LINK®

LCK - LINK Classic Knee

Posterior Stabilized Knee System

Surgical Technique

CE 0482

Waldemar Link GmbH & Co. KG

Barkhausenweg 10 · 22339 Hamburg, Germany
Phone +49 40 53995-0 · info@linkhh.de
www.linkorthopaedics.com

LCK - LINK Classic Knee

Posterior Stabilized Knee System

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The **LCK – LINK Classic Knee** was designed as a PS substituting version. Consequently the system consists of a tibial insert with intercondylar post and corresponding intercondylar receptacle in the femoral component, to compensate for the stabilizing restraint of the resected PCL.

Since decades the posterior stabilized design for TKA is a well proofen concept for knee joint restoration considering the sacrifice of the posterior cruciate ligament [1,2,3,4]. The function of the PCL is replaced by a smart „cam and post“ mechanism to stabilize the knee joint, offering following advantages:

- Easy surgical exposure and ligament balancing [4,5]
- Predictable restoration of knee kinematics [4,5]
- Range of motion fulfilling standards according to ASTM F2083-12.

1 M. J. Bercik, „Posterior Cruciate-Retaining Versus Posterior-Stabilized Total Knee Arthroplasty: A Meta-Analysis“, J Arthroplasty, 2013;28:439

2 P. A. Schai, „Total knee arthroplasty with the PFC system - RESULTS AT A MINIMUM OF TEN YEARS AND SURVIVORSHIP ANALYSIS“, J Bone Joint Surg [Br] 1998; 80-B:850-858

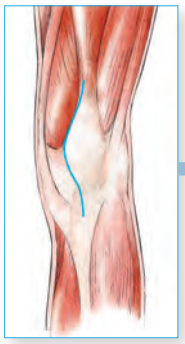
3 Luca Amendola,“History of Condylar Total Knee Arthroplasty“, Recent Advances in Hip and Knee Arthroplasty, Dr. Samo Fokter (Ed.), 2012, InTech, Available from: http://www.intechopen.com/books/recent-advances-in-hip-and-knee arthroplasty/history-of-condylar-total-knee-arthroplasty

4 M. Flören,“Implantate“ in AE-Manual der Endoprothetik D.C. Wirtz (Hrsg.) Arbeitsgemeinschaft Endoprothetik 2011

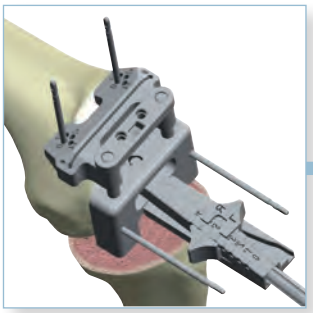
5 G.R. Scuderi, „Review Article: The rationale for posterior cruciate substituting total knee arthroplasty“, Journal of Orthopaedic Surgery 2001, 9(2): 81–88

LCK Instruments were designed to address the requirements of all Total Knee Arthroplasty procedures.

Preparation may be initiated at either the femur or the tibia. Spacer blocks are provided for extension and flexion gap evaluation. Patellar instrumentation is available for compatible preparation of patella resurfacing.

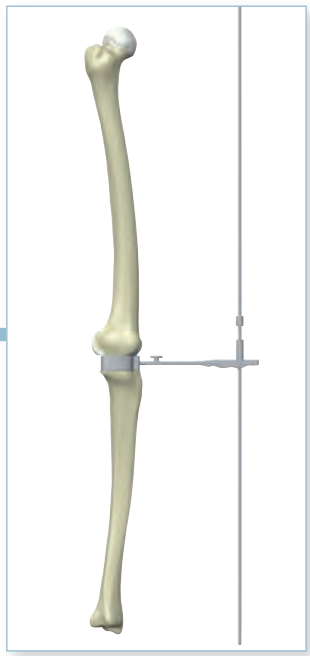


Surgical Approach

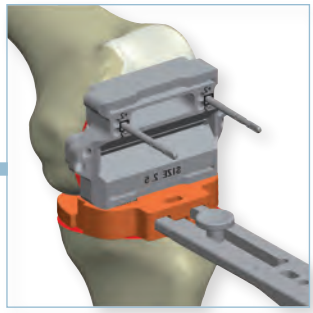


Distal Femoral Resection

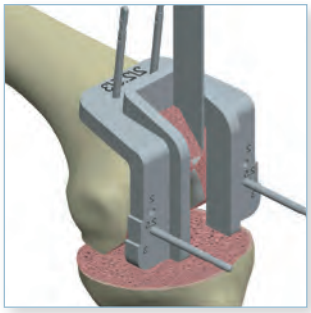
Tibia Resection



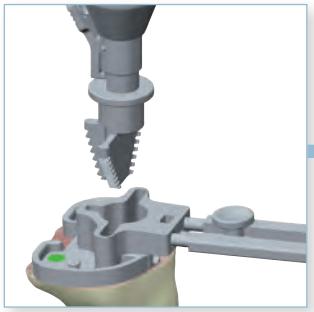
Assessment Extension Gap



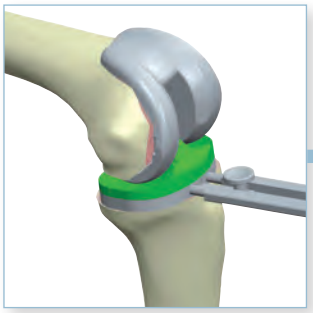
Femoral Resection / Assessment Flexion Gap



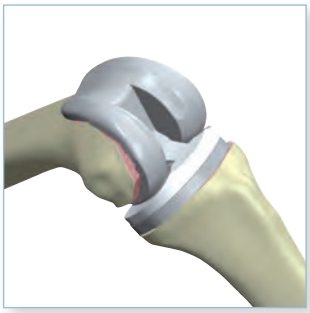
Preparation PS Box



Tibia Stem Preparation



Trial Reduction and Functional Test

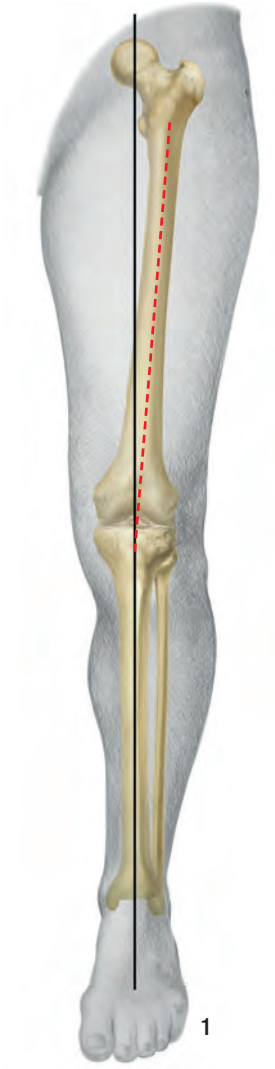


Implantation

Preoperative Planning

The anatomic landmarks in the knee joint are defined preoperatively by obtaining a full-length extremity X-ray. For the purpose of intramedullary alignment for the distal femur resection, which is considered to be perpendicular to the mechanical axis, the angle of the anatomic and mechanical axes needs to be determined which will then be transfered in situ using the appropriate alignment instrument.

The mechanical and anatomic axes are identified. The angle between the anatomic axis (center of knee joint – intramedullary canal) and the mechanical axis (center of femoral head – center of knee joint – center of ankle to the second toe) determines the valgus angle (**1**). These angles should be determined for both knees. The valgus angle of a healthy knee joint is 5-7°. In comparison with the healthy side, and for the purpose of reconstructing the corresponding valgus angle in the affected knee joint, this angle must be determined before carrying out the distal femoral resection. To determine the size of the femoral component, a lateral view is necessary. The appropriate implant size can be selected preoperatively with X-ray templates. The necessary resections are determined by the size of the implant.

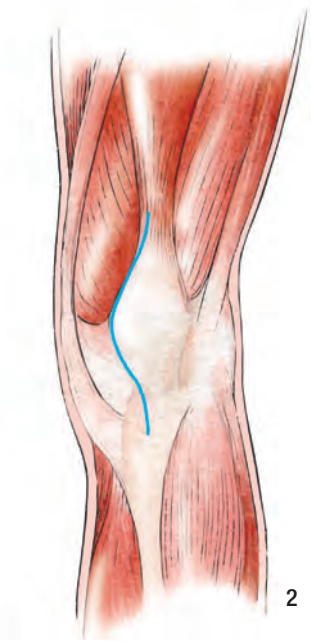


1

Surgical Approach

With the knee in slight flexion, a straight incision is made over the patella, as far as the tibial tuberosity.

A medial parapatellar incision is made through the patellar retinaculum, capsule and synovial membrane (**2**). When making the parapatellar incision, the patella is pushed to one side to visualize the femoropatellar joint. Removal of the hypertrophic synovial membrane and parts of the fat pad allow access to the medial, lateral and intracondylar parts of the joint. Excess synovia should be removed in order to avoid postoperative impingement and adhesions. Some surgeons prefer total synovectomy.



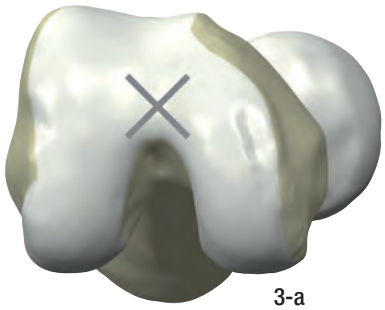
2

Distal Femoral Resection (Extension Gap)

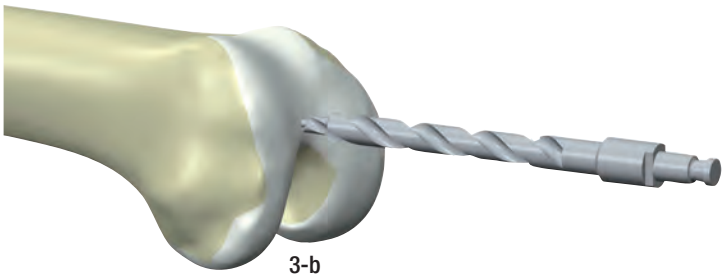
Opening the Femoral Medullary Canal

The knee is flexed to 90° in order to resect the femur. To determine the entry point (intersection of Whiteside Line and Insall Line) for opening the femur, this can be marked with the electrocautery.

It is usually located approx. 3-5 mm medially above the inter-condylar fossa (**3-a**). The medullary canal is opened with the IM step drill (**3-b**).



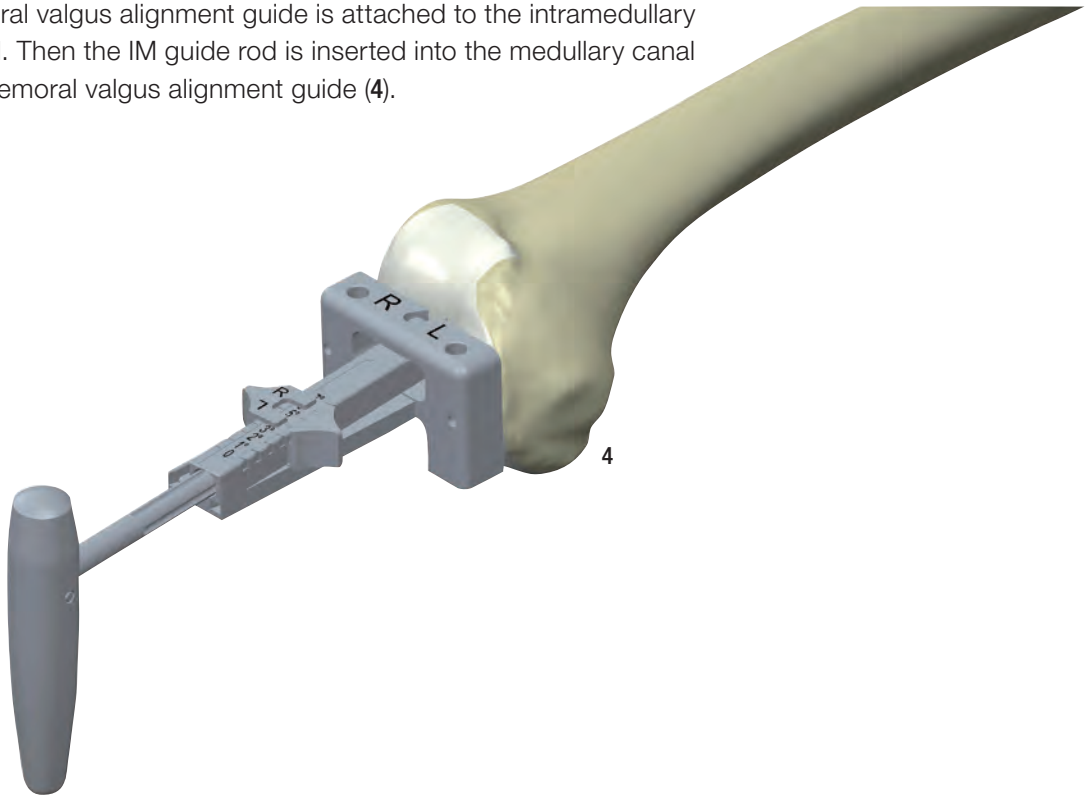
3-a



3-b

Note: Care is taken to ensure that the drill avoids the cortices.

The femoral valgus alignment guide is attached to the intramedullary guide rod. Then the IM guide rod is inserted into the medullary canal with the femoral valgus alignment guide (**4**).

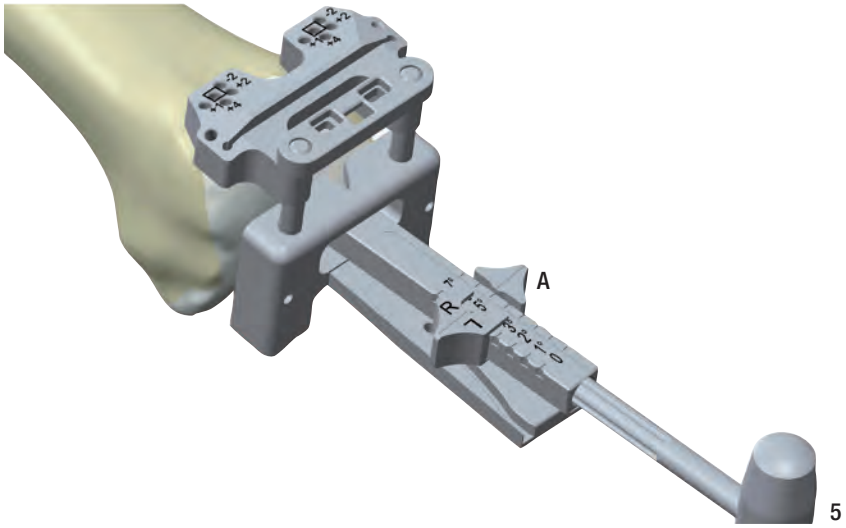


4

Distal Femoral Resection

The distal cutting block is connected to the alignment instrument for valgus angle by means of the guide U-bolt. Then, the preoperatively determined valgus angle is set.

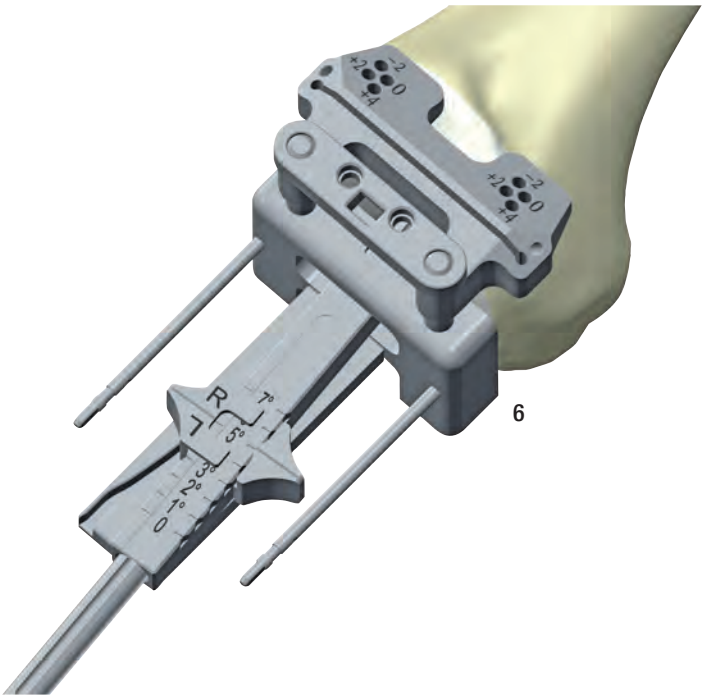
Note: To set the valgus angle properly it is important that the sleeve (**A**) indicates the correct side of surgery. “L” = LEFT; “R” = RIGHT from the frontal point of view (**5**).



