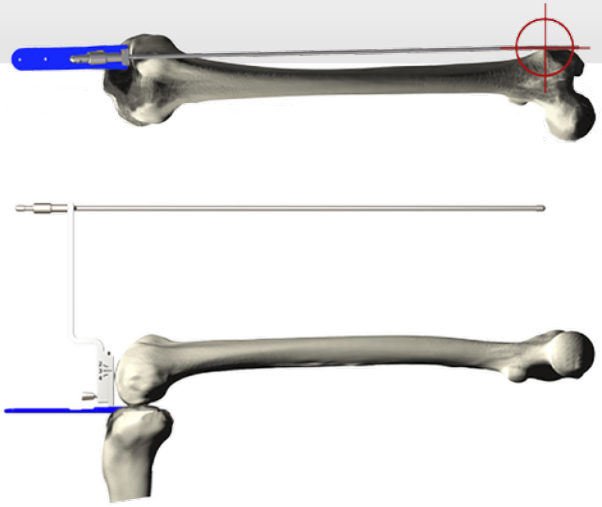


Fig. 1



Step 1. A lateral parapatellar approach is made and the patella retracted medially or subluxed to give better vision.

Step 2. With the knee flexed to 90°, the lateral femoral condyle is marked at the contact point with the tibia, the tibial contact is also marked **1**. This process is repeated with the leg in full extension **2**. The two points are then connected with diathermy to guide the orientation of the implant. This guides the direction of the tibial cut which is internally rotated by about 30°.

All instruments are marked for use in the medial compartment. Thus for a left lateral replacement, cutting blocks marked 'right' should be used, and vice versa.

Step 3. The tibial alignment jig is applied to the leg and pinned in place. It is usually only necessary to resect a small amount of tibial bone, since there is frequently some femoral loss or hypoplasia. This should be done with a 3° posterior slope rather than 7° on the medial side.

Step 4. Perform the tibial sagittal cut in the line of the ACL (the cruciate cut) which is in some 30° of internal rotation (see fig. 1). The saw does not point to the femoral head but towards the iliac crest.

Step 5. Carry out alignment checks as for the medial side and select the trial tibial baseplate which doesn't overhang posteriorly by more than 2mm.

Step 6. Use the femoral alignment tower with the knee in 90° of flexion and drill the anchorage holes, keeping as far lateral as possible.

Note: The rod will point towards the iliac crest and not the head of femur, but must be parallel to the femoral shaft.

Step 7. Resect the posterior condyle and complete the procedure as for the medial side.

Appendix A

IM femoral alignment technique

Step A7(i). IM alignment

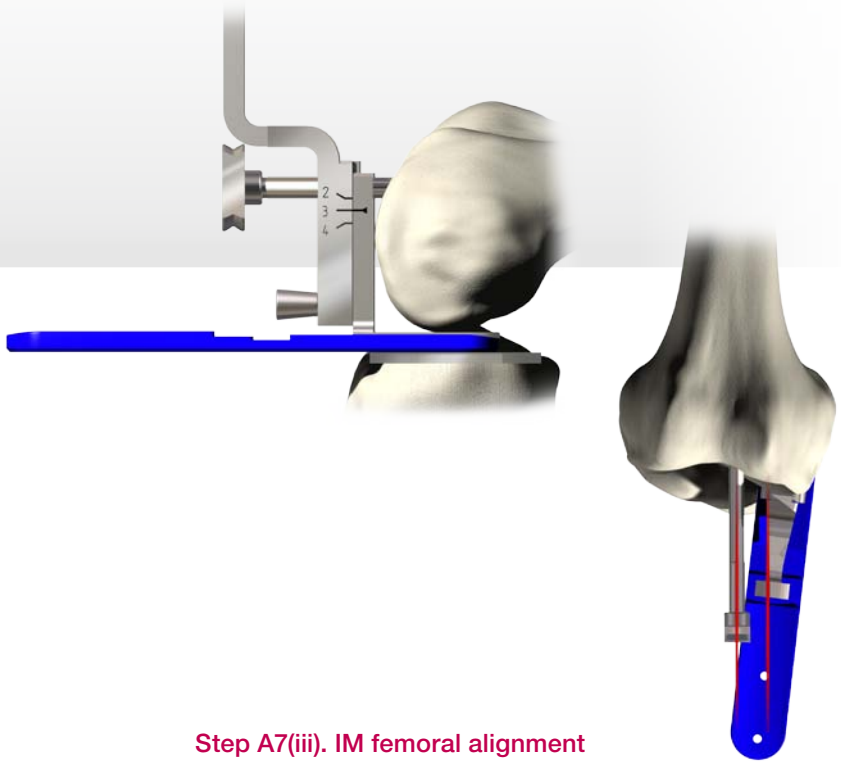
The intramedullary alignment guide is added as an option to assure proper alignment of the femoral component by providing for surgeon flexibility using either an extramedullary guide OR an intramedullary guide.

