JUST®
MEDICAL

HR®
Hinge Rotating SK

HRSK® Rotating Hinge Knee System

Rotate free, stabilize as at first

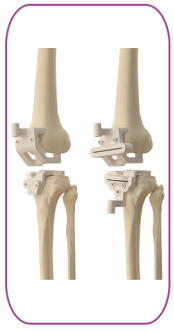
Surgical Technique

JUST®
MEDICAL

KNEE STEPWISE SU

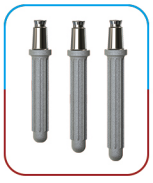
Dynamic fatigue tests after 10 million cycles in the international
Dynamic wear tests after 5 million cycles in the international En

PSI AUSK单髁



PSI SK全膝

— PSI —

	AUSK Mobile-bearing	AUSK Fixed-bearing		XI	XII CR	XII
FEMORAL COMPONENT						
TIBIAL BEARING						
TIBIAL TRAY						
STEM & AUGMENT				 Neutral Stem	 Offset Stem	 Tibial

cartistem可特立®
SVF Extractor

AUSK
Mobile-bearing unicompartmental knee

AUSK
Fixed-bearing unicompartmental knee

SKI™ PS
Primary TKA System

SKII™ CR
Primary TKA System

SKII
Primary T

— REPAIR — — KNEE PRESERVATION — — PRIMARY —

RGICAL SOLUTIONS

CNAS laboratory shows excellent results and no risk of fracture.
dolab® laboratory in Germany shows excellent wear resistance.


I PS


XII PLUS


XII PS


RSX


HR


I PS


XII PLUS


XII RPS


RSX

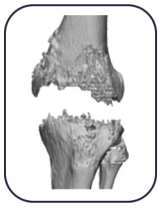

HR

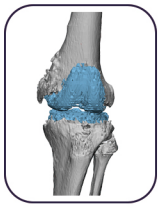

XII


XII RPS

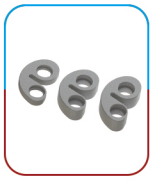

RSX


HR


Bone model restoration-1


Bone model restoration-2

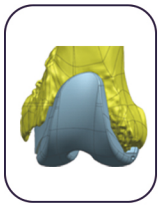

l Cone


Tibial Augment


Distal Femoral Augment


Posterior Femoral Augment


Knee Spacer


Customized prosthesis design

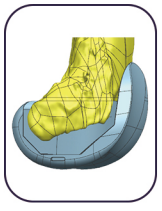

™ PS
KA System


SKII™ PLUS
Primary TKA System


SKII™ RPS
Primary TKA System


RSK™
Revision TKA System


HRSK
Hinge Rotating TKA System

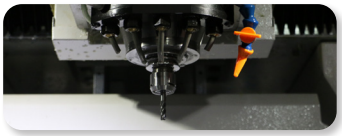

Customized product simulated implantation

COMPLEX PRIMARY — REVISION — CUSTOMIZED

Imported Raw Material

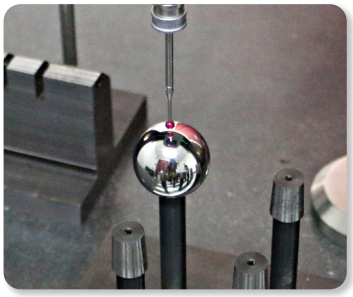
All raw material of HXLPE inserts were manufactured in Germany, meeting the technical requirements in ISO 5834 part 2 and ASTM F648.