5

Before fixing the distal cutting block with two fixation pins, it must be ensured that at least one condyle is in contact with the alignment instrument, and that the valgus angle of the correct side has been set.

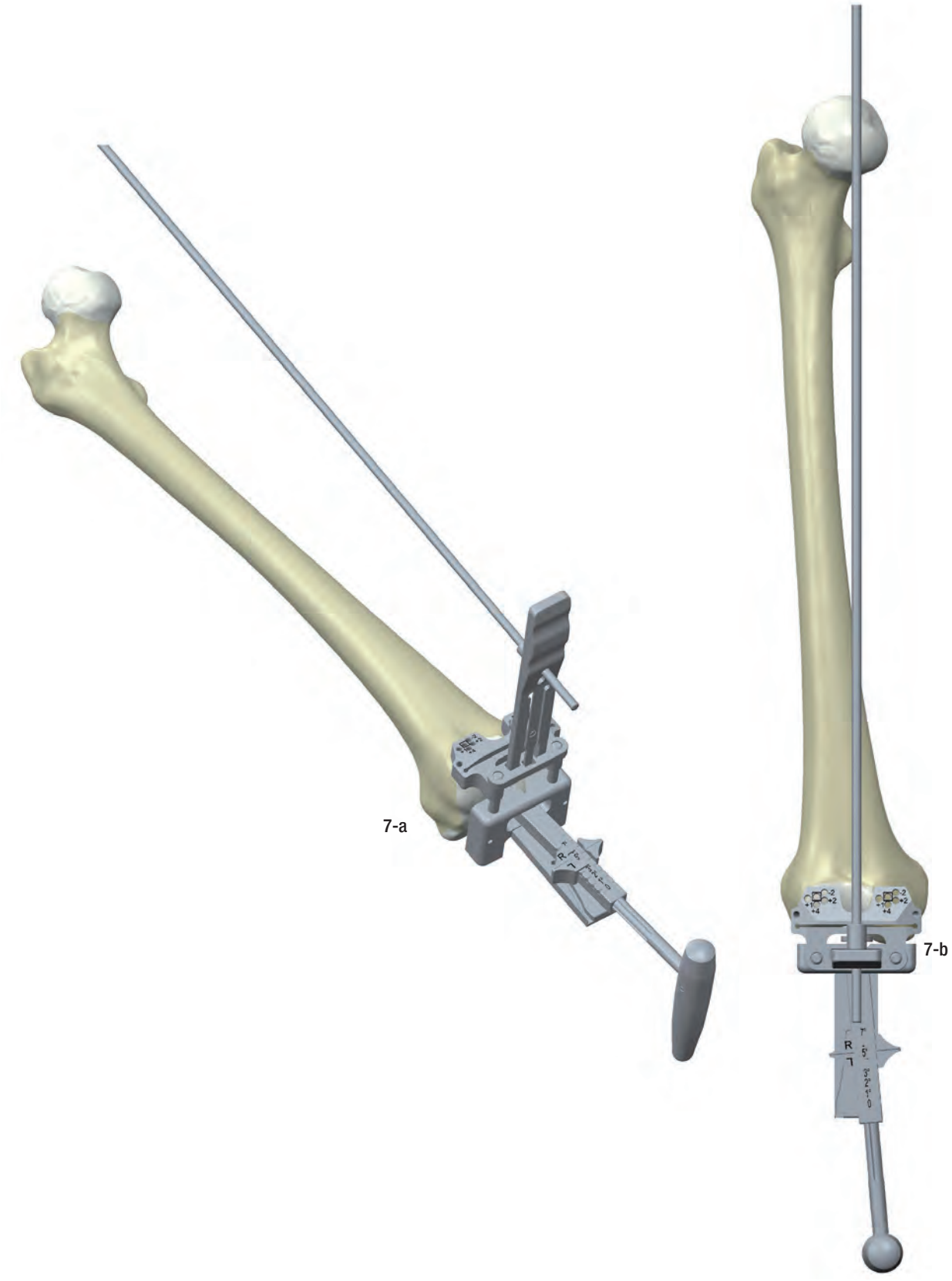
The femoral valgus alignment guide can be fixed using fixation pins (**6**).



6

Femoral Alignment

Position the universal handle into the attachment at the distal femoral cutting block. Then the alignment rod is inserted and the femoral valgus alignment guide can be checked with reference to the center of the femoral head (**7-a, 7-b**).

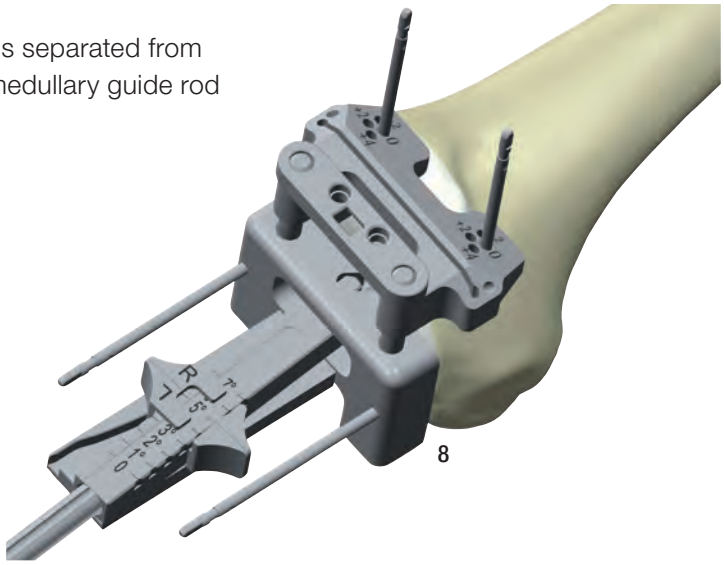


7-a

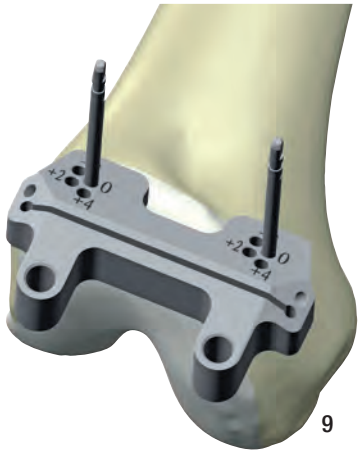
7-b

The two fixation pins are inserted through the holes designated “0” (**8**).

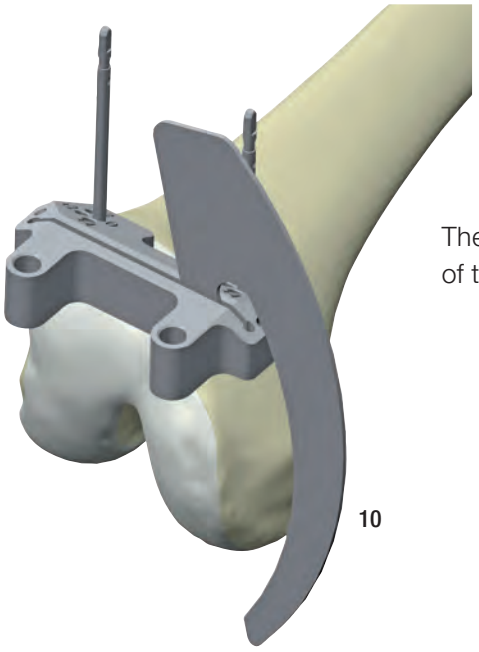
Then the alignment instrument for valgus angle is separated from the distal cutting block and removed. The intramedullary guide rod is removed (**9**).



8



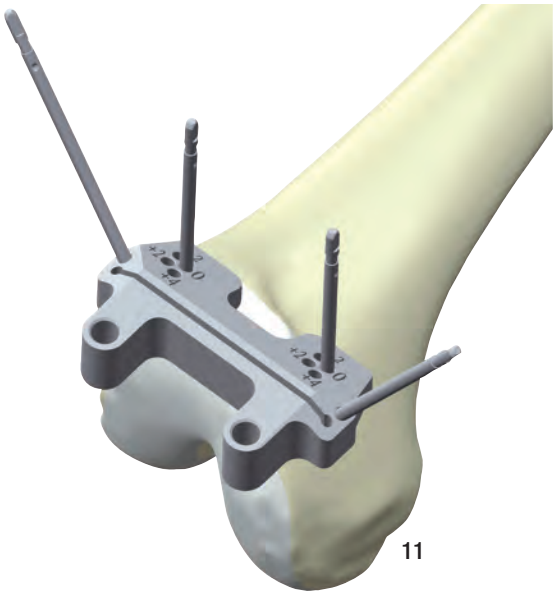
9



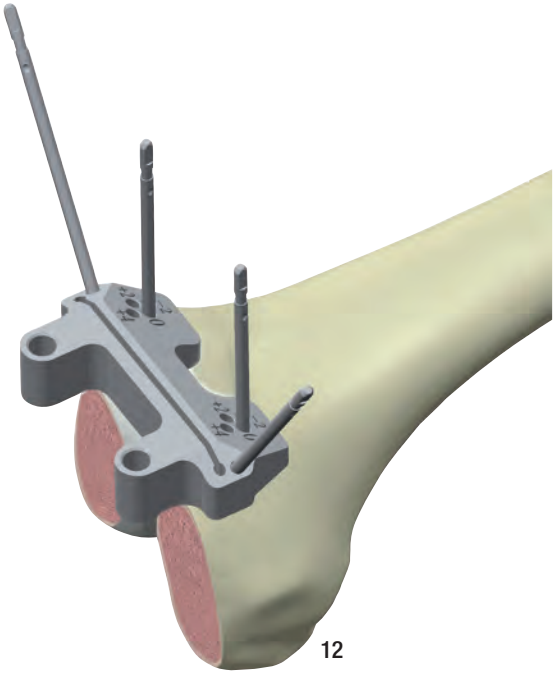
10

The cutting template can be used to check the alignment of the distal resection (**10**).

To make the distal cutting block more stable, a cross pin can be inserted.
There is the option of inserting a fourth fixation pin (**11**).



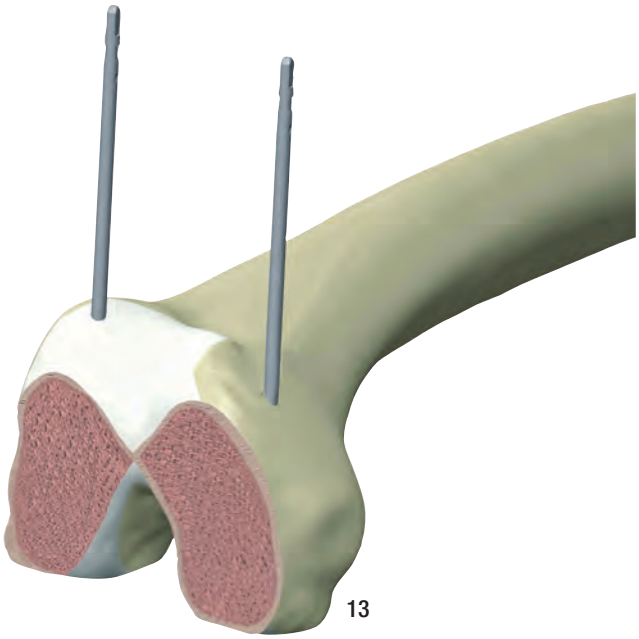
11



12

The distal saw cut is made at 90° flexion (**12**).
Note: Cutting blade 1.27 mm is recommended.

Then the distal cutting block is removed (**13**).



13

The parallel fixation pins remain in position (**13**).

Tibial Plateau Resection

Tibial Extramedullary Alignment

For external alignment of the tibial resection instrument set, the extramedullary guide is assembled and adjusted to suit the length of the tibia.

Assembling the tibial alignment device
The extramedullary guide comprises the following components:

- Tibial alignment proximal rod (**14.1**)
- Tibial alignment distal tube (**14.2**)
- Spring ankle clamp (**14.3**)
- Asymmetric (left/rigth versions) tibial cutting block (**14.4**)
- Tibial stylus with guide (**14.5**)

Note: The tibial cutting block (**14.4**) has no integrated slope.

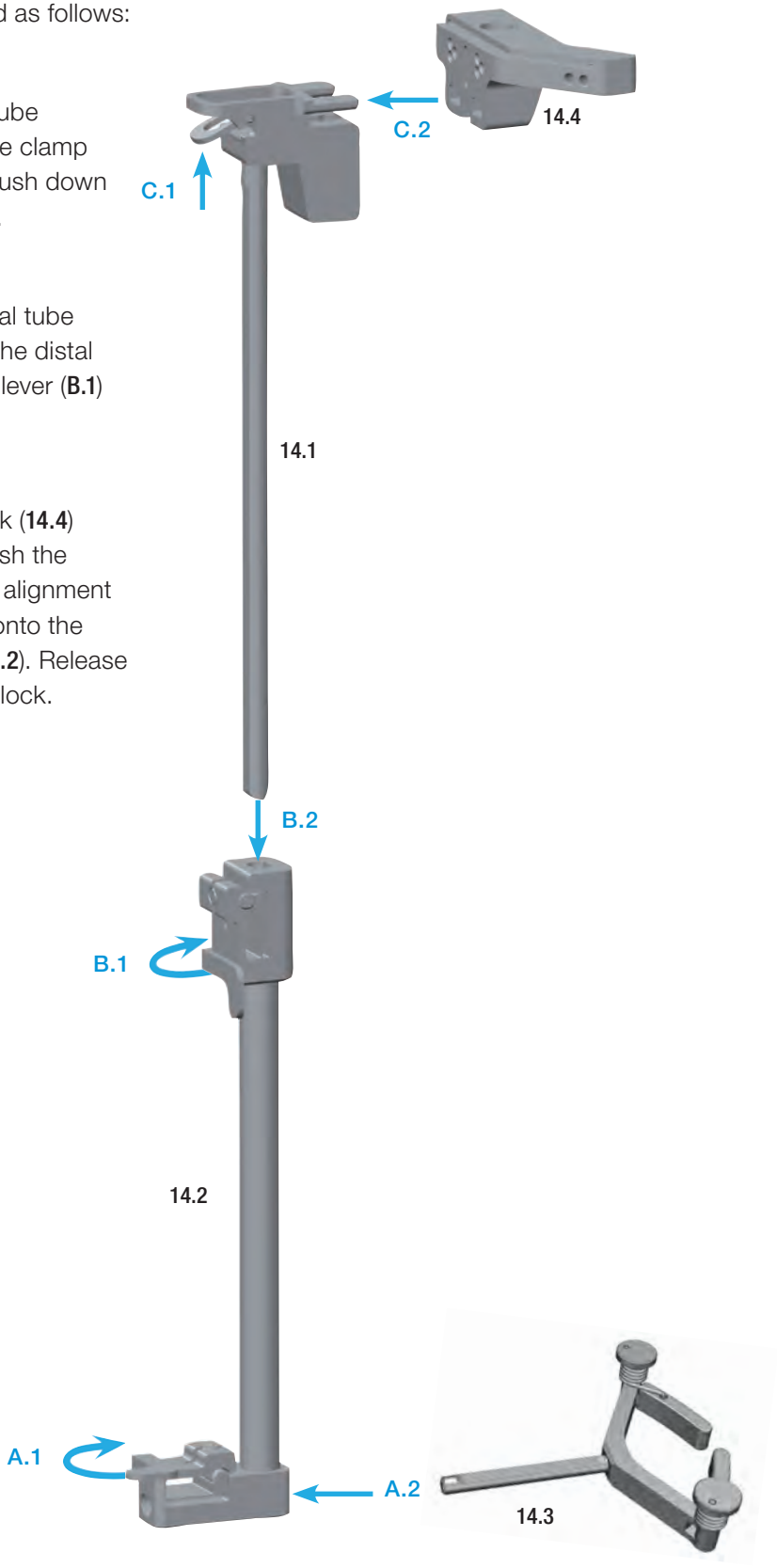
Alignment is carried out in reference anterior to the edge of the tibia. When the alignment rod is parallel to the tibia, the resection is at 90°, which means 0° posterior slope.

The requisite components are assembled as follows:

A. Lift the lever (**A.1**) distal on the distal tube (**14.2**) and insert the rod from the ankle clamp (**14.3**) into the distal tube (**A.2**). Then push down the lever (**A.1**) to lock the ankle clamp.

B. Lift the lever (**B.1**) proximal on the distal tube and push the proximal rod (**14.1**) into the distal tube (**14.2**) (**B.2**). Then push down the lever (**B.1**) to lock the proximal alignment rod.

