maxROM

total knee replacement system

Surgical technique

VADIN implants

maxROM

total knee replacement system

Surgical technique

VADIN implants

Product Information

The MaxROM® Knee's multi flexion radius design provides for a smooth transition of rotation through the functional range of motion (ROM) improving collateral ligament tension. Because of the mechanics, joint stability is maintained throughout the full ROM, which can lead to better patient confidence and ability.

The anatomical femoral component (left/right) is made of CoCr alloy and is available in both cruciate ligaments retaining (CR) and resecting (posterior stabilizing, PS) options. It is offered in 5 sizes as to cover a wide range of femoral anatomies.

The tibial component is intended for cemented use. Resistance to tibial subsidence and rotation is delivered from the central peg and fin combination. The tibial plateau is also offered in 5 sizes that are perfectly matching to the corresponding femoral components.

Optimum tissue balance for flexion and extension can be achieved through the large range of polyethylene in¬sert options available (9 mm – 19 mm, in 2 mm increments). Inserts are secured in the tibia plateau by a 5 point locking mechanism that offers increased stability and reduced backside wear.

A 3-peg all polyethylene patella implant, which is fixed with the aid of cement, is offered in 4 sizes.

Indications/Contraindications

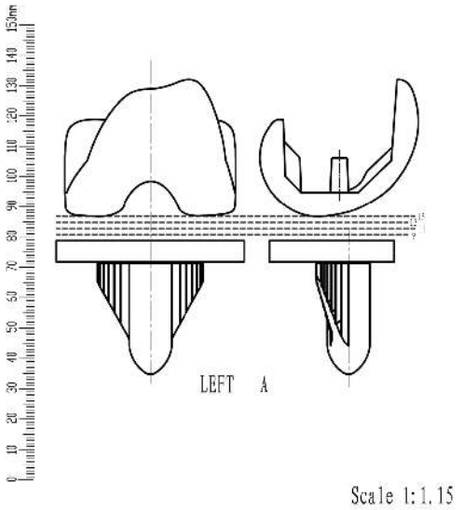
Indications

- Advanced wear of the knee joint because of noninflammatory degenerative joint disease, posttraumatic or rheumatoid arthritis and avascular necrosis.
- All types of osteoarthritis.
- Condition following earlier operations, e.g. osteosynthesis, joint reconstruction, arthrodesis.
- Arthritis resulting from congenital or acquired inter-articular or extra-articular (axial) malalignments.

These and further indications are to be considered by the surgeon, taking into account the special clinical, biological and biomechanical condition of the patient.

Contraindications

- Acute or chronic, local or systematic infection.
- Severe muscle, nerve or vascular diseases which endanger the affected extremity.
- Lack of bone substance or deficient bone quality that endangers the stable seating of the prosthesis.
- Local bone tumours.
- Systemic diseases and metabolic disorders.
- Oversensitivity to the materials used.
- Any accompanying disease that can endanger the function of the implant.
- Skeletally immature patients.



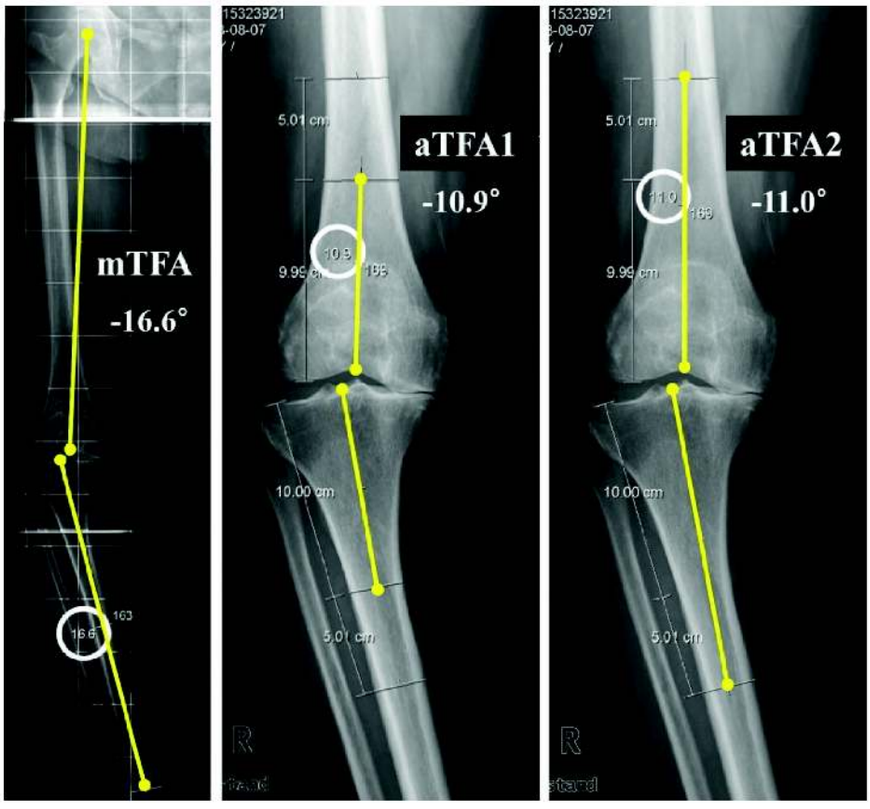
Preoperative Planning

Templating allows the preoperative estimation of prosthetic components' size, although the final sizing is always performed during surgery. The appropriate sizing of the components is crucial since a tibial component that is too large will extend beyond the tibial plateau and may cause pain over the metal tray; a femoral component that is too large limits knee flexion and results in increased excursion of the quadriceps mechanism and a femoral component that is too small will create looseness in flexion and possible notching of the anterior cortex of the femur.

During preoperative planning, the determination of the anatomical, mechanical and transverse axes, as well as angular malformations and the quality of the bone should also carry out. Multiple A/P and lateral x-rays should be made. The overall alignment of the leg, the possible malformations that may affect the alignment and the joint space can be appropriately estimated on full-length standing views. There is increased risk of total knee replacement failure when mal-alignment is not repaired.

A/P x-rays are used for the estimation of the mediolateral width of the tibial plateau, while the location and the size of the patella may be determined. If any type of release is required to restore patellar tracking may also be estimated with this view. Varus/valgus alignment of the knee, the joint space and the quality of the bone stock should also be assessed. If osteophytes are present they should be identified and resected during surgery to allow correct sizing of components and soft tissue tensioning. A/P size is critical to the restoration of normal kinematics and quadriceps function.

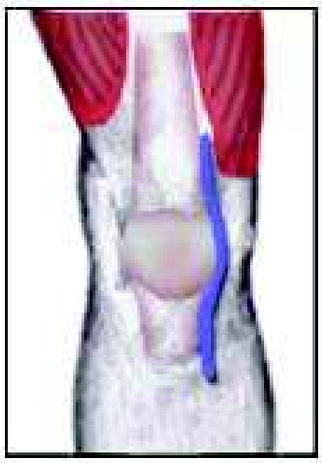
Lateral x-rays shows the anteroposterior anatomy of the femoral condyles and the tibia, and this view is used for the estimation of the femoral component size. Vadin offers radiographic templates for all the available sizes of their tibial and femoral components which can be overlaid on the films to estimate the size of the prosthesis. In this view, the natural posterior slope tibial plateau from the transverse axis (usually 3 to 10 degrees) can be estimated, but in cases of severe arthritis, this slope may be distorted on the x-ray. The lateral view also helps to assess the anterior and posterior cortical bone.



