



TKA Surgical Technique

mindray
Orthopaedics

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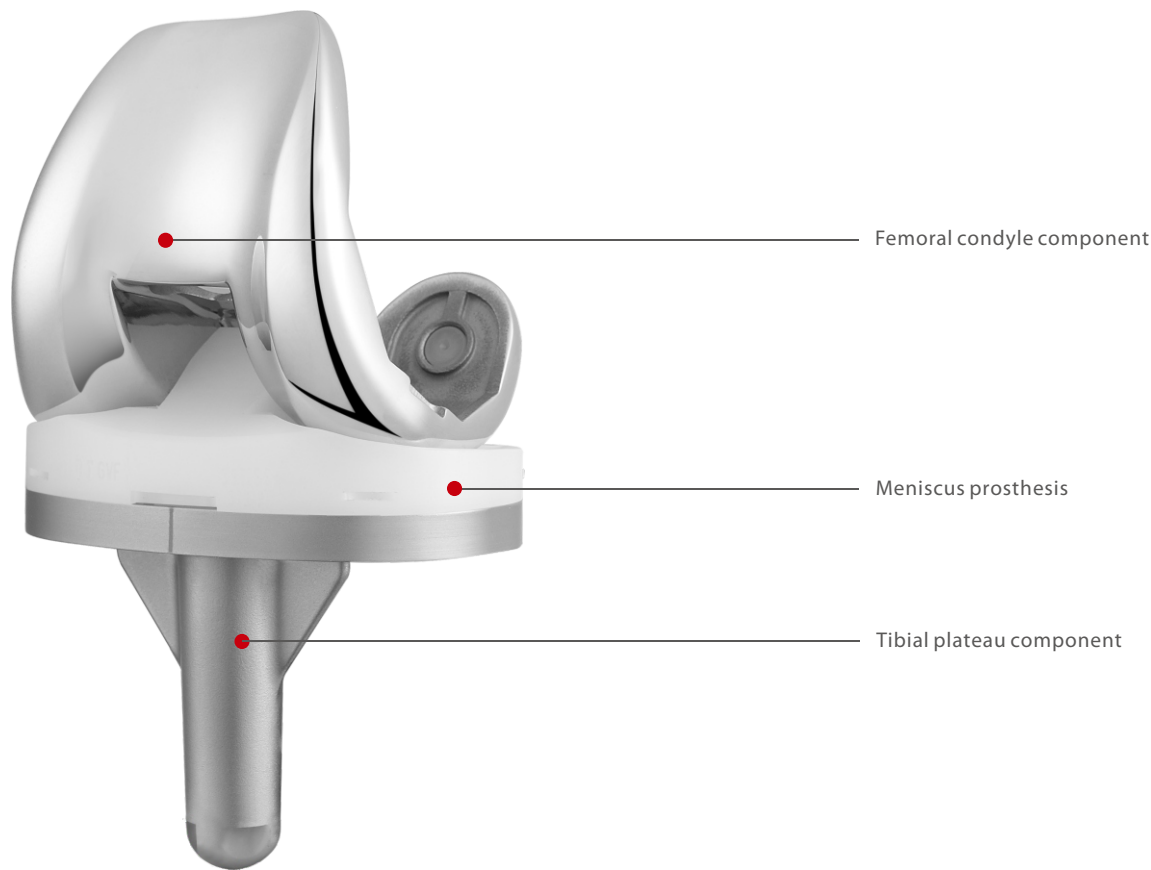


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High function anatomical fixed bearing prosthesis

Characteristics of femoral condyle component

- CoCrMo material
- Highly polishing design on the surface, decrease the wear of meniscus component to make it work longer
- Excellent materials and precision machining, ensure reliability and stability of prosthesis, low wear;
- Anatomical design, accommodate Asian Human Bones
- Enhanced compatibility of femoral prosthesis, closer to the human knee joint trajectory
- the deeper, wider and smoother trochlear groove design, ensure smooth transition with condylar, and optimize patellar trajectory
- Round edge to avoid soft tissue strike and patella snap
- 5°elevation in anterior condyle, 1°obliquity in posterior condyle, increase the surgery safety.
- smooth edge, reduce chance of soft tissues impact and patellar snapping
- multiple sizes for selection•



