







GEMINI SL Total Knee System

CE0482




Explanation of Pictograms			
	Manufacturer		Article number
	Material (number)		Product meets the applicable requirements, which are regulated in the EU harmonization legislation for the affixing of the CE marking.

GEMINI SL Total Knee System

02	System Description GEMINI SL	
03	Indications/Contraindications	
	Surgical Technique	
04	Overview – Workflow of Surgical Steps	
06	Preoperative Planning	54
07	Approaches	
	Femoral Preparation – Distal Resection	
08	Predetermining the Femoral Size	55
09	Femoral Intramedullary Alignment	56
10	Distal Femoral Resection	
12	SIT-CUT Instruments - Tibia Plateau Resection	57
16	Set Tibial Resection Level	
17	Tibial Sizing	
18	Checking Extension Gap and Axes	
	Final Femoral Preparation	
19	Femoral Sizing	
19	Rotation Setting	60
21	A/P Femoral Resection and Chamfer Cuts	
22	Fixed Bearing PS (Posterior Stabilized)	
	Tibial Preparation	
23	Tibial Sizing	62
24	Tibial Stem Preparation	
	Patella Preparation (Patella Resurfacing)	
25	Patella Sizing	64
26	Resection	
27	Reaming	
30	Trial Reduction and Functional Test	65
	Implantation	
32	Compatibility Table	
33	Tibia Implant Overview	
34	Implantation: Mobile Bearing	
36	Implantation: Fixed Bearing and Fixed Bearing PS	
37	Patella Implantation	
38	Functional Test	
39	APPENDIX 1: Precision Tibial Resection Alignment - Extramedullary Alignment	
44	APPENDIX 2: Precision Tibial Resection Alignment – Intramedullary Alignment	
49	APPENDIX 3: GEMINI SL EXTRABONE – Extramedullary Femoral Referencing	
	Implantate	
	<u>Femoral Components</u> (cemented/cementless)	
	Fixed Bearing CR/Mobile Bearing to be used with PE Articulating Surfaces Fixed Bearing CR and Mobile Bearing	
	PS (Posterior Stabilized) – to be used with Fixed Bearing PS PE Articulating Surfaces	
	Fixed Bearing – to be used with Fixed Bearing CR and PE Articulating Surfaces PS	
	Mobile Bearing – to be used with Mobile Bearing PE Articulating Surfaces	
	<u>Tibial Components</u> (cemented/cementless)	
	Articular Surface Fixed Bearing CR to be used with Femoral Components CR (Cruciate Retaining) and Fixed Bearing Tibial Components	
	Articular Surface Fixed Bearing PS to be used with Femoral Components PS and Fixed Bearing Tibial Components	
	Articular Surface Mobile Bearing to be used with Femoral Components CR (Cruciate Retaining) and Mobile Bearing Tibial Components	
	Taper Caps for Tibial Components and Patella Resurfacing Components	
	Tibial Stems: cemented and cementless	
	Instruments	
	GEMINI SL Instrument Set – Overview	
	Case 1: SIT-CUT Easy Tibia Resection Alignment	
	Case 2: Femoral Preparation	
	Case 3: Spacer	
	Case 4: Tibia Preparation	
	Case 5: Femoral Trial Prostheses	
	Case 6: Femoral PS Preparation	
	Case 7: General Instruments	
	Case 8: Final-Spacer	
	Patella Instrument Set	
	Precision Tibia Resection Alignment	
	EXTRABONE Instrument Set	
	Additional Instruments: Adapter, Sawblades	
	Accessories: X-ray Templates	
	Further Information	
	Important Information	

The **GEMINI SL Knee Surface Replacement** allows native joint reconstruction with extensive range of motion and good kinematics.^{1,2,3}

- The **extended Femoral Shield** and the **deep Patellar Groove** can lead to a physiological patellar motion and patellar self-guidance.¹
- The **anatomical adapted Tibial Component** allows for a better cortical coverage and thereby to an improved homogeneous force loading.⁴
- The **Tibial Component** is securely anchored by means of blades, pegs and stem, improving resistance against shear, rotation and tilting force.⁵
- The systems consists of **Fixed Bearing Cruciate Retaining (CR)**, **Fixed Bearing Posterior Stabilized (PS)** and **Mobile Bearing** versions and there are optional tibial stems available which expand the range of indications and enable a comprehensive treatment option.
- The options shown are additionally available with the **LINK PorEx Technology***. PorEx is a TiNbN = Titanium-Niobium-Nitride surface modification that significantly reduces the release of chromium and nickel ions. It is a ceramic-like surface that is very hard improving wetting angle and results in a low coefficient of friction.⁶
- All versions can be selected cemented and cementless.

Cruciate Retaining Fixed Bearing (CR FB)	Posterior Stabilized Fixed Bearing (PS FB)	Mobile Bearing (MB)
 <p data-bbox="164 1496 564 1641">Cruciate Retaining configuration for use with intact ligaments and capsule and adequate joint stability. Identical tibial metal gray for Fixed Bearing CR and PS.</p>	 <p data-bbox="598 1496 999 1697">Posterior Stabilized configuration for use with absence of posterior cruciate ligament. Reduces the risk of dislocation and decreases contact pressure in deep flexion.⁸ Featuring bone preserving design with size specific intercondylar femoral box dimensions.</p>	 <p data-bbox="1032 1496 1433 1585">Rotating highly congruent articular surface for use with or without posterior cruciate ligament.⁷</p>

* LINK PorEx: TiNbN = Titanium Niobium Nitride; hypoallergenic coating (gold color).

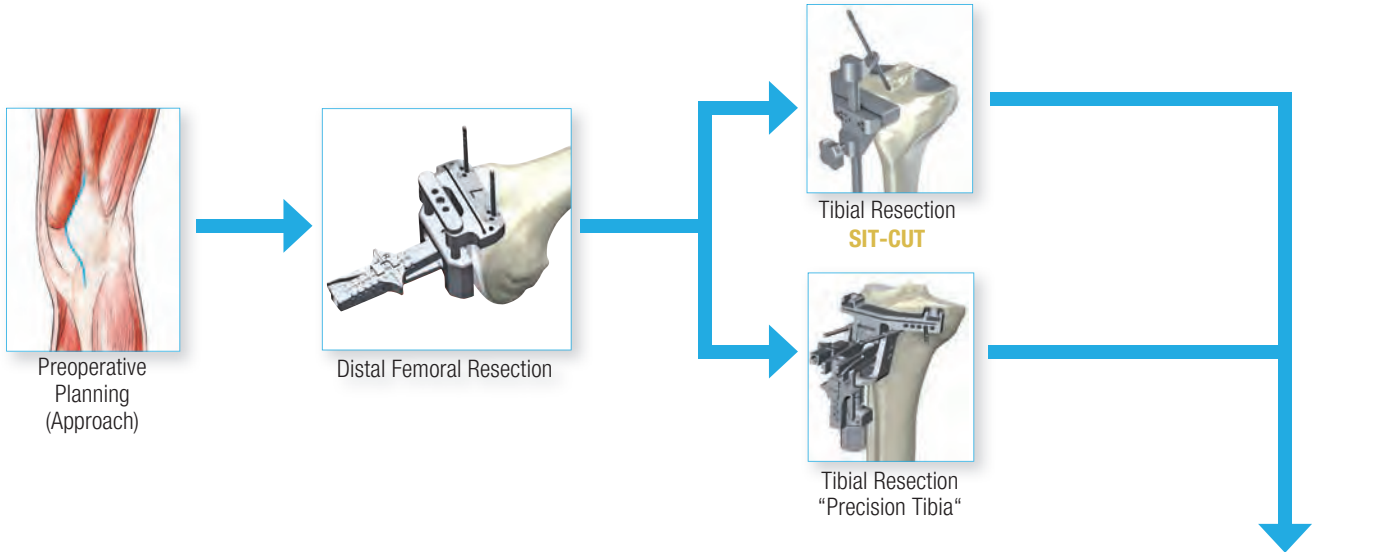
¹ H. Thabe, „Auswirkungen verschiedener konstruktiver Prothesenmerkmale auf Langzeitergebnisse“, Akt Rheumatol 2013;38
² Interne Daten – H. Thabe, „Aspekte zum Konzept der beweglichen Tibiplateaukonstruktion“, April 2000
³ J. Goodfellow, „The Mechanics of the Knee and Prosthesis Design“. J Bone Joint Surg Br 1978; 60:358-36
⁴ Figgie, H.E. et al.: Load-bearing Capacity of the Tibial Component of the Total Condylar Knee Prosthesis; Clin Orth & Rel Res, No. 183, 1984
⁵ Walker P.S., Hu-Ping Hsu, Zimmermann R.A.: „A comparative study of uncemented tibial components“ J of Arthrop, Vol. 5, No. 3, 1990, pp. 246-253
⁶ Internal Data on file: Study of the influence of TiNbN-coating in the ion release of CoCrMo-alloys in SBF buffer simulator testing
⁷ Internal data on file: Innocenti B. White Paper GEMINI SL Mobile BEaring CR: Biomechanical Analysis in healthy and deficient PCL patient, 2017
⁸ Internal data on file: Innocenti B., White Paper GEMINI SL Fixed BEaring PS: Biomechanical Analysis of the Post-Cam System, 2017