Precise Processing



Strict Inspection

JUST MEDICAL Inspection Center

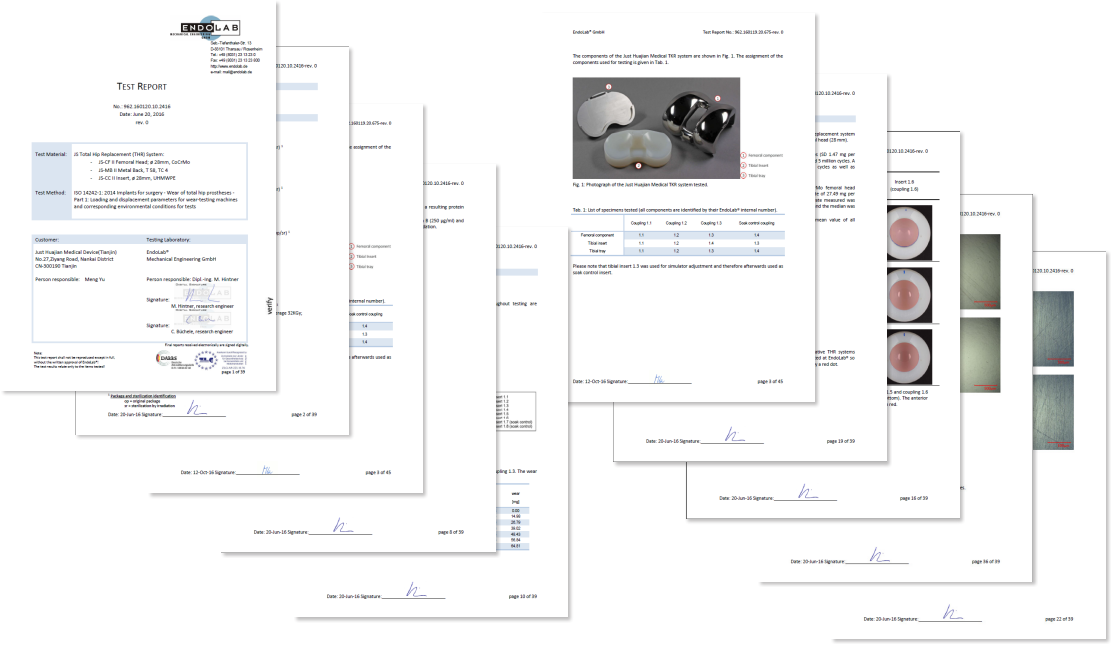


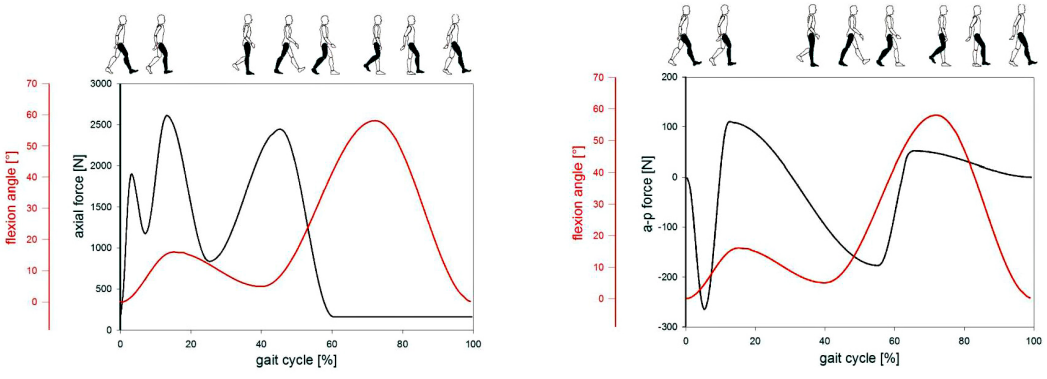
Wear Test in EndoLab®

EndoLab® GmbH offers a variety of technological implant testingservices to develop and certify medical products.

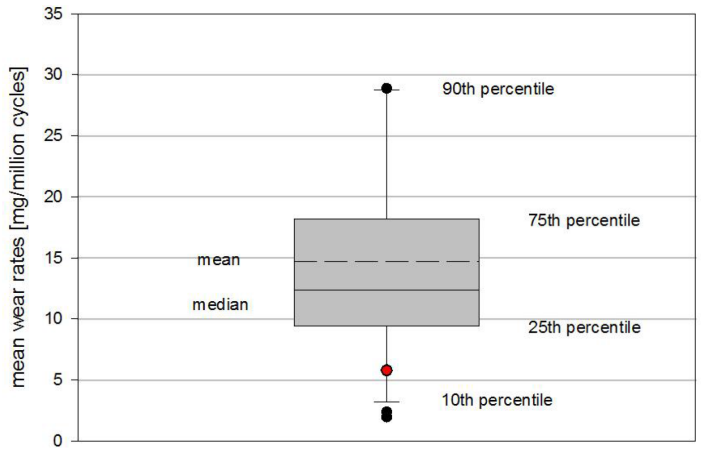
EndoLab® is an accredited (DAkkS O-PL-18838-02-00) and certified (ZLG-P-944.98.07) test laboratory according to DIN EN ISO/IEC 17025 and 93/42/EWG.

The company is a spin-off from the Technical University of Munich and is closely connected to several national and international research departments.





▲ The purpose of the test was to determine the wear behavior of the Just Huajian Medical fixed bearing posterior stabilized TKA system.



▲ The value established herein is marked by a red dot.

A mean tibial insert wear rate of 5.79 mg per million cycles was determined after 5.0 million cycles, which was found below the mean value of all comparative TKR systems tested at EndoLab® 14.73 mg per million cycles.

◆ Patent Certificate

Patent Name: A Tibial Proximal Bone Preservation Sleeve Treatment Device
Patent No.: ZL 2017 2 0758997.6
Patent Name: A Measurable Gap Gauge for Knee Joints
Patent No.: ZL 2015 2 0296776.2
Patent Name: An Assembled Drilling Aiming Device for Knee Joints
Patent No.: ZL 2017 2 1240394.3

Product Features

Rotate free, stabilize as at first

The HRSK Rotating Hinge Knee System is a rotating hinge product within the JUST Medical Knee (SK) System, continues the key designs of the JUST Knee System:

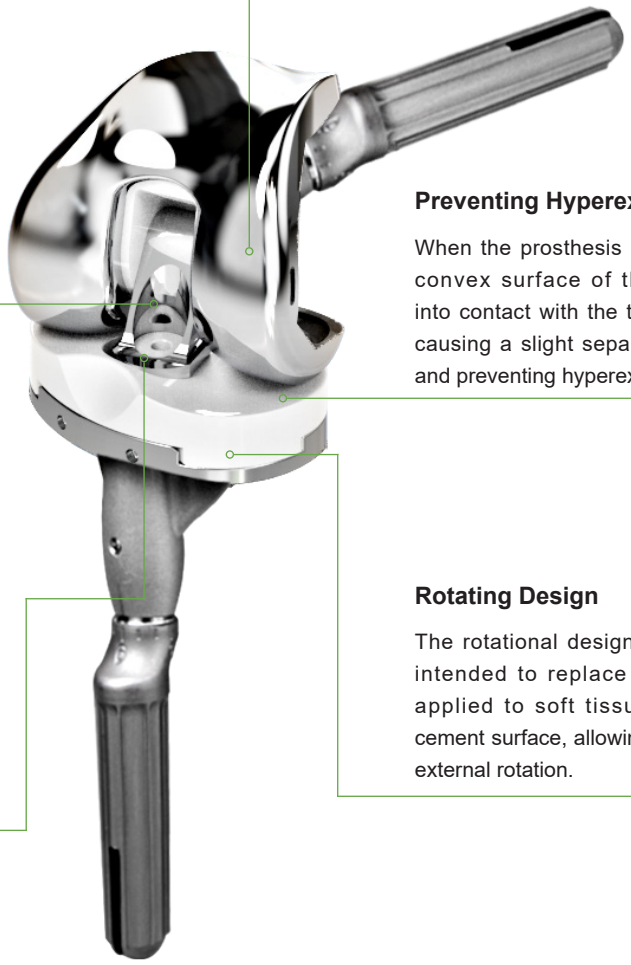
1. Load pattern similar to the design of the primary prosthesis: the tibia bears 95% of the load;
2. Patellar track similar to the primary prosthesis;
3. Modular design, which can be used in conjunction with the augments in the JUST Knee System to solve serious bone defects;
4. The basic operation is the same as that of theJUST Knee System, which helps to minimize bone loss and can be used in general instruments.

Optimize Contact Stress

The 1:1 ratio between the femoral condyle and tibial joint surface maximizes the contact area, distributing stress across a larger joint surface area in the tibial plateau pad.

Modular Hinge Locking Mechanism

The modular hinge locking mechanism allows for assembly of parts with minimal separation, rotating the tibial joint surface into position. The hinge's posterior connecting screws are easily inserted and secured to the tibial platform.



Preventing Hyperextension

When the prosthesis hyperextends, the convex surface of the HRSK comes into contact with the tibial joint surface, causing a slight separation of the knee and preventing hyperextension.

