RSK High Flexion Hybrid Revision Knee System

Surgical technique

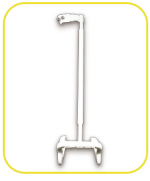
JUST KNEE RENOVATED 360° only for better protection

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 Enc



PSI HTO Guide

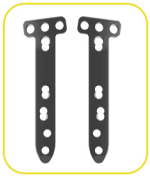
AUSK

FEMORAL COMPONENT

SXI

SXII CR

SXII PS



COFORTIN
Proximal medial tibia

AUSK

TIBIAL BEARING

SXI

SXII CR/AS

SXII PS

COFORTIN
Proximal lateral tibia

AUSK

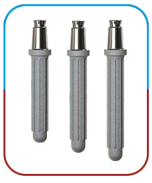
TIBIAL TRAY

SXI

SXII

COFORTIN
Distal medial femur

STEM & AUGMENT



Neutral Stem

Offset Stem

Tibial Cone

COFORTIN
Distal lateral femur

AUSK
Unicompartmental Knee Prosthesis System

SKI™ PS
Primary TKA System

SKII™ CR
Primary TKA System

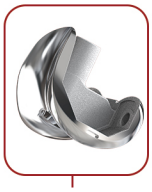
SKII™ PS
Primary TKA System

KNEE PRESERVATION — **PRIMARY**

RGICAL SOLUTIONS

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





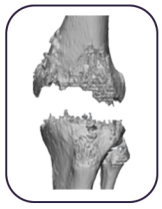

XII PLUS | XII PS | RSX | IR



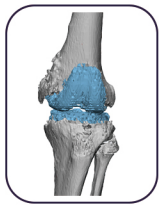

XII PLUS | XII RPS | RSX | IR



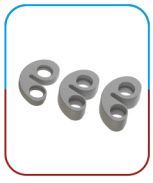
XII RPS | RSX | IR



Bone model restoration-1



Bone model restoration-2

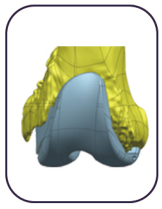


Tibial Augment

Distial Femoral Augment

Posterior Femoral Augment

Knee Spacer



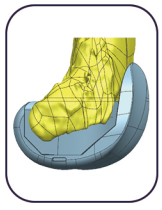
Customized prosthesis design

SKII™ PLUS
Primary TKA System

SKII™ RPS
Primary TKA System

RSK™
Revision TKA System

HRSK®
Hinge Rotating TKA System



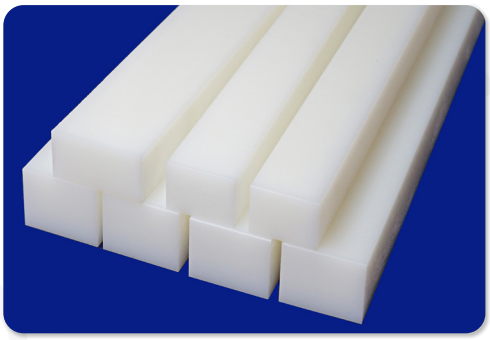
Customized product simulated implantation