Specified indications and contraindications: GEMINI SL Total Knee Replacement	
GEMINI SL Cruciate Retaining Fixed Bearing (CR FB)	
Indications:	
Any form of uni-, bi- or tricompartmental arthritis of the knee joint (e.g. primary degenerative arthritis, secondary arthritis resulting from rheumatoid arthritis, fracture, post-infection, gout, chondrocalcinosis and others)	
Contraindications (absolute):	
Acute and 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	
Instability or loss of the posterior cruciate 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 cannot be defined)	
Severe insufficiency or loss of extensor mechanism	
Contraindications (relative):	
Extension deficit >30°	
Varus or valgus deformity >30°	
Allergy to one of the implant materials	
GEMINI SL Posterior Stabilized Fixed Bearing (PS FB)	
Indications:	
Any form of uni-, bi- or tricompartmental arthritis of the knee joint (e.g. primary degenerative arthritis, secondary arthritis resulting from rheumatoid arthritis, fracture, post-infection, gout, chondrocalcinosis and others)	
Contraindications (absolute):	
Acute and 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 cannot be defined)	
Severe insufficiency or loss of extensor mechanism	
Contraindications (relative):	
Allergy to one of the implant materials	
GEMINI SL Mobile Bearing (MB)	
Indications:	
Any form of uni-, bi- or tricompartmental arthritis of the knee joint (e.g. primary degenerative arthritis, secondary arthritis resulting from rheumatoid arthritis, fracture, post-infection, gout, chondrocalcinosis and others)	
Contraindications (absolute):	
Acute and 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 cannot be defined)	
Severe insufficiency or loss of extensor mechanism	
Contraindications (relative):	
Allergy to one of the implant materials	

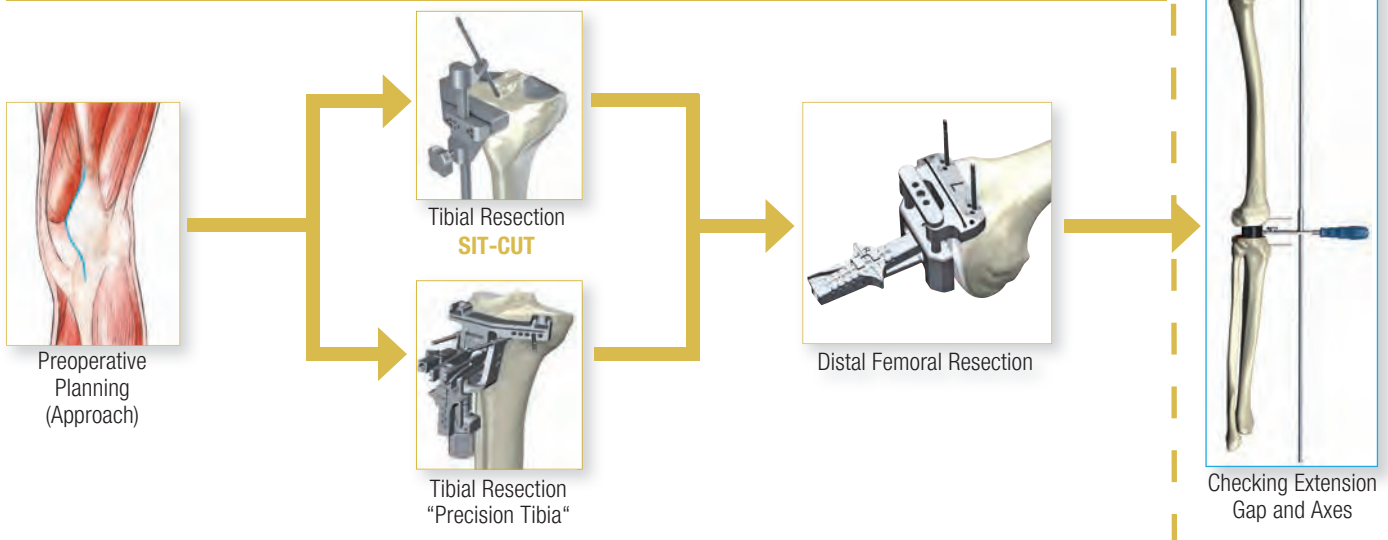
Implants with TiNbN-Coating

In contrast to all other implants an allergy against one of the implant materials is not a contraindication. Otherwise the above mentioned indications and contraindications depending on the design of the TiNbN-coated implants remain the same.