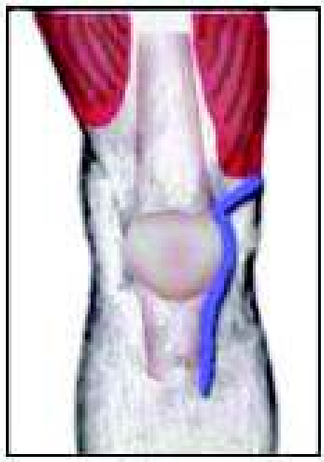
Surgical Approach

Surgeons should employ the technique with which are more familiar as Vadins' instrumentation is designed to accommodate both mini-invasive and standard total knee procedures.

The patient is positioned in the supine (face up) position. The incision line is usually marked with removable ink with the knee flexed at 30 degrees. An anterior straight midline incision is made, starting from a point 2-3cm above the upper border of the patella, passing over the patella and ending at the medial border of the tibial tubercle at its distal margin. The incision should be extended in cases that significant tension along skin edges is noted, as risk of wound-edge necrosis exists. Subvastus, midvastus, medial parapatellar and lateral parapatellar are the four approach options available.



If the medial parapatellar approach is to be followed:
The skin incision is made as described above and carried through the subcutaneous tissue in a single layer. The extensor mechanism, which consists of the quadriceps, patella and patellar ligament, is identified. The arthrotomy begins longitudinally at the medial quadriceps tendon. There is not a set amount of quadriceps tendon that is divided proximally because this is determined by the amount of exposure necessary. 3 to 5 mm of quadriceps tendon is left attached to the vastus medialis obliquis (VMO) for later repair. The incision then proceeds distally and curves laterally around the medial aspect of the patella through the medial knee retinaculum. A few millimeters of retinaculum is left attached to the patella for later repair. The incision curves slightly laterally at the inferior aspect of the patella and then proceeds distally parallel to the patellar tendon. At the level of the proximal tibia, dissection is carried directly down to the anterior tibial cortex 5 mm medial to the tubercle.

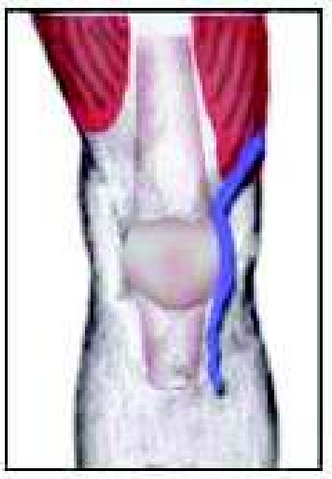


A sleeve of the medial soft tissue is subperiosteally released, including the deep medial collateral ligament and medial capsule starting from the medial border of the patellar tendon and extending posteromedially. The extend of the release depends on the preoperative deformity. The distal extent of this release is approximately 8 mm below the joint line. This exposure is usually carried to the midcoronal plane of tibia. The lateral gutter is restored by subluxing the patella laterally in extension to identify and release the patella-femoral ligament. The infrapatellar fat pad may be excised if desired. Following this incision, either evert or luxate the patella laterally to expose the entire tibio-femoral joint.

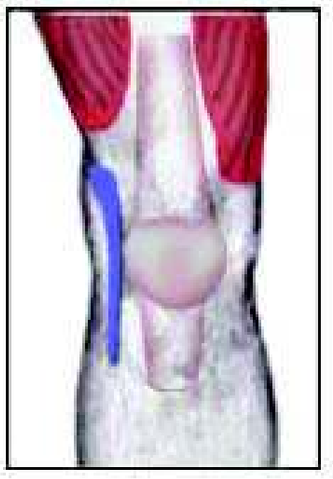
If the subvastus approach is to be followed:
(Note: This approach should be performed in patients who have relatively mobile subcutaneous tissues in order to create a "mobile window" for performing the various aspects of the planned procedure. Contraindications to this approach include morbid obesity, previous knee arthrotomy, high tibial osteotomy, and revision TKA)

An anterior midline incision is used with dissection carried down to the extensor mechanism. The inferior border of the VMO muscle is identified. The surgeon uses his or her finger to bluntly dissect the VMO free from the underlying periosteum and intramuscular septum. The VMO is retracted anterolaterally to identify the underlying joint capsule. The capsule is then transversely incised at the level of the mid-patella and starting medially and proceeding to the medial aspect of the patella. Then the incision is directed distally around the medial aspect of the patella and ligamentum patella ending medial to the tibial tubercle. The knee is then flexed and the patella is subluxed laterally while the VMO is further freed from the intermuscular septum. The fat pad is excised as desired.

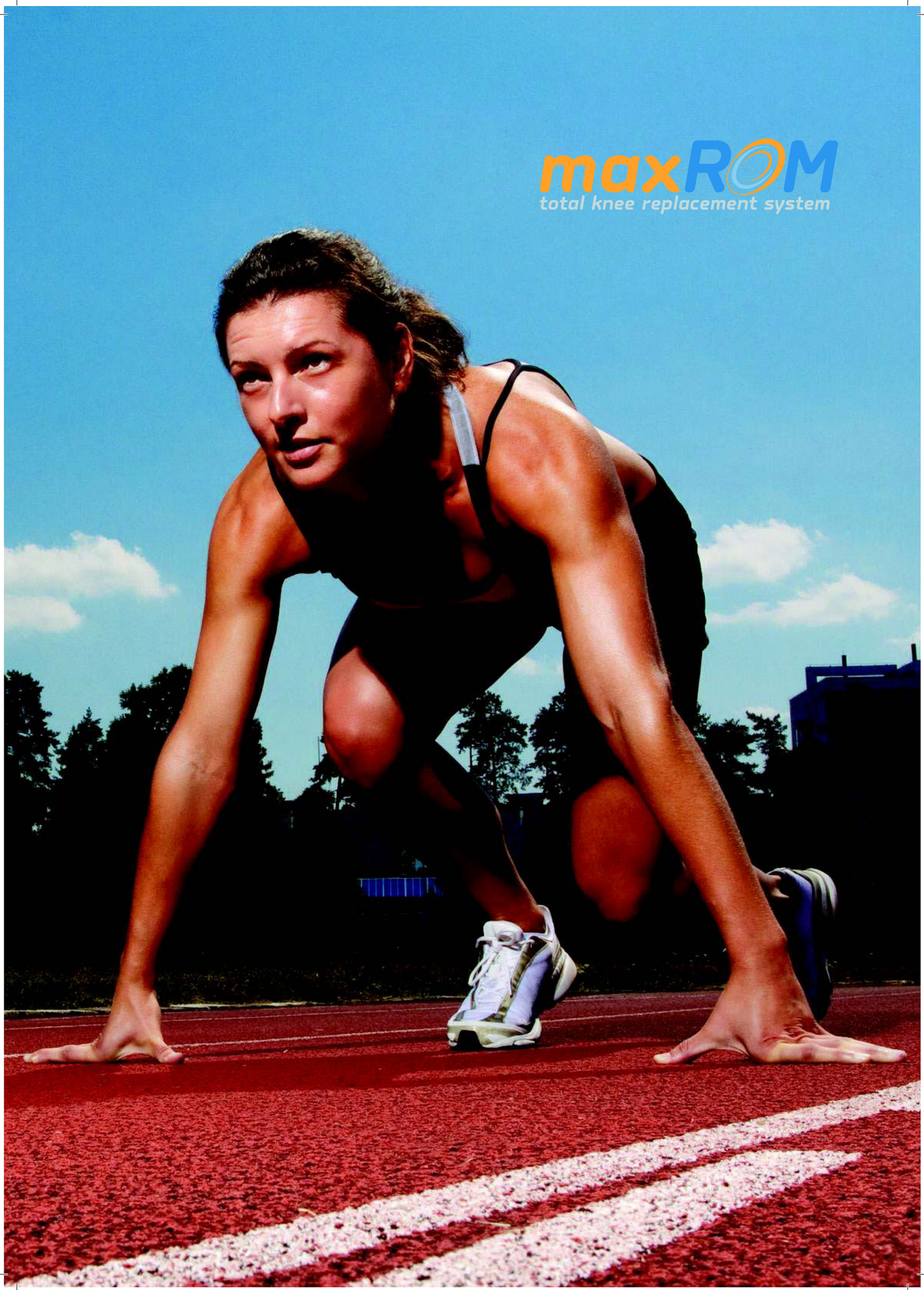
If the midvastus approach is to be followed:
An anterior midline is used and dissection is carried through the subcutaneous tissue. The extensor mechanism is identified. The arthrotomy is usually done with the knee in 60 degrees of flexion. The insertion of the VMO at the superior medial pole of the patella is identified. A finger is used to bluntly split the VMO at the superior medial pole of the patella, and the incision then extends in a superior medial direction for approximately 4 cm. It is important to maintain full thickness of the muscle in line with its fibers. The distal aspect of this approach is identical to the medial parapatellar approach and proceeds distally around the patella and medial to the tibial tubercle. Capsular folds are then released as necessary. The patella femoral ligament is released in a similar manner to the medial parapatellar approach.
Relative contraindications for this approach included knees with less than 80 degrees of flexion, obesity, hypertrophic arthritis, and previous high tibial osteotomy.