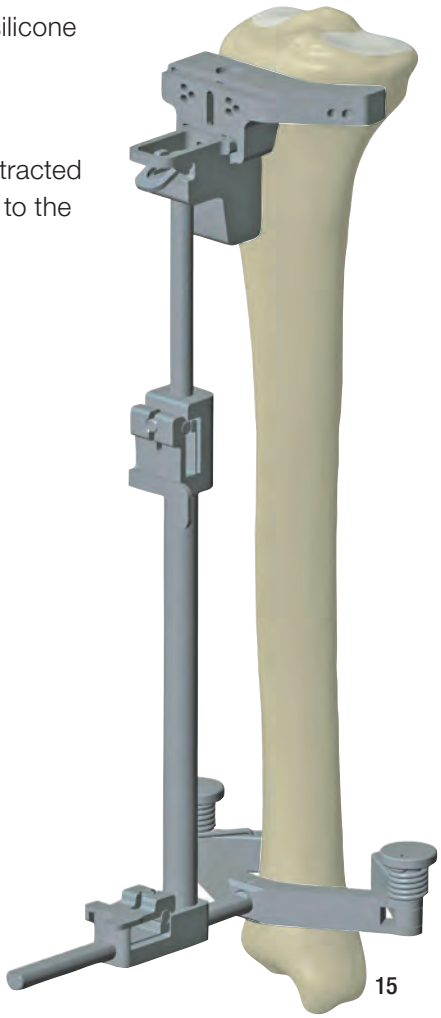
C. Attach the selected tibial cutting block (**14.4**) to the EM proximal alignment rod: Push the locking lever (**C.1**) on the EM proximal alignment rod (**14.1**) and slide the cutting block onto the pegs at the proximal alignment rod (**C.2**). Release the lever (**C.1**) for locking the cutting block.



Positioning

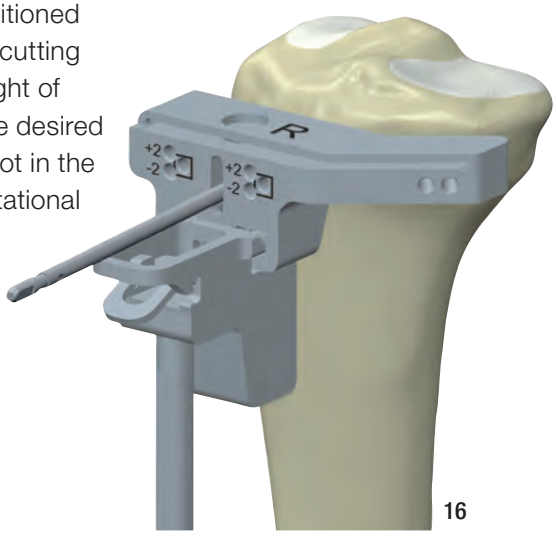
Note: Fixation of the ankle is achieved either using the silicone belt or optionally with the spring ankle clamp.

The knee is placed in maximum flexion with the tibia distracted anteriorly and stabilised. Adjust the EM alignment guide to the approximate length of the tibia (**15**).



15

The ankle clamp of the tibial alignment device is positioned proximally to the malleoli. With the appropriate tibial cutting block attached to the tibial alignment device the height of the tibial cutting block is adjusted to the approximate desired location. A drill pin is inserted through the vertical slot in the tibial cutting block to secure the desired M/L and rotational position (**16**).

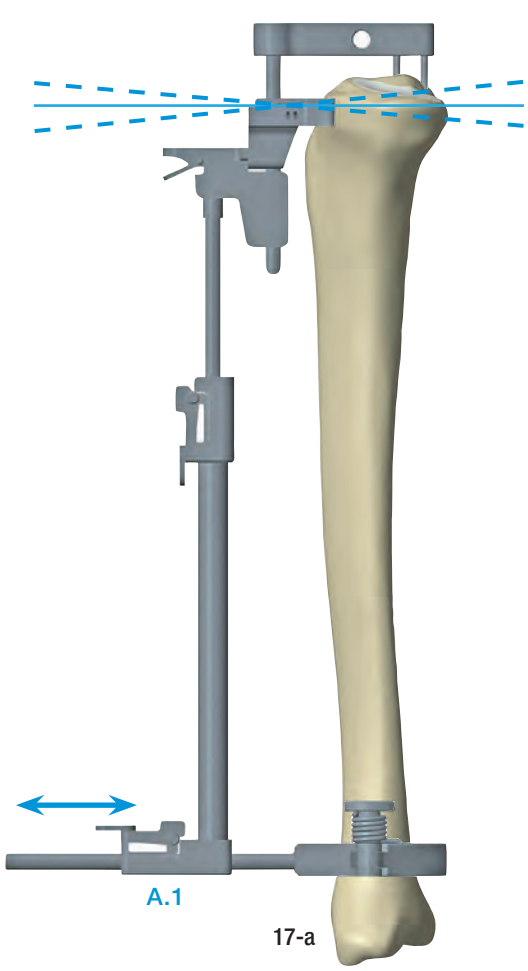


16

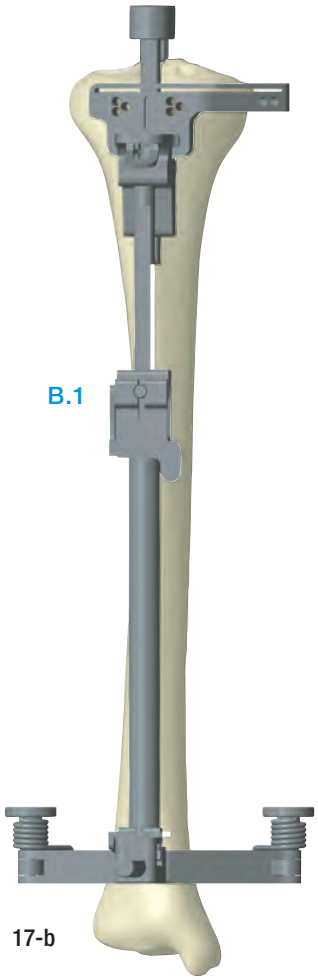
Option: The spiked fixation arm can be used fixing the device onto the tibial head. Doing this no drill pin should be inserted into the tibial cutting block.

Lift the lever distal (**A.1**) at the alignment tube to translate the instrument anteroposteriorly to align it parallel to the tibial axis. Subsequently push the lever (**A.1**) down to lock the position.

When posterior slope is required, the assembly is advanced anteriorly: Lift the lever (**A.1**) distal on the alignment tube and slide the assembly anteriorly until the requested slope is achieved. Subsequently push the lever (**A.1**) down to lock the position. Appropriate rotation is established and the shorter spike is seated in the proximal tibia, securing the medial/lateral, anteroposterior and rotational positions.



17-a



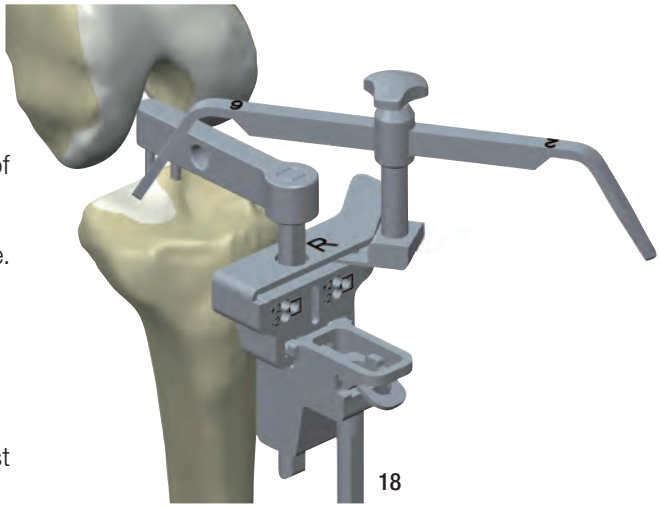
17-b

Determining the Tibial Resection Level

The stylus allows two positions: 2 mm or 8 mm.
The 2 mm is used for referencing of the defective tibial condyle. The resection will result 2 mm below the tip of the stylus.

The 8 mm is for referencing of the least involved condyle. Resection will result 8 mm below the tip of the stylus. This will allow the removal of the same height of bone the thinnest tibial component can replace.

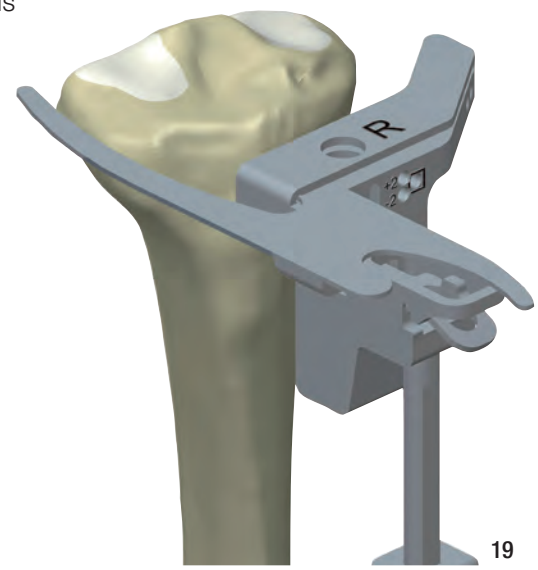
Lift the lever (**B.1**) proximal at the alignment tube and shift the tibial cutting block until the tip of the stylus rest on the tibial plateau. Then push the lever (**B.1**) to lock.



18

Then secure the tibial cutting block anterior with two drill pins through the parallel holes with the „0“ marking. The tibial stylus is removed.

The cutting template can be used to check the slope and height of the tibial resection (**19**). Any necessary corrections to the position (by ± 2 mm) can be carried out at this poin

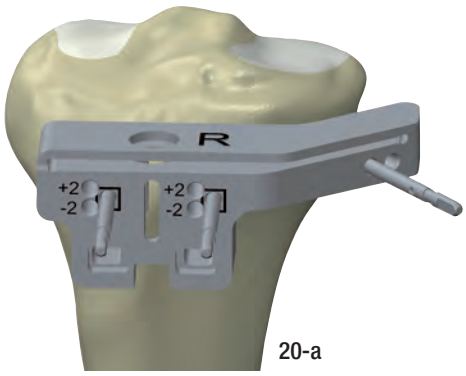


19

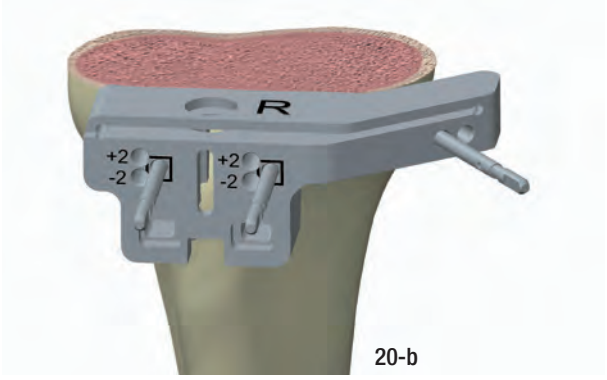
Note: To shift the tibial cutting block it is to be considered that the central drill pin may has to be removed first.

Connect the fork extractor and remove the alignment rod fixation spikes (**20-a, 20-b**).

Finally fix the cutting block medially with a third drill pin and then perform the resection.



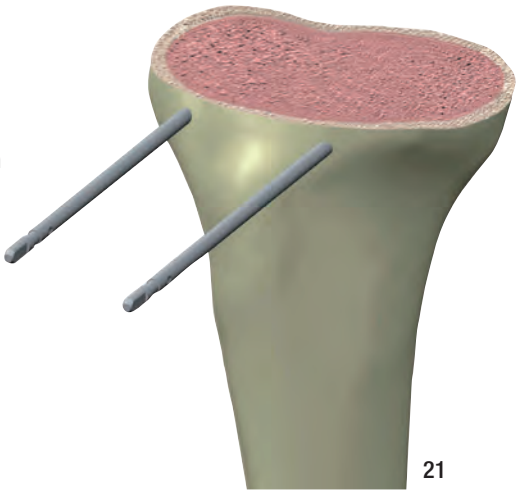
20-a



20-b

Note: Cutting blade 1.27 mm is recommended.

Following the resection, the third fixation pin and the tibial cutting block are removed. The anterior fixation pins remain in position (**21**).


21

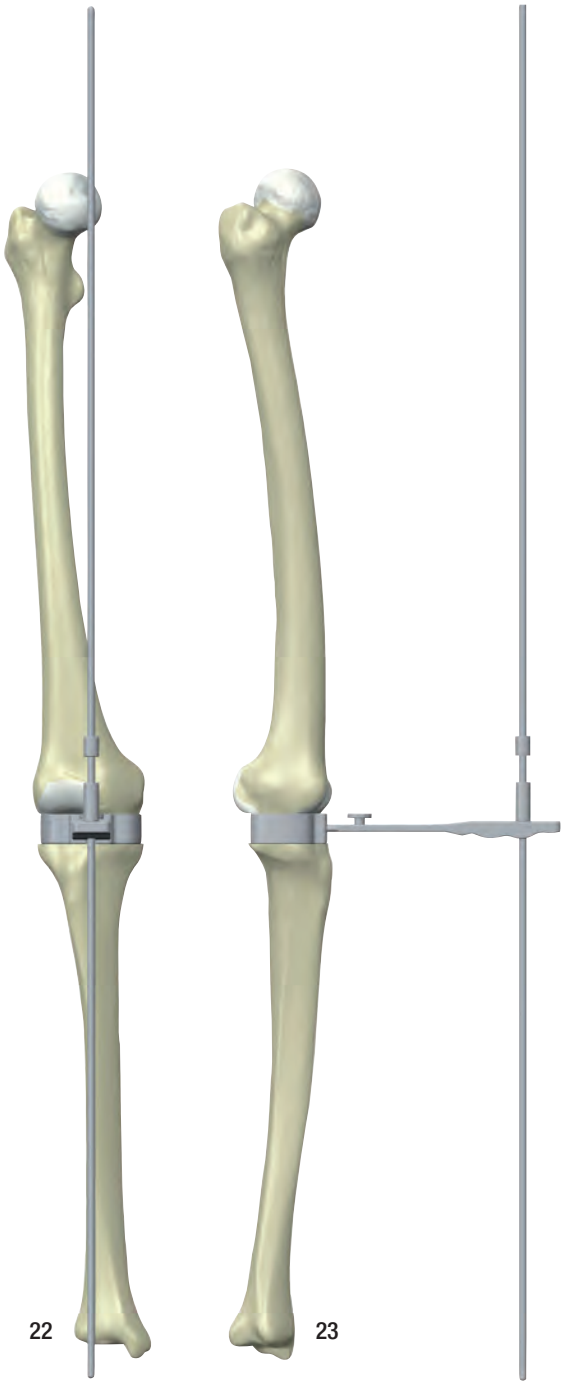
Extension Gap Assessment and Balancing

Extension gap spacer is inserted to check axial alignment and the stability of the joint in extension (**22, 23**).

After the proximal tibia and distal femur have been resected, the extension gap can be evaluated using spacer blocks. Position the knee in full extension. If an 8 mm spacer block does not fit into the resected joint space in extension, it will be necessary to remove additional bone from either the tibia or the femur.

Note: The spacer block is actually thicker than indicated by the marking because the spacer block represents the combined LCK distal femoral thickness and the corresponding tibial component thickness.

If no further resections are required, the femoral and tibial fixation pins can now be removed.

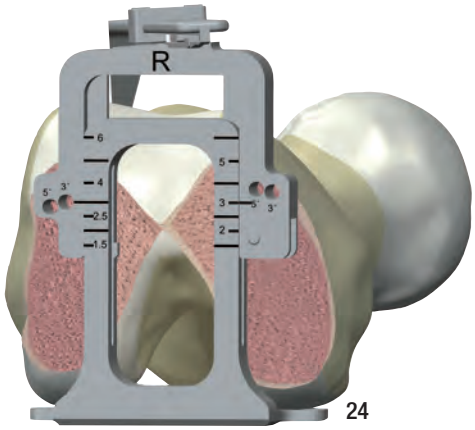


22 23

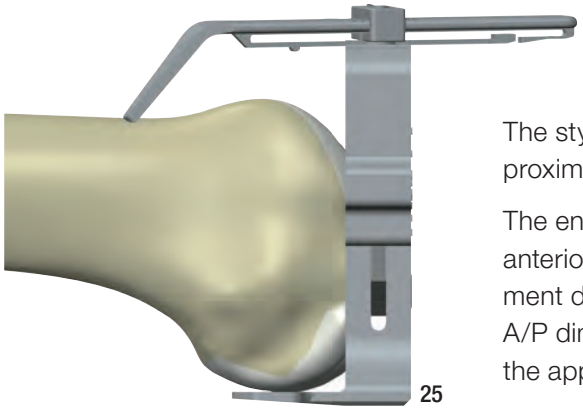
Final Femoral Preparation

Femoral Sizing

The femoral sizing guide is seated flush and centered on the distal femoral resection surface (**24**). For appropriate seating, the two posterior located bearing plates need to be in contact with the posterior femoral condyles.