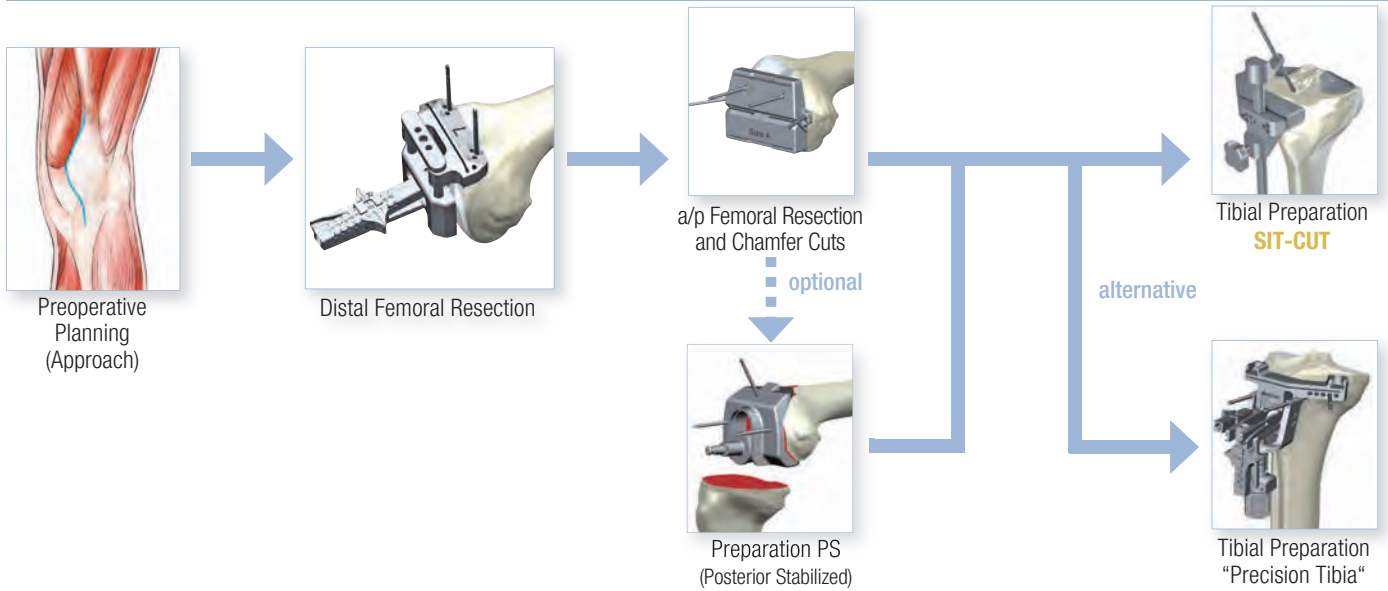
Extension Gap First



Tibia First

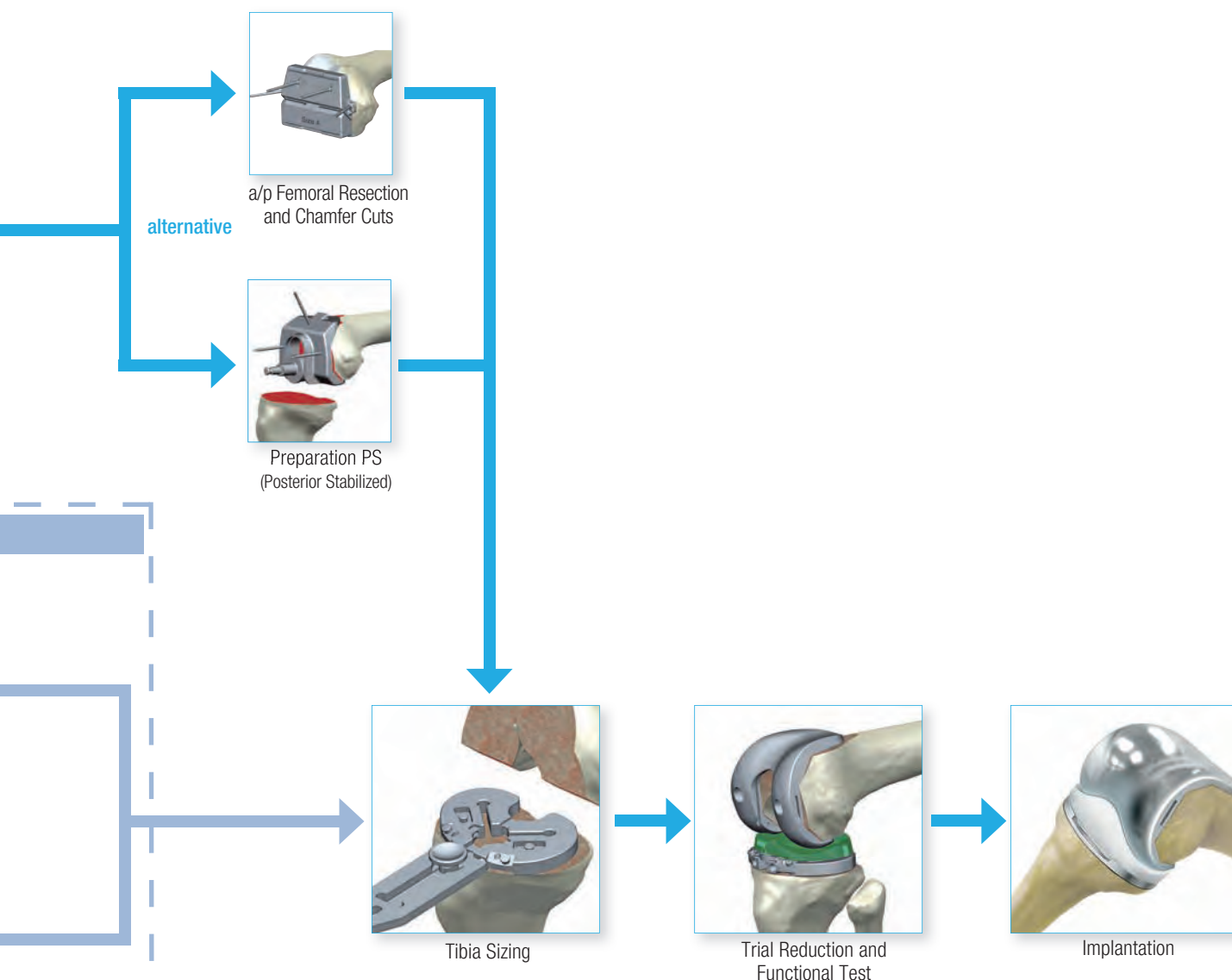


Femur First



The **GEMINI SL Instruments** are designed to meet the need of today's knee surgeons.

The instrumentation assures precise and reliable bone resections and allow a variety of surgical options.¹ Preparation may be initiated at either the femur or the tibia. Spacer blocks are provided for extension and flexion gap evaluation. Patella instrumentation is available for compatible preparation of patella resurfacing. Furthermore, it is available a dedicated instrumentation to perform an extramedullary femoral referencing.



¹ Internal data on file

Preoperative Planning

The anatomic landmarks in the knee joint are defined preoperatively by imaging the whole leg on the healthy and the affected side in the standing position. 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 **(01)**.

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.

The appropriate implant size can be selected preoperatively with X-ray templates. The necessary resections are determined by the size of the implant.

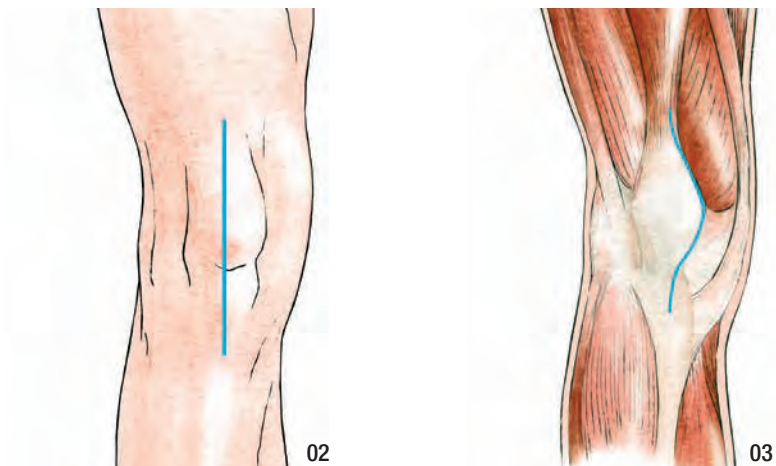


Approaches

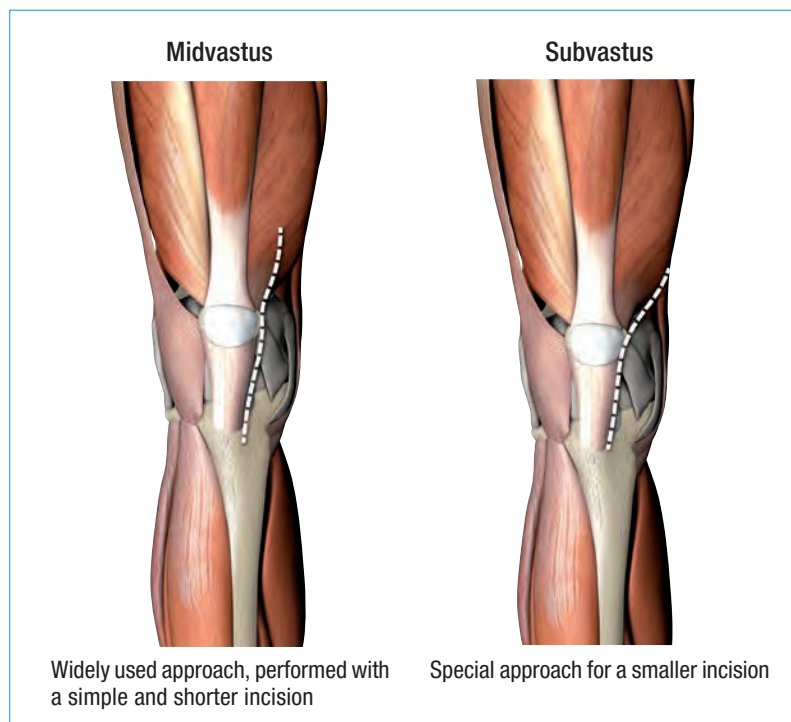
With the knee in slight flexion, a straight incision is made over the patella, as far as the tibial tuberosity (02).

A medial parapatellar incision is made through the patellar retinaculum, capsule and synovial membrane (03).

When making the parapatellar incision, the patella is pushed to one side to visualize the femoro-patellar 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.



Alternative Approaches:



Femoral Preparation – Distal Femoral Resection

Predetermining the Femoral Size

The GEMINI SL Femoral Component permits size-specific distal resection:

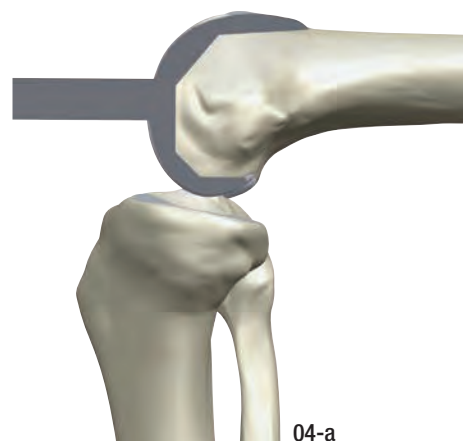
Sizes 1-2B distal femoral cutting block "S"

Sizes 3-5 distal femoral cutting block "L"

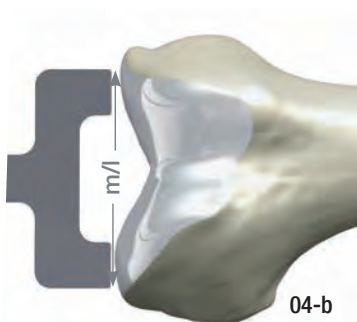
The femoral sizer (04) is used to verify the femoral size determined in preoperative planning and to select the distal femoral cutting block. The femoral size is determined by holding the femoral sizer against the bone – the contour shown corresponds to size 3 (04-a). If the femur profile is smaller, the distal cutting block "S" should be selected. If the femur profile is a perfect fit or larger, the distal cutting block "L" should be used. The m/l dimension can be checked in addition (04-b).