With the knee flexed at about 45º, a hole should be made into the intramedullary canal of the femur using the 6mm drill. The hole should be drilled 1cm anterior to the anteromedial corner of the intercondylar notch.

Step A7(ii). IM rod insertion

Insert the long or short IM rod into the 6mm hole, leaving enough room for the femoral alignment guide. The knee can now be flexed to 97° – take care as the medial border of the patella can abut the intramedullary rod.

Note: The IM rod can also assist as a retractor for the patella.



Step A7(iii). IM femoral alignment

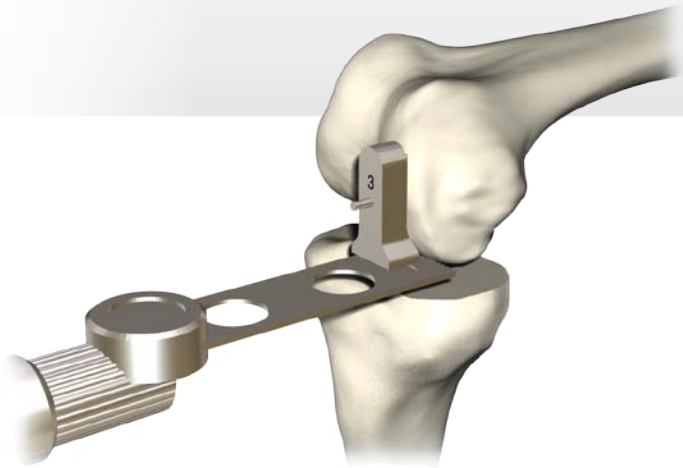
Replace the tibial template; insert the femoral alignment guide with lollipop, as per the EM alignment option. The femoral alignment guide can now be introduced and made to rest in the middle of the condyle.

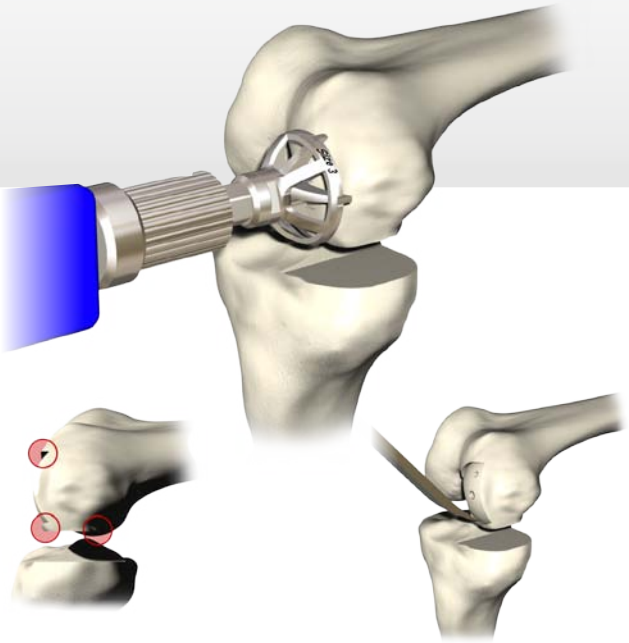
To achieve 7° of valgus, the IM rod should be parallel to the lateral side of the femoral alignment guide when viewed from above. This can be achieved by internal and external rotation of the tibia.