24

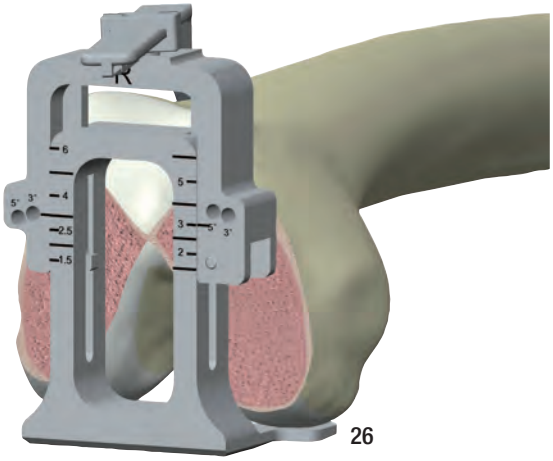


25

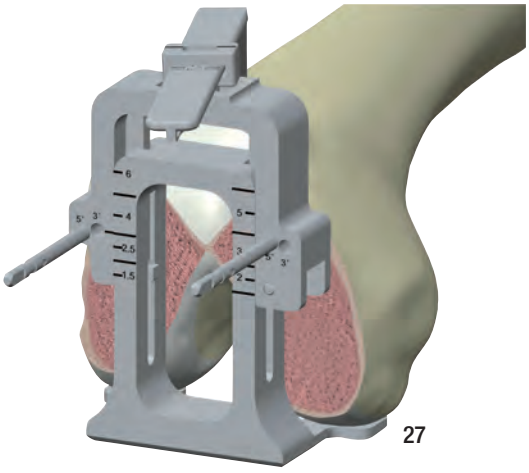
The stylus can be moved freely within the guide and moved proximal to the articular surface (**25**).

The engraved lines along the top of the stylus approximate the anterior flange lengths of the femoral components. This measurement determines the adaptation of the femoral implant size to the A/P dimension. To check the M/L dimension of the selected size, the appropriate femur trial can be used for estimation.

After the sizer is appropriately positioned at the femur, take the femoral size from the engraved lines (**26**).



26



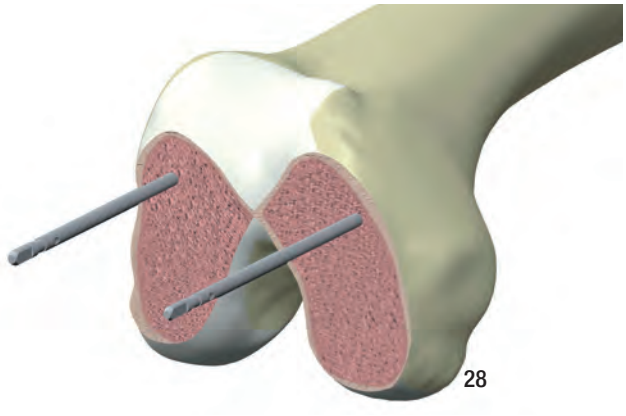
27

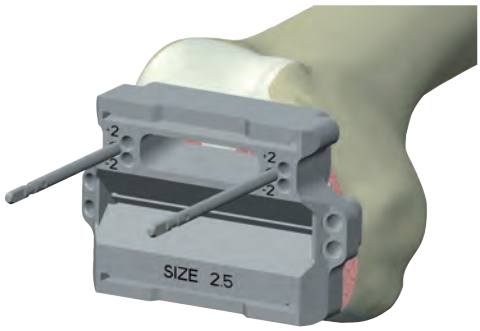
Rotational Setting

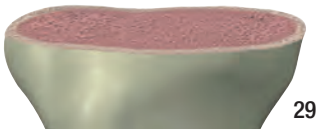
The femoral component is positioned in 3° of external rotation to produce flexion-gap symmetry. The alignment instrument allows adjustment of 3° and 5° external rotation in reference to the posterior condyle tangent (**27**).

Once the correct rotation has been set, the instrument is fixed with two fixation pins through the medial and lateral holes. These fixation pins are the guide reference for the position of the 4-in-1cutting block.

The alignment instrument is removed, but the two guide reference pins remain fixed in the bone (**28**).


28



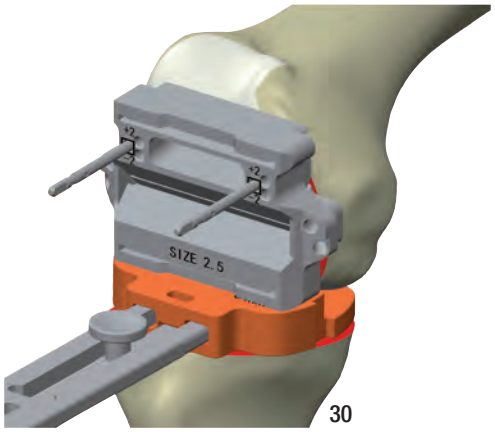

29

Femoral Resection – A/P and Chamfer

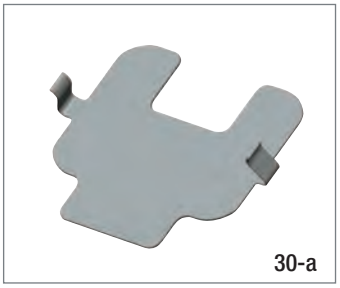
The femoral cutting block is seated with the designated “0” holes on the previously inserted fixation pins (**29**).

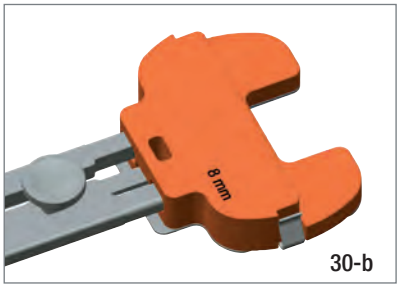
The flexion gap can be checked or corrected by using the spacer „cutting block flexion“ in combination with femoral cutting block. With its stepped side this spacer is pushed as far as possible below the block, until it rests on the highest point under the femoral cutting block. The flexion gap can be adjusted by the reaction of the femoral cutting block prior to the final resection (**30**).

Note: If femur size 6 is determined, add the additional shim to the spacer block (**30-a, 30-b**).



30


30-a

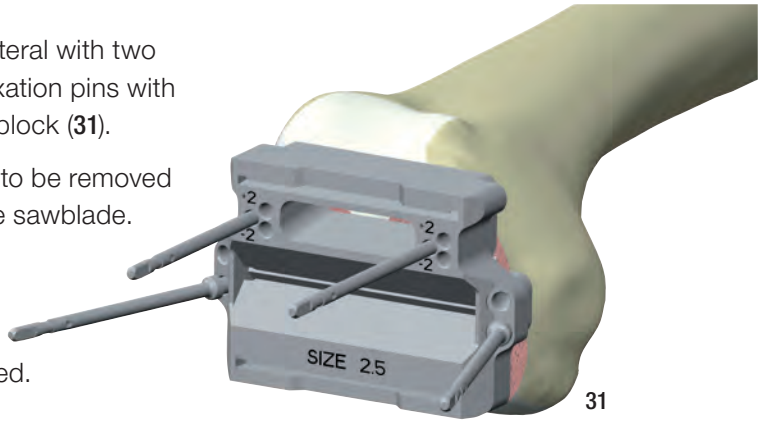


30-b

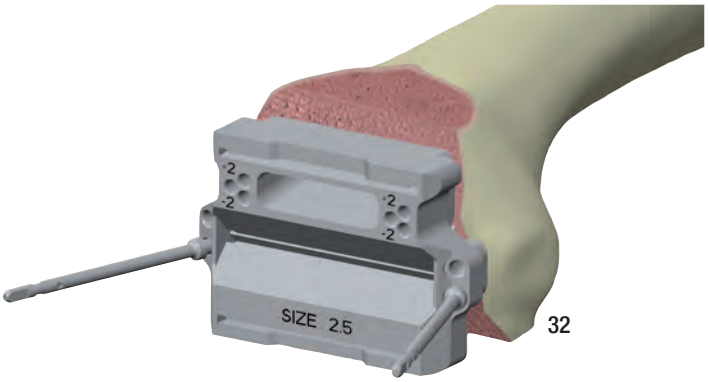
Finally the femoral cutting block is fixed collateral with two screw pins. Optionally, it is possible to use fixation pins with a stop for the fixation of the femoral cutting block (**31**).

Caution: The two guide reference pins have to be removed prior resection to avoid impingement with the sawblade.

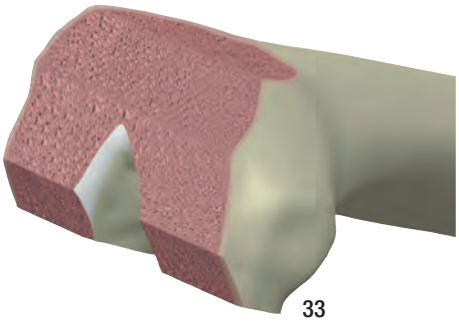
Note: Cutting blade 1.27 mm is recommended.



31



32

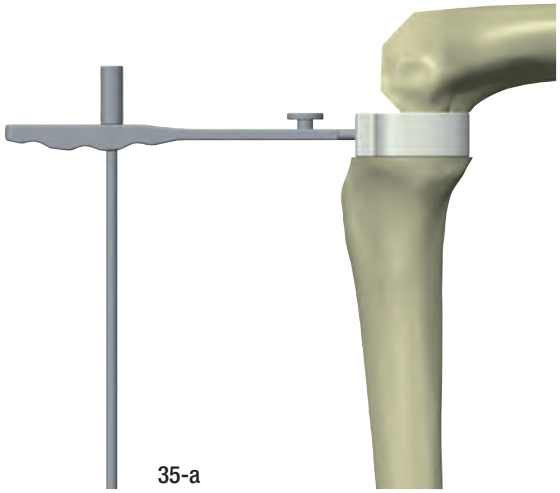

33

Resection Sequence (**32, 33**):
Anterior cut – posterior cut – anterior chamfer cut – posterior chamfer cut.

34

Flexion Gap Assessment and Balancing

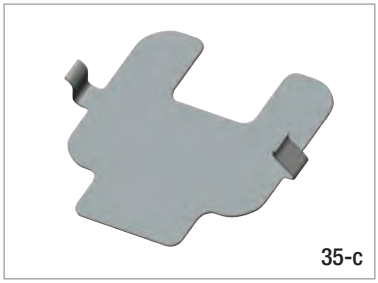
With the knee in 90° flexion and after the femoral resection has been completed use the spacer block to check ligament balance and joint flexion alignment. Adapt the universal handle onto the spacer (**34**), insert the alignment rod into the handle and check the alignment of the tibial resection (**35-b**).

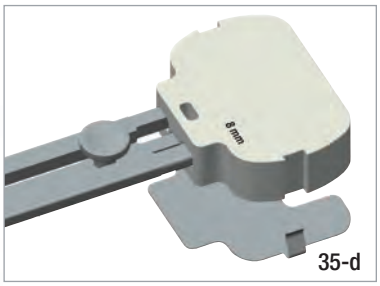

35-a


35-b

Then check ligament balance. If necessary, insert progressively thicker spacer blocks until the desired soft tissue tension is obtained (**35-a, 35-b**).

Note: Assessment of flexion gap size 6 the additional shim should be assembled with the Spacer Block (**35-c, 35-d**).

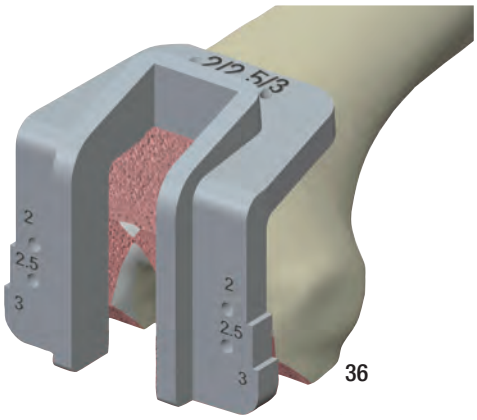

35-c



35-d

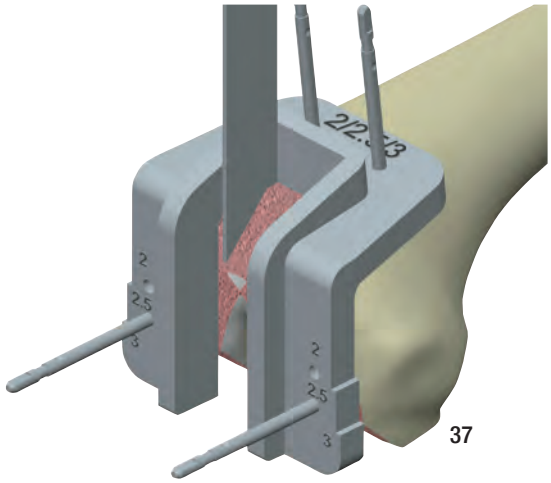
Preparation PS Box

The femoral box guide is selected according to the size of the prepared femur and is positioned on the resected end of the femur (**36**).



36

The femoral box guide is seated on the anterior and distal surface of the prepared femur as laterally as possible allowing the lateral patellar retinaculum to relax – still considering not to overhang lateral the femoral componet.

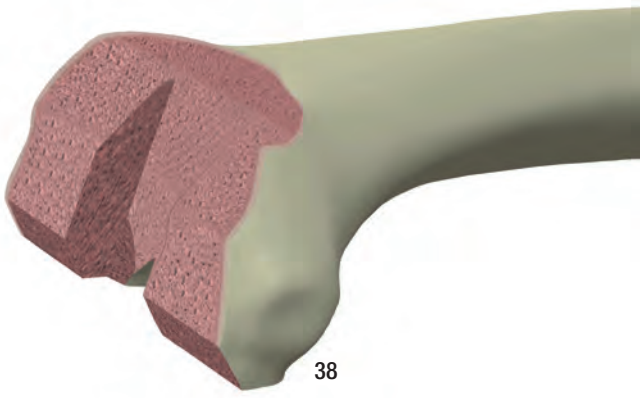


37

Alignment is performed according to the notch and the M/L dimension. The femoral box guide is fixed with two anterior fixation pins. Optional one or two additional pins can be inserted distally to improve fixation (**37**). Finalize the femur preparation by resecting the box.

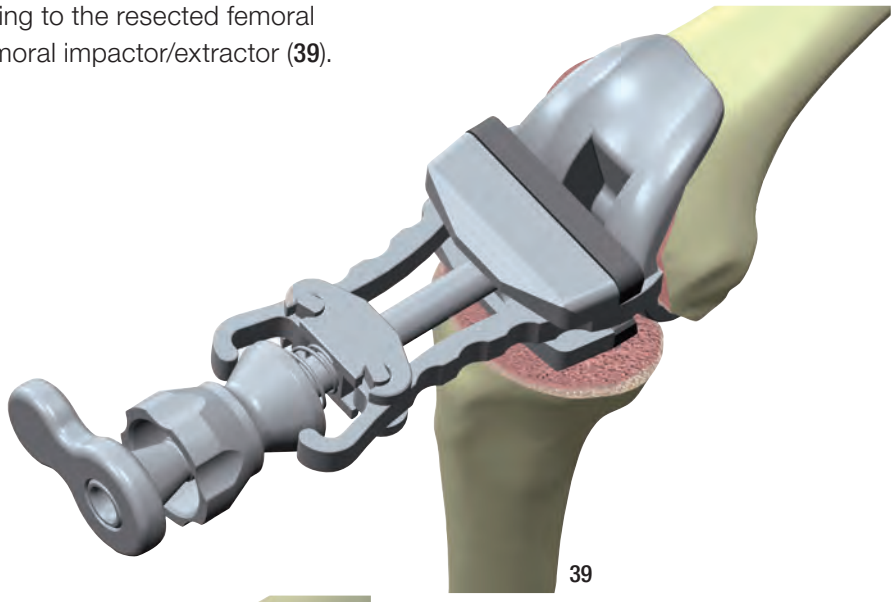
Note: When completing the box cut, be careful to avoid excessive bending of the saw blade or penetration past the posterior femoral cortex to avoid injury to the neurovascular structures.

Femur after completion of preparation (**38**).