Symmetrical Hinge Design

The contact area between the femoral condyle and the tibia bearing is maintained at the central part of the joint surface. The HRSK system design maintains central contact throughout the range of motion (ROM: -3° to 120°). The symmetrical hinge design bears 95% of the tibial load, and the center of the hinge mechanism is close to the tibial axis, making it more similar to natural tibiofemoral movement.

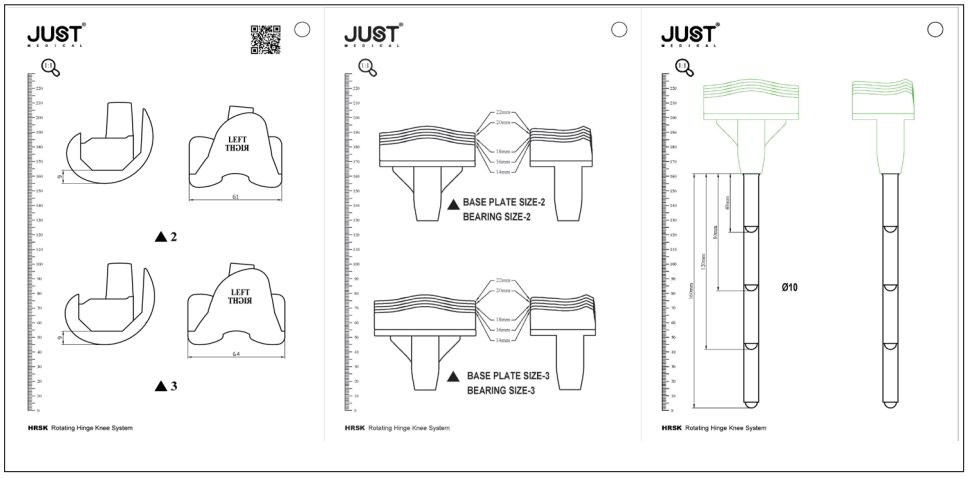
Rotating Design

The rotational design of the tibia tray is intended to replace the torsional load applied to soft tissues from the bone cement surface, allowing for 20° of internal/ external rotation.

Surgical Technique

I. Preoperative Evaluation

In order to assess bone stock, potential ligament instability and the anatomical axis, a long standing A/P X-ray is recommended. Determine the angle between the anatomic and mechanical axis, assuring the distal femoral cut is perpendicular to the mechanical axis. Estimate femoral component size preoperatively by using lateral view X-ray and radiographic templates. Confirmation of the appropriate size component intraoperatively is critical for normal kinematics.



II. Primary Component Removal

In revision total knee arthroplasty, surgeons often pay more attention to how to plan for the reconstruction of the joint, and ignore the importance of the failed prosthesis removal. So first, there is no suitable instruments for the removal, removal of the prosthesis is time-consuming; second, resulting in bone defect or even fracture. Therefore, safe and rapid removal of failed components is very critical for the success of the revision surgery.

Following an ideal sequence of component removal, can reduce the incidence of complications. In most cases, ideal sequence of component removal: 1.Tibial bearing; 2.condylar (Figure2-1, 2-2); 3.tibial tray(Figure2-3) ; 4.patellar button.

Following this procedure, previous component removal provides better exposure for later component removal successfully. Bearing removal makes knee flexion and femoral exposure easier; femoral component removal makes exposure of posterior tibial tray easier, which helps tray removal safely.

Component removal Equipment:

Manual instruments: thin osteotome, cerclage wire set, slide hammer etc;

Motorized instruments: flexible sawblade.

JUST HRSK revision system provides professional removal instruments.

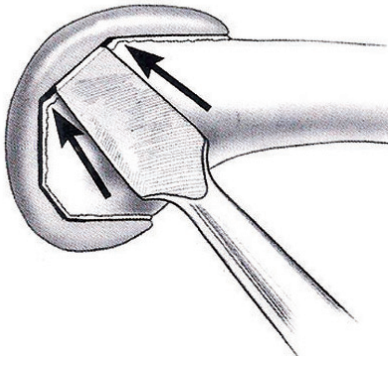


Figure 2-1

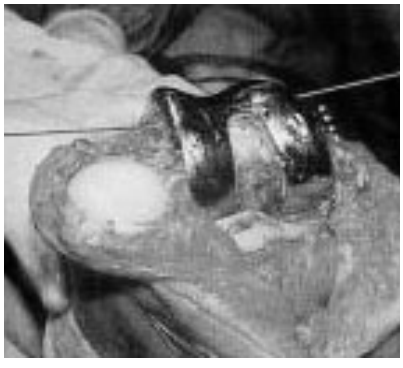


Figure 2-2

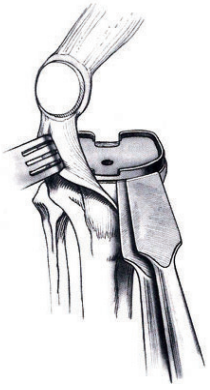


Figure 2-3

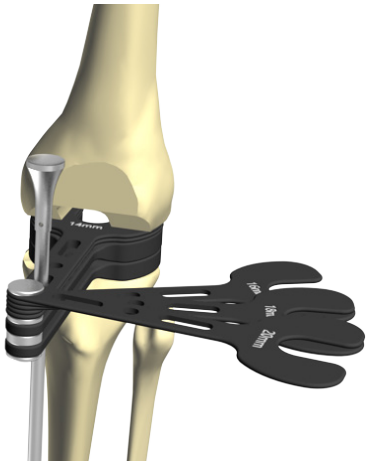


Figure 3

III. Gap Spacers

Once the original knee implant components have been removed, gap spacers can measure flexion and extension gaps to help balance the knee and restore the proper joint line. Tibial spacer sizes range from 10mm up to 20mm in 2mm increments. Accessing Tibial bearing sizes range (Figure 3).

IV. Tibial Preparation--Reaming

The tibial is divided into four quadrants, with the reaming point located 5 mm forward from the intersection. (Figure 3-1)

HRSK reamers are available in 1 mm increment diameters from 10 mm to 20mm, extended stems are in 2mm increment. Reamers' depth marking from 40-160mm in 20mm increments (Figure 4-2).
The reamer is universal. Reamers include depth markings showing stem lengths on one side ("XX"for femoral stem, "XXT"for tibial stem), and stem length depth markings on the other designated (colourless for femoral stem, black for tibial stem)

Ream the canal until cortical contact is achieved using progressively larger diameter reamers, making note of the depth and diameter. Leave the last reamer used in the tibial canal acting as intramedullary alignment rod (Figure 4-3).