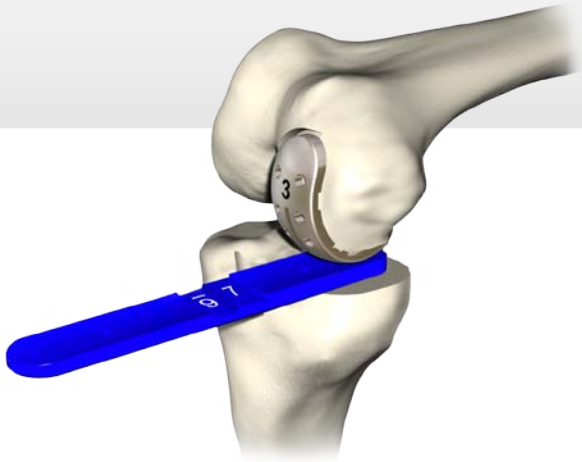
By adjusting the degree of flexion of the knee, the upper surface of the alignment guide is made to lie parallel with the IM rod when viewed from the side

Appendix B

Femoral Reaming: Trial - Measure - Ream technique







Step B9(i). Posterior resection and femoral shaping

Note: Use of this technique replaces steps 12(i) to (iv) in the standard technique.

Position the appropriate sized femoral cutting block using the pre-drilled holes and resect the posterior condyle. 6mm of bone and cartilage is resected. This cut must be done accurately.

Remove the block.

Take the correct sized spherical shaper reamer and shape the distal femur.

Remove any excess bone posterior to the reamed surface so that the prosthesis can be seated. Remove any posterior femoral osteophytes using the chisel provided.

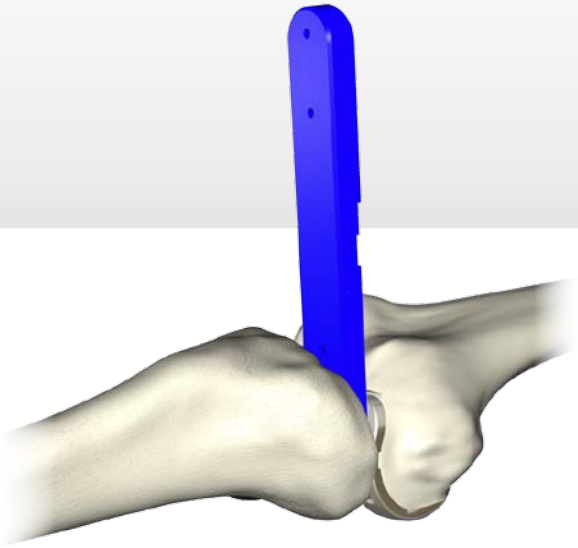
Step B9(ii). Deficiency measurement

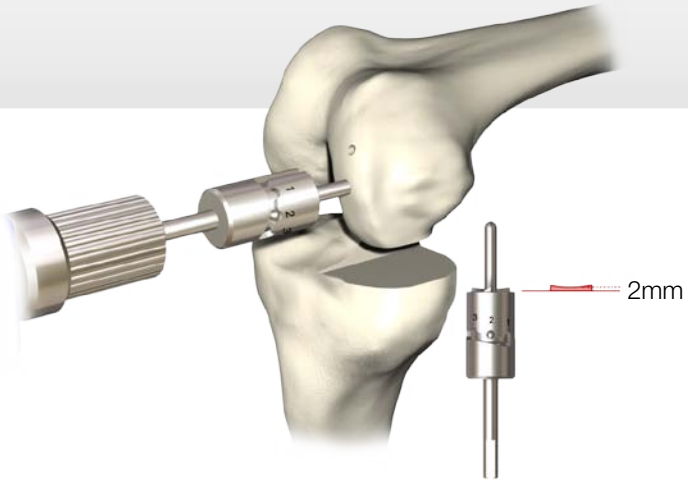
Position the femoral trial in place and check the flexion and extension gaps using the spacer lollipops. Both flexion and extension gaps should be checked without the tibial template in-situ. The spacer lollipop here represents a combined thickness of tibial insert and template. eg 7mm spacer lollipop = 4mm insert + tibial template thickness.