04



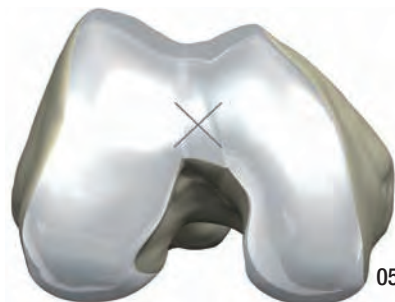
04-a



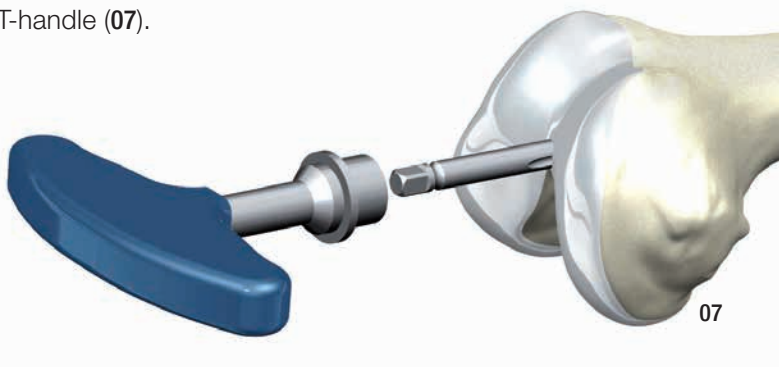
04-b

Femoral Intramedullary Alignment

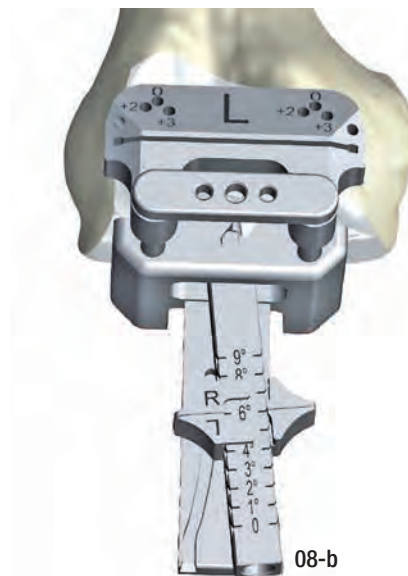
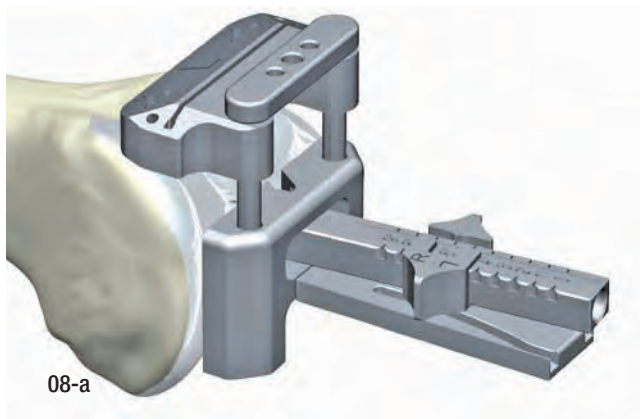
For femoral preparation, the knee is flexed to 90°. The entry point for opening the femur can be marked with the electrocautery (05). It is usually located approx. 3-5 mm medially above the intercondylar fossa. The medullary canal is opened with the step drill (06).



Connect the T-handle to the IM guide rod and insert the guide rod carefully. Remove the T-handle (07).



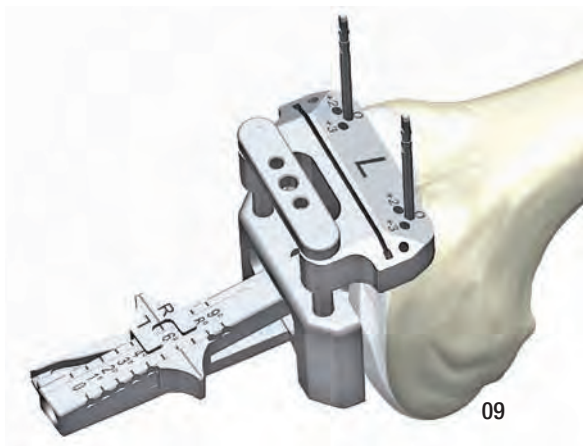
According to the previously selected femoral size ("S" or "L"), the distal cutting block is connected to the alignment instrument for valgus angle. Then, the preoperatively determined valgus angle is set, and the instrument is attached to the intramedullary guide rod (08-a, 08-b).



Before fixing the distal cutting block with two drill 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.

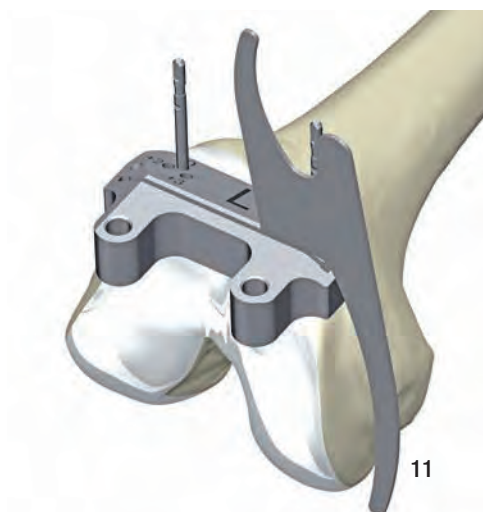
The two drill pins are inserted through the holes labeled "0" (09).

Then the alignment instrument for valgus angle is separated from the distal cutting block and removed. The intramedullary guide rod is then removed (10).

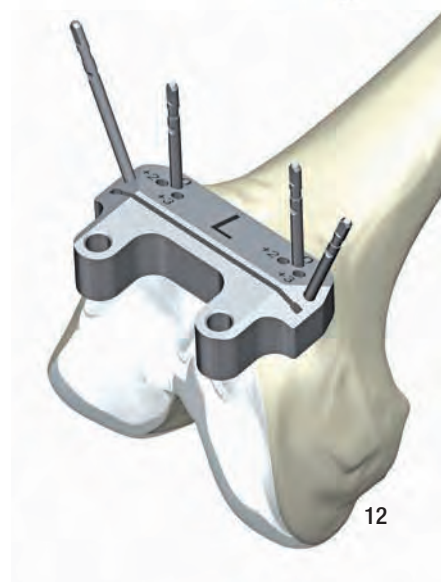


Distal Femoral Resection

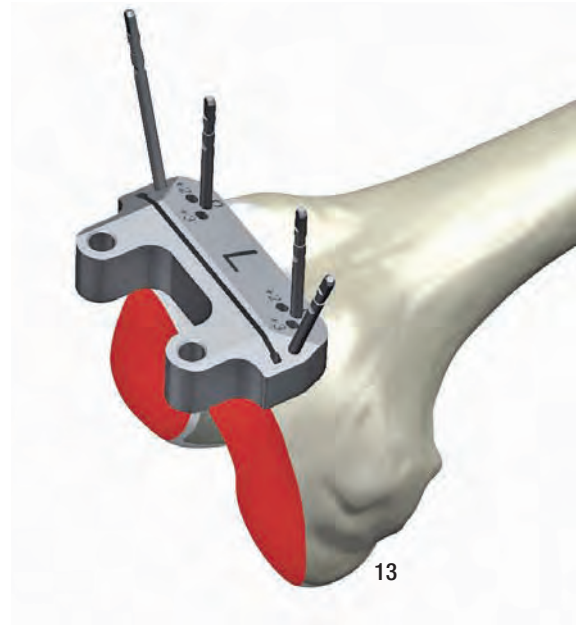
The cutting template can be used to check the alignment of the distal resection (11).



To ensure that the instrument is stable, a third drill pin is inserted into oblique hole. There is the option of inserting a fourth drill pin (12).

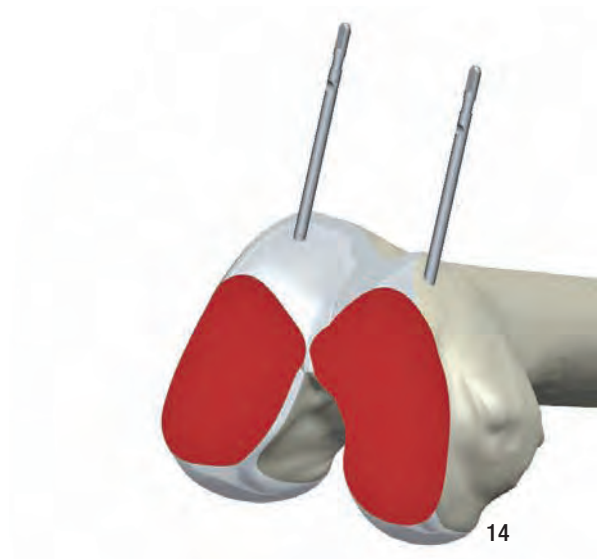


The distal saw cut (sawblade 1.27 mm) is made at 90° flexion. Then the cutting block is removed (**13**).



The parallel drill pins remain in position (**14**).

Note: It is possible to set the extension gap by means of post-resection.



SIT-CUT Instruments – Tibia Plateau Resection

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.

Note: For intramedullary alignment the precision tibial alignment instrument set is used. The application is described in Appendix II.

Components

The extramedullary guide consists of following components:

EM Alignment Rod (15.1)

proximal with drill pin fixation

EM Alignment Guide (15.2)

- foot clamp silicone belt fixation (15.3-a)
- foot clamp spring fixation (15.3-b)

A: Locking screw foot clamp posterior slope

B: Locking screw varus/valgus

C: Locking screw EM alignment rod

Symmetrical Tibial Cutting Block (15.4)

(alternatively: asymmetrical left/right versions 15.4- L/R)

D: Locking screw

Stylus (E) with guide (F) (15.5)

The stylus comes in different versions with the following designations:

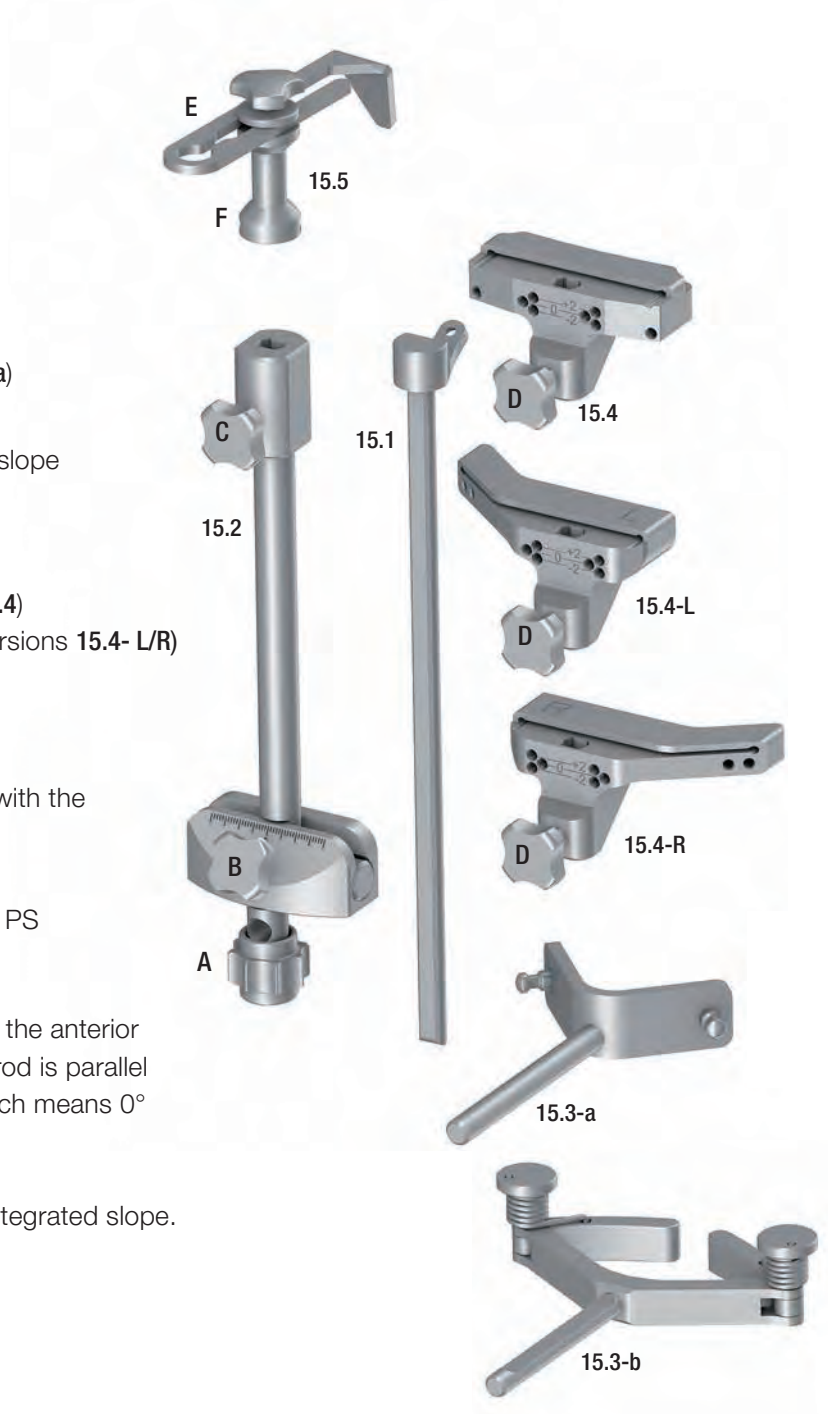
12 for GEMINI SL Mobile Bearing

10 for GEMINI SL Fixed CR and Fixed PS

2 for GEMINI SL Defect Referencing

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

Note: The tibial cutting block has no integrated slope.



Assembly

The requisite components are assembled as follows:

Release locking screws (C) and (D). Push the EM alignment rod (15.1) through the tibial cutting block (15.4-L) and into the EM alignment guide (15.2).

Hand-tighten the locking screws (C) and (D). Release locking screw (A). Insert the foot clamp (15.3-a or 15.3-b) into the alignment guide with the flat surface facing upward, and hand-tighten the screw (A).

Release the locking screw at the stylus guide, then insert the foot guide (15.5) with stylus into the tibial cutting block (15.4). Hand-tighten the locking screw.



Positioning

Note: Fixation of the ankle is achieved either by the silicone belt or the optional spring clamp.

Attach the foot clamp to the ankle joint and secure with the silicone belt (16).



Release the locking screw (C). Place the EM alignment rod considering varus/valgus and rotation (17).

The axis of the EM alignment rod should be positioned with reference to the tibial axis. Proximal fix the EM alignment rod using a drill pin. Depending on the anatomical structure the drill pin either can be positioned into the tibial plateau or alternatively into anterior tibial cortex.

Note: After inserting the drill pin there is still the possibility to set rotational position, varus/valgus orientation and posterior slope.

Tighten the locking screw (C).



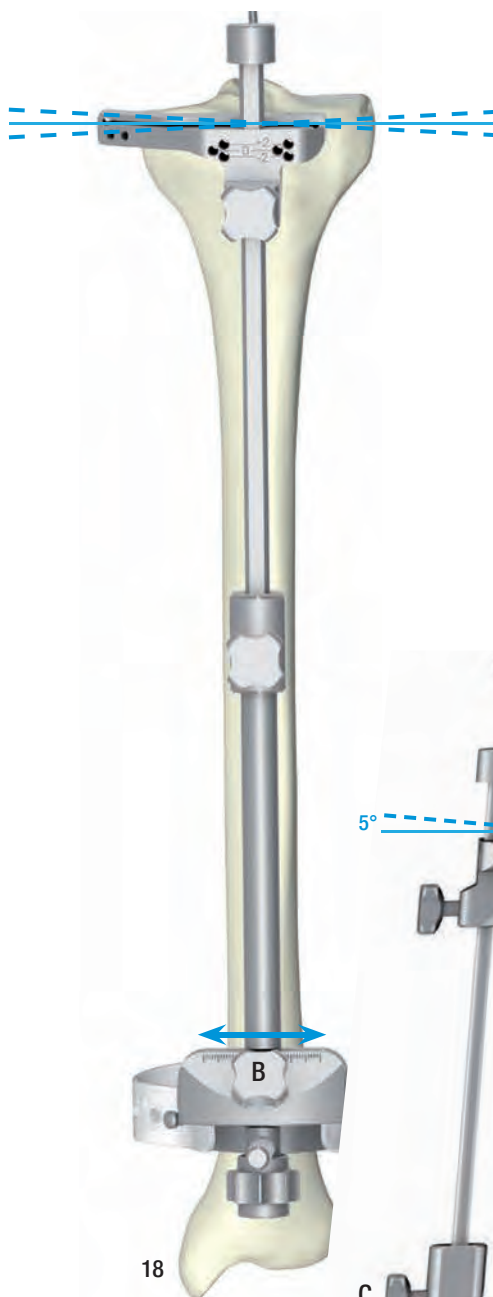
Alignment

Rotation (18)

To determine the correct alignment of the rotation, the alignment instrument is aligned centrally along the tibial shaft axis.

Varus-valgus (18)

To set the varus/valgus, release the screw (B) and carry out this adjustment by shifting the alignment guide medially/laterally. Then tighten the screw (B) again.



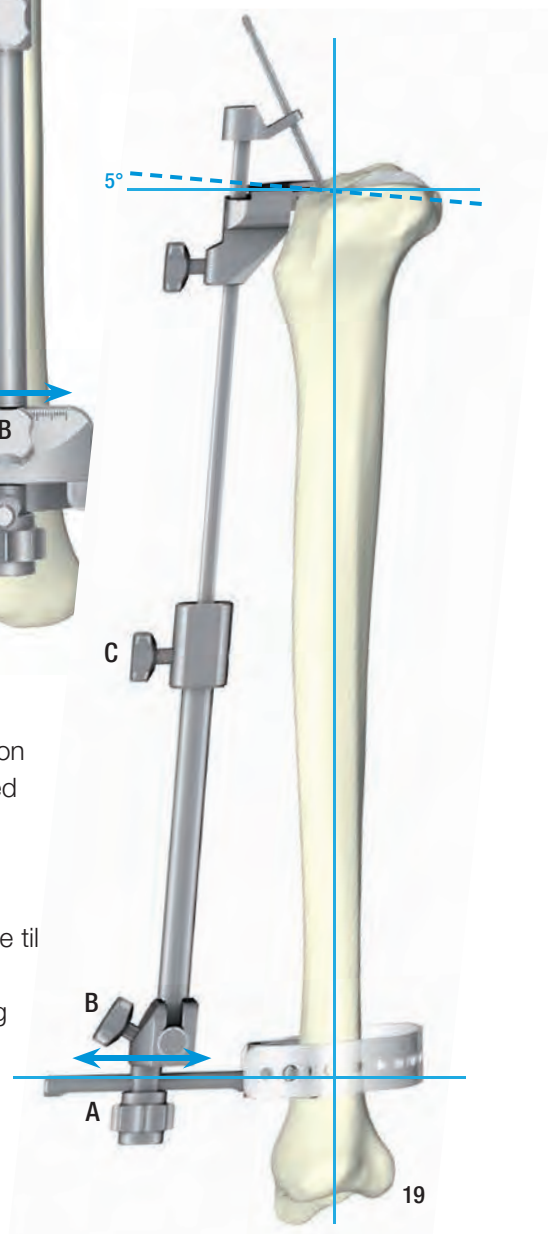
Posterior Slope (19)

GEMINI SL – Tibia Slope Recommendations:

For Mobile Bearing and a Fixed Bearing Cruciate Retaining (CR) configuration it is recommended to set the tibial posterior slope at 5 degrees. For a Fixed Bearing Posterior Stabilized (PS) configuration, a range of 0–5 degrees of tibial posterior slope is recommended.