The lateral parapatellar approach is useful in the valgus TKA. The approach can be very helpful in fixed valgus deformities. The approach is similar to the medial approach, except that the releases come from the lateral joint line. In a valgus knee, the lateral structures need to be released to balance the knee and the medial structures are lax. Eversion of the patella can be challenging, and exposure can be improved with cutting the patella first. Eversion of the patella can be challenging, and exposure can be improved with cutting the patella first.



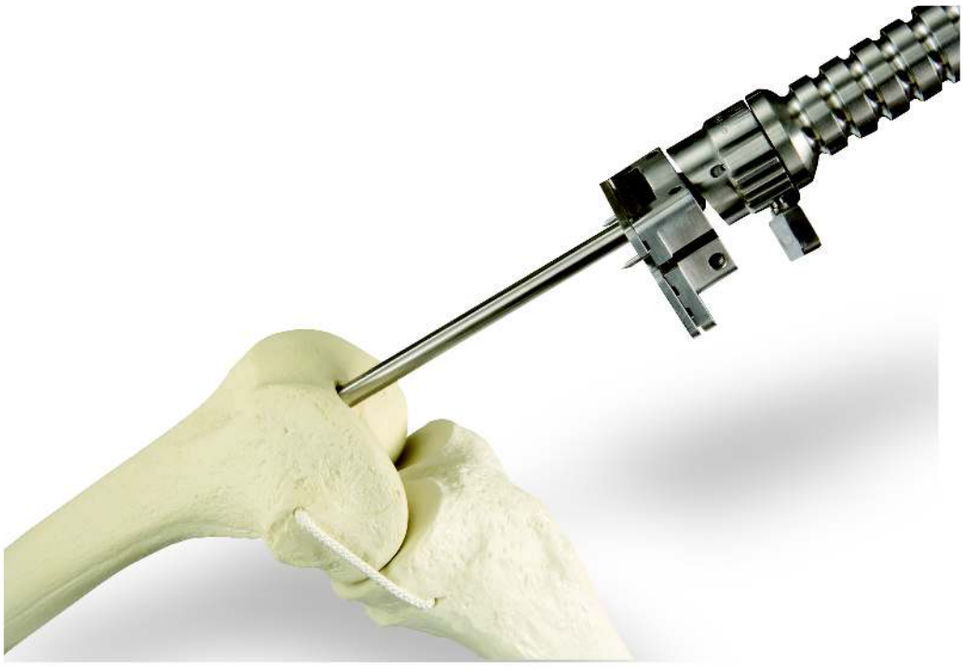
Osteophytes should be resected at this stage as they may affect soft tissue balancing.
Afterward, the condition of the posterior cruciate ligament (PCL) has to be evaluated and the decision if it is to be retained or not has to be made.


maxROM
total knee replacement system

Preparation of the Distal Femur

Place the knee in 60 degrees of flexion.
Employ a 7.9 mm Femoral Step Drill to enter the medulary canal of the femur. The entry point should be located 7-10 mm anterior to the origin of Posterior Cruciate Ligament (PCL), just medial to the femoral midline axis. Stop drilling before the flat portion of the drill enters the canal (approximately 5 - 7 cm depth); if the drill is advanced that much, the correct positioning of the Intramedulary Rod may be jeopardized. Advance the drill carefully to avoid drilling the cortical bone. Palpate the femoral shaft during drilling to confirm that the drill is advanced correctly.
Suction the medullary contacts prior to insertion of the Intramedullary Rod to reduce the potential of fat embolization.
Note: In case that the femoral anatomy requires so, drilling may be directed in a slight anteromedially fashion as to facilitate an unobstructed insertion of the Intramedullary Rod into the diaphyseal isthmus.

Assemble the Intramedullary Rod to the Valgus Alignment Guide and the Locating Handle, Insert it into the medulary canal and advance it slowly until the Isthmus level to confirm unobstructed passage. Irrigate and aspirate the medullary canal several times to reduce the risk of fat embolism.

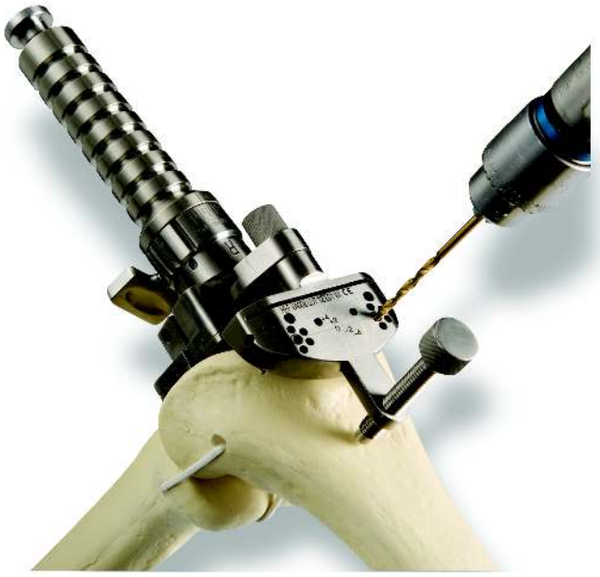


The Locating Handle can be set to allow from 0 to 9 degrees of valgus in 1 degree increment. Confirm that the correct side (LEFT or RIGHT) is facing upward and set the handle to the appropriate indication, according to the angle between the anatomical and the mechanical axis of the femur that was estimated on the x-rays.