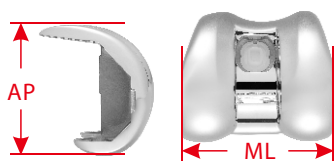
Characteristics of tibial plateau component

- The tibial plateau component fully encompassed design, with a reliable locking mechanism to meniscus prosthesis, minimizes micromotion and wear
- Deep design on the tray allows thicker meniscus component
- the three-wing design of the tibial plateau, provide excellent stability and anti rotation ability, and offer better support to the plateau
- Improved slot for bone cement guarantee the thickness and increase stability

Characteristics of Meniscus prosthesis

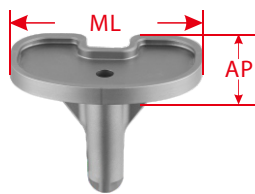
- Ultrahigh molecular weight polyethylene, moderately crosslinked, widely match with distinct femoral condyle prosthesis
- back fixed pad, optimized intercondylar bulge, strengthen Knee Joint stability
- meniscus and femoral condyle highly matched, uniform stress distribution, lower wear, provides comprehensive stability. At the same time, reduce the influence on joint activity.
- Cutting design in the front, protect the soft tissue and avoid damaging patellar ligament.

Component specifications



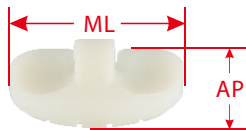
Femoral condyle component specification

Model	F1	F2	F3	F4	F5
AP(mm)	53	56	59	61	65
ML(mm)	57	60	63	66	71



Tibial plateau component specification

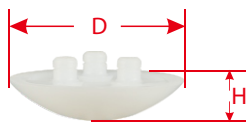
Model	T0	T1	T1+	T2+	T3+
AP(mm)	41	43	45	47	51
ML(mm)	61	64	67	71	76



Meniscus prosthesis specification

Model	T0	T1	T1+	T2+	T3+
AP(mm)	41	43	45	47	51
ML(mm)	61	64	66	71	76
H(mm)	8、10、12.5、15				

Meniscus Component size is same as Tibia Component



Patellar component specification

Name	Patellar component		
D(mm)	32	35	38
H(mm)	8	8.5	9

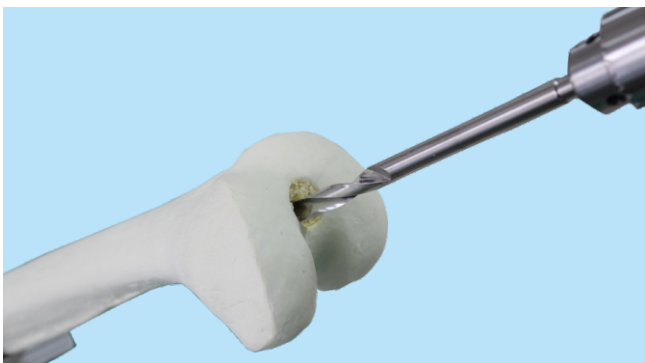
Component Selection

		Femoral Component ML/AP				
		F1 57/53	F2 60/56	F3 63/59	F4 66/61	F5 71/65
Tibial Inserts ML/AP	T0 60/41					
	T1 61/43					
	T1+ 66/45					
	T2+ 71/47					
	T3+ 76/51					