COMPLEX PRIMARY — **REVISION** — **CUSTOMIZED**

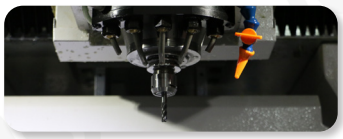
2021-01-25

Imported Raw Material

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

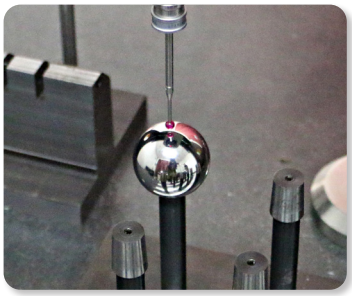


Precise Processing



Strict Inspection

JUST MEDICAL Inspection Center

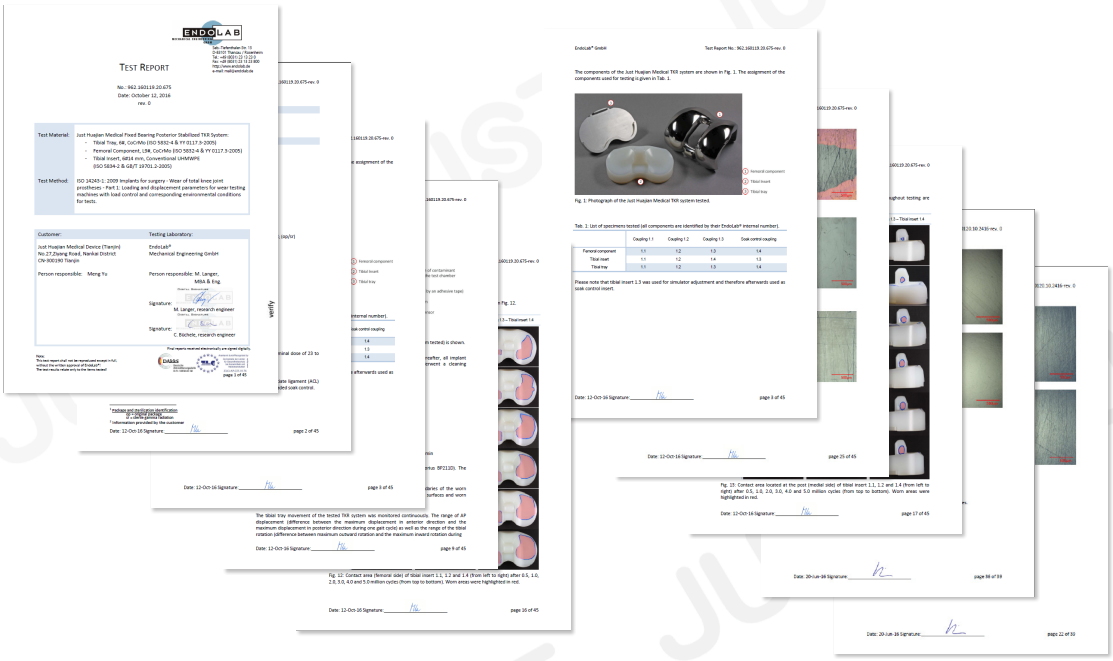


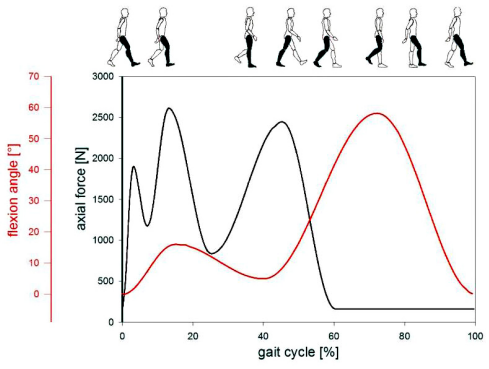
Wear Test in EndoLab®

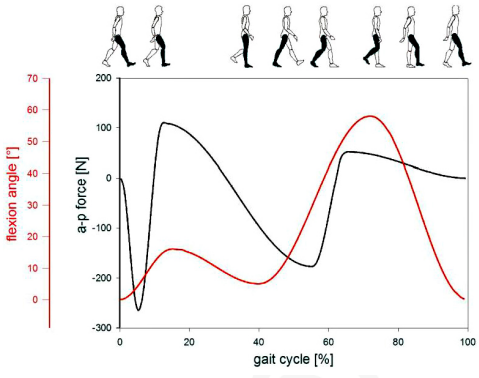
EndoLab® GmbH offers a variety of technological implant testingservices to develop and certify medical products.

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.

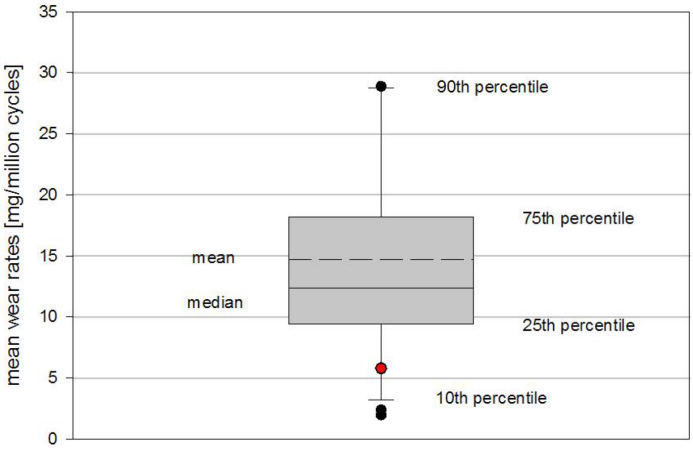
The company is a spin-off from the Technical University of Munich and is closely connected to several national and international research departments.