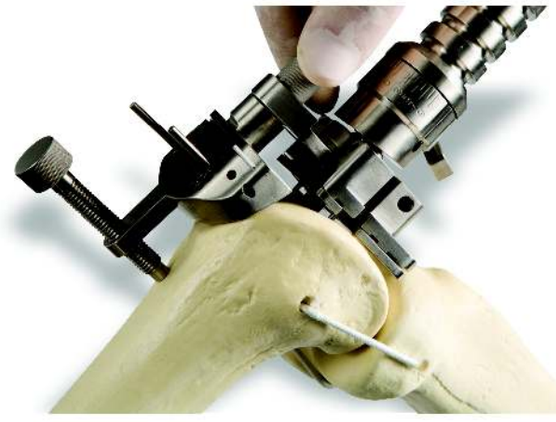
Advance the Valgus Alignment Guide to the level of the distal condyles. Orientation is initially determined with reference to the posterior femoral condyles, subject to subsequent correction at the A/P resection. The calibrated outrigger is centred at the femoral trochlea, placing it in slight external rotation and exposing a greater amount of medial condyle. Secure the Valgus Alignment Guide into position at the more prominent distal condyle (usually the medial). Then, attach the Distal Resection Guide over the calibrated guide.

Drill through 0 holes and secure the Distal Resection Guide to the anterior cortex of the distal femur with the aid of Pins. Additional pins may be slotted in through the divergent holes, to achieve improved fixation.

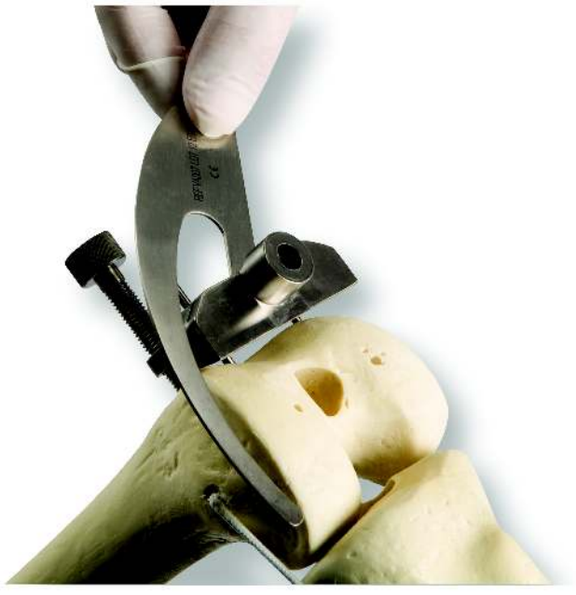
Note: It is highly recommended to use at least one divergent pin to prevent the distal resection block from vibrating off the pins during resection.



Unlock the Distal Resection Guide and remove both the Locating Device and the Intramedullary Reamer with the aid of Locating Device Extractor.



Note: The resection of the more prominent condyle, inclusive of residual cartilage, will correspond to the distal dimension of the femoral prosthesis. The Distal Resection Guide is set to cut the distal femur in a measured resection. The standard cut of the Guide is 9 mm. Additional slots allow repositioning the guide in 2 mm increments.



Utilize the Auxiliary Blade to gain a more precise optical estimation of the depth that the distal femoral condyles are going to be cut.

Prior to cutting, it should be checked that the orientation of the distal femoral cut has been appropriately estimated to facilitate the correction of the mechanical axis. Attach the base of the Auxiliary Extramedullary Rod onto the resection guide and insert the rod through the slot. Verify that the rod passes over the center of the femoral head.

Utilize the Oscillating Saw to make the distal femoral face cut.
Use the Pin Extractor to pull out the Pins form the slots of the Resection Guide and remove the guide.

Femoral Sizing and Rotational Alignment

Place the Femoral Sizing Caliper against the distal face of the resected femur and confirm that the correct side (LEFT or RIGHT) is facing upward. Adjust the position of the Femoral Sizing Caliper until the posterior feet firmly rest against the posterior condyles. The correct positioning is crucial for the proper rotational alignment. Where either condyle is deficient, the guide is rotated such that it lies perpendicular to the mechanical axis of the tibia.

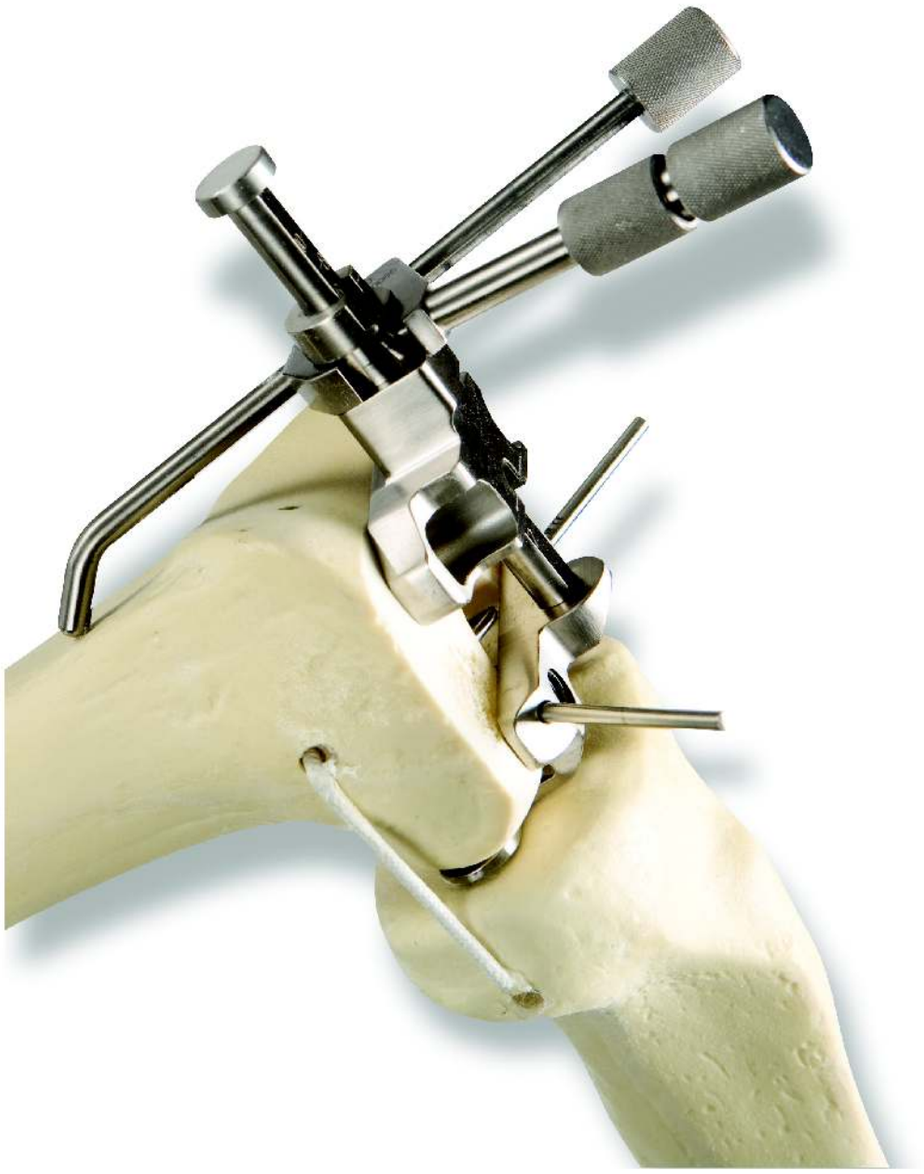
Tune the Femoral Stylus at the size estimated preoperatively. The tip of the stylus should touch the most prominent aspect of the anterior cortex, just proximal to the lateral anterior condyle; if it is not, adjust the height of the stylus and read new size marking. Once adjusted, drill through the sideway slots at the lower part of the caliper and secure it with two long headless pins.