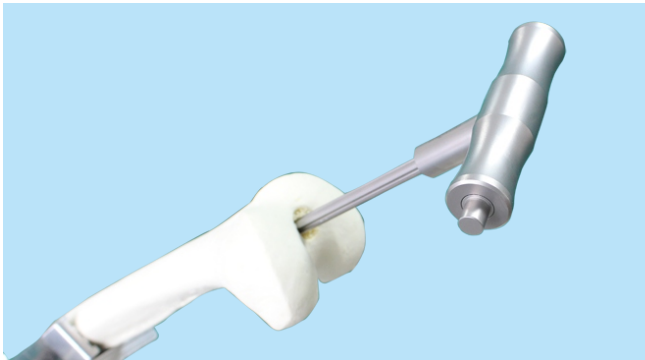
Surgical Technique

Femur Osteotomy-Distal Femur

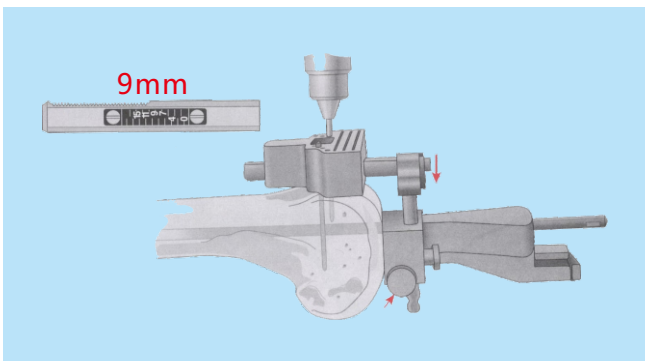
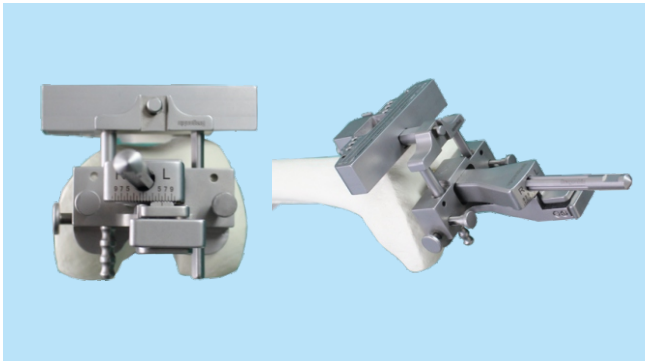
1.The medullary canal is entered at the midline of the femoral trochlea 10 mm anterior to the origin of the PCL using a drill. The drill hole may be enlarged appropriately to facilitate unobstructed passage of the long intramedullary rod to the diaphyseal isthmus



2.With the handle assembled onto the long intramedullary rod, the rod is introduced slowly into the canal to the level of the isthmus to confirm unobstructed passage. The rod is fluted to relieve intramedullary pressure and permit the release of bone marrow. Withdraw the handle subsequently.

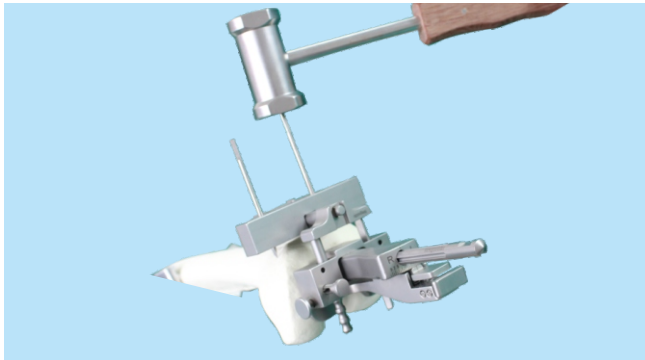
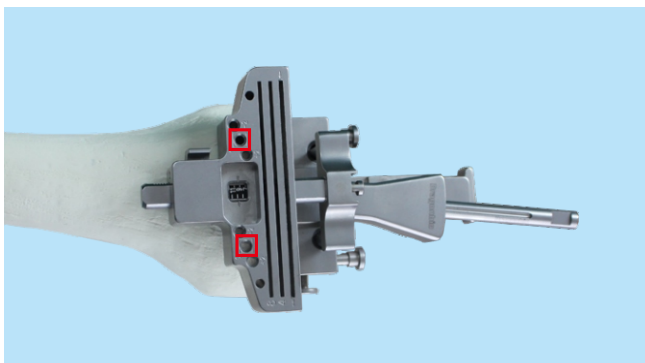


3.Set appropriate valgus angle from 0°to 9°in 1°increments. Normally valgus angle is 5°-7°,6°is commonly selected. Assemble the locating device outrigger and fix it on the intramedullary rod. Attach the cutting block and set 9mm resection level.