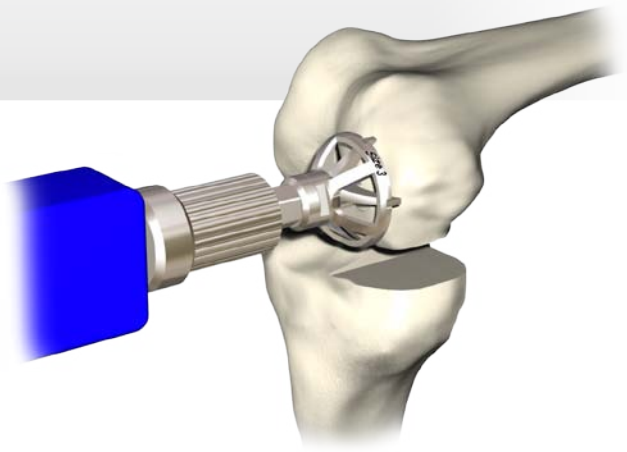
Note: In instances where the flexion gap is greater than 12mm the tibial template will also need to be placed during flexion and extension gap checking. In this case the spacer lollipop represents the true insert thickness.

Both the flexion and extension gaps must be equal. Remove the lollipop whilst bringing the knee from flexion to extension to avoid trauma to the ACL.

Gap difference	*Starter reamer setting*
0mm	*gap balanced, proceed to trial reduction*
1mm	*1*
2mm	*2*
3mm	*3*







If the flexion and extension gaps are not equal, it may be necessary to further ream the distal femur by the amount that the gap was tight in extension.

Note: The knee will normally be tighter in extension by 1-3mm. This amount is used in step B9(iii) to proximalise the femoral component.

Step B9(iii). Distal reaming

Set the resection depth on the small starter reamer according to the difference in flexion and extension gaps – i.e. set the resection depth to the difference measured in step B12(ii).

Take the correct sized spherical reamer and ream the distal femur until the level set by the starter reamer has been reached.

Note: Care must be taken to accurately align the reamer in the guide hole and maintain alignment whilst reaming. The reamer has a stop to prevent excess bone removal.