Secure the stylus arm in position where the appropriate position of the stylus is determined. The actual size of the femur is indicated on the vertical shaft of the stylus arm.

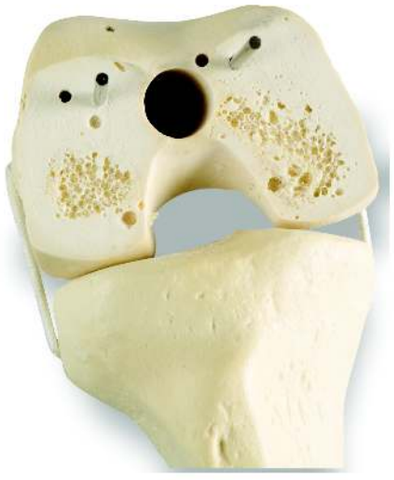
Once adjusted, attach the Drill Guide as indicated in Fig. and secure it in position with the aid of headless pins into the two 3 degrees external rotation slots.

Note: In most cases, the tibia is resected at 90 degrees with respect to its mechanical axis and the femoral component has to be positioned in 3 degrees of external rotation to produce flexion gap symmetry. Thus, the lateral posterior and medial anterior holes are selected, yielding 8 mm lateral and 10-11 mm medial resection. Therefore, the positioning of the cutting block will result in a cut of 3 degrees external rotation, enhancing patellar tracking and promoting flexion gap symmetry. Irregularly, more than 3 degrees of external rotation is indicated for flexion gap symmetry. In these cases, with 90 degrees of flexion and the collateral ligaments tensed with laminar spreaders, the external tibial alignment device is positioned with its upper platform raised to the level of the holes made through the drill guide, which should lie parallel to the platform. Where more external rotation is indicated, the medial hole is repositioned anteriorly. In valgus deformity with lateral condylar hypoplasia, the lateral hole is repositioned posteriorly.

Read the size using the indicator. The tip of the Femoral Stylus should be in contact with the most prominent aspect of the anterior cortex, just proximal to the lateral anterior condyle.



Retract the pins from the lower part of the caliper and remove the caliper and the stylus, leaving on the distal femoral bone only the pins inserted through the Drilling Guide.



Position the 4 in 1 Cutting Block that corresponds to the size indicated by the Femoral Sizing Caliper over the pins and centering it on the M/L dimension of the femur.

Note: In case that the measured femoral size lays between two sizes, the smaller size should be utilized.

The width of the 4 in 1 Cutting Block is equal to that of the corresponding femoral component, thus the femoral size profile may be checked again.

Place two cancellous screws through the sideway holes to secure the block in place; otherwise use a 5mm peg drill to make the two lug holes at the appropriate locations of the distal femur.

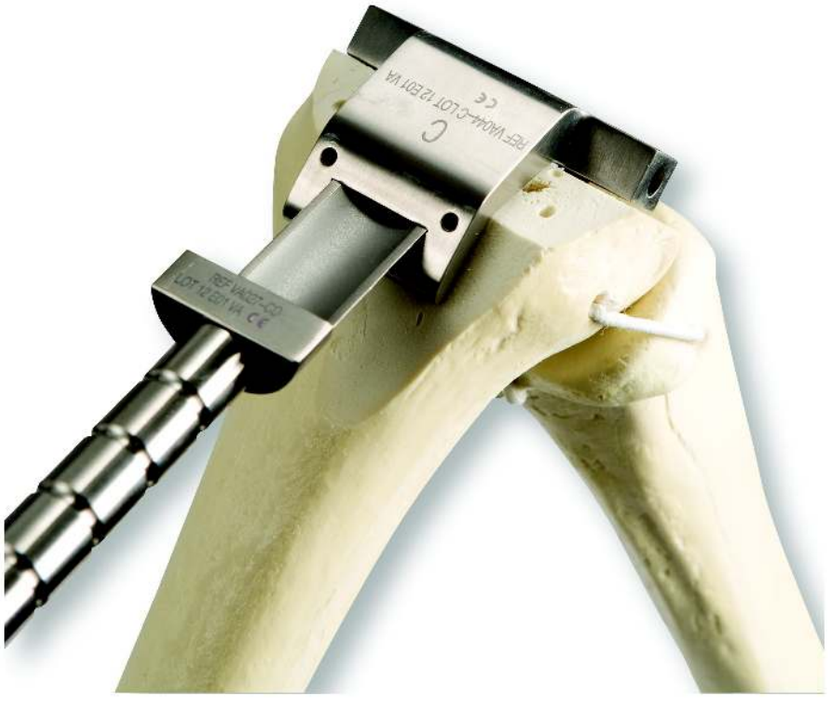
Note: If positioned the cutting block is set correctly in position against the distal face of the femur, then more posteromedial femoral condyle will be removed compared to the posterolateral femoral condyle. Be careful not to transect the attachment of the medial collateral ligament or the lateral collateral ligament during resection of the posterior condyles.

1.27 mm thickness blades should be utilized to cut the distal femoral bone through the crevices of the cutting block.

Resect the femur in the following order:

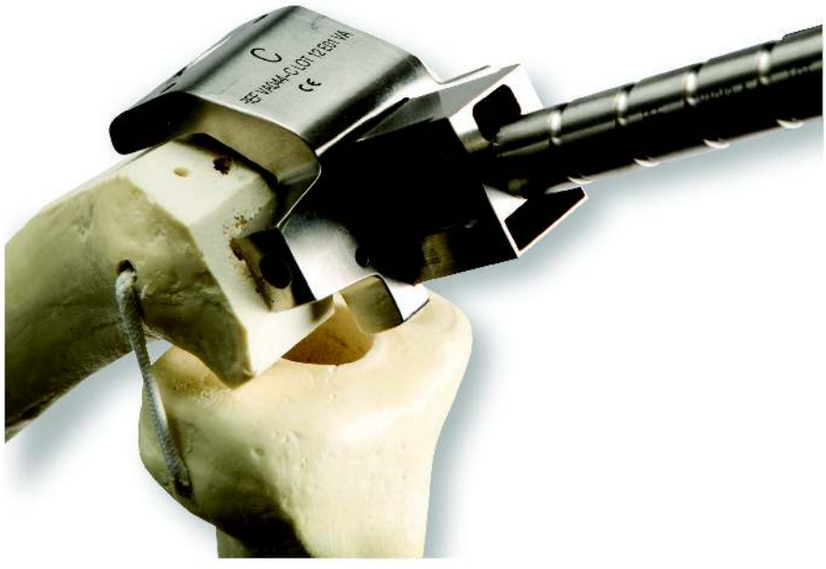
1. Posterior cut
2. Posterior chamfer cut
3. Anterior cut
4. Anterior chamfer cut

Trochlear Groove Resection (only if the PS design is to be implanted)