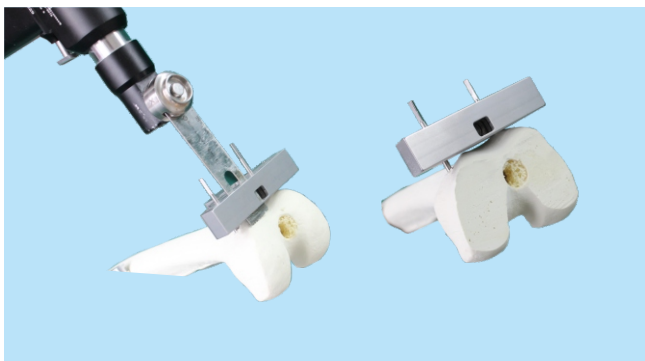
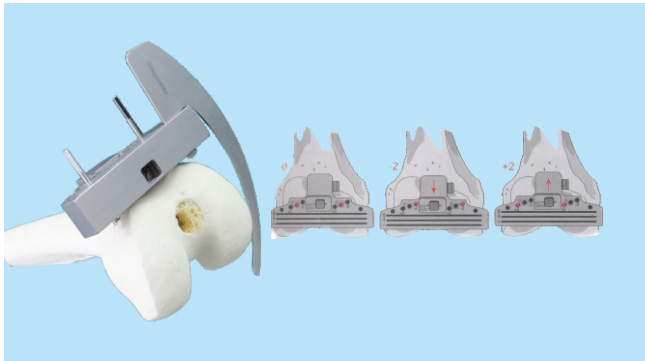


Surgical Technique

4.Steinmann pins are introduced through the holes designated □. First remove the long intramedullary rod then remove the locating device outrigger by pressing the button on it and keep the distal femur cutting block.



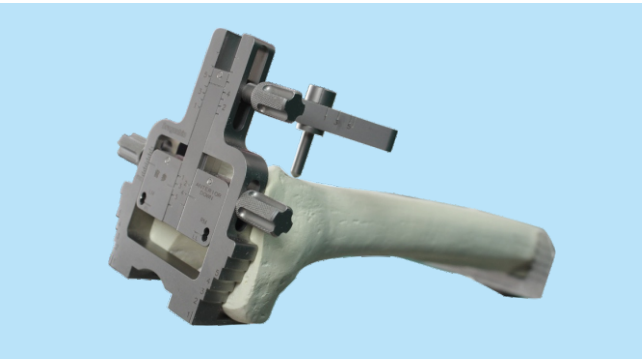
5.Confirm the resection level by using the trial template. -2mm and +2mm amount of bone resection and +4mm, +8mm of resection thickness on resection slot can be achieved by adjusting the cutting block.



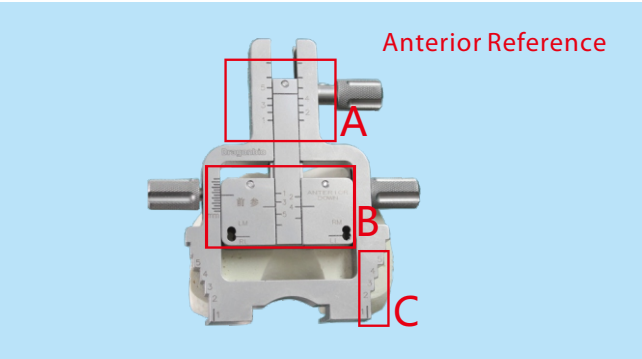
Surgical Technique

Femur Osteotomy- 4 in 1

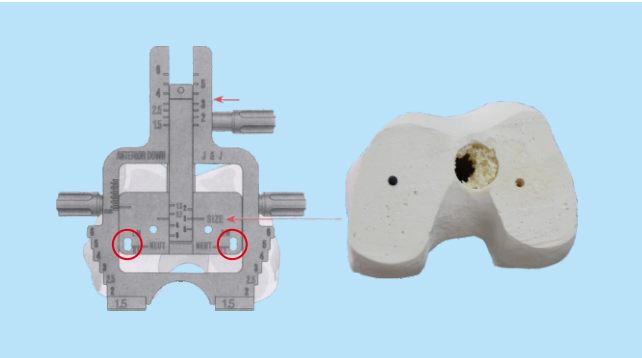
6.The guide is seated flush and centred on the prepared distal femoral surface. The stylus is allowed to move freely within the guide and moved proximal to the articular surface. The stylus is passed over the anterior cortex immediately proximal to the articular surface. At the appropriate level where the stylus is not impeded, turn the stylus locking knob clockwise until tight, to fix its position.