本实验旨在测试嘉思特医疗固定平台后稳定型全膝关节系统的磨损表现。



▲ 嘉思特膝关节系统的数据为红色标记

经过 500 万次模拟人体正常运动的活动周期后，测得嘉思特医疗全膝关节系统的平均磨损率为 5.79 mg/ 百万次。与 EndoLab® 数据库比较，嘉思特医疗全膝关节产品的平均磨损率低于 EndoLab®，目前测得的平均值 14.73mg/ 百万次。

专利证书

专利名：一种适用不同类型股骨畸形和缺损的股骨假体组建系统
专利号：ZL 2015 2 0299126.3
专利名：双重锁定胫骨平台垫片假体
专利号：ZL 2016 3 0616423.6
专利名：自带外翻角股骨髁假体
专利号：ZL 2016 3 0439942.X

Precise, Efficient, Convenient

In order to solve the problems encountered in revision knee arthroplasty and complex primary knee arthroplasty(severe knee joint deformity/knee instability).

Precise

RSK 360°offset capable instruments make position precisely, providing optimized bony coverage;Sizing and model options of augments address the bone defects accurately.

Efficient

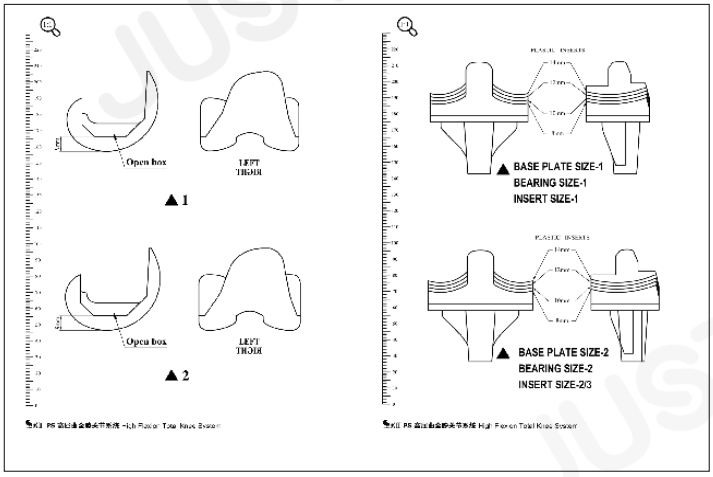
Optimized design of RSK prosthesis makes sure intraoperative and postoperative security and efficiency.

Convenient

RSK features simple multi-function instruments assembly, allowing to simplify revision knee procedures and reduce surgery time significantly.

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. Component Removal

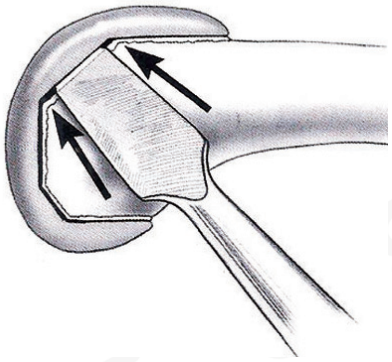


Figure 2–1

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.

Figure 2–2

According to 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.

According to 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.

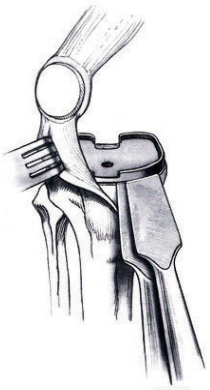


Figure 2–3

Component removal Equipment:
Manual instruments: thin osteotome, cerclage wire set, slide hammer etc;
Motorized instruments: flexible sawblade.