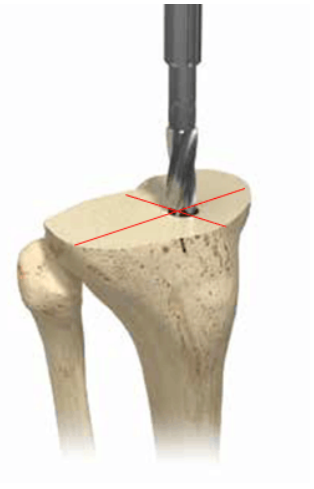


Figure 4-1

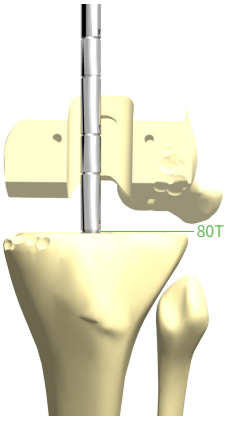


Figure 4-2

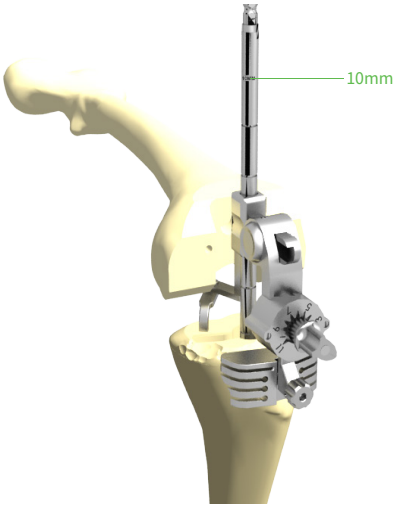


Figure 4-3

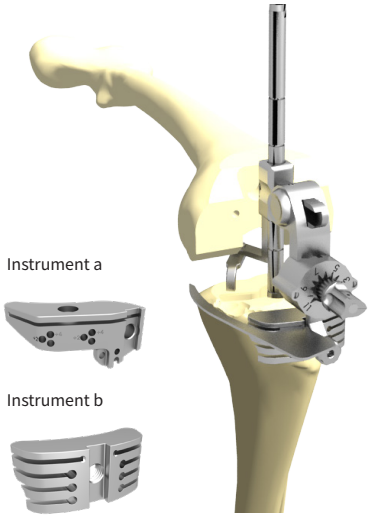


Figure 5-1

V. Tibial Offset Access

Slide the cutting block onto the vertical alignment bar(“a”for cutting without bone defect; “b” for augment cutting, 5 mm,10 mm or 15 mm thick augments available.)

Scenario With Bone Defect

Place the IM Tibial Resection Block over the proximal end of the reamer and lower it until the stylus contacts the least affected tibial condyle. A feeler gauge can be used through the cut slots to help evaluate position(Figure 5-1).

Position the stylus at a point where a clean-up cut will provide a smooth, flat surface for the tibial implant.

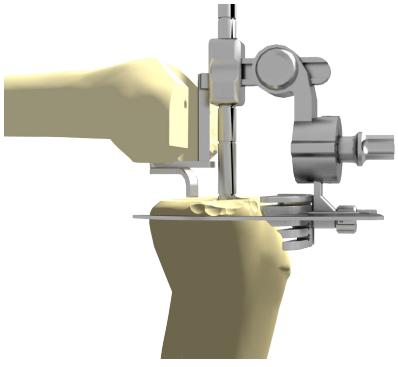


Figure 5-2

A feeler gauge can be used through the cut slots to help evaluate bone defect position, when accessed, make a augment transverse cut (Figure 5-2).

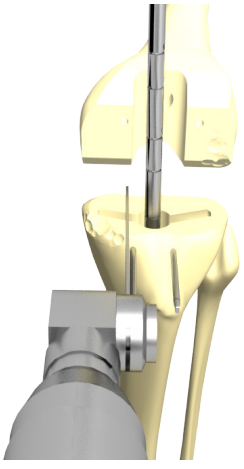


Figure 5-3

Remove the tibial trial assembly from the canal. For hemi-stepped wedges, make a sagittal clean-up cut by using the pin located at the resection level as a guide(Figure 5-3).

VI. Tibial Offset Access

Assembly and assess the A-P and M-L position and rotation to ensure adequate tibial coverage. Starting with a 0 mm (non-offset) coin, if an appropriate position is still not found, repeat the process with 2.5mm or 5mm offset coins.(Figure 6-1)

2.5mm Offset

Rotate the 2.5mm offset collet until the Tibial Offset Bushing Assembly is positioned appropriately. The clock position of the arm references the positioning of the femoral collet relative to the canal(Figure 6-2).

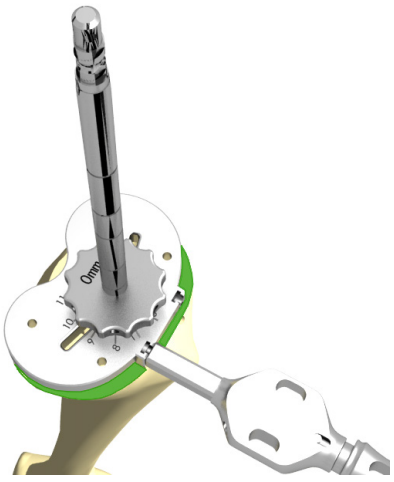


Figure 6-1

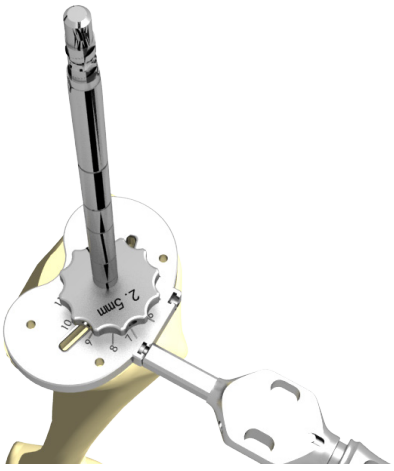


Figure 6-2

VII. Tibial Preparation

Remove the offset bushing assembly from the tibial plateau, assemble the punch guide tower to the tibial template(Figure 7-1).

Introduce the starter reamer to provide an initial hole into the tibia. The starter reamer should be fully engage in the punch guide before power is started(Figure 7-2) .

Prepare the keel with keel punch (Figure 7-3).