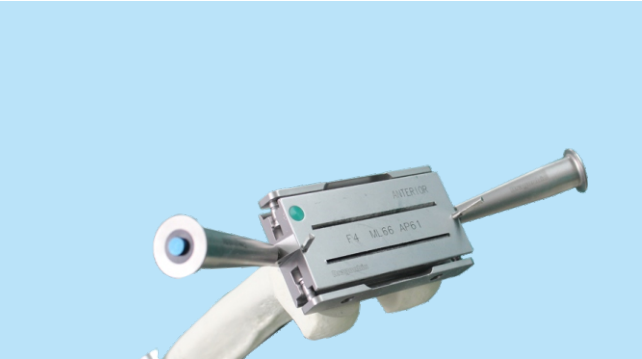
7.The femoral sizing guide is available in two formats: Anterior Reference and Posterior Reference. Anterior Reference is commonly used. Read the number of A scaleplate to decide the size of femoral condyle when the indicating line is align with same mark; Where the femur measures between sizes, "down-size" femoral component is normally selected. Put B scaleplate at the corresponding size, then C marked can be referenced for the inner, out diameter of corresponding component and the situation of component coverage.



8.Where, as in most cases, the tibia is resected at 90° to its mechanical axis, the femoral component is positioned in approximately 3° of external rotation to produce flexion gap symmetry. Insert fixation pin on the left side marked 'LM/LL' and right side marked ' RL/RM'. Remove the sizing guide and fixation pin, and leave two fixation holes.



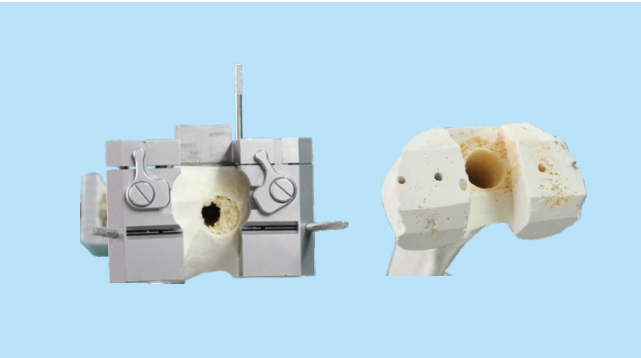
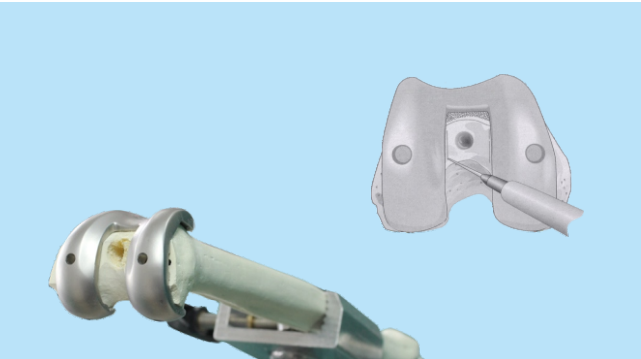
9.The corresponding A/P chamfer cutting block selected. Assemble the removable handles by depressing the button and inserting the handle into the receptacle and turning until locked into position. The A/P chamfer cutting block is seated into the drill holes and flush to the prepared surface. The anterior, posterior and chamfer cuts are performed with an



Surgical Technique

Femur Osteotomy- Intercondylar

10.Assemble the femoral box trial to ensure the femoral condyle is on the right position, a mark can be made by electrome as reference to fix the cutting block.