JUST RSK revision system provides professional removal instruments.

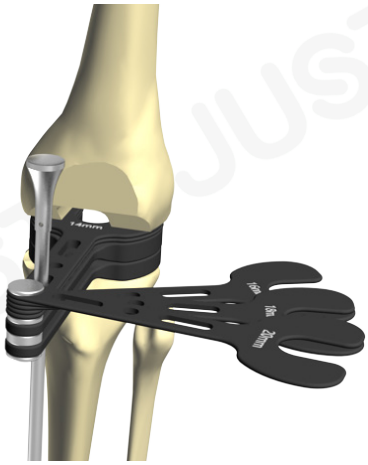


Figure 3

III. Gap Spacers

Once the 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).

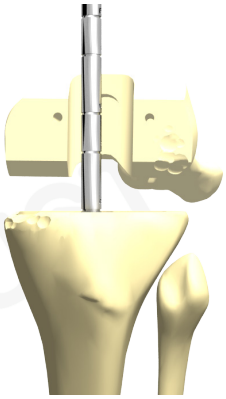


Figure 4–1

IV. Tibial Preparation--Reaming

RSK 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).
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)

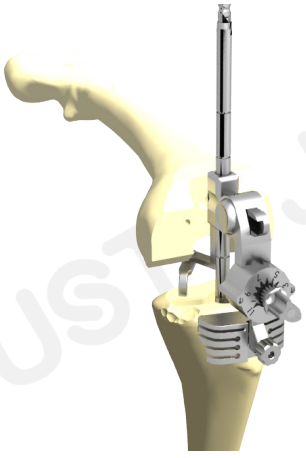


Figure 4–2

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 4-2).

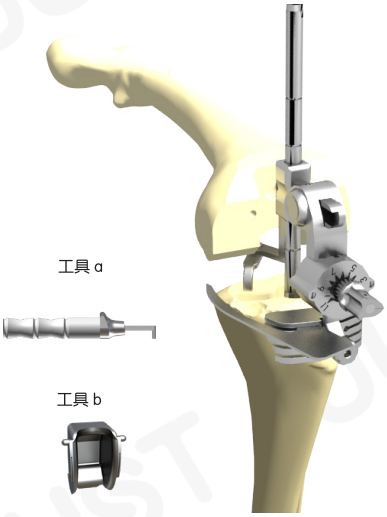


Figure 5–1

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.

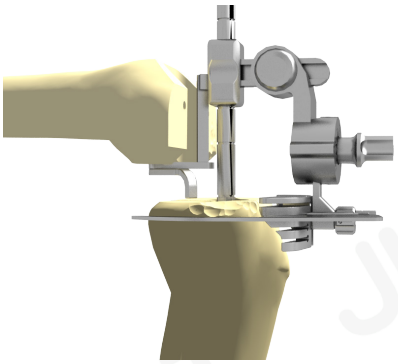


Figure 5–2

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).

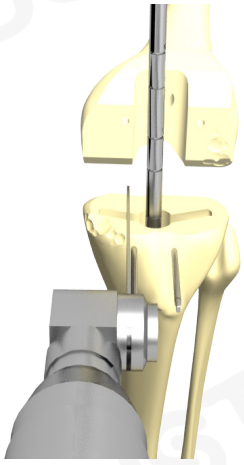
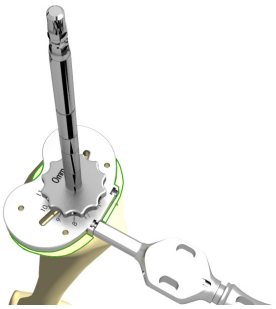


Figure 5–3

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).

Figure 6–1

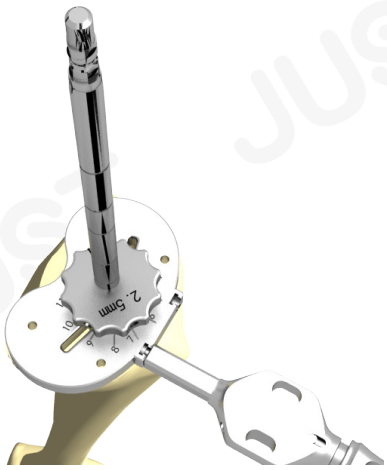
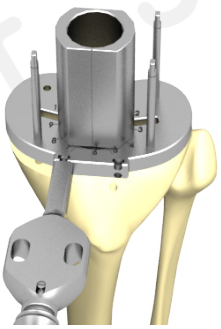


Figure 6–2

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(Figures 6-2).