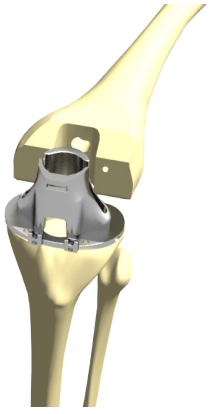


Figure 7-1

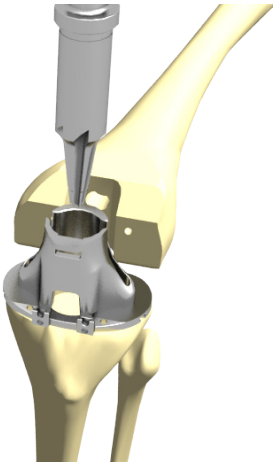


Figure 7-2

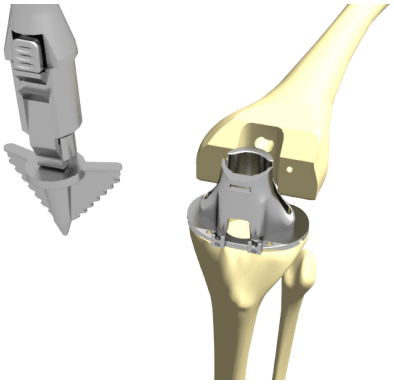


Figure 7-3

Figure 8-1

VIII.Tibial Trial Preparation

Insert the tibial trial/offset coupler trial/stem trial assembly into the tibial canal(Figure 8-1,8-2,8-3).

Figure 8-2

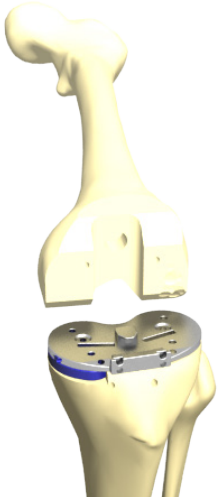


Figure 8-3

Trimming for bone defect will be required, if the augments trial don't match with it (Figure 8-4).

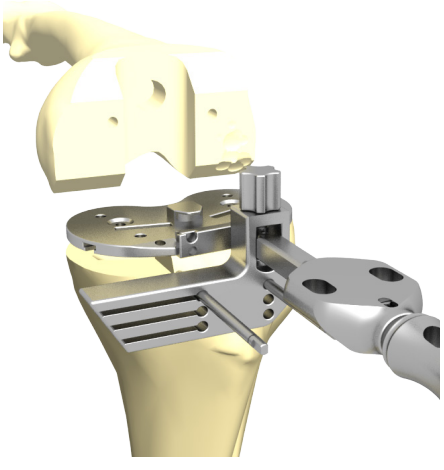


Figure 8-4

IX. Femoral Preparation

HRSK reamers are available in 1 mm increment diameters from 10 mm to 20mm, extended stems are in 2mm increment.

Reamers' depth marking from 40-160mm in 20mm increments.

The reamer is universial.Reamers include depth markings showing stem lengths on one side ("XX"for femoral stem, "XXT"for tibial stem), and stem length depth markings on the other designated (colourless for femoral stem, black for tibial stem)

Ream the canal until cortical contact is achieved using progressively larger diameter reamers, making note of the depth and diameter. Leave the last reamer used in the tibial canal acting as intramedullary alignment rod (Figure 9).

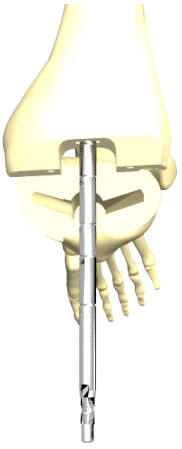


Figure 9-1

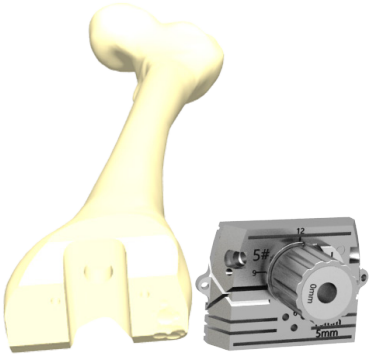


Figure 10-1

X. Femoral Sizing

Position the A-P sizing plate relative to the anterior cortex of the femur and adjacent to the offset indicator. Early trialing can help with component sizing and positioning prior to committing to any bone resections (Figure10-1).

XI. Distal femoral osteotomy and defect osteotomy

Slide the valgus guide assembly over the shaft of the reamer and flush with the distal femur, adjust valgus angle to 5 degrees (Stem Boss 5-degree Angle), The standard depth of distal resection is 1mm on uninjured side (Figure11-1,11-2).

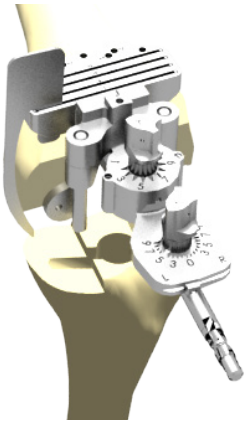


Figure 11-1

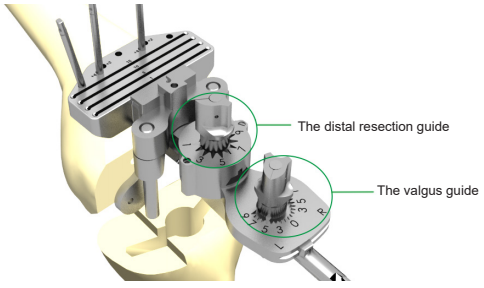


Figure 11-2

If needed, resect the appropriate distal femoral wedges through the distal cutting block .The distal cutting block is designed for a 1.5mm “clean-up” cut, 5, 10 or 15mm wedge cut (Figure11-3).

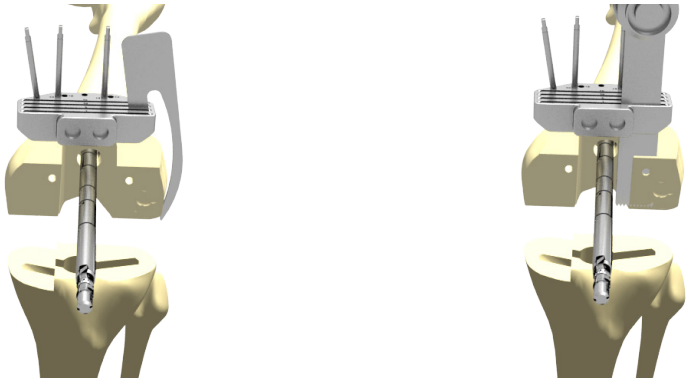


Figure 11-3

XII. Femoral Offset Access

Choose the appropriate Revision 4-in-1 resection block that matches the lateral template size. Starting with a 0 mm (non-offset) coin, if an appropriate position is still not found, repeat the process with 2.5mm or 5mm offset coins. Evaluate the 4-in-1 block position for medial and lateral coverage as well as anterior and posterior position (Figures 12-1).