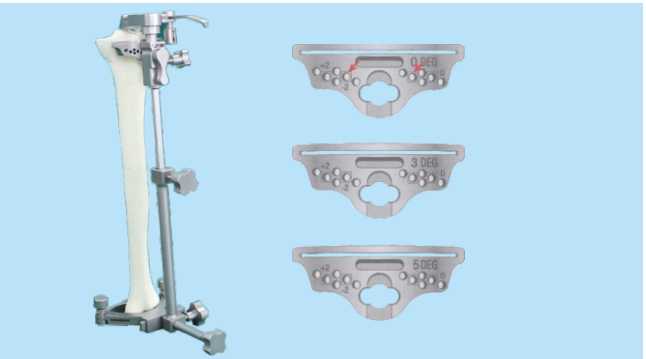
11.Attach the femoral noth guide and fixed by at least 3 steinmann pins, use femoral osteotome, oscillating saw to perform intercondylar resection. The femoral box trial should be put smoothly after the resection, osteophyte should be cleared.



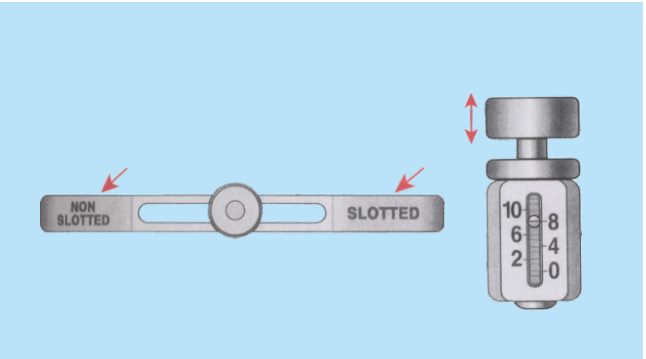
Surgical Technique

Tibia Osteotomy- Proximal Tibia

12.The knee is placed in maximal flexion with the tibia distracted anteriorly and stabilised. The upper cutting platform is assembled and secured onto the proximal uprod of the tibial alignment device. A 0°, 3°, or 5° cutting block can be chosen. The upper platform is aligned with the medial third of the tibial tubercle and medial margin of the lateral intercondylar eminence with the extremities of the cutting surface against the anterior cortex. The malleolar clamp of the tibial alignment device is positioned immediately proximal to the malleoli.



13.The outrigger of the stylus is marked non-slotted and slotted at either end. When the tibial resection is performed from the surface of the block, choose the non-slotted end of the outrigger; conversely, when the resection is performed through the slots, choose the slotted end of the outrigger. There is a 4 mm difference between the top surface and the slot. A level of 8 mm or 10 mm is suggested where resection is based on the less involved condyle. The level of 0 is selected where resection is based on the more involved condyle and does not result in excessive contralateral resection. Adjust the stylus to the center to determine the position of tibial cutting block.



14.Steinmann pins are introduced through the central holes marked with a □, the tibial alignment device can be removed and keep the tibial cutting block.



15.Attach the cutting block and fix it to the bone to perform proximal tibia osteotomy, adjust the osteotomy thickness by moving up and down the cutting block to increase or decrease 2mm bone mass.



Surgical Technique

Tibia Osteotomy- Tibia Plateau

16.With the knee in full flexion and the tibia subluxed anteriorly, the trial tray is assembled to the alignment handle and placed onto the resected tibial surface. The tray is secured with two short fixation pins inserted. Alignment rod can be connected with the handle to check the rotation alignment.



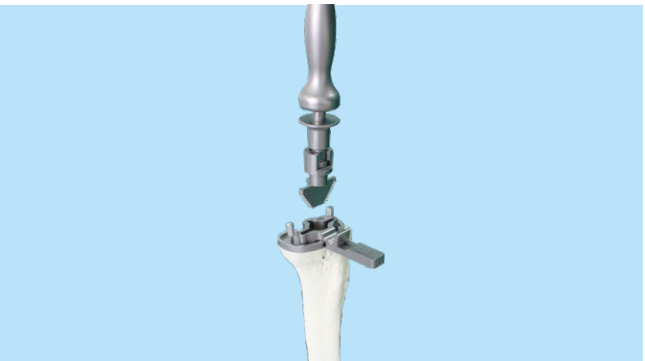
17.Assemble the appropriately sized cruciform keel punch guide and drill bushing to the tray trial.



18.Select matching drill and fully advanced through the drill bushing in reverse into the cancellous bone.