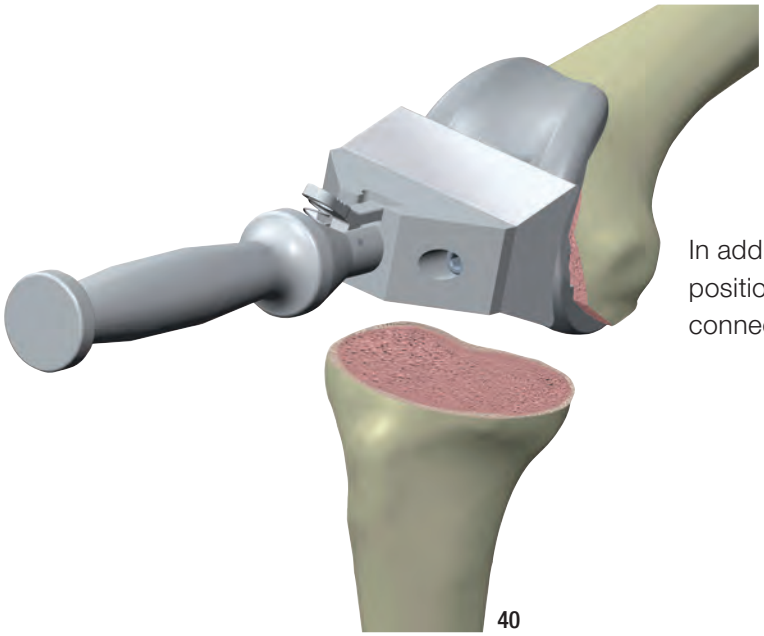

38

Trial Reduction and Functional Test

The femur trial is selected according to the resected femoral size and is positioned with the femoral impactor/extractor (**39**).



39

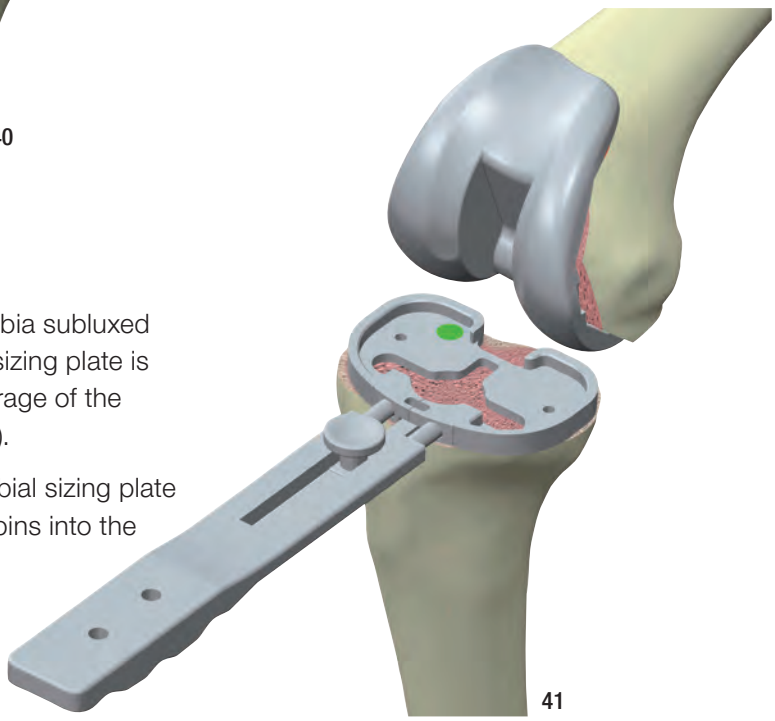


40

In addition, the trial can be inserted into its final position using the femoral impactor which is connected to the universal handle (**40**).

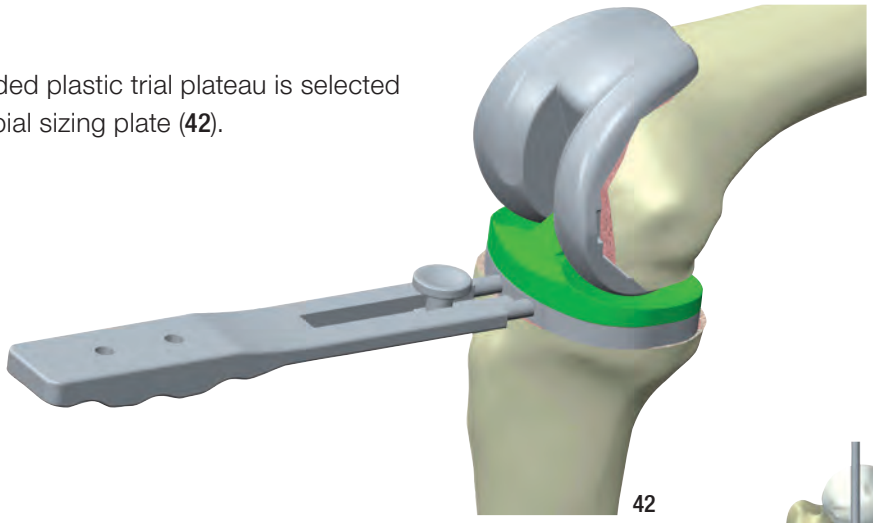
The knee is placed in maximal flexion, the tibia subluxed anteriorly with the tibial retractor. The tibial sizing plate is selected so as to provide the greatest coverage of the prepared surface but avoiding overhang (**41**).

The alignment handle is connected to the tibial sizing plate by pushing the knob and inserting the two pins into the anterior portion of the tibial sizing plate.



41

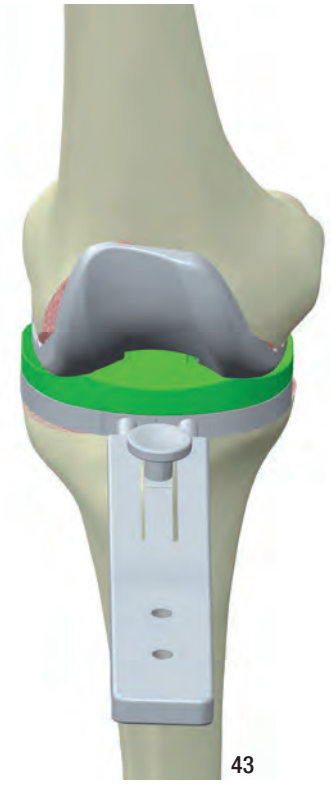
The matching color-coded plastic trial plateau is selected and inserted into the tibial sizing plate (**42**).



42

With all trial prostheses in place, the knee is carefully flexed and fully extended, checking for medial and lateral stability and overall alignment in the A/P and M/L plane (**43**). If there is any indication of instability, the next higher tibial insert is chosen and reduction repeated. The insert exhibiting the greatest stability in flexion and extension and allowing full extension is selected.

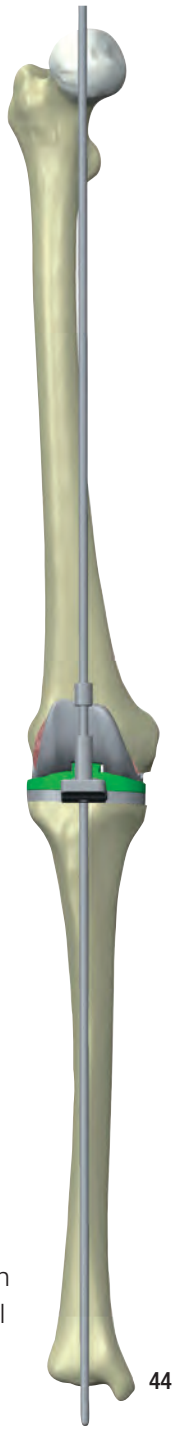
Rotational alignment of the tibial tray is adjusted with the knee in full extension, using the alignment handle to rotate the plate and trial plateau into congruency with the femoral trial.



43

Overall Alignment

To assess the appropriate alignment, the two-part alignment rod is assembled with the alignment handle and the mechanical axis is checked (**44**).

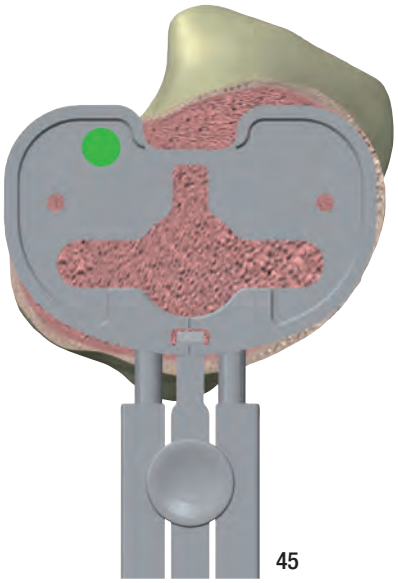


44

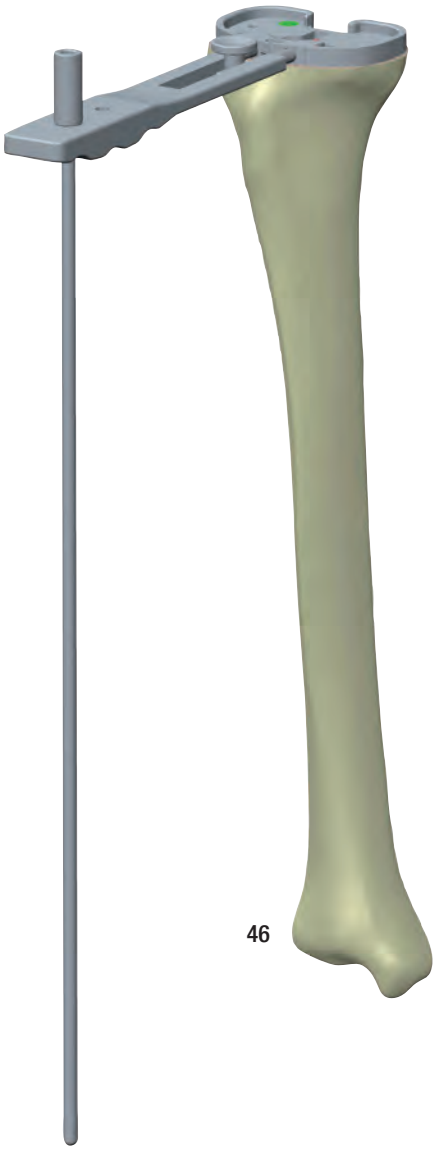
Tibial Plateau Preparation

Tibial Sizing

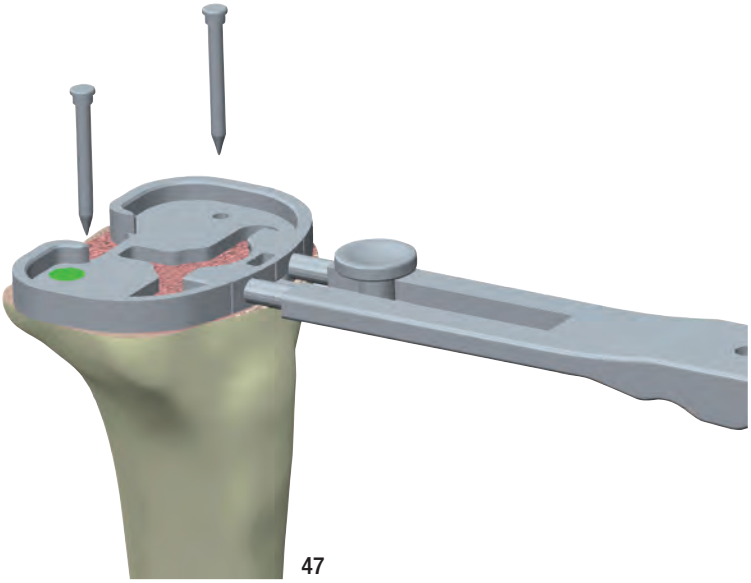
The tibial implant size can now be determined by applying the appropriate tibial sizing plate. The tibial sizing plate is assembled with the alignment handle and placed onto the resected tibial surface.The instrument must cover the cortical bone optimally, without projecting beyond it (**45**).



45



46

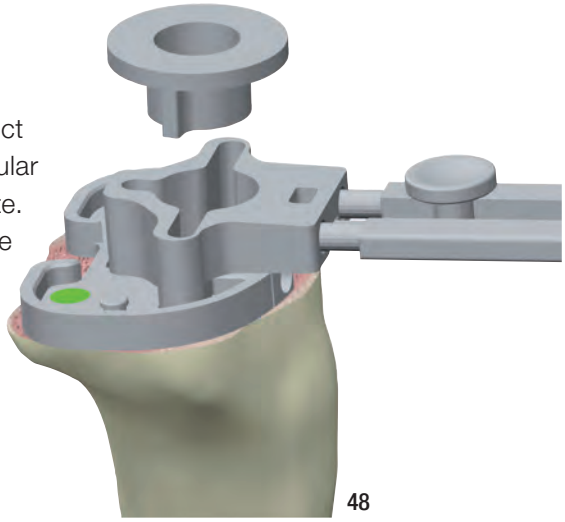


47

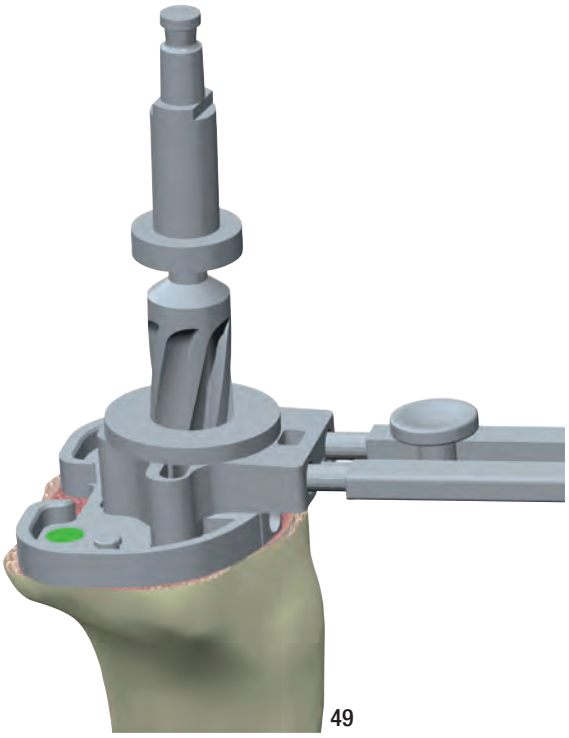
After applying the appropriate tibial size and aligning the rotation with the aid of the extramedullary alignment rod (**46**), the tibial sizing plate is fixed with 2 head pins (**47**).

Tibial Stem Preparation

Remove the alignment handle from the tibial sizing plate. Select the appropriate punch guide, reamer guide, reamer and modular keel punch and attach the punch guide to the tibial sizing plate. Fix the alignment handle with the punch guide and seat on the tibial sizing plate. Seat the appropriately sized drill guide into the modular punch guide (**48**).



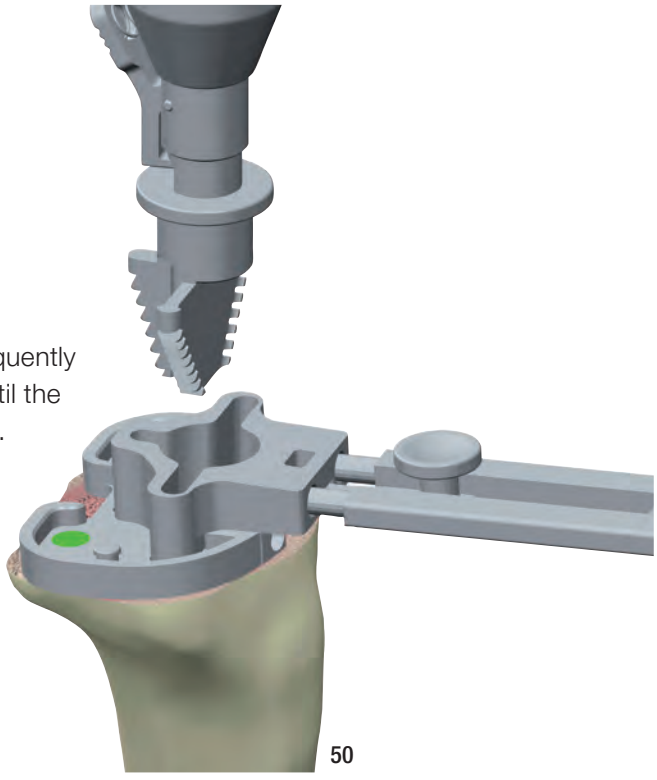
48



49

The matching reamer is fully advanced through the reamer guide into the cancellous bone (**49**). Remove the reamer guide.