After releasing the distal setting screw (A), the alignment instrument can be tilted by shifting the alignment rod axially, which in turn allows the requested posterior slope to be set. Once the correct position is reached, the setting screw on the EM alignment guide (A) is tightened.

Finally finish by firmly tightening all screws (A,B,C).



Set Tibial Resection Level

Use the tibial stylus (E) to set the resection height.

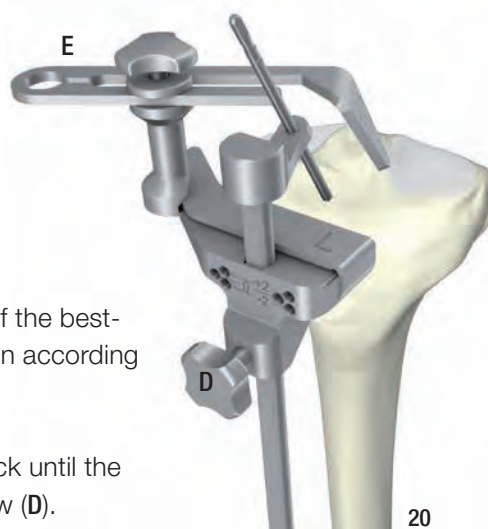
Select and position the stylus:

- 12 for GEMINI SL Mobile Bearing
- 10 for GEMINI SL Fixed and Fixed PS
- 2 for GEMINI SL Defect Referencing

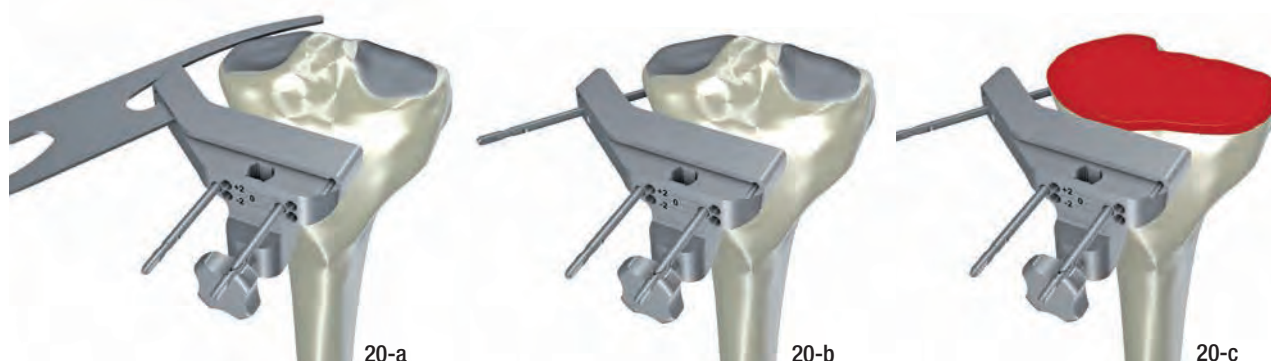
The stylus "10" respectively "12" is positioned on the highest point of the best-preserved area of the tibial plateau (20). Stylus "2" is chosen to align according to the defect.

Release the locking screw (D) allowing to move the tibial cutting block until the stylus rests on the tibial plateau. Then hand-tighten the locking screw (D).

Afterwards secure the tibial cutting block with two drill pins through the anterior parallel holes with the "0" marking. Remove the tibial stylus.

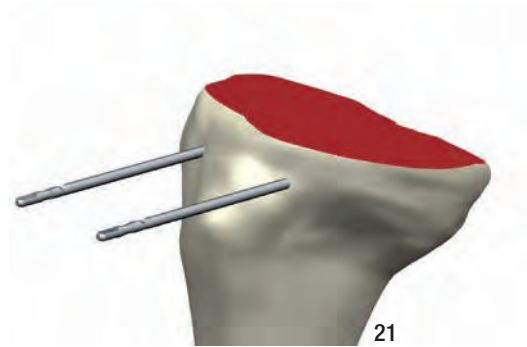


The cutting template can be used to check the alignment of the tibial resection (20-a). Any necessary corrections to the position (by ± 2 mm) can be carried out at this point. Fix the cutting block medially with a third drill pin (20-b) and then perform the resection (20-c).

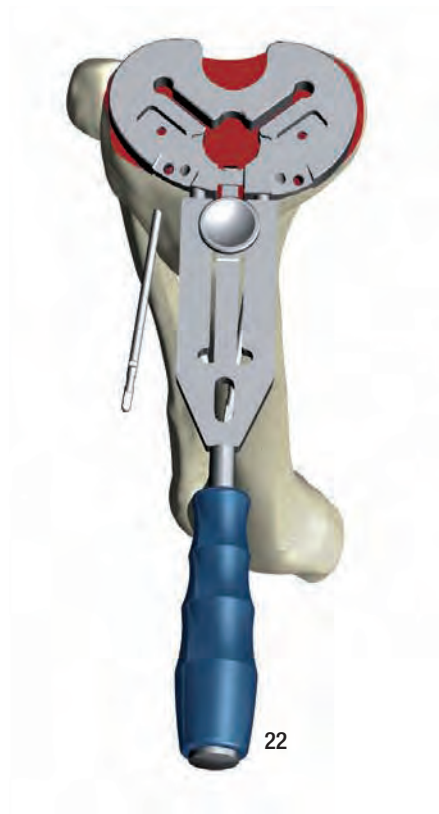


Tibial Sizing

Following the resection, the third drill pin and the tibial saw guide are removed. The anterior drill pins remain in position (21).

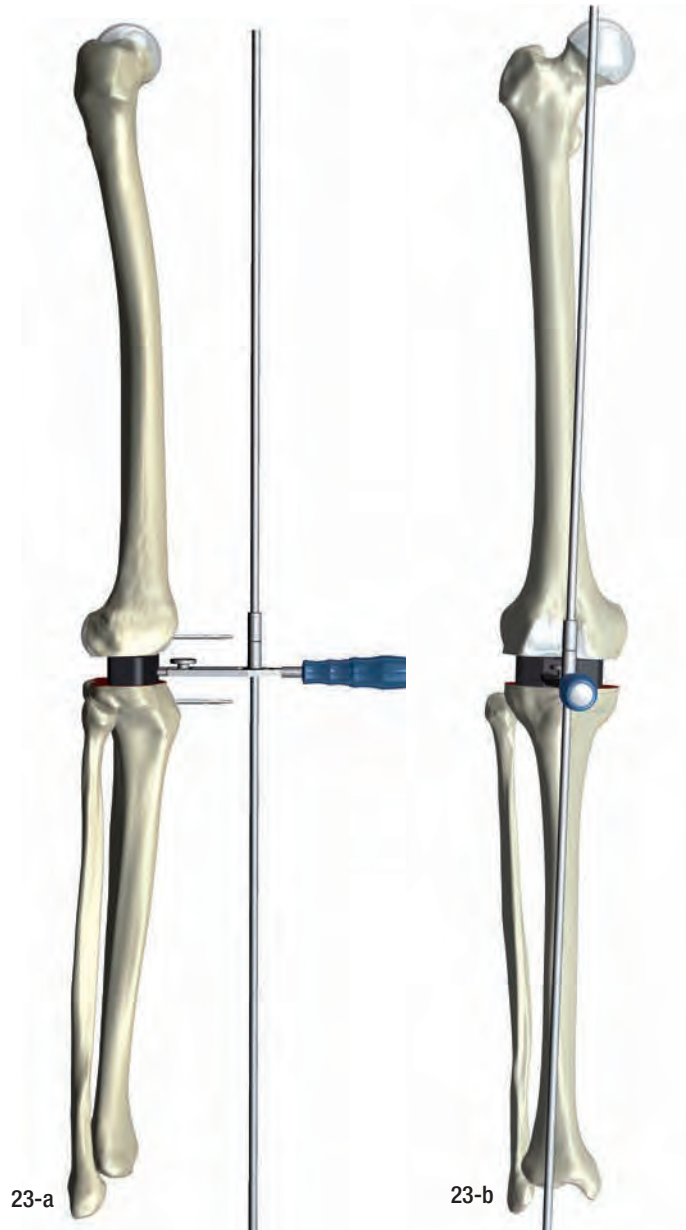


The tibial implant size can now be determined by applying the appropriate tibial sizer. The instrument must cover the cortical bone optimally, without projecting beyond it (22). The tibial implant size can also serve as an indicator for the femoral implant size if the femoral measurement is between two sizes.



Checking Extension Gap and Axes

After careful cleaning of the soft tissues, the extension spacer “S” or “L” is inserted, according to previously used distal femur cutting block, and both the axial alignment and the stability of the joint in extension are checked (23-a, 23-b).