VII. Tibial Shaping



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

Figure 7–1

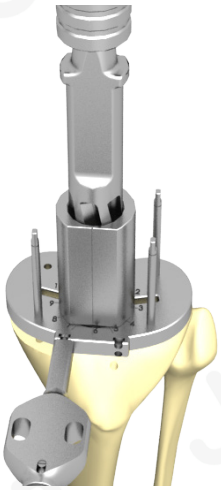


Figure 7–2

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) .

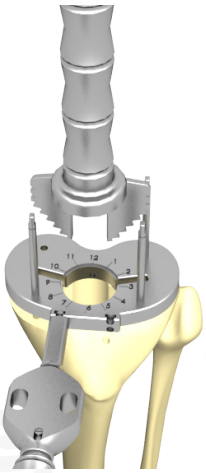


Figure 7–3

Prepare the keel with keel punch (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

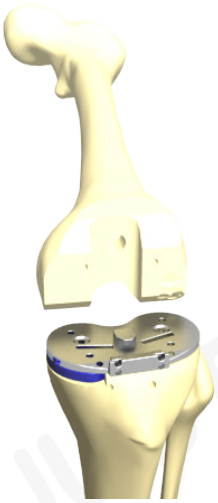


Figure 8–3

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

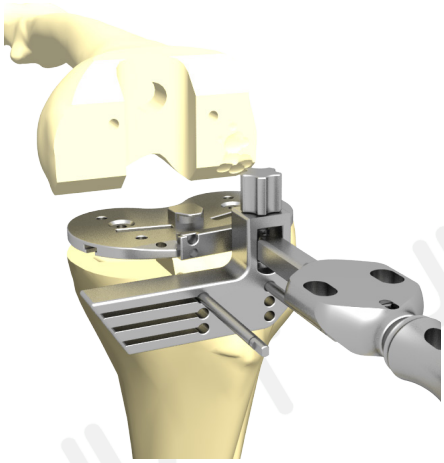


Figure 8–4

IX. Femoral Preparation

RSK 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).

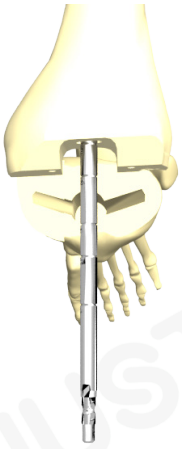


Figure 9–1

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).

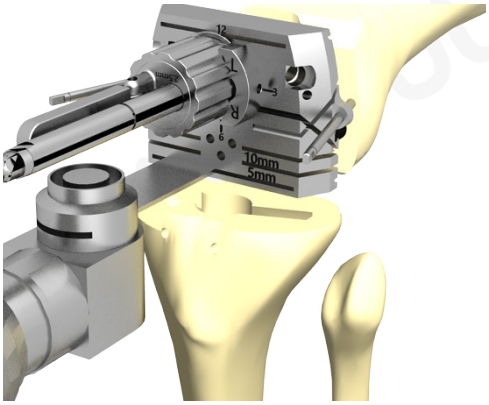


Figure 10–1

Align the center of the epicondyles along the line markings of the Epicondylar Axis Target. It is not necessary to have the center of the epicondyles within the open space of the target axis. Vary the A-P sizing plates and distal augment estimates until epicondyles align with the Epicondylar Axis Target. The goal is to restore the desired joint line positioning (Figure10-2).