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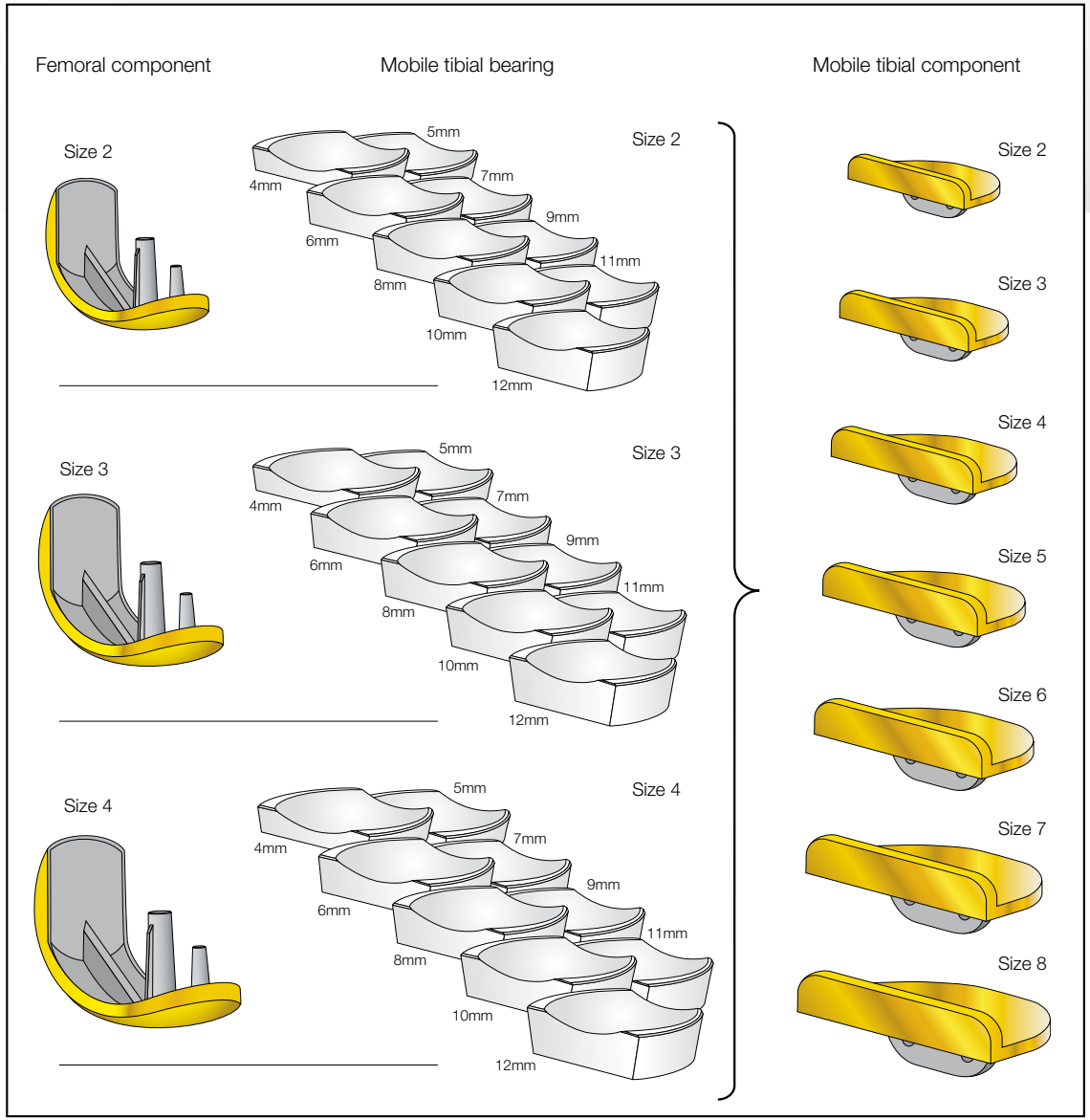
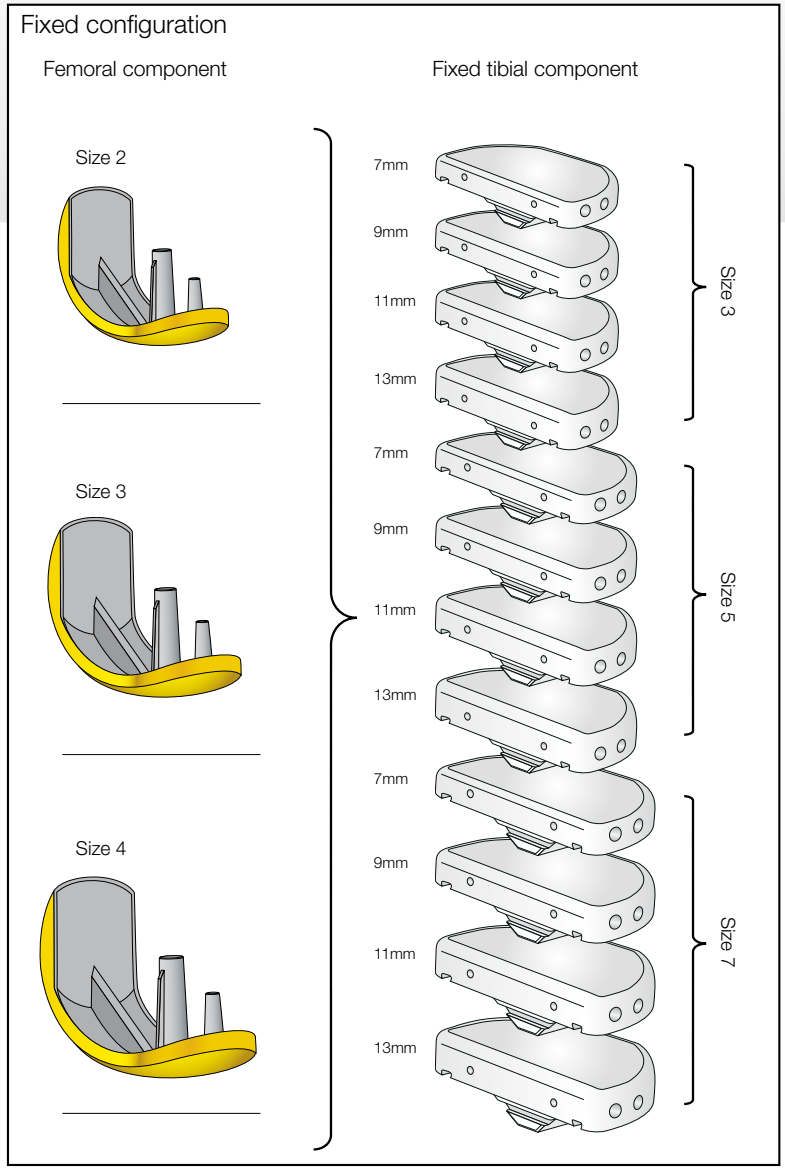
Compatibility chart