19.Remove the drill bushing, select appropriate sized modular tray keel punch to impact through the guide until the shoulder of the punch is in contact with the guide.



Surgical Technique

Gap and Force line measurement

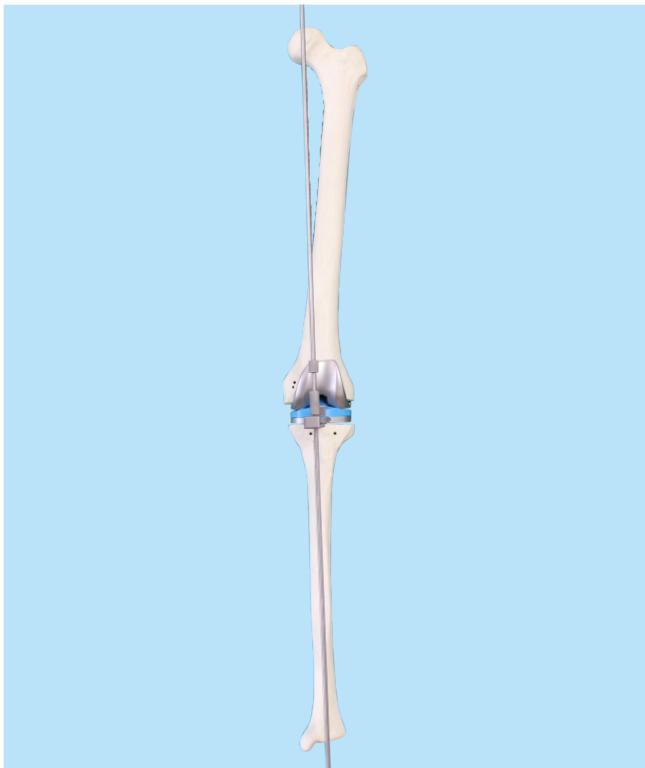
20.After resection of distal femur and proximal tibia, use the 8mm spacer block with 1mm extension shim to measure the extension gap, alignment rod can be used at the same time to check if the osteotomy line is correct or not.



21.After 4 in 1 femur osteotomy, use the 8mm spacer block to measure the flexion gap



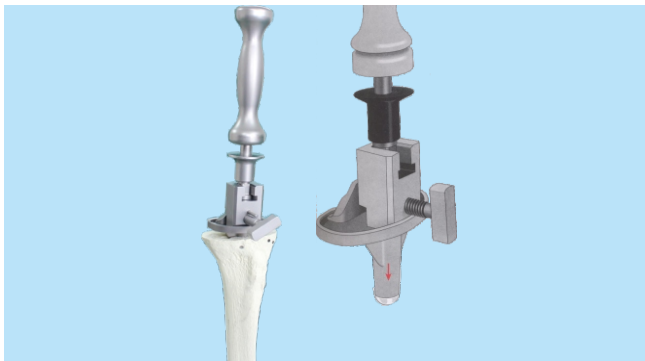
22.After resection of distal femur and proximal tibia, before handling tibia cannal , check the alignment line by trials to confirm the alignment line and gap is correct.



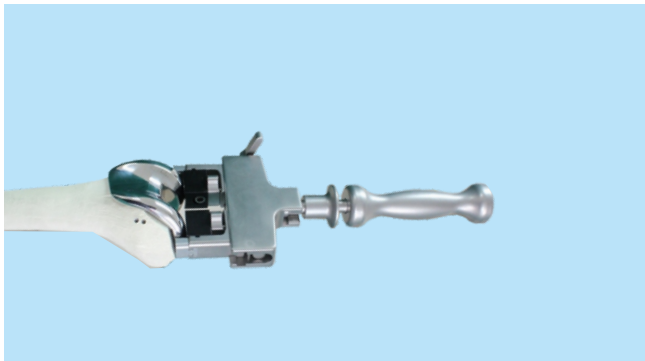
Surgical Technique

Implant component

23.Implant the tibia tray component



24.Implant the femoral component



25.Implant the tibia insert component. First use the tibia inert trial to determine the final thickness, then implant the tibia insert component after the bone cement is set.