2.5mm Offset

Rotate the arm of the 2.5mm offset collet until the A-P cutting block is positioned appropriately. The clock position of the arm references the positioning of the femoral collet relative to the canal (Figures 12-2).

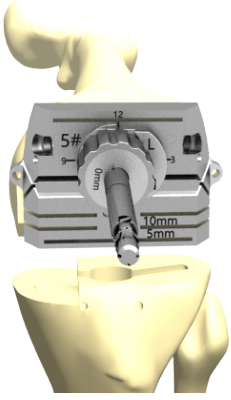


Figure 12-1

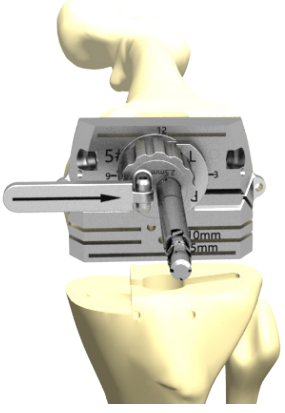


Figure 12-2

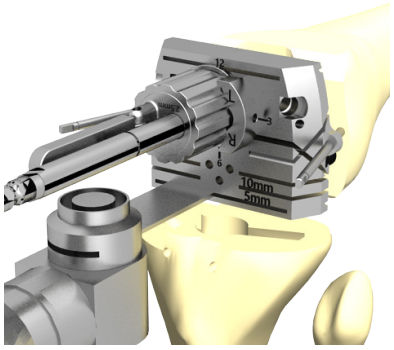


Figure 13-1

XIII.Femoral 4-in-1 Resection & Posterior Augment Resection

A feeler gauge can be used through the cut slots to help evaluate position. Resect the anterior femur above the anterior surface of the A-P cutting block, resect the posterior condyles under the posterior surface of the A-P cutting block (Figure 13-1).

If wedges are needed to fill bony defects, a feeler gauge can be used through the cut slots to help evaluate position (Figure 13-2).

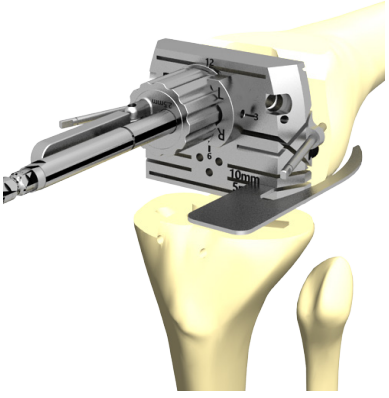


Figure 13-2

Two more slots are available for 5 or 10mm posterior wedge cuts (Figure 13-3).

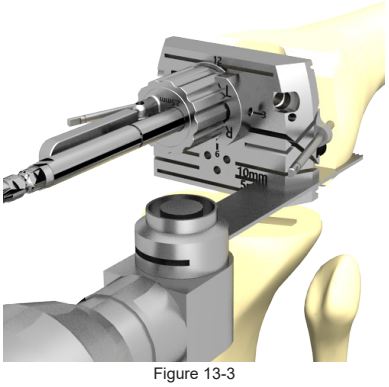


Figure 13-3

Remove the offset bushing and reamer, leaving the pinned A-P block on the distal femur, Insert the Counterbore Reamer Assembly into the guide bushing and ream until the depth stop makes contact with the guide bushing (Figure 13-4).

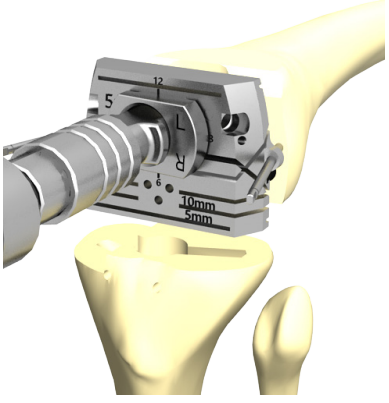


Figure 13-4

XIV. Intercondylar Box Resection

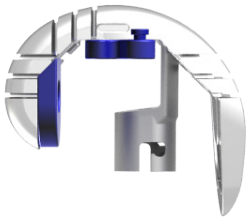


Figure 14-1

Insert the Femoral Trial/Offset Coupler Trial/Stem Trial/Augment Trial assembly into the femoral canal (Figure 14-1).

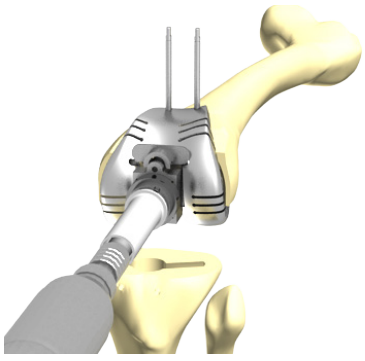


Figure 14-2

Attach the collet to the femoral trial by pulling forward on the tabs of the collet and sliding the housing collet (anterior to posterior) into the slots on the distal face of the femoral trial. Attach the housing reamer dome and the P-S reamer sleeve to the patellar reamer shaft. Ream through the housing resection collet in both the anterior and posterior positions until the depth stop contacts the collet (Figure 14-2).

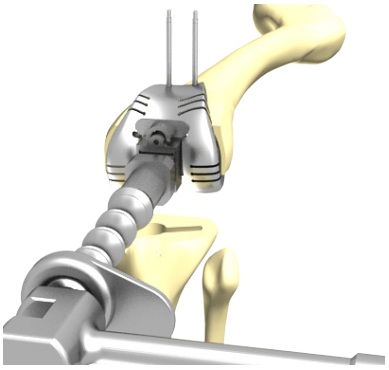


Figure 14-3

Impact the housing box chisel through the housing resection collet to square the corners of the housing. The housing box chisel should be used anteriorly and posteriorly to ensure that the full length of the box is prepared (Figure 14-3).