Ordering information

Femoral component: CoCr

514.1200	Size 2	Cementless
514.1300	Size 3	Cementless
514.1400	Size 4	Cementless

515.0500	Size 2	Cemented
515.0600	Size 3	Cemented
515.0700	Size 4	Cemented

Femoral component: CoCr with TiN coating

514.0200	Size 2	Cementless
514.0300	Size 3	Cementless
514.0400	Size 4	Cementless

515.0200	Size 2	Cemented
515.0300	Size 3	Cemented
515.0400	Size 4	Cemented

Tibial component: CoCr

525.1200	Size 2	Cementless
525.1300	Size 3	Cementless
525.1400	Size 4	Cementless
525.1500	Size 5	Cementless
525.1600	Size 6	Cementless
525.1700	Size 7	Cementless
525.1800	Size 8	Cementless

524.1200	Size 2	Cemented
524.1300	Size 3	Cemented
524.1400	Size 4	Cemented
524.1500	Size 5	Cemented
524.1600	Size 6	Cemented
524.1700	Size 7	Cemented
524.1800	Size 8	Cemented

Tibial component: CoCr with TiN coating

525.0200	Size 2	Cementless
525.0300	Size 3	Cementless
525.0400	Size 4	Cementless
525.0500	Size 5	Cementless
525.0600	Size 6	Cementless
525.0700	Size 7	Cementless
525.0800	Size 8	Cementless

524.0200	Size 2	Cemented
524.0300	Size 3	Cemented
524.0400	Size 4	Cemented
524.0500	Size 5	Cemented
524.0600	Size 6	Cemented
524.0700	Size 7	Cemented
524.0800	Size 8	Cemented

Mobile tibial bearing UHMWPE

530.0204	Size 2	4mm
530.0205	Size 2	5mm
530.0206	Size 2	6mm
530.0207	Size 2	7mm
530.0208	Size 2	8mm
530.0209	Size 2	9mm
530.0210	Size 2	10mm
530.0211	Size 2	11mm
530.0212	Size 2	12mm
530.0304	Size 3	4mm
530.0305	Size 3	5mm
530.0306	Size 3	6mm
530.0307	Size 3	7mm
530.0308	Size 3	8mm
530.0309	Size 3	9mm
530.0310	Size 3	10mm
530.0311	Size 3	11mm
530.0312	Size 3	12mm
530.0404	Size 4	4mm
530.0405	Size 4	5mm
530.0406	Size 4	6mm
530.0407	Size 4	7mm
530.0408	Size 4	8mm
530.0409	Size 4	9mm
530.0410	Size 4	10mm
530.0411	Size 4	11mm
530.0412	Size 4	12mm

Fixed tibial component UHMWPE

530.1307	Size 3	7mm
530.1309	Size 3	9mm
530.1311	Size 3	11mm
530.1313	Size 3	13mm
530.1507	Size 5	7mm
530.1509	Size 5	9mm
530.1511	Size 5	11mm
530.1513	Size 5	13mm
530.1707	Size 7	7mm
530.1709	Size 7	9mm
530.1711	Size 7	11mm
530.1713	Size 7	13mm