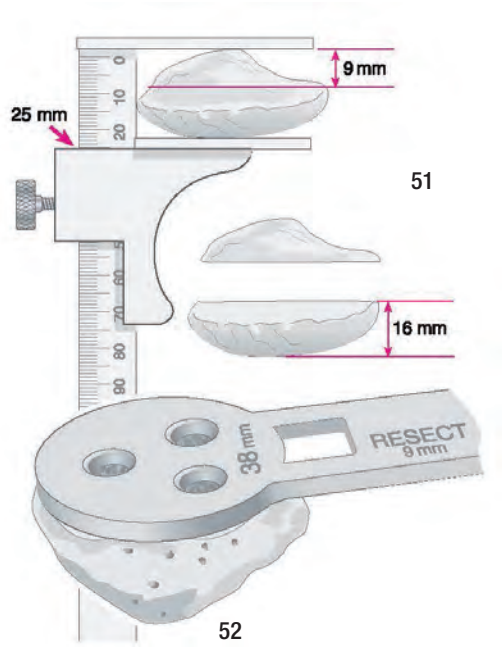
The appropriately sized modular keel punch is subsequently positioned through the punch guide and impacted until the shoulder of the punch is in contact with the guide (**50**).



50

Patella Preparation

Using the calliper allows the height of the patella to be determined. The dimension is established and the height corresponding to the size of the selected implant is subtracted. The remainder equals the patella dimension after resection. If the patella is small, at least a minimal residual dimension of 12 mm should be maintained.



51

52

Example:

For a “38” patella, the following calculation is performed: patella 25 mm thick; 9 mm resection results in 16 mm remaining boney patella height (**51**).

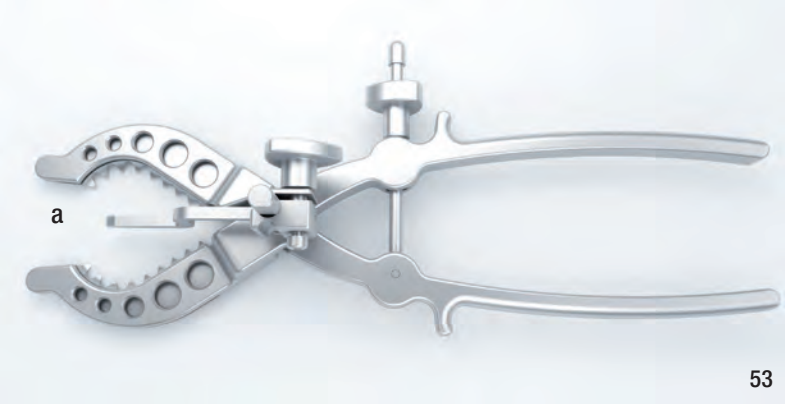
The template is selected that most adequately covers the articular surface without overhang. The handle is positioned on the medial side of the everted patella. If bone is deficient on the lateral side, the next smaller size is selected, but positioned slightly to the medial side to enhance patellar tracking (**52**).

The amount of appropriate bone resection, as indicated on the template, is noted.

Patella Size	Resection
32 mm	8 mm
35 mm	8.5 mm
38 mm	9 mm
41 mm	11.5 mm

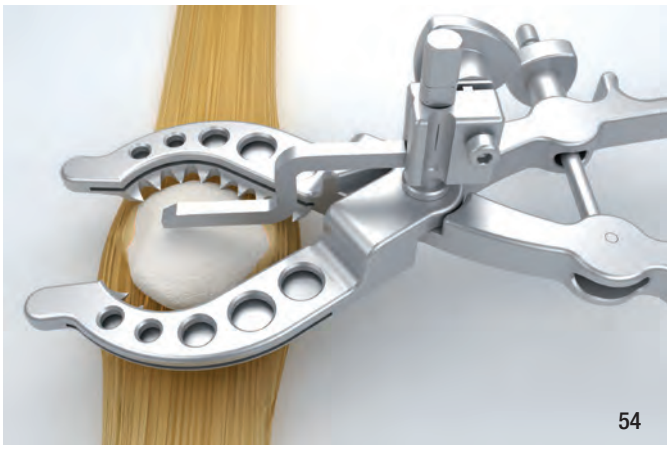
Resection

According to the previously determined height of resection, this can be adjusted using the height calliper (**a**) on the resection clamp (**53**).



53

In doing this, it is important to ensure that the remaining patella is sufficiently thick. The patella is held using the toothed jaws. The sectional plane must lie parallel to the extended patellar tendon and the height calliper must lie on the bone. In order to clamp the patella securely, the clamp is compressed firmly and fixed using the lateral setting screw (**54**).

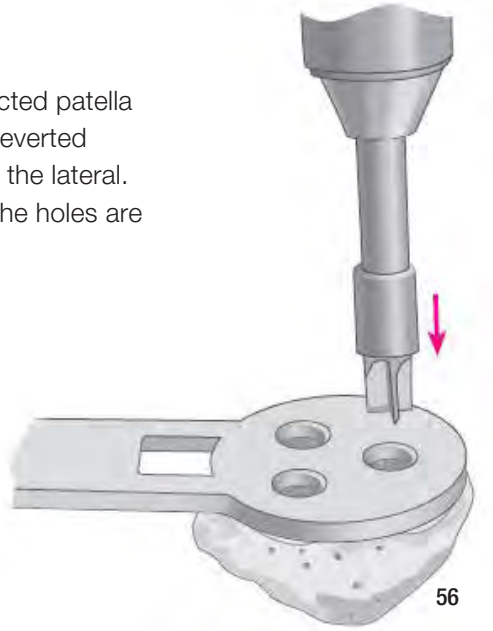

54

The resection is carried out using an oscillating saw with a 1.27 mm thick saw blade. The saw is guided using the saw slots of the resection clamp (**55**).

55

Fixation Hole Drilling

The previously selected template is positioned onto the resected patella surface with the handle positioned on the medial side of the everted patella, such that two drill holes lie at the medial side, one at the lateral. The template is firmly engaged to the resected surface and the holes are drilled with the appropriate drill (**56**).


56

Final Implantation

The following table shows possible size combinations. It has to be made sure that the size of tibial articulating surface has to follow the appropriate size of tibial component.

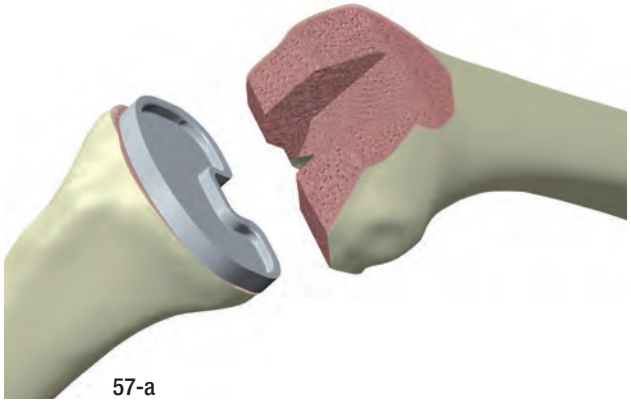
LCK PS Knee System	Size	Femur Components						
		1.5	2	2.5	3	4	5	6
Tibia Components	1.5	X	X					
	2	X	X	X	X			
	2.5		X	X	X			
	3		X	X	X	X		
	4				X	X	X	
	5					X	X	X
	6						X	X

Cemented Tibial Component

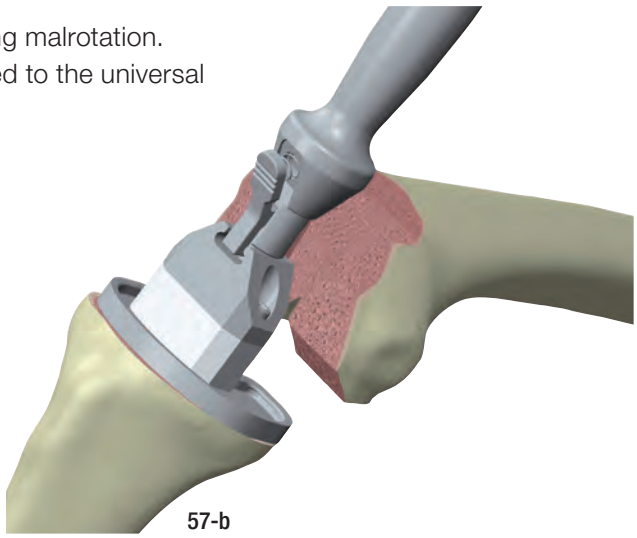
It is important that a homogenous cement mantle with good cement interdigitation is ensured.

First the bone cement is prepared following the manufacturer‘s specific instructions.Then the bone cement is applied considering a continous cement mantle including the prepared keel. The tibial component is then inserted into the resected tibia (**57-a**), and driven onto the resection surface of the tibial head with the driver (**57-b**).

Note: The tibial component is carefully inserted, avoiding malrotation. When it is seated, the modular tibial impactor is attached to the universal handle to impact the tibial component.



57-a



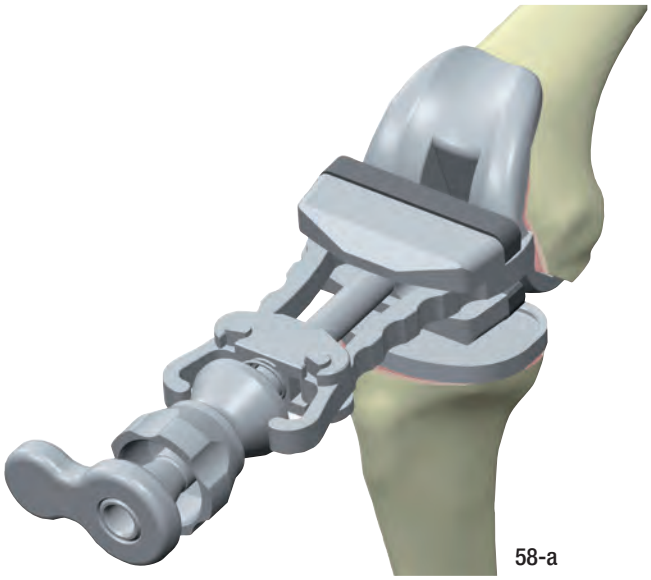
57-b

Important:

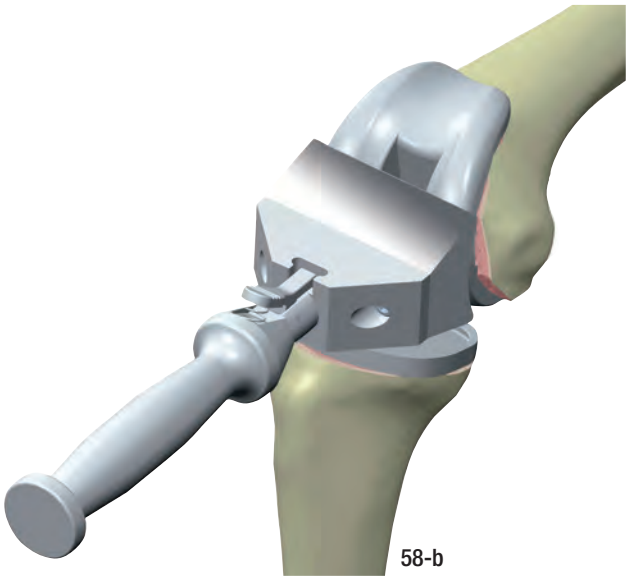
Ensure that excess bone cement is completely removed and no loose bone cement particles remain, especially in the posterior joint region.

Cemented Femoral Component

The femoral implant is attached to the femoral impactor/extractor. Bone cement is prepared according to the manufacturer's specific instructions and applied to the femoral component. The femoral component is placed on the femur and seated (**58-a, 58-b**).



58-a



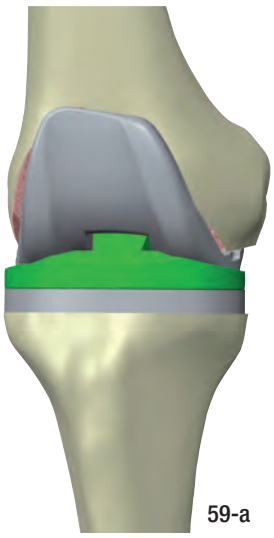
58-b

Using the femoral impactor which is assembled with the universal handle the implant is seated completely.

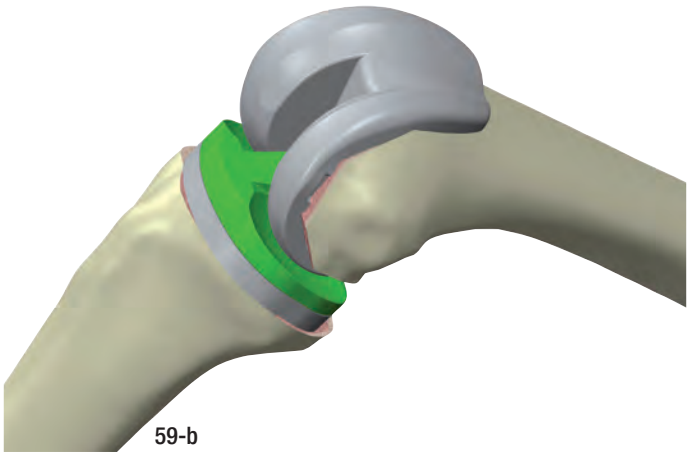
Important:

Ensure that excess bone cement is completely removed and no loose bone cement particles remain, especially in the posterior joint region. To review the appropriate function, the trial plateau of the previously determined size can be reinserted into the tibial component (**59-a 59-b**).

As already performed in the trial reduction, the knee is carefully flexed and fully extended, checking for medial and lateral stability and overall alignment in the A/P and M/L plane. If there is any indication of instability, the next higher tibial plateau is inserted and trial reduction repeated. The insert that provides the highest stability in flexion and extension and allows for full extension is selected.



59-a

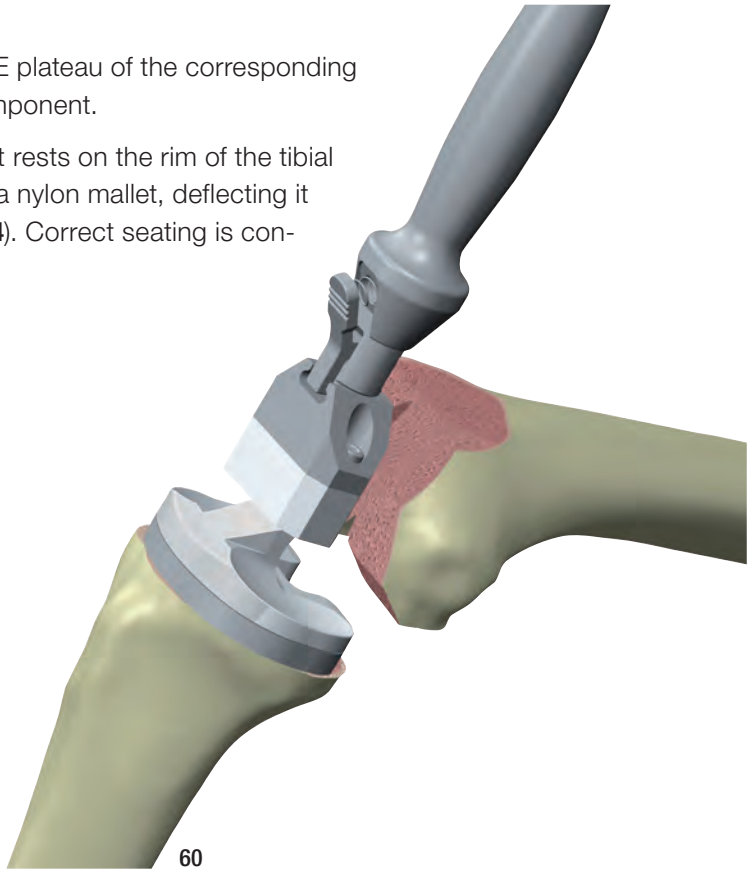


59-b

Tibial Plateau

The trial plateau is removed and the UHMWPE plateau of the corresponding size is introduced into the implanted tibial component.

The plateau is seated posterior first. Anterior it rests on the rim of the tibial implant. For final positioning it is tapped with a nylon mallet, deflecting it past the lip of the implant and into position (**54**). Correct seating is confirmed by circumferential inspection.



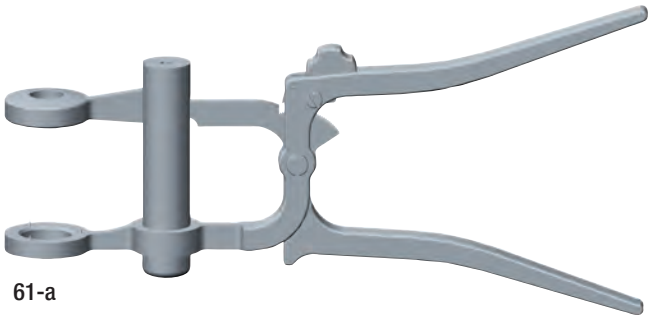
60

Patella

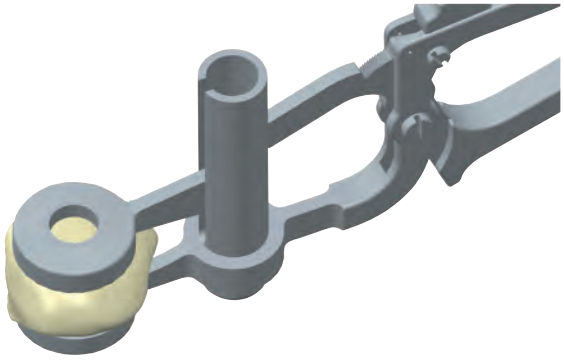
Following extensive rinsing and removal of all impeding soft tissue. The bone cement is applied to the back of the implant, and the implant is placed by hand and pressed on the resection plane using the patella holding clamp with the pusher inserter until polymerisation is complete (**61-a, 61-b**). Release the clamp by unlocking the switch.