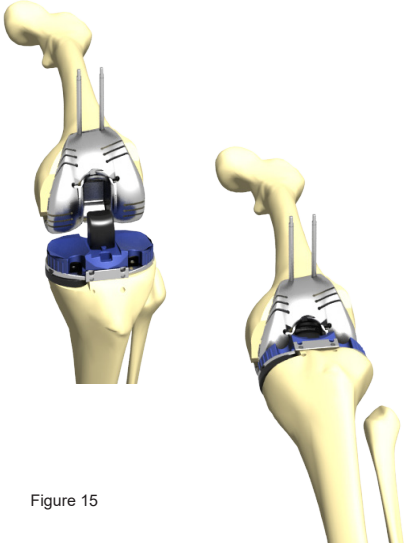


Figure 15

XV. Trial Reduction

Insert the arms of the femoral cam module into the anterior aspect of the femoral trial box and rotate downward until seated. With the tibial trial/trial stem in the tibia and the femoral trial/trial stem in the femur, insert the constrained articular insert trial into the tibial trial tray. Perform a trial range of motion. Check the stability of the knee and balance of the ligament (Figure 15).

XVI. Trial Repositioning

Remove the intercondylar processor and insert the intercondylar hinge sleeve trial. (Note: The tibial stem locking screw should match the platform pad number.) Reposition and check the stability of the knee joint. (See Figures 16-1 and 16-3)

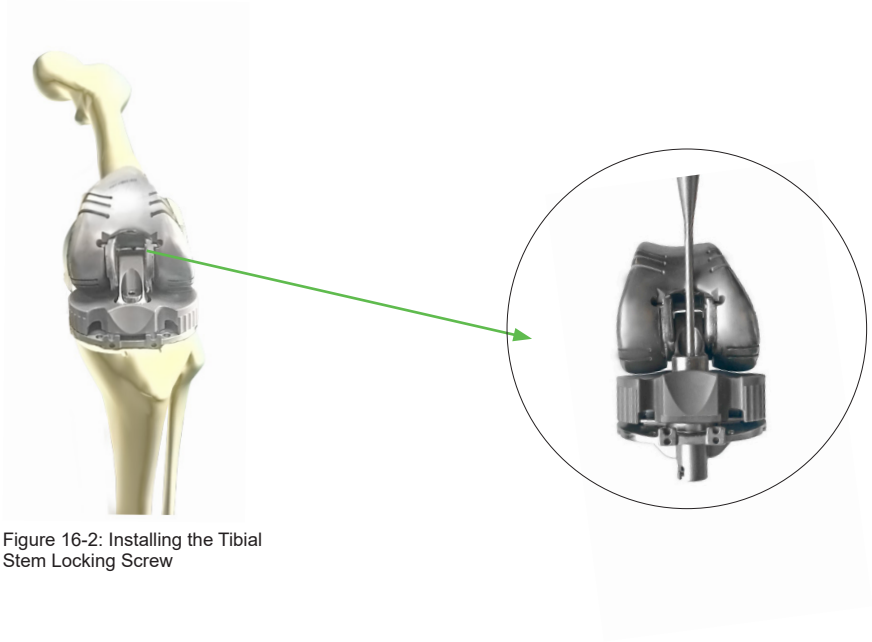


Figure 16-2: Installing the Tibial Stem Locking Screw

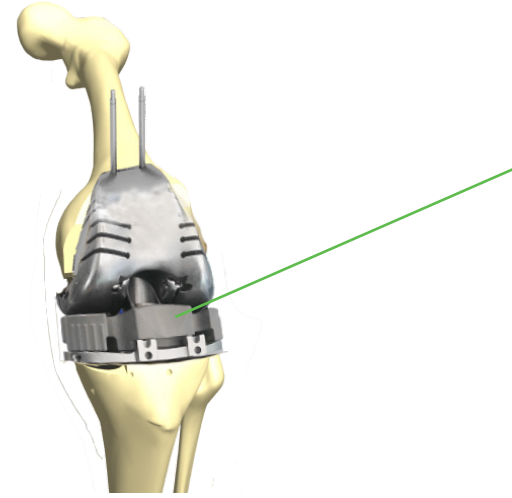


Figure 16-1: Trial Repositioning

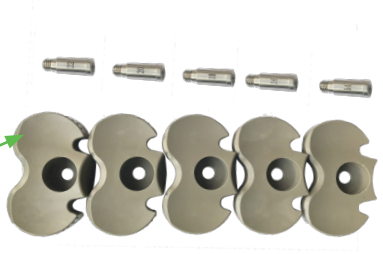


Figure 16-3: Matching Platform Pad with Locking Screw

XVII. Patellar Resection

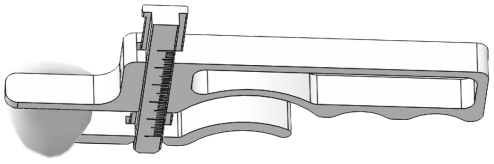


Figure 17-1

Tilt the patella to 90 degrees and remove the osteophytes and peripatellar tissues down to the level of the tendinous insertions of quadriceps and patellar tendons. Determine the level of the cut through caliper measurement of the total patellar thickness (Figure 17-1).

Figure 17-2

Perform the initial patellar resection utilizing the patella clamp surface cut guide. Clamp the guide to perform a flat cut across the patella. A magnetic depth stylus may be utilized to determine the appropriate resection level. Select a trial patellar component to optimize coverage without increasing patellar thickness beyond pre-resection height (Figure 17-2).

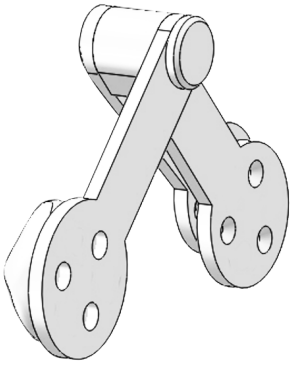


Figure 17-3

Use the drill bit to make the central holes (Figure 17-3).
The insertion placement of patellar component is usually in the medial side of patellar center.

Figure 18-1

XVIII. Implant Insertion

Implant insertion sequence: (patellar implant)-tibial implant-condylar-tibial bearing

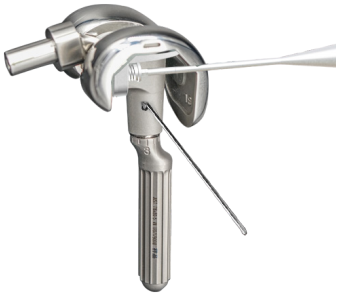


Figure 18-2

Assemble extened offset stem, augment and femoral/tibial implant, Secure the connection with the hex screwdriver by turning until a click is felt(Figure 18-1,18-2).