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Instrumentation

Mobile tibial preparation

268.972 Tibial preparation and tibial templating instrument set

Upper tray

BC8K-3B01-000	Tibial template trial - Size 2
BC8K-3B02-000	Tibial template trial - Size 3
BC8K-3B03-000	Tibial template trial - Size 4
BC8K-3B04-000	Tibial template trial - Size 5
BC8K-3B05-000	Tibial template trial - Size 6
BC8K-3B06-000	Tibial template trial - Size 7
BC8K-3B07-000	Tibial template trial - Size 8
BC8K-2G01-000	C-Arm impactor including:
	BC8K-2G02-000 Plastic foot
BC8K-3A00-001	Tibial cut check plate
BC8K-3G00-001	Sizer and placement guide for tibial baseplate
BC8A-1G01-000	EM rod with bush
BC8A-2G00-001	Curved osteotome
631.000	Femoral alignment spacer lollipop 4, 5mm
631.000	Femoral alignment spacer lollipop 6, 7mm
631.000	Femoral alignment spacer lollipop 8, 9mm
631.000	Femoral alignment spacer lollipop 10, 11mm
631.001	Femoral alignment spacer lollipop 12, 13mm
BC8J-9G01-000	Spherical reamer - 12mm spanner
BC8J-9G02-000	Spherical reamer - 14mm spanner
268.921T	Tibial templating tray

Lower tray

BC8K-1G01-012	Tibial alignment jig consisting of:
	BC8K-1G01-013 Inner shaft
	BC8K-1G01-014 Outer shaft
	BC8K-1G01-003 Ankle clamp
	BC8K-1G01-004 Ankle clamp screw
	BC8K-1G01-017 Inner shaft screw
BC8K-2L02-000	Tibial resection block left and nut
BC8K-2R02-000	Tibial resection block right and nut
BC8K-1L00-001	Tibial resection block left +2°
BC8K-1L00-002	Tibial resection block left -2°
BC8K-1R00-001	Tibial resection block right +2°
BC8K-1R00-002	Tibial resection block right -2°
291.512	Angel wing
268.100	Diallable stylus
650.002	Pin set
291.617	Pin impactor
650.001	Pin puller
268.920T	Tibial preparation tray

Container

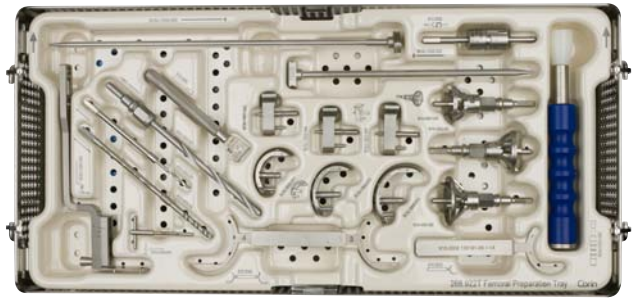
268.900T	Stainless steel instrument container, double height

Femoral preparation

268.973 Femoral preparation and insert trials instrument set

Upper tray

615.0002	Femoral sizer template - Sizes 2
615.0304	Femoral sizer template - Sizes 3 and 4
BC8J-1G05-000	Femoral alignment tower
BC8J-1G03-000	Femoral tower alignment T-pin
BC8J-4B00-003	Femoral drill 6mm
BC8J-4B00-001	Femoral drill 3mm
BC8J-4B00-002	Femoral drill 5mm
BC8J-1G02-000	6mm IM rod
BC8J-1G04-000	6mm IM rod (long)
BC8J-1B01-000	Femoral cutting block - Size 2
BC8J-1B02-000	Femoral cutting block - Size 3
BC8J-1B03-000	Femoral cutting block - Size 4
613.0000	Starter reamer
BC8J-4B01-000	Spherical reamer - Size 2
BC8J-4B02-000	Spherical reamer - Size 3
BC8J-4B03-000	Spherical reamer - Size 4
BC8J-3B00-011	Femoral trial with slot - Size 2
BC8J-3B00-012	Femoral trial with slot - Size 3
BC8J-3B00-013	Femoral trial with slot - Size 4
616.0060	Femoral slot punch
BC8J-2G01-000	Femoral impactor
268.922T	Femoral preparation tray