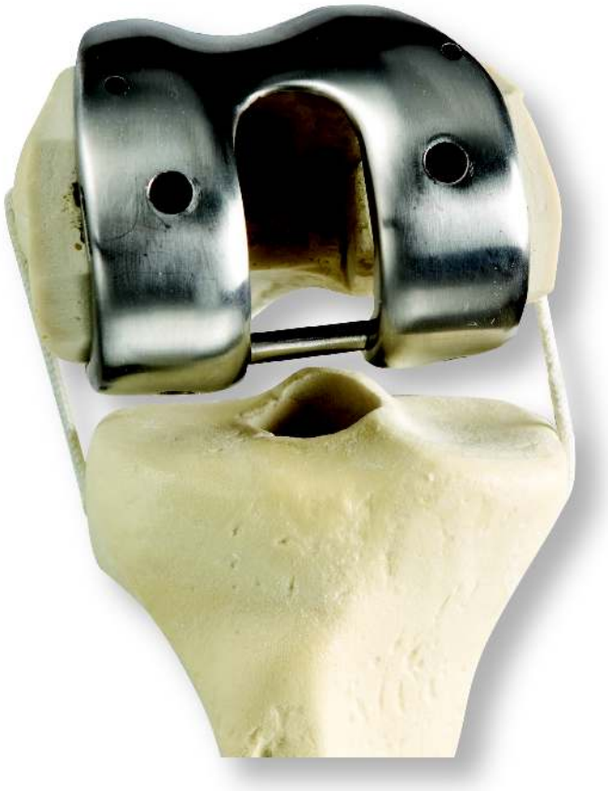
Select the Sulcus Resection Guide that has the same to the cutting block size and secure it at the distal and anterior surfaces of the femur with the aid of pins. The guide has the same width with the femoral implant and dictates the final position of the implant; thus it may be placed along the lateral edge of the femur to reproduce the Q-angle. Assemble the Anterior Cut Guide with its handle, insert it through the corresponding crevice of the Sulcus Resection Guide and make the anterior cut. Then, assemble the Distal Cut Guide and make the additional distal cut. A 1.27 mm blade should be utilised for both cuts.

Caution: Be careful not to undermine the medial or lateral condyles and risk fracture.



After all resection have been performed the bone should look as in the following Figure.

The preparation of the the femur is now completed and either the cruciate retaining (CR) or posterior stabilized (PS) Femoral Component may be implanted. The amount of the resected bone removed has to be equal to the size of the implant positioned on the distal femur.



Tibial Preparation

Extramedullary Tibial Alignment and Resection

Place the knee in maximal flexion with the tibia distracted anteriorly and stabilised.
Stabilize the Extramedullary Resection Guide by positioning the malleolar clamp just proximal to the malleoli. Mount the Left or Right Upper Cutting Platform onto the Extramedullary Resection Guide and advance it until the resection slot is located a few millimeters below the lower articular surface.

Alignment of the assembly in the mediolateral axis is approximately parallel to the tibial axis. The midline of the tibia is located approximately 3 mm medial to the transaxial midline, given that the lateral malleolus is more prominent. Thus, if the midline of the malleolar club was collimated with the midline of the transmalleolar axis the resection would be performed into varus. Accordingly, the malleolar clamp must be translated medially to the palpable anterior crest of the tibia, usually to the second vertical mark.

Note: In any case that the upper platform has to be displaced along the mediolateral axis, the malleolar clamp should also be adjusted.

Align the upper platform with the medial margin of the lateral intercondylar eminence and medial third of the tibial tubercle with the extremities of the cutting surface against the anterior cortex.

Attach the Depth Stylus onto the Upper Cutting Platform to adjust the depth of resection at the desired level. The Depth Stylus can be set in 2 mm increments, indicating the amount of bone and residual cartilage to be resected. A cutting depth of 8-10 mm with respect to the level of the less involved condyle is suggested; if the resection level is estimated with respect to the most deficient side, then, a 2 mm depth cut should be performed. Adjust the block such that the stylus rests on the centre of the condyle.

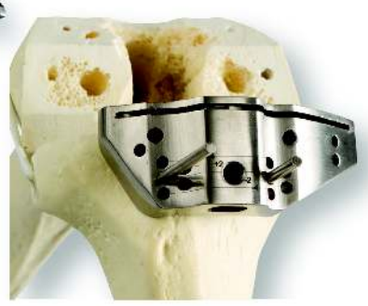
Note: The depth of resection is determined by the patient's anatomy. Normally, more bone is resected from the lateral condyle because the mediolateral transverse plane of the tibial plateau is usually 3 degrees from the perpendicular while the projected cut is perpendicular to the anatomic axis.

Drill through the 0 holes and secure the guide with pins to the proximal tibia. Confirm that the Extramedullary Resection Guide is parallel to the mechanical axis in both coronal and sagittal planes. The use of at least one divergent pin is highly recommended as improved stability is achieved and the risk of vibrate off the pins of the resection block during resection is reduced.

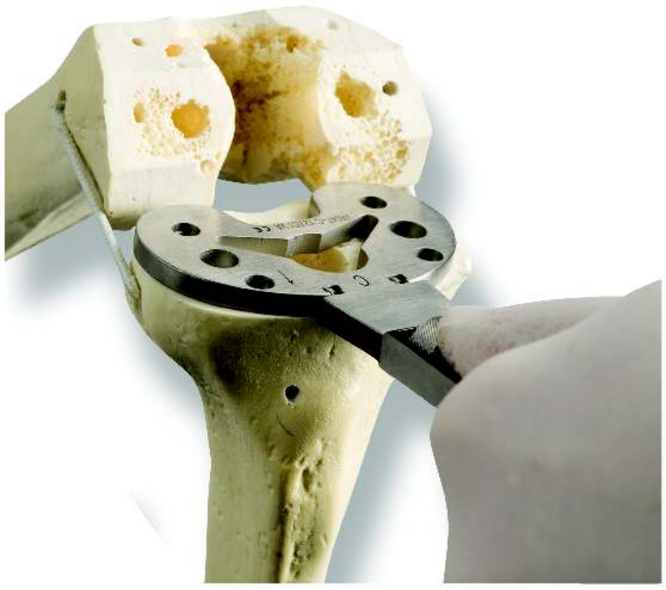
Note: If after securing the Tibial Resection Guide it is judged that more or can less bone should be removed, the guide can be repositioned through the +2 or - 2 to provide 2 mm additional or less resection depth.
Cut the proximal surface of the tibia.

Extract the pins and remove the Tibial Resection Guide

Note: In cases that posterior slope is required the long axis of the Extramedullary Resection Guide is adjusted by pulling the distal end of the guide away from the angle. Slide the guide until the cutting slot angle matches the anatomic slope of the tibia (5 mm advancement will produce approximately 1 degree additional slope).



The Trial Tibial Combonent



Place the knee in maximal flexion and move the tibia anteriorly with the aid of the tibial retractor. Assemble the appropriately sized Tibial Baseplate with the Trial Baseplate Handle and place it over the resected surface of the proximal tibia. Check if the selected baseplate provides the adequate coverage across the circumference of the prepared tibia with no overhang; if it is too small or too large try a plus or a minus size, respectively.

Select the respective, colour-coded, plastic trial and attach it to the baseplate.

The Trial Femoral Component

Position the knee in full flexion. Assemble the Connect Slap-Hammer onto the Femoral Inserter. Select the appropriate Femoral Trial, assemble it to the Femoral Inserter and position it onto the prepared femoral surface. Advance the trial parallel to the distal femoral cut, preserving its precisely prepared configuration. If the trial cannot be not fully seated, utilize the Free Femoral Pusher.

Note: In cases that the trial component tends to rock posteriorly (into flexion), probably it is due to upward sloping of the anterior cut or failure to resect adequately at the anterior aspect. Otherwise, the posterior condyles may have been under-resected. The 4 in 1 cutting block is repositioned onto the distal surface of the femur and the deficient cut appropriately revised.

Trial Reduction

Extended the knee fully, noting the medial and lateral stability and the overall alignment in the A/P and M/L planes. In cases that there is any sign of instability, substitute the tibia trial with one size greater trial and repeat the reduction. Select the insert that gives the greatest stability in flexion and extension and allows full extension. In cases that there is tendency for lateral subluxation or patellar tilt in the absence of medial patellar influence (thumb pressure), lateral retinacular release is indicated. Rotational alignment of the tibial tray is adjusted with the knee in full extension, using the alignment handle to rotate the tray and trial insert into congruency with the femoral trial.