Figure 18-3

After hammering to lock the tibial platform insert in place, insert the hinge sleeve and use a 3.5 torque screwdriver to tighten the central screw. This secures the hinge constraint mechanism between the femoral condyle and the tibial platform. (See Figure 18-3).

Figure 18-4

After bone cement is stable, recheck the stability of the knee, range-of-motion and balance of the ligament (Figure 18-4). Pulse rinsing, surgical suturing.

Parameter

Femoral Condyle

REF	Specification (L/R)	A/P (mm)	M/L (mm)
549025	2#（R）	57	61
549026	2#（L）	57	61
549027	3#（R）	59	64
549028	3#（L）	59	64
549029	4#（R）	61	66
549030	4#（L）	61	66
549031	5#（R）	63	68
549032	5#（L）	63	68
549033	6#（R）	66	71
549034	6#（L）	66	71

Tibial Bearing

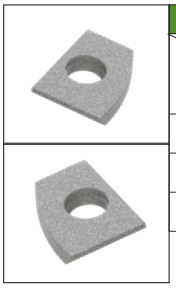
REF	Specification	A/P (mm)	M/L (mm)
549040	2#X14	41	63
549041	2#X16	41	63
549042	2#X18	41	63
549043	2#X20	41	63
549044	2#X22	41	63
549045	3#X14	43	67
549046	3#X16	43	67
549047	3#X18	43	67
549048	3#X20	43	67
549049	3#X22	43	67
549050	4#X14	46	63
549051	4#X16	46	63
549052	4#X18	46	63
549053	4#X20	46	63
549054	4#X22	46	63
549055	5#X14	48	67
549056	5#X16	48	67
549057	5#X18	48	67
549058	5#X20	48	67
549059	5#X22	48	67
549060	6#X14	51	79
549061	6#X16	51	79
549062	6#X18	51	79
549063	6#X20	51	79
549064	6#X22	51	79

Tibial Tray

REF	Specification	A/P (mm)	M/L (mm)
549035	2#	41	63
549036	3#	43	67
549037	4#	46	71
549038	5#	48	75
549039	6#	51	79

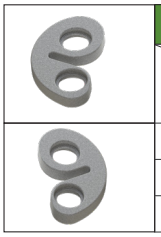
Product name	REF No.	Specification	Length(mm)	Offset (mm)
 Cementless Stem Extention	548958	10x40	40	0
	548968	11x40		0
	548959	12x40		0
	548971	13x40		0
	548960	14x40		0
	548961	16x40		0
	548962	18x40		0
	549553	10x80	80	0
	548969	11x80		0
	549552	12x80		0
	548972	13x80		0
	549551	14x80		0
	549550	16x80		0
	549549	18x80		0
	549547	10x120	120	0
	548970	11x120		0
	549546	12x120		0
	548973	13x120		0
	549545	14x120		0
	549544	16x120		0
	549543	18x120		0

Product name	REF No.	Offset (mm)	Número de Producto	Offset (mm)	Specification	Length(mm)
 Cementless Stem Extention	549541	2.5	549523	5.0	10x80	80
	548974		548980		11x80	
	549540		549522		12x80	
	548977		548983		13x80	
	549539		549521		14x80	
	549538		549520		16x80	
	549537		549519		18x80	
	549535		549517		10x120	120
	548975		548981		11x120	
	549534		549516		12x120	
	548978		548984		13x120	
	549533		549515		14x120	
	549532		549514		16x120	
	549531		549513		18x120	
	549529		549511		10x160	160
	548976		548982		11x160	
	549528		549510		12x160	
	548979		548985		13x160	
	549527		549509		14x160	
	549526		549508		16x160	
	549525		549507		18x160	



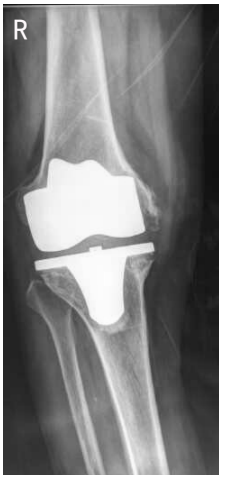
Distial Femoral Augment (Left/Right)									
Specification / Thickness	1#	2#	3#	4#	5#	6#	7#	8#	9#
5 mm	√	√	√	√	√	√	√	√	√
10mm	√	√	√	√	√	√	√	√	√
15mm	√	√	√	√	√	√	√	√	√

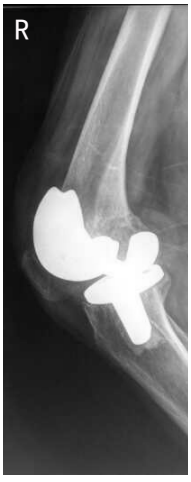
Universal Posterior Femoral Augment									
Specification / Thickness	1#	2#	3#	4#	5#	6#	7#	8#	9#
5 mm	√	√	√	√	√	√	√	√	√
10mm	√	√	√	√	√	√	√	√	√



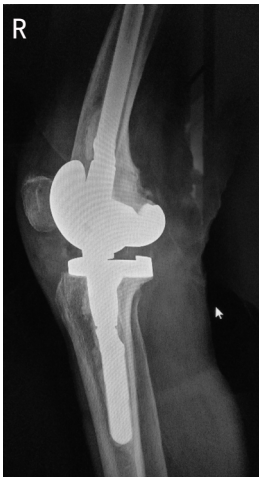
Tibial Augment (Left/Right)							
Specification / Thickness	1#	2#	3#	4#	5#	6#	7#
5 mm	√	√	√	√	√	√	√
10mm	√	√	√	√	√	√	√
15mm	√	√	√	√	√	√	√

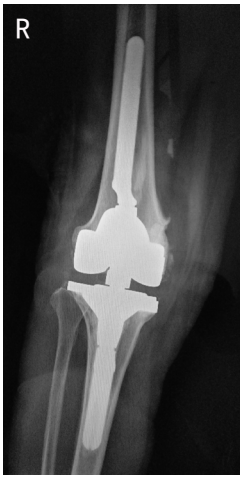
X-ray





Preoperative X-ray





Postoperative X-ray

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