Lower tray

631.0204	Trial mobile insert Size 2 - 4mm thick
631.0205	Trial mobile insert Size 2 - 5mm thick
631.0206	Trial mobile insert Size 2 - 6mm thick
631.0207	Trial mobile insert Size 2 - 7mm thick
631.0208	Trial mobile insert Size 2 - 8mm thick
631.0209	Trial mobile insert Size 2 - 9mm thick
631.0210	Trial mobile insert Size 2 - 10mm thick
631.0211	Trial mobile insert Size 2 - 11mm thick
631.0212	Trial mobile insert Size 2 - 12mm thick
631.0304	Trial mobile insert Size 3 - 4mm thick
631.0305	Trial mobile insert Size 3 - 5mm thick
631.0306	Trial mobile insert Size 3 - 6mm thick
631.0307	Trial mobile insert Size 3 - 7mm thick
631.0308	Trial mobile insert Size 3 - 8mm thick
631.0309	Trial mobile insert Size 3 - 9mm thick
631.0310	Trial mobile insert Size 3 - 10mm thick
631.0311	Trial mobile insert Size 3 - 11mm thick
631.0312	Trial mobile insert Size 3 - 12mm thick
631.0404	Trial mobile insert Size 4 - 4mm thick
631.0405	Trial mobile insert Size 4 - 5mm thick
631.0406	Trial mobile insert Size 4 - 6mm thick
631.0407	Trial mobile insert Size 4 - 7mm thick
631.0408	Trial mobile insert Size 4 - 8mm thick
631.0409	Trial mobile insert Size 4 - 9mm thick
631.0410	Trial mobile insert Size 4 - 10mm thick
631.0411	Trial mobile insert Size 4 - 11mm thick
631.0412	Trial mobile insert Size 4 - 12mm thick
BC8K-3B21-000	Tibial insert extractor
BC8K-2B02-000	Tibial keel pick
650.0050	Burr tool
BC8J-5G00-000	Femoral extractor
BC8K-2B00-012	Combined tibial keel punch and chisel - Size 2
BC8K-2B00-013	Combined tibial keel punch and chisel - Size 3
BC8K-2B00-014	Combined tibial keel punch and chisel - Size 4
BC8K-2B00-015	Combined tibial keel punch and chisel - Size 5
BC8K-2B00-016	Combined tibial keel punch and chisel - Size 6
BC8K-2B00-017	Combined tibial keel punch and chisel - Size 7
BC8K-2B00-018	Combined tibial keel punch and chisel - Size 8
268.910T	Mobile trials caddy
268.923T	Insert trials tray

Container

268.900T	Stainless steel instrument container, double height

Fixed tibial preparation

268.994	Fixed add-on option instrument set

Single tray

530-2307	Fixed bearing trial Size 3 - 7mm thick
530-2309	Fixed bearing trial Size 3 - 9mm thick
530-2311	Fixed bearing trial Size 3 - 11mm thick
530-2313	Fixed bearing trial Size 3 - 13mm thick
530-2507	Fixed bearing trial Size 5 - 7mm thick
530-2509	Fixed bearing trial Size 5 - 9mm thick
530-2511	Fixed bearing trial Size 5 - 11mm thick
530-2513	Fixed bearing trial Size 5 - 13mm thick
530-2707	Fixed bearing trial Size 7 - 7mm thick
530-2709	Fixed bearing trial Size 7 - 9mm thick
530-2711	Fixed bearing trial Size 7 - 11mm thick
530-2713	Fixed bearing trial Size 7 - 13mm thick
BC8K-3B00-013	Generic trial fixed bearing - 7mm thick
BC8K-3B00-014	Generic trial fixed bearing - 9mm thick
BC8K-3B00-015	Generic trial fixed bearing - 11mm thick
BC8K-3B00-016	Generic trial fixed bearing - 13mm thick
BC8K-2B00-008	Fixed tibial keel punch - Size 3
BC8K-2B00-009	Fixed tibial keel punch - Size 5
BC8K-2B00-010	Fixed tibial keel punch - Size 7
BC8K-3B08-000	Tibial fixed template trial - Size 3
BC8K-3B09-000	Tibial fixed template trial - Size 5
BC8K-3B10-000	Tibial fixed template trial - Size 7
268.010	Fixed trials introducer
268.909T	Fixed caddy insert
268.900T	Stainless steel instrument container, double height

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