Insert the External Tibial Alignment Rod through the Trial Baseplate Handle; when the positioning of the trial components is correct, the rod will bisect the mechanical axis at the hip, knee and ankle.

Tibial Baseplate Preparation

Remove the alignment rod and all the trial components and retain the knee in full flexion and the tibia subluxed anteriorly. Reserve the proper rotational alignment of the Tibial Baseplate that was established during trial reduction and use short-headed anchoring pins to secure it to the proximal tibia.

Select the appropriately sized Keel Punch Guide, secure it to the Tibial Baseplate and insert the Reamer Guide. Implement the Tibial Entry Reamer to ream the proximal tibia until the marked groove on the reamer reach the top of the Keel Punch Guide. Assemble the appropriately sized Tibial Broach onto the slap-hammer and insert the punch through the guide and impact until the shoulder of the punch is in contact with the guide.

The stem punch is subsequently freed with the aid of the Detachable Slap, taking care that the punch configuration is preserved. Accordingly, extract the pins from the Tibial Baseplate and remove it.

The Femoral Plug Drill

Mediolateral positioning of the femoral trial component is confirmed and receptacles prepared for the implant lugs by advancing the femoral drill through the appropriate holes.

Components Implantation

The Femoral Component

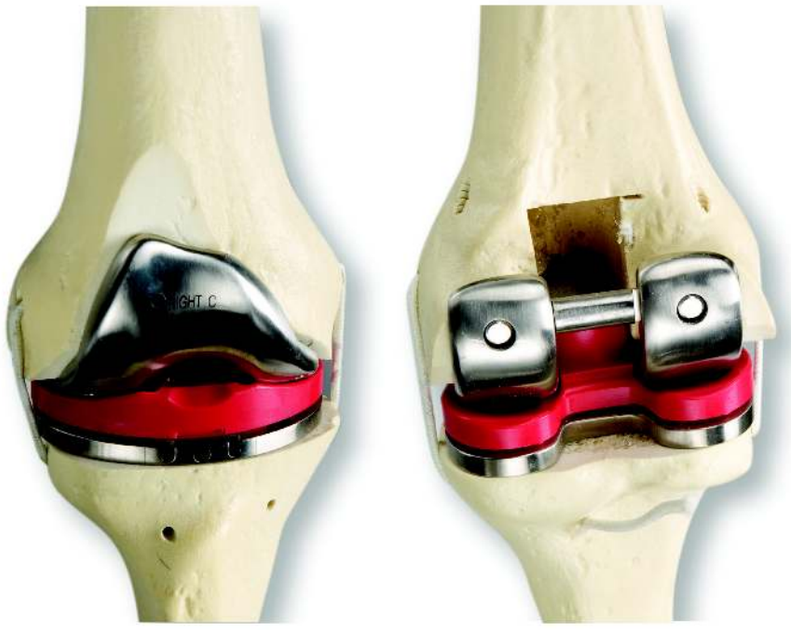
Plug the entry hole at the medullary canal with cancellous bone. Clean thoroughly all the surfaces with pulsatile lavage. Apply the cement at the anterior, anterior chamfer and distal surfaces of the femoral bone and to the inner surface of the component at the posterior chamfer and posterior condylar recesses. Take care to avoid the articular surface of the implant. The implant is assembled onto the femoral inserter. The leading edges of the inserter are advanced equally, parallel to the distal surface and protecting the carefully configured surfaces, until the lugs are fully engaged.
The inserter is subsequently released and seating completed with the femoral impactor and a mallet. All extruded cement is cleared with a scalpel and curette.

The Tibial Component

Use pulsatile lavage to clean all the tibial surfaces. Apply the cement in its low viscous state to assure maximal penetration into the trabecular bone.
Assemble the tibial tray to the Universal Tibial Tray inserter and implant it carefully **avoiding malrotation.** When it is fully seated, apply several mallet blows to the top of the universal handle. Clean all the extruded cement.

The Tibial Insert

Initially place the insert in position by hand. If it is required, implement the pusher to advance the insert until it is fully seated and locked in position.

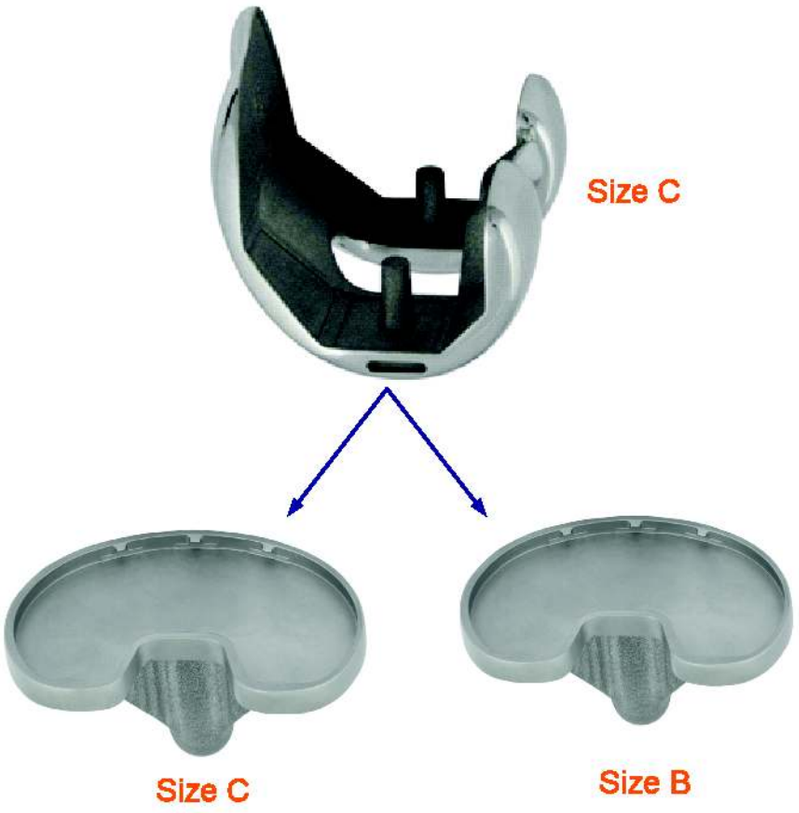


COMPONENT COMPATIBILITY CHART

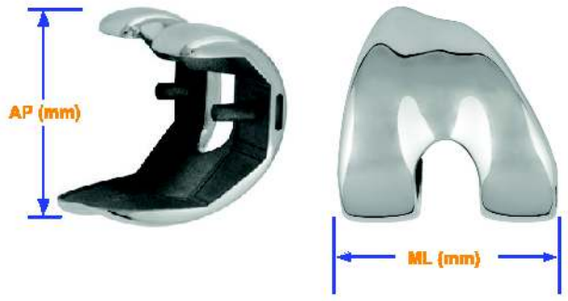
Tibial Tray Size	Femoral Component Size A	B	C	D	E
A	■	■			
B		■	■		
C			■	■	
D				■	■
E					■

The above chart represents the compatibility among the various Femoral Component sizes and the corresponding Tibial Tray. The general rule is that the X size of the Femoral Component may be combined with either X or X-1 size of the tibial tray and the tibial insert with the appropriate thickness.