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

Final Femoral Preparation

Femoral Sizing

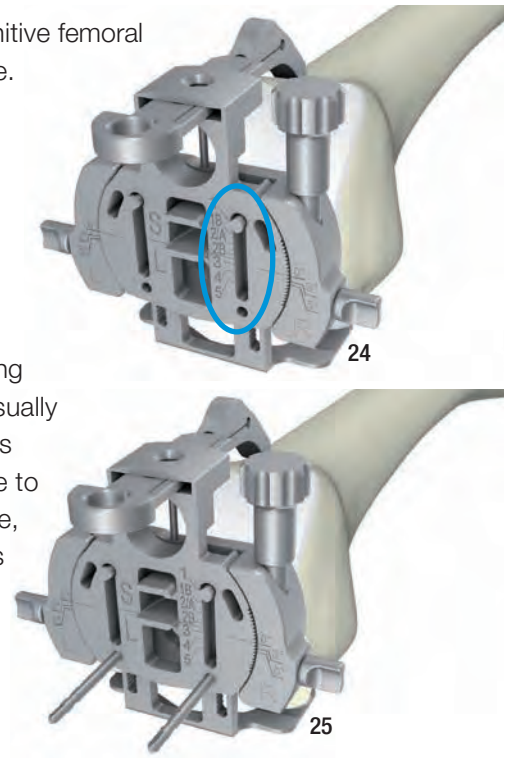
For final femoral preparation, the next step is to determine the definitive femoral size. The femur sizer is applied to the distal femoral resection surface.

Attention: The femoral sizer is anterior reference only.

Note: Please ensure that the femur sizer sits flush on the distal resection. The femur sizer can be applied over the intra-medullary guide rod to ensure stable positioning.

Place the femoral stylus anterior on the femur with the tip referencing the desired exit point of the sawblade for the anterior cut. This is usually half way up lateral, anterior prominence of the femoral trochlea. 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 held against it. The femoral size is read off from the right side (24).

Two drill pins are used to fix the size and, at the same time, to fix the frame of the measuring instrument to the distal resection surface (25).



Rotation Setting

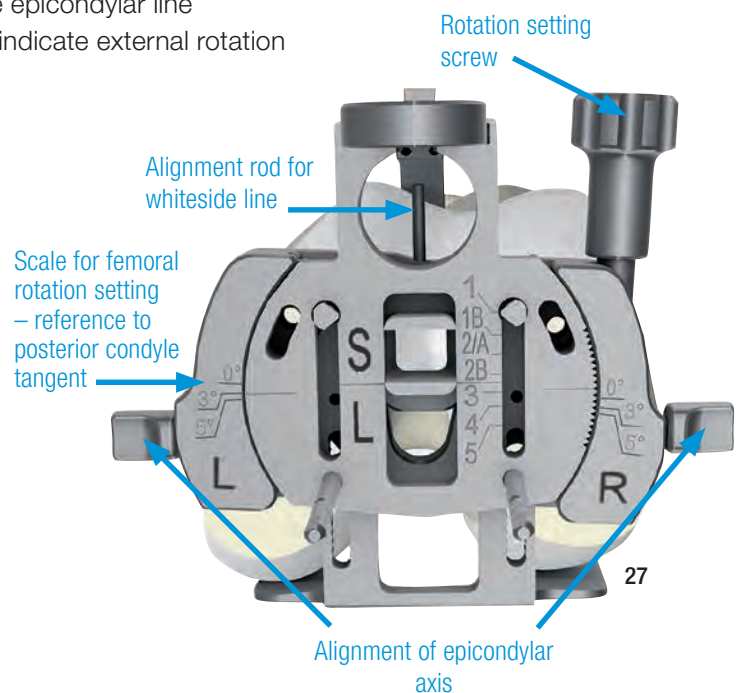
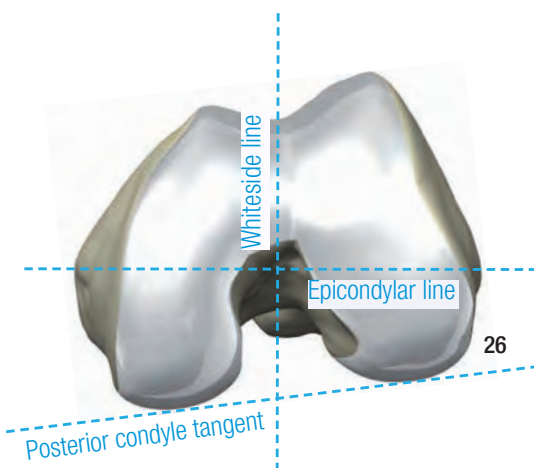
The alignment instrument allows external rotation in reference to the posterior condyle tangent, whiteside line or epicondylar line (26).

The external rotation can be adjusted by turning the rotation setting screw until the alignment references are matched (27).

Whiteside line: Alignment rod in the window to match the whiteside line

Epicondylar line: Collateral pegs align with the epicondylar line

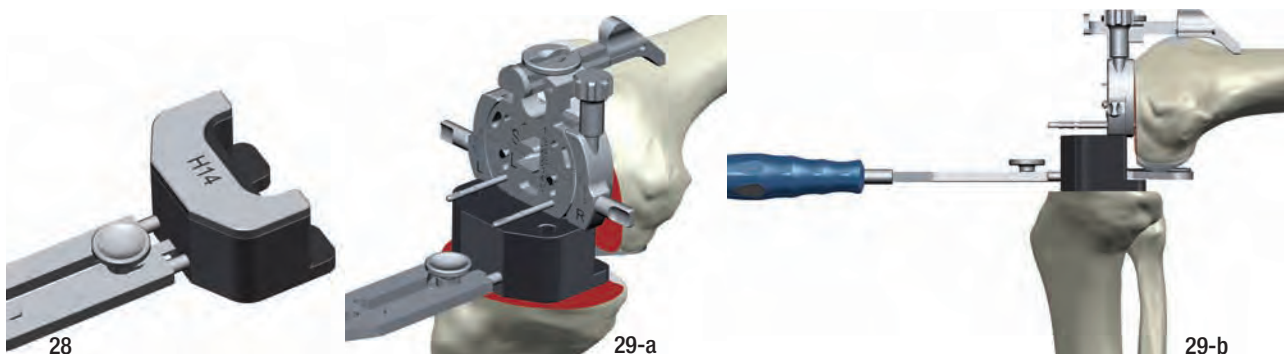
Posterior condyle tangent: Readable degree indicate external rotation setting aligned to posterior condyle tangent



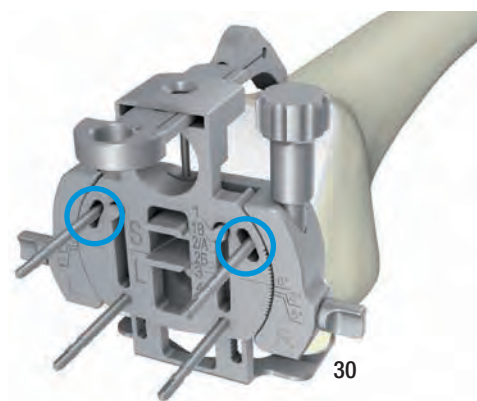
Optional: Checking Flexion Gap

The flexion gap can be checked before finally defining the rotation setting and the femoral resection.

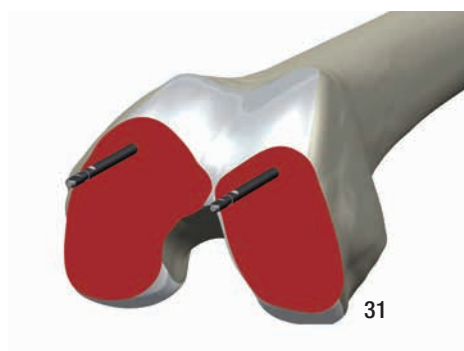
Flex the knee joint 90°. The stepped end of the spacer for the selected size (28) is now slid under the control block so that the higher end rests against the control block (29-a, 29-b). The stepped design means that the condyles are exposed.



Once the correct rotation has been set, the instrument is fixed with two drill pins through the medial and lateral holes (30). These drill pins are the guide reference for the position of the femoral cutting block.



The alignment instrument is removed, but the two drill pins remain in situ (31).

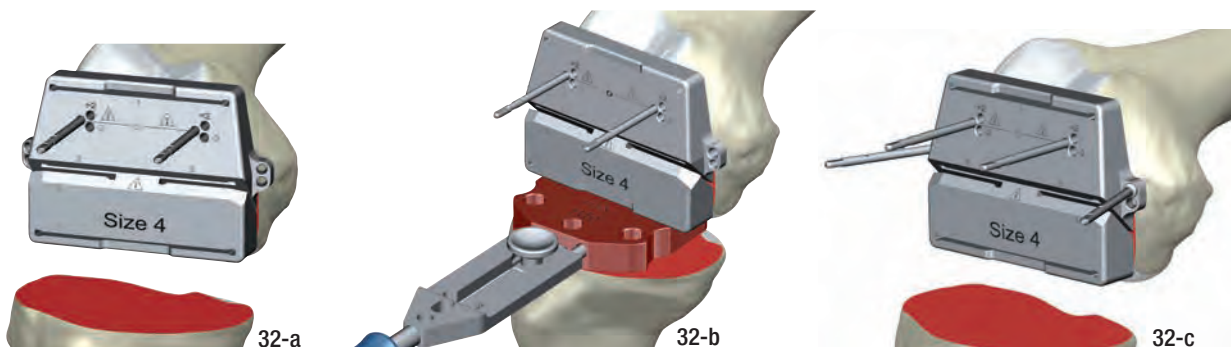


A/P Femoral Resection and Chamfer Cuts

The femoral cutting block is attached over the drill pins (32-a).

Optional: The flexion gap can be checked or corrected by using the correction spacer in combination with femoral cutting block (32-b). The spacer is with his stepped side pushed as far as under the block, until it rests on the highest point under the femoral cutting block. The flexion gap can be adjusted by reallocating the femoral cutting block prior to the final resection.