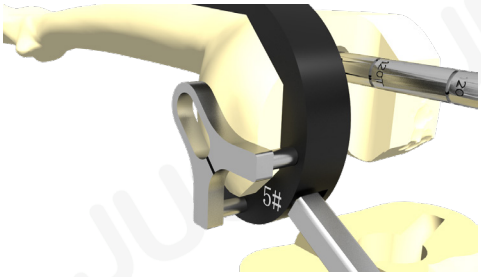


Figure 10–2

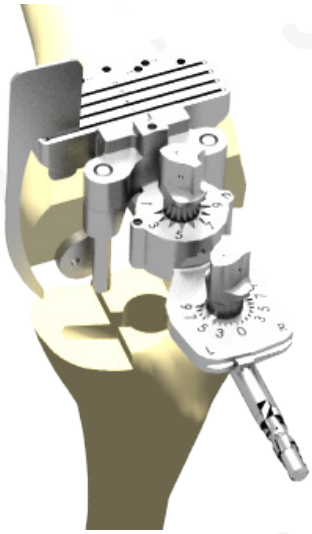


Figure 11–1

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).

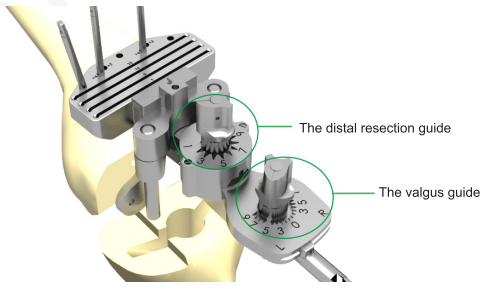


Figure 11–2

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

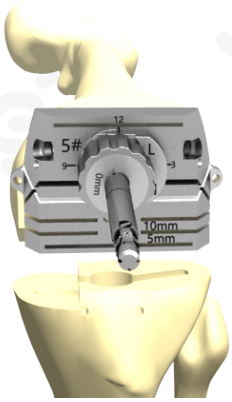


Figure 12–1

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).

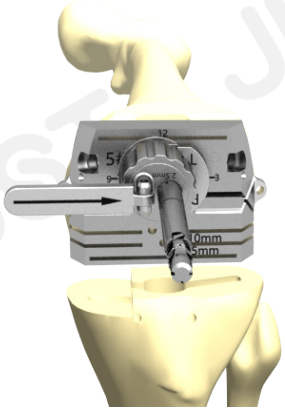


Figure 12–2

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).

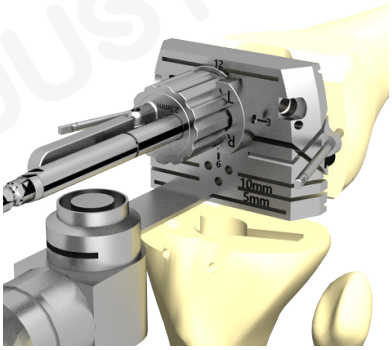


Figure 13–1

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).

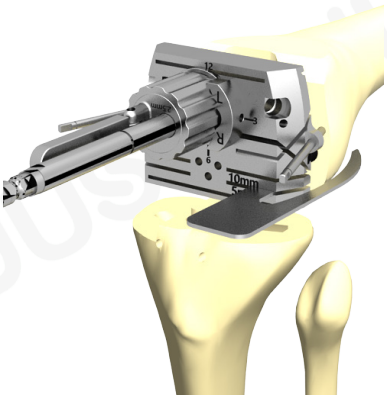


Figure 13–2

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).

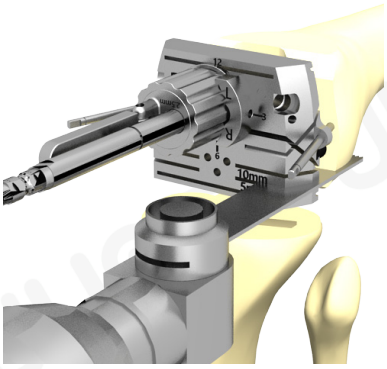


Figure 13–3

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

Figure 13–4

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).

XIV. Intercondylar Box Resection

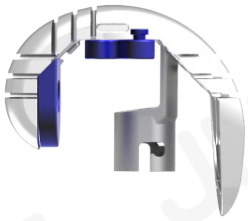


Figure 14–1

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

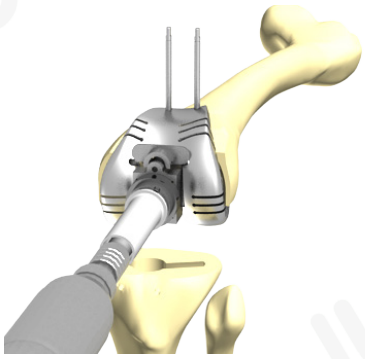


Figure 14–2

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).