Caution!

Prepare the bone cement according to the manufacturer's instructions. Ensure that excess bone cement is completely removed and that no loose particles of bone cement remain in the joint.



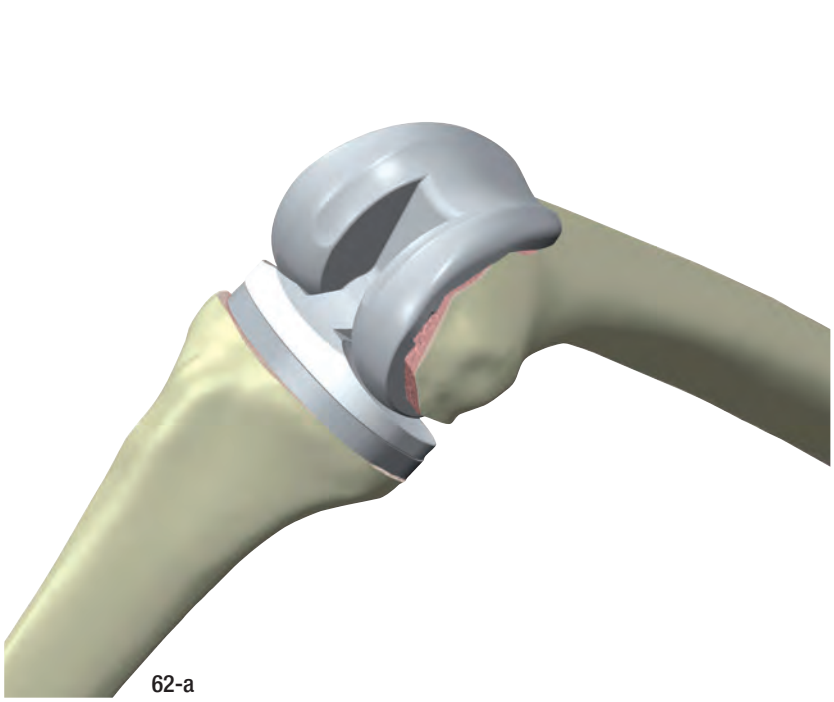
61-a



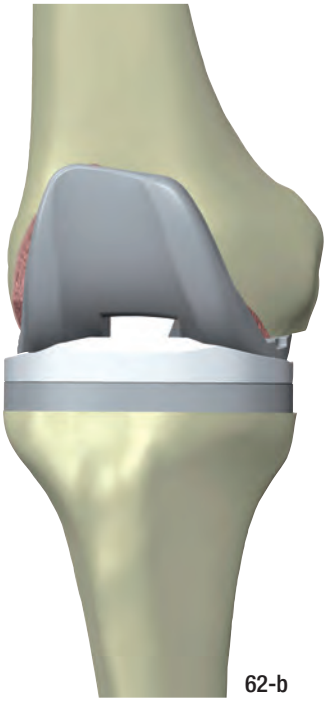
61-b

Functional Test

In the concluding functional test one has to check that the components are correctly positioned in extension and flexion, and that correct ligament tension is present (**62-a, 62-b**).



62-a



62-b

LCK PS - Femoral Components
CoCrMo, cemented, posterior stabilized

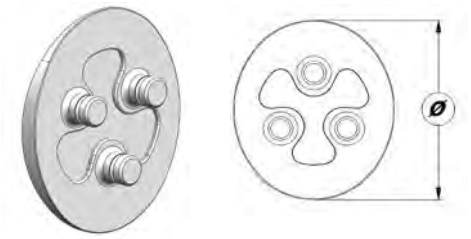
Item no.	Size	A mm	B mm	Side
318-304/01	1.5	53	57	right
318-304/02	2.0	56	60	
318-304/25	2.5	59	63	
318-304/03	3.0	61	66	
318-304/04	4.0	65	71	
318-304/05	5.0	69	73	
318-304/06	6.0	74	75	
318-305/01	1.5	53	57	left
318-305/02	2.0	56	60	
318-305/25	2.5	59	63	
318-305/03	3.0	61	66	
318-305/04	4.0	65	71	
318-305/05	5.0	69	73	
318-305/06	6.0	74	75	

LCK PS - Tibial Components
CoCrMo, cemented, posterior stabilized

Item no.	Size	B mm
318-374/01	1.5	61
318-374/02	2.0	64
318-375/02	2.5	67
318-374/03	3.0	71
318-374/04	4.0	76
318-374/05	5.0	83
318-374/06	6.0	89

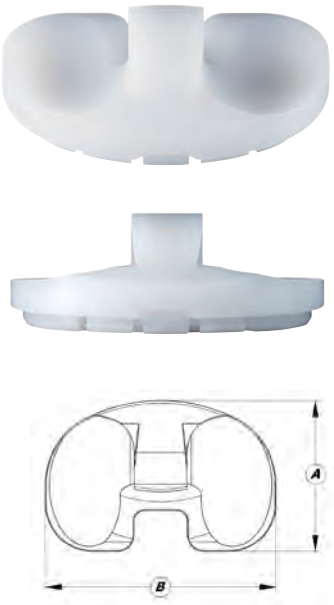
LCK - Patella Components
UHMWPE

Item no.	Ø mm
15-2521/01	32 x 28
15-2521/02	35 x 30
15-2521/03	38 x 33
15-2521/04	41 x 36

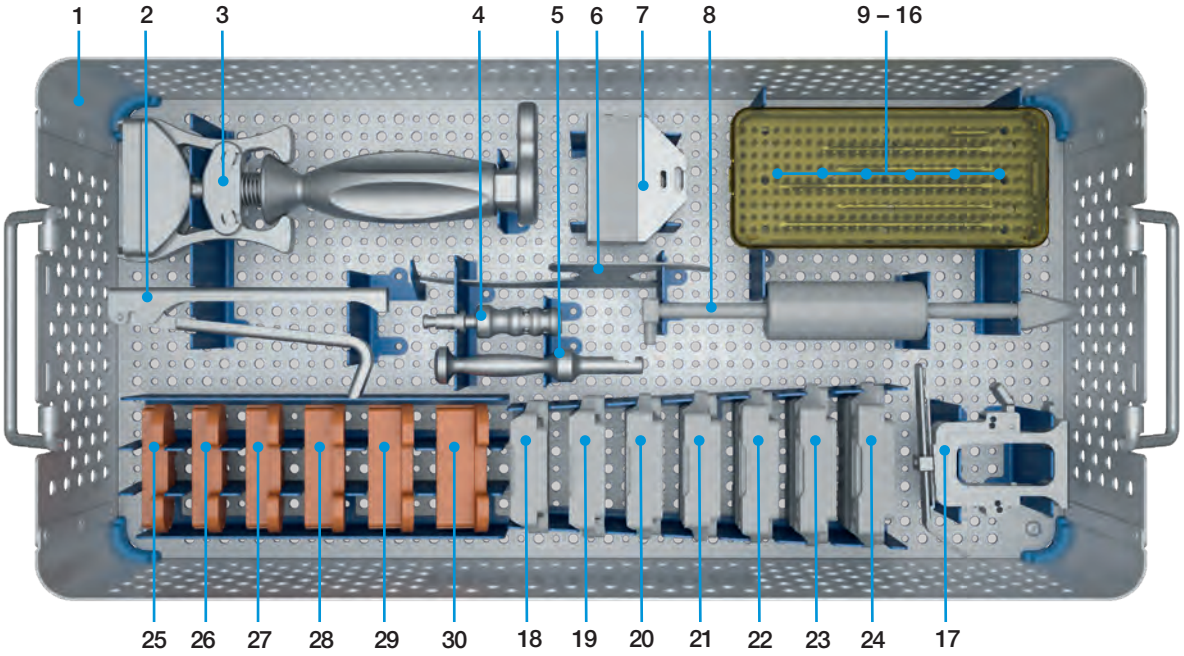


LCK PS - Articulating Surfaces
UHMWPE, posterior stabilized

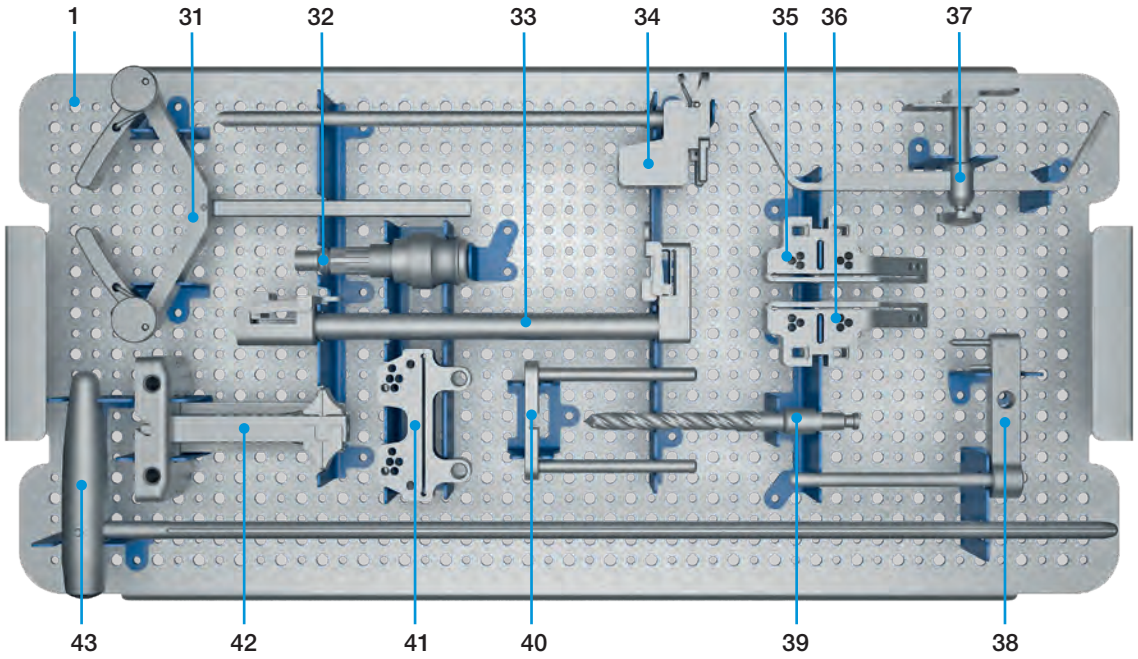
Item no.	Size	A mm	B mm	Height mm
318-751/10	1.5	41	61	8
318-751/12	1.5	41	61	10
318-751/14	1.5	41	61	12.5
318-751/16	1.5	41	61	15
318-751/18	1.5	41	61	17.5
318-751/20	1.5	41	61	20
318-741/10	2.0	43	64	8
318-741/12	2.0	43	64	10
318-741/14	2.0	43	64	12.5
318-741/16	2.0	43	64	15
318-741/18	2.0	43	64	17.5
318-741/20	2.0	43	64	20
318-748/10	2.5	45	67	8
318-748/12	2.5	45	67	10
318-748/14	2.5	45	67	12.5
318-748/16	2.5	45	67	15
318-748/18	2.5	45	67	17.5
318-748/20	2.5	45	67	20
318-267/10	3.0	47	71	8
318-267/12	3.0	47	71	10
318-267/14	3.0	47	71	12.5
318-267/16	3.0	47	71	15
318-267/18	3.0	47	71	17.5
318-267/20	3.0	47	71	20
318-754/10	4.0	51	76	8
318-754/12	4.0	51	76	10
318-754/14	4.0	51	76	12.5
318-754/16	4.0	51	76	15
318-754/18	4.0	51	76	17.5
318-754/20	4.0	51	76	20
318-755/10	5.0	55	83	8
318-755/12	5.0	55	83	10
318-755/14	5.0	55	83	12.5
318-755/16	5.0	55	83	15
318-755/18	5.0	55	83	17.5
318-755/20	5.0	55	83	20
318-749/10	6.0	59	89	8
318-749/12	6.0	59	89	10
318-749/14	6.0	59	89	12.5
318-749/16	6.0	59	89	15
318-749/18	6.0	59	89	17.5
318-749/20	6.0	59	89	20



312-020/00 LCK - Instrument Set Tibia Resection/Femoral Preparation

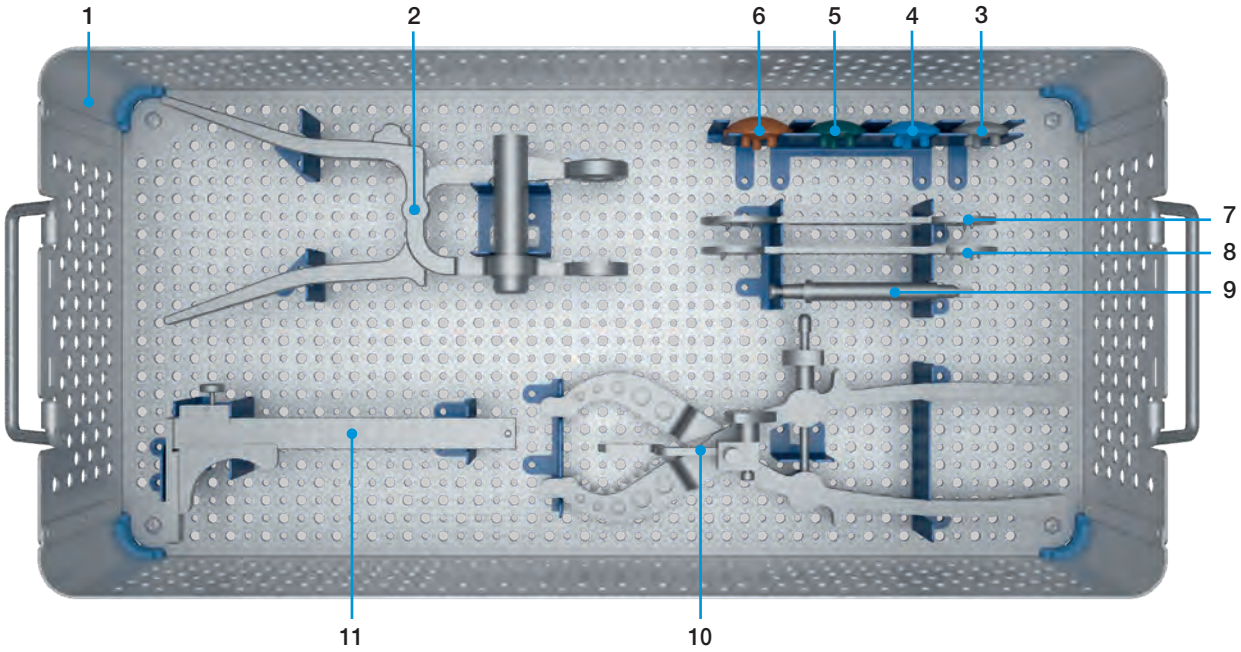


1	312-002/00	**Instrument Tray**, empty, 485 x 253 x 140 mm (2 parts)
2	312-300/00	**Pin Puller,** for Fixation Pins
3	312-170/00	**Femoral Impactor/Extractor**
4	312-330/00	**Pin Adaptor**
5	312-365/00	**Pin Driver**
6	312-360/00	**Cutting Template**
7	312-175/00	**Femoral Impactor**
8	312-335/00	**Slap Hammer**
9	312-303/00	**Pin Box** for:
10	312-305/00	**Drill Pins,** 110 mm, Ø 3 mm (4 ea.)
11	312-310/00	**Drill Pins,** 80 mm, Ø 3 mm (4 ea.)
12	312-315/00	**Threaded Drill Pin,** 110 mm, Ø 3 mm (2 ea.)
13	312-320/00	**Threaded Drill Pin,** 80 mm, Ø 3 mm (2 ea.)
14	312-325/00	**Threaded Drill Pin with stop,** 87 mm, Ø 3 mm (2 ea.)
15	312-301/00	**Head Pin,** for tibial sizing plate, 21 mm, Ø 3 mm (2 ea.)
16	312-302/00	**Head Pin,** for tibial sizing plate, 35 mm, Ø 3 mm (2 ea.)
17	312-125/00	**Femoral Sizing Guide**
		Femoral Cutting Blocks, femoral 4- in 1 Cutting Block
18	312-130/15	Size 1.5
19	312-130/20	Size 2
20	312-130/25	Size 2.5
21	312-130/30	Size 3
22	312-130/40	Size 4
23	312-130/50	Size 5
24	312-130/60	Size 6
		Cutting Block Flexion Spacer, orange
25	312-351/00	Height: 8.0 mm
26	312-352/00	Height: 10.0 mm
27	312-353/00	Height: 12.5 mm
28	312-354/00	Height: 15.0 mm
29	312-355/00	Height: 17.5 mm
30	312-356/00	Height: 20.0 mm