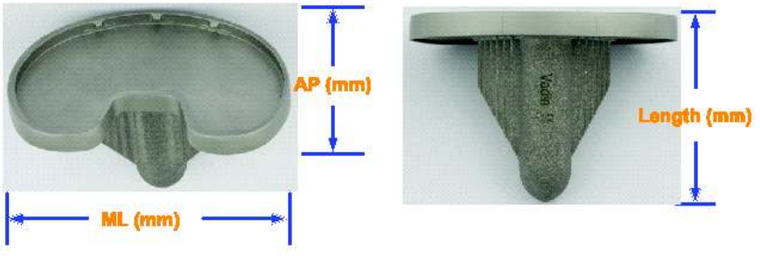
For example if the size C of Femoral Component is to be used, then the Tibia component may be either size C or B.



The sizing options for the femoral, tibial tray and insert, and patella components are as indicated in the following tables:

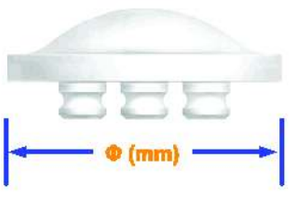


Femoral (CR, PS)		
Size	AP	ML
CR/PS	CR/PS	CR/PS
A	51.8	56.4
B	56	61.5
C	61.8	66.5
D	67.4	71.4
E	71.5	76.9



Tibial Base (CR, PS)			
Size	AP	ML	Length
CR/PS	CR/PS	CR/PS	CR/PS
A	40.7	62	44
B	42.7	67	47
C	44.7	72	50
D	48.7	77	53
E	53	82.7	56

PE - Insert (CR, PS)			
Size	AP	ML	Thickness
CR/PS	CR/PS	CR/PS	CR/PS
A	40.7	62	9,11,13,15,17,19
B	42.7	67	9,11,13,15,17,19
C	44.7	72	9,11,13,15,17,19
D	48.7	77	9,11,13,15,17,19
E	53	82.7	9,11,13,15,17,1 9



Patella
Size(Φ)
26
29
32
35

ODERING INFORMATION

Femoral Components: Cruciate Retaining	
Item No.	**Size**
CR-5114-03011	A, Left
CR-5114-03012	A, Right
CR-5114-03031	B, Left
CR-5114-03032	B, Right
CR-5114-03051	C, Left
CR-5114-03052	C, Right
CR-5114-03071	D, Left
CR-5114-03072	D, Right
CR-5114-03091	E, Left
CR-5114-03092	E, Right

Material: CoCrMo

Femoral Components: Posterior Stabilizing	
Item No.	**Size**
PS-5110-03021	A, Left
PS-5110-03022	A, Right
PS-5110-03041	B, Left
PS-5110-03042	B, Right
PS-5110-03061	C, Left
PS-5110-03062	C, Right
PS-5110-03081	D, Left
PS-5110-03082	D, Right
PS-5110-03101	E, Left
PS-5110-03102	E, Right

Material: CoCrMo

Cruciate Retaining Tibial Insert	
Item No.	**Size**
CR-5115-09011	Size A, 9mm thickness
CR-5115-11011	Size A, 11mm thickness
CR-5115-13011	Size A, 13mm thickness
CR-5115-15011	Size A, 15mm thickness
CR-5115-17011	Size A, 17mm thickness
CR-5115-19011	Size A, 19 mm thickness
CR-5115-09031	Size B, 9mm thickness
CR-5115-11031	Size B, 11mm thickness
CR-5115-13031	Size B, 13mm thickness
CR-5115-15031	Size B, 15mm thickness
CR-5115-17031	Size B, 17mm thickness
CR-5115-19031	Size B, 19mm thickness
CR-5115-09051	Size C, 9mm thickness
CR-5115-11051	Size C, 11mm thickness
CR-5115-13051	Size C, 13mm thickness
CR-5115-15051	Size C, 15mm thickness
CR-5115-17051	Size C, 17mm thickness
CR-5115-19051	Size C, 19mm thickness
CR-5115-09071	Size D, 9mm thickness
CR-5115-11071	Size D, 11mm thickness
CR-5115-13071	Size D, 13mm thickness
CR-5115-15071	Size D, 15mm thickness
CR-5115-17071	Size D, 17mm thickness
CR-5115-19071	Size D, 19mm thickness
CR-5115-09091	Size E, 9mm thickness
CR-5115-11091	Size E, 11mm thickness
CR-5115-13091	Size E, 13mm thickness
CR-5115-15091	Size E, 15mm thickness
CR-5115-17091	Size E, 17mm thickness
CR-5115-19091	Size E, 19mm thickness

Material: UHMWPE

Posterior Stabilizing Tibial Insert	
Item No.	**Size**
PS-5112-09021	Size A, 9mm thickness
PS-5112-11021	Size A, 11mm thickness
PS-5112-13021	Size A, 13mm thickness
PS-5112-15021	Size A, 15mm thickness
PS-5112-17021	Size A, 17mm thickness
PS-5112-19021	Size A, 19 mm thickness
PS-5112-09041	Size B, 9mm thickness
PS-5112-11041	Size B, 11mm thickness
PS-5112-13041	Size B, 13mm thickness
PS-5112-15041	Size B, 15mm thickness
PS-5112-17041	Size B, 17mm thickness
PS-5112-19041	Size B, 19mm thickness
PS-5112-09061	Size C, 9mm thickness
PS-5112-11061	Size C, 11mm thickness
PS-5112-13061	Size C, 13mm thickness
PS-5112-15061	Size C, 15mm thickness
PS-5112-17061	Size C, 17mm thickness
PS-5112-19061	Size C, 19mm thickness
PS-5112-09081	Size D, 9mm thickness
PS-5112-11081	Size D, 11mm thickness
PS-5112-13081	Size D, 13mm thickness
PS-5112-15081	Size D, 15mm thickness
PS-5112-17081	Size D, 17mm thickness
PS-5112-19081	Size D, 19mm thickness
PS-5112-09101	Size E, 9mm thickness
PS-5112-11101	Size E, 11mm thickness
PS-5112-13101	Size E, 13mm thickness
PS-5112-15101	Size E, 15mm thickness
PS-5112-17101	Size E, 17mm thickness
PS-5112-19101	Size E, 19mm thickness

Material: UHMWPE

Tibial Base Plates	
Item No.	**Size**
TB-5111-01020	A
TB-5111-01040	B
TB-5111-01060	C
TB-5111-01080	D
TB-5111-01100	E
Material: CoCrMo	

Patellas	
Item No.	**Size**
PT-5113-08260	8mm Height, 26mm Diameter
PT-5113-08290	8mm Height, 29mm Diameter
PT-5113-08320	8mm Height, 32mm Diameter
PT-5113-08350	8mm Height, 35mm Diameter
PT-5113-10260	10mm Height, 26mm Diameter
PT-5113-10290	10mm Height, 29mm Diameter
PT-5113-10320	10mm Height, 32mm Diameter
PT-5113-10350	10mm Height, 35mm Diameter
PT-5113-12260	12mm Height, 26mm Diameter
PT-5113-12290	12mm Height, 29mm Diameter
PT-5113-12320	12mm Height, 32mm Diameter
PT-5113-12350	12mm Height, 35mm Diameter
Material: UHMWPE	

maxROM
total knee replacement system

Surgical technique

Vadin Implants Ltd
1 Kings Avenue
London N21 3NA
United Kingdom

Tel: +44 (0) 208 3707764
Fax: +44 (0) 208 3707292
Email: info@vadinimplants.com

ISO 13485 MD 509799
ISO 9001 . FM 556692

0086