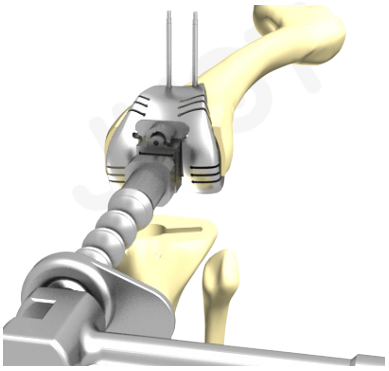


Figure 14–3

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).

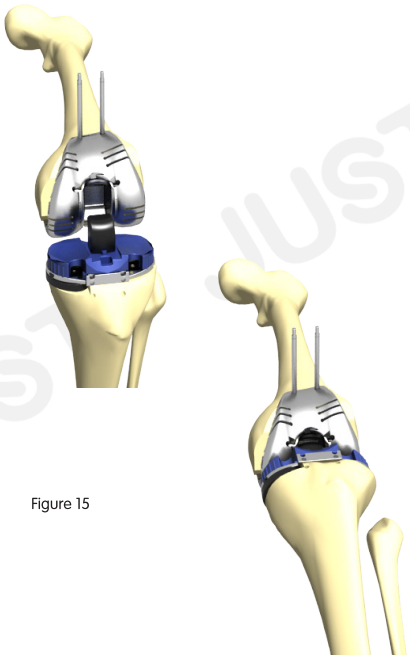


Figure 15

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. Patellar Resection

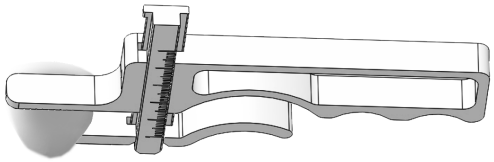


Figure 16–1

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 16-1).

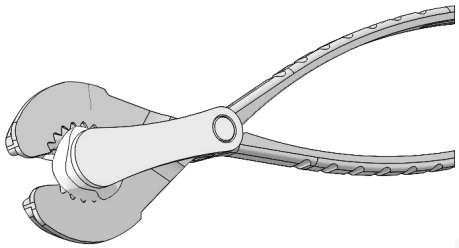


Figure 16–2

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 16-2).

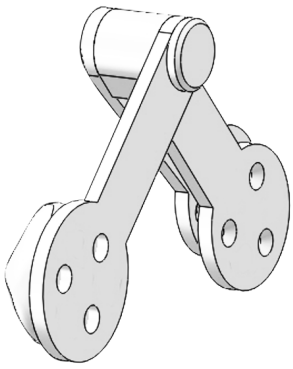


Figure 16–3

Use the drill bit to make the central holes (Figure 16-3). The insertion placement of patellar component is usually in the medial side of patellar center.

XVII. Implant Insertion

Figure 17–1

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

Figure 17–2

Assemble extened offset stem, augment and femoral/tibial implant, Secure the connection with the hex screwdriver by turning until a click is felt(Figure 17-1,17-2).

Figure 17–3

After all excess cement is removed and the joint is clean, punch the bearing into the tibial baseplate, assemble bearing, tray and extended stem with central locking screw, achieving double locking mechanism (Figure 17-3).

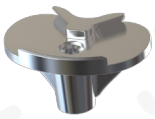
Figure 17–4

After bone cement is stable, recheck the stability of the knee, range-of-motion and balance of the ligament (Figure 17-4).
Pulse rinsing, surgical suturing.