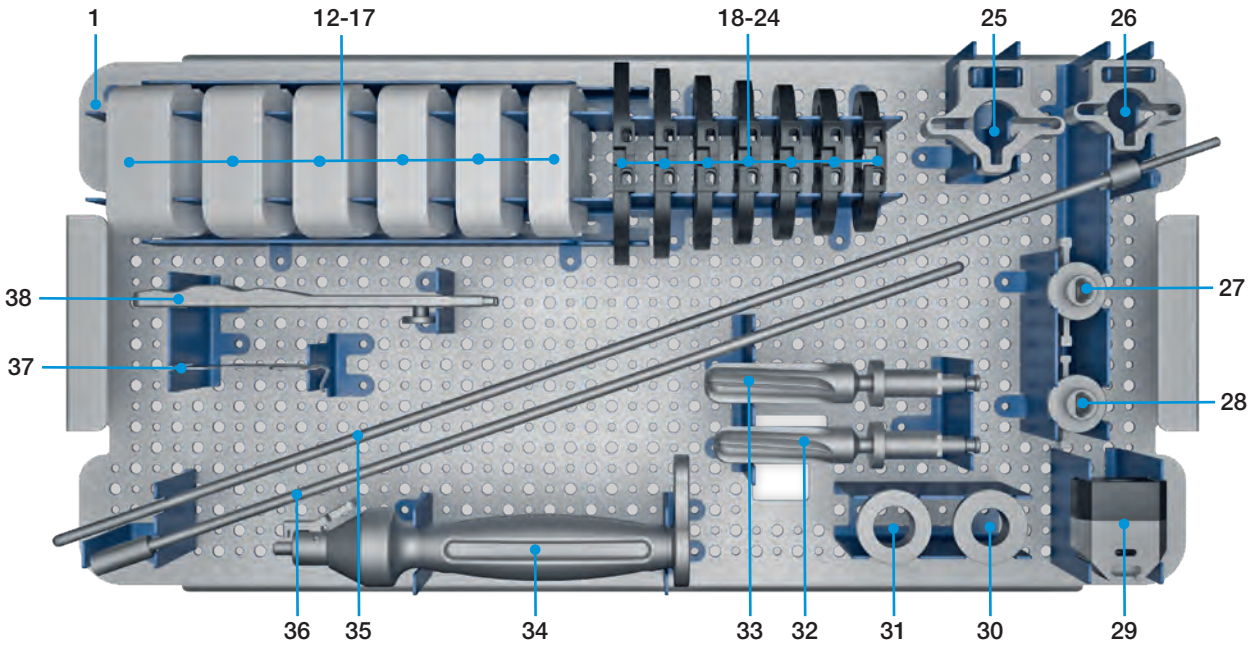


31	312-211/00	**Spring Ankle Clamp**
32	16-3283/01	**Adapter,** Jacobs Fitting (E)
33	312-200/00	**Tibial Alignment Distal Tube**
34	312-202/00	**Tibial Alignment Proximal Rod**
35	312-220/00	**Tibial Cutting Block,** asymmetrical, right
36	312-221/00	**Tibial Cutting Block,** asymmetrical, left
37	312-215/00	**Tibial Stylus**
38	312-201/00	**EM Alignment Rod Spikes,** fixation spikes
39	312-100/00	**IM Step Drill,** IM opening, Hudson fitting
40	312-115/00	**Guide U-Bolt,** distal femoral resection guide adaptor
41	312-120/00	**Distal Cutting Block,** distal femoral resection
42	312-110/00	**Femoral Valgus Alignment Guide,** femoral varus/valgus adjustment
43	312-105/00	**IM Guide Rod,** intramedullary

312-030/00 LCK - Instrument Set Tibia and Patella Preparation

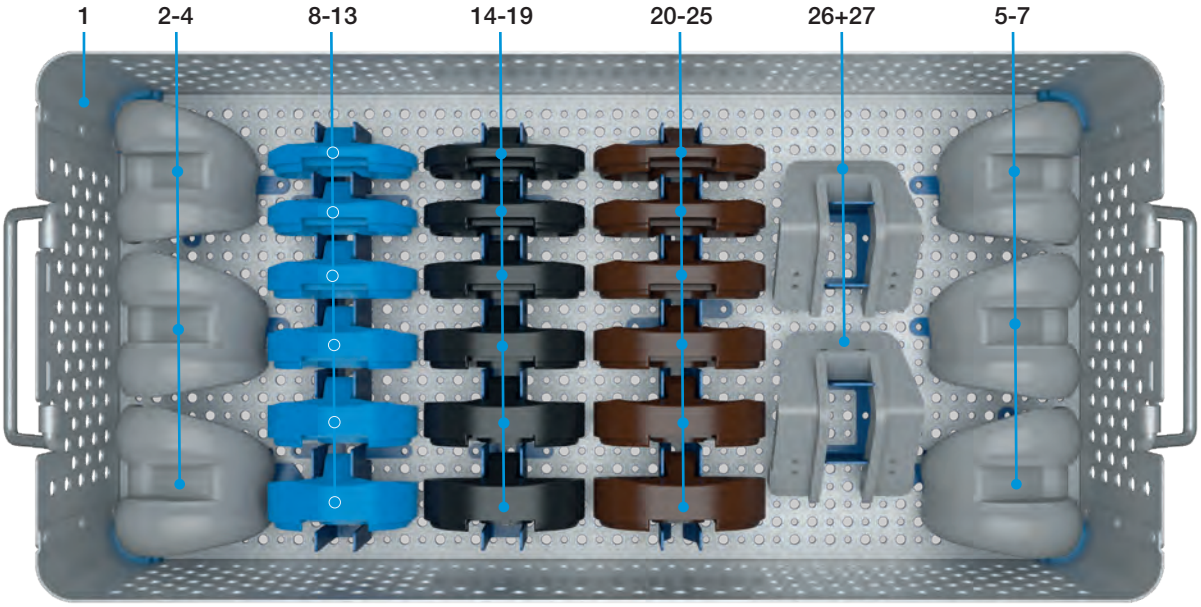


1	312-003/00	**Instrument Tray**, empty, 485 x 253 x 140 mm (2 parts)
2	312-430/00	**Patella Holding Clamp**
3	312-400/32	**Patella Trial,** Ø 32 x 28 mm
4	312-400/35	**Patella Trial,** Ø 35 x 30 mm
5	312-400/38	**Patella Trial,** Ø 38 x 33 mm
6	312-400/41	**Patella Trial,** Ø 41x 36 mm
7	312-410/00	**Patella Drill Guide,** Ø 32/35
8	312-415/00	**Patella Drill Guide,** Ø 38/41
9	312-425/00	**Patella Drill,** Hudson Fitting (B)
10	340-006	**Patella Resection Clamp**
11	312-405/00	**Caliper**

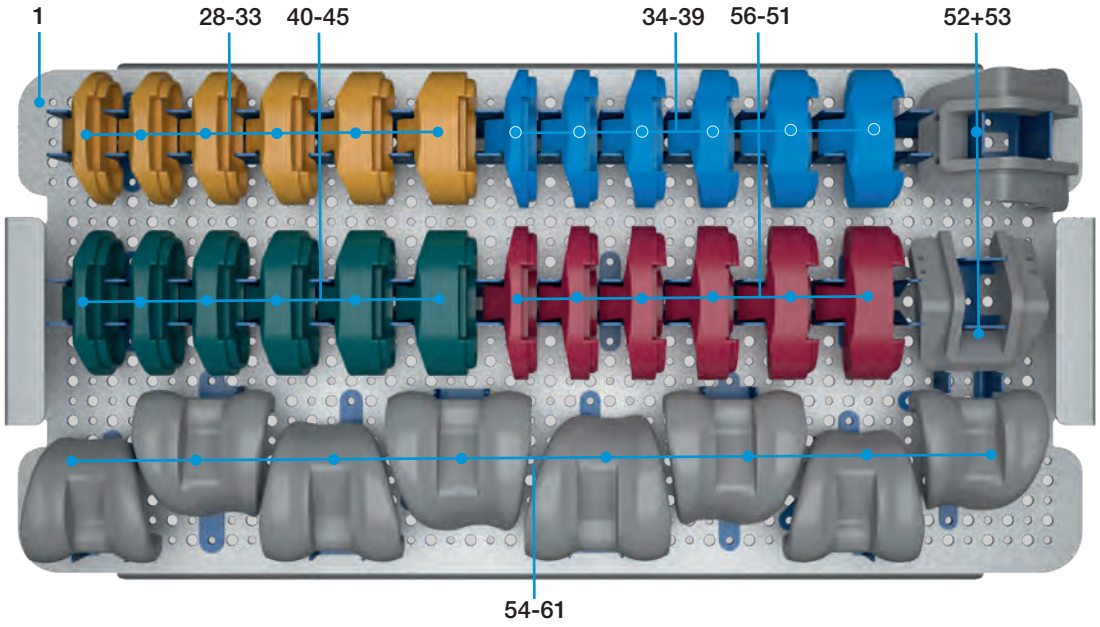


		Spacers, Extension/Flexion, white
12	312-341/00	height: 8 mm
13	312-342/00	height: 10 mm
14	312-343/00	height: 12.5 mm
15	312-344/00	height: 15 mm
16	312-345/00	height: 17.5 mm
17	312-346/00	height: 20 mm
		Tibial Sizing Plates
18	312-225/15	Size 1.5
19	312-225/20	Size 2
20	312-225/25	Size 2.5
21	312-225/30	Size 3
22	312-225/40	Size 4
23	312-225/50	Size 5
24	312-225/60	Size 6
25	312-275/00	**Punch Guide,** size 1.5 - 3
26	312-280/00	**Punch Guide,** size 4 - 6
27	312-285/00	**Keel Punch,** size 1.5 - 3
28	312-290/00	**Keel Punch,** size 4 - 6
29	312-295/00	**Tibial Impactor**
30	312-265/00	**Reamer Guide,** size 1.5 - 3
31	312-270/00	**Reamer Guide,** size 4 - 6
32	312-255/00	**Reamer,** size 1.5 - 3
33	312-260/00	**Reamer,** size 4 - 6
34	312-380/00	**Universal Handle**
35	312-370/00	**Alignment Rod,** male thread
36	312-375/00	**Alignment Rod,** female thread
37	312-357/00	**Shim,** height: 1 mm, size 6
38	312-250/00	**Alignment Handle**

312-040/00 LCK - Instrument Set Trials



1	312-004/00	**Instrument Tray**, empty, 485 x 253 x 140 mm (2 parts)	
		Femoral Trials	
2	312-160/40	Size 4	left
3	312-160/50	Size 5	left
4	312-160/60	Size 6	left
5	312-161/40	Size 4	right
6	312-161/50	Size 5	right
7	312-161/60	Size 6	right
		Trial Plateaus Fixed Bearing PS, size 4 (blue)	
8	312-241/40	height: 8 mm	
9	312-242/40	height: 10 mm	
10	312-243/40	height: 12.5 mm	
11	312-244/40	height: 15 mm	
12	312-245/40	height: 17.5 mm	
13	312-246/40	height: 20 mm	
		Trial Plateaus Fixed Bearing PS, size 5 (black)	
14	312-241/50	height: 8 mm	
15	312-242/50	height: 10 mm	
16	312-243/50	height: 12.5 mm	
17	312-244/50	height: 15 mm	
18	312-245/50	height: 17.5 mm	
19	312-246/50	height: 20 mm	
		Trial Plateaus Fixed Bearing PS, size 6 (brown)	
20	312-241/60	height: 8 mm	
21	312-242/60	height: 10 mm	
22	312-243/60	height: 12.5 mm	
23	312-244/60	height: 15 mm	
24	312-245/60	height: 17.5 mm	
25	312-246/60	height: 20 mm	
		Femoral Box Guides	
26	312-135/40	Size 4	
27	312-135/50	Size 5, 6	



		Trial Plateaus Fixed Bearing PS, size 1.5 (yellow)	
28	312-241/15	height: 8 mm	
29	312-242/15	height: 10 mm	
30	312-243/15	height: 12.5 mm	
31	312-244/15	height: 15 mm	
32	312-245/15	height: 17.5 mm	
33	312-246/15	height: 20 mm	
		Trial Plateaus Fixed Bearing PS, size 2 (light blue)	
34	312-241/20	height: 8 mm	
35	312-242/20	height: 10 mm	
36	312-243/20	height: 12.5 mm	
37	312-244/20	height: 15 mm	
38	312-245/20	height: 17.5 mm	
39	312-246/20	height: 20 mm	
		Trial Plateaus Fixed Bearing PS, size 2.5 (green)	
40	312-241/25	height: 8 mm	
41	312-242/25	height: 10 mm	
42	312-243/25	height: 12.5 mm	
43	312-244/25	height: 15 mm	
44	312-245/25	height: 17.5 mm	
45	312-246/25	height: 20 mm	
		Trial Plateaus Fixed Bearing PS, size 3 (red)	
46	312-241/30	height: 8 mm	
47	312-242/30	height: 10 mm	
48	312-243/30	height: 12.5 mm	
49	312-244/30	height: 15 mm	
50	312-245/30	height: 17.5 mm	
51	312-246/30	height: 20 mm	
		Femoral Box Guides	
52	312-135/15	Size 1.5	
53	312-135/30	Size 2, 2.5, 3	
		Femoral Trials	
54	312-160/15	Size 1.5	left
55	312-160/20	Size 2	left
56	312-160/25	Size 2.5	left
57	312-160/30	Size 3	left
58	312-161/15	Size 1.5	right
59	312-161/20	Size 2	right
60	312-161/25	Size 2.5	right
61	312-161/30	Size 3	right

Specified Indications and Contraindications for LCK - LINK Classic Knee
Indications
Any form of uni-, bi- or tricompartimental arthritis of the knee joint (e.g. primary degenerative arthritis , secondary arthritis resulting from rheumatoid arthritis ,fracture, post-infection, gout, chondrocalcinosis and other).
Contraindications (absolute)
Acute or chronic infections, local and systemic, insofar as they may compromise the successful implantation.
Moderate or severe instability or complete loss of the medial or collateral ligament.
Any bone defect that will result in insufficient implant fixation (based on the fact, that using stems, bone grafts and metal bone substitutes like cones, a minimum bone stock for implant fixation camnnot be defined).
Severe insufficiency or loss of extensor mechanism.
Contraindications (relative)
Allergy to one of the implant materials.

These indications/contraindications refer to standard cases. The ultimate decision on whether or not an implant is suitable for a patient must be made by the surgeon based on his/her individual analysis and his/her experience.

Important Information

Please note the following regarding the use of our implants:

1. **Choosing the right implant is very important.**
   The size and shape of the human bone determines the size and shape of the implant and also limits the load capacity. Implants are not designed to withstand unlimited physical stress. Demands should not exceed normal functional loads.

2. **Correct handling of the implant is very important.**
   Under no circumstances should the shape of a finished implant be altered, as this shortens its life span. Our implants must not be combined with implants from other manufacturers. The instruments indicated in the Surgical Technique must be used to ensure safe implantation of the components.

3. **Implants must not be reused.**
   Implants are supplied sterile and are intended for single use only. Used implants must not be used again.

4. **After-treatment is also very important.**
   The patient must be informed of the limitations of the implant. The load capacity of an implant cannot compare with that of healthy bone!

5. **Unless otherwise indicated, implants are supplied in sterile packaging.**
   Note the following conditions for storage of packaged implants:
- Avoid extreme or sudden changes in temperature.
- Sterile implants in their original, intact protective packaging may be stored in permanent buildings up until the “Use by” date indicated on the packaging.
- They must not be exposed to frost, dampness or direct sunlight, or mechanical damage.
- Implants may be stored in their original packaging for up to 5 years after the date of manufacture. The “Use by” date is indicated on the product label.
- Do not use an implant if the packaging is damaged.

6. **Traceability is important.**
   Please use the documentation stickers provided to ensure traceability.

7. **Further information** on the material composition is available on request from the manufacturer.

Follow the instructions for use!

Waldemar Link GmbH & Co. KG, Hamburg

Waldemar Link GmbH & Co. KG

Barkhausenweg 10 · 22339 Hamburg, Germany
Phone +49 40 53995-0 · info@linkhh.de
www.linkorthopaedics.com