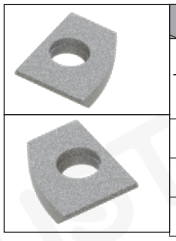
Parameter

Product name	REF No.	pecification(L/R)	A/P(mm)	M/L(mm)
 Femoral Condyle	716054	1#(右)	55	59
	716056	2#(右)	57	61
	716058	3#(右)	59	64
	716060	4#(右)	61	66
	716062	5#(右)	63	68
	716064	6#(右)	66	71
	716066	7#(右)	68	73
	716068	8#(右)	70	75
	716055	1#(左)	55	59
	716057	2#(左)	57	61
	716059	3#(左)	59	64
	716061	4#(左)	61	66
	716063	5#(左)	63	66
	716065	6#(左)	66	71
	716067	7#(左)	68	73
	716069	8#(左)	70	75

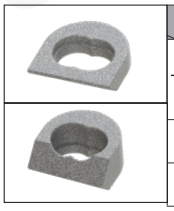
Product name	REF No.	Specification	A/P (mm)	M/L (mm)	Thickness (mm)
 Tibial Plateau Pad	719022	1# × 10	38	59	10
	719023	1# × 12	38	59	12
	719024	1# × 14	38	59	14
	719025	1# × 16	38	59	16
	719026	1# × 18	38	59	18
	719027	1# × 20	38	59	20
	719028	2# × 10	41/43	63/67	10
	719029	2# × 12	41/43	63/67	12
	719030	2# × 14	41/43	63/67	14
	719031	2# × 16	41/43	63/67	16
	719032	2# × 18	41/43	63/67	18
	719033	2# × 20	41/43	63/67	20
	719034	4# × 10	46/48	71/75	10
	719035	4# × 12	46/48	71/75	12
	719036	4# × 14	46/48	71/75	14
	719037	4# × 16	46/48	71/75	16
	719038	4# × 18	46/48	71/75	18
	719039	4# × 20	46/48	71/75	20
	719040	6# × 10	51/53	79/83	10
	719041	6# × 12	51/53	79/83	12
	719042	6# × 14	51/53	79/83	14
	719043	6# × 16	51/53	79/83	16
	719044	6# × 18	51/53	79/83	18
	719045	6# × 20	51/53	79/83	20

Product name	REF No.	Specification	A/P(mm)	M/L(mm)
 Tibial Tray	716047	1#	38	59
	716048	2#	41	63
	716049	3#	43	67
	716050	4#	46	71
	716051	5#	48	75
	716052	6#	51	79
	716053	7#	53	83

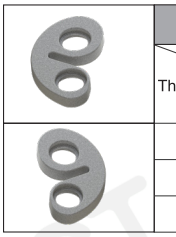
Product name	REF No.	Specification
Patellar	716042	20x8
	716043	30x9
	716044	34x9



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



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



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

Tibial Augment (Tapered)

Specification	1#	2#	3#	4#
AP values	27mm	30mm	33mm	36mm

Product name	REF No.	Specification	Length (mm)	Offset (mm)
 Stem Extension	716837	10x40	40	0
	719115	11x40		0
	716838	12x40		0
	719118	13x40		0
	716839	14x40		0
	716840	16x40		0
	716841	18x40		0
	716843	10x80	80	0
	719116	11x80		0
	716844	12x80		0
	719119	13x80		0
	716845	14x80		0
	716846	16x80		0
	716847	18x80		0
	716849	10x120	120	0
	719117	11x120		0
	716850	12x120		0
	719120	13x120		0
	716851	14x120		0
	716852	16x120		0
	716853	18x120		0

Product name	REF No.	Offset (mm)	REF No.	Offset (mm)	Specification	Length (mm)
 Stem Extension	716855	2.5	716873	5.0	10x80	80
	719121		719127		11x80	
	716856		716874		12x80	
	719124		719130		13x80	
	716857		716875		14x80	
	716858		716876		16x80	
	716859		716877		18x80	
	716861		716879		10x120	120
	719122		719128		11x120	
	716862		716880		12x120	
	719125		719131		13x120	
	716863		716881		14x120	
	716864		716882		16x120	
	716865		716883		18x120	
	716867		716885		10x160	160
	719123		719129		11x160	
	716868		716886		12x160	
	719126		719132		13x160	
	716869		716887		14x160	
	716870		716888		16x160	
	716871		716889		18x160	

Preoperative X-ray

Postoperative X-ray

Preoperative X-ray

Postoperative X-ray

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