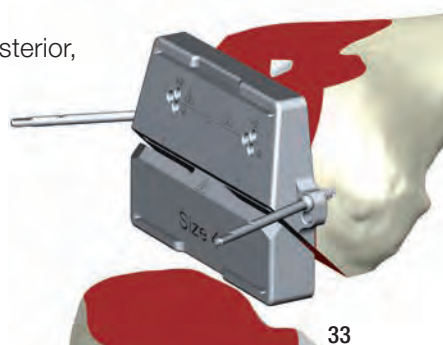
The femoral cutting block is fixed with drill pins with stop (\varnothing 3.5 mm). Optional it is possible to use the threaded pins (\varnothing 3.5 mm) with stop for the fixation of the femoral cutting lock (32-c).



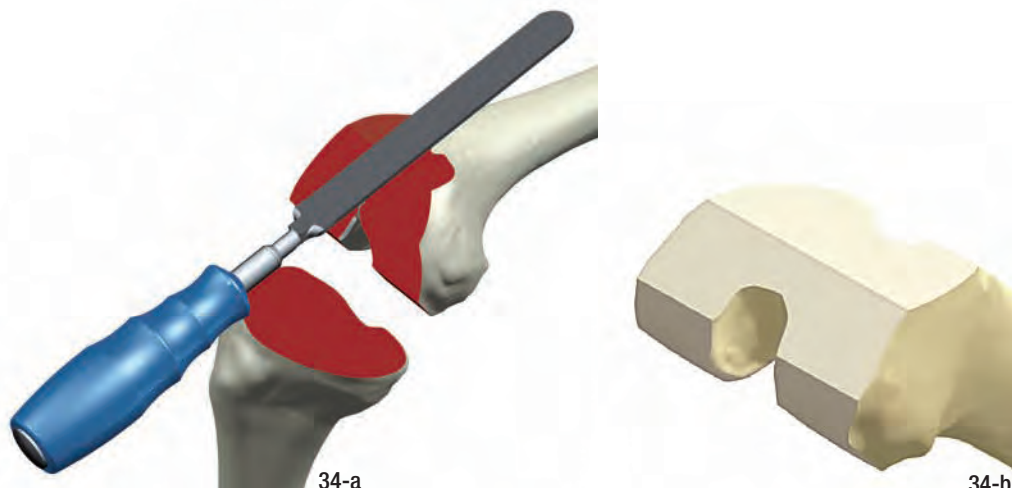
Note:

The cutting template (angle wing) can be used to check the alignment of the individual resections, especially the anterior cut ensuring that notching is unlikely to occur.

The anterior cut is carried out first, followed by the posterior, then the anterior and posterior chamfer cuts (33).



After that, the trochlea is prepared with the rasp (34-a, 34-b).



Fixed Bearing PS (Fixed Bearing Posterior Stabilized)

The box guide is selected according to the size of the femur and is positioned on the resected end of the femur. Alignment is performed according to the notch and the m/l dimension (35).

Note:

The box guide is symmetrically designed to permit universal use. Marking guide lines enable orientation and alignment (36).

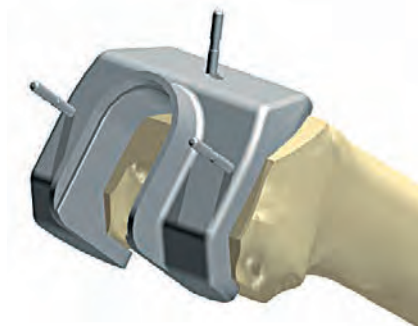


35



36

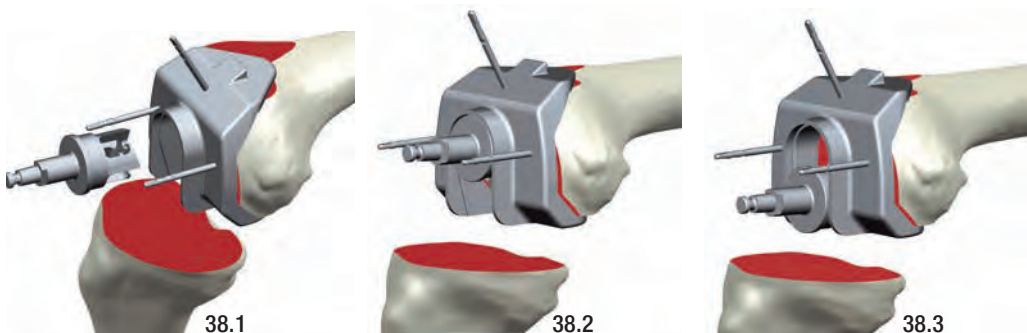
The box guide is fixed with at least two drill pins, or with three if preferred (37).



37

The notch reamer is used to prepare the box:

- 1 Drill in Position 1 (38.1+2)
- 2 Drill in Position 2 (38.3)
- 3 Smooth the resection by passing the notch trephine from Position 1 to Position 2



38.1

38.2

38.3

Femur bone after completion of resection (39).



39

Tibial Preparation

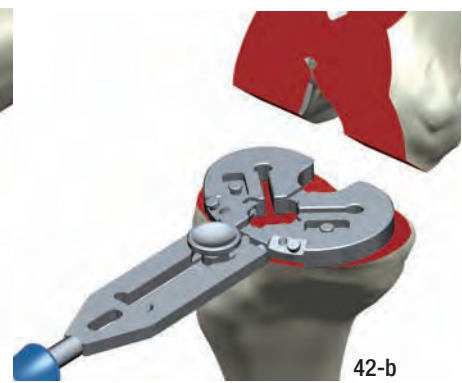
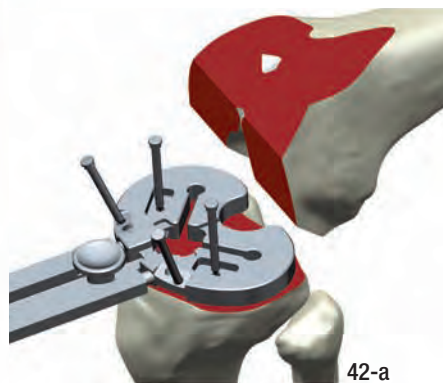
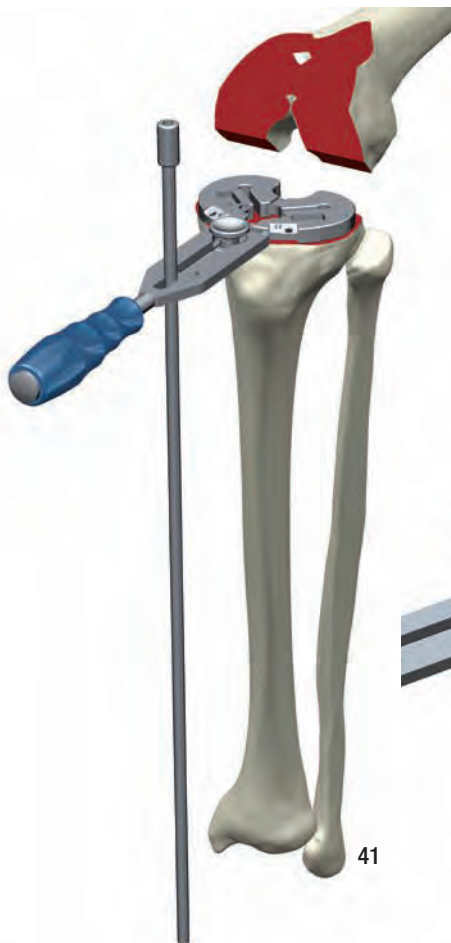
Tibial Sizing

The tibial implant size can now be determined by applying the appropriate tibial preparation plate. Select the tibial size to achieve maximal tibial coverage (40).



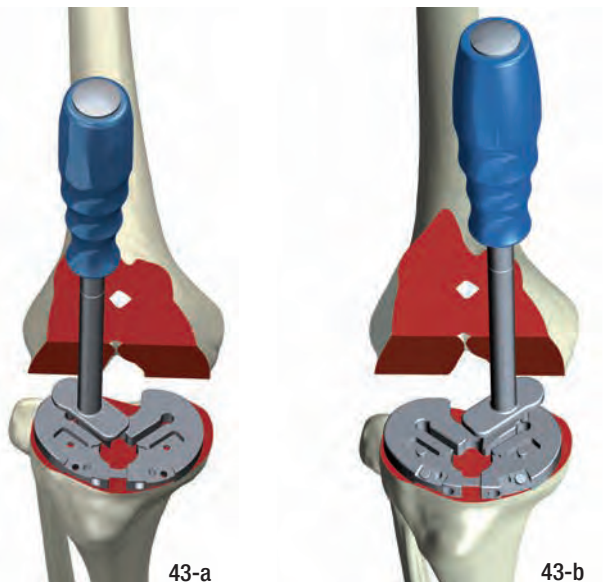
After applying the appropriate tibial sizer and aligning the rotation with the aid of the extramedullary alignment rod (41), the tibial preparation plate is fixed. Two head pins are inserted centrally into the tibial plate (42-a, 42-b).

Option: Additional two head pins can be inserted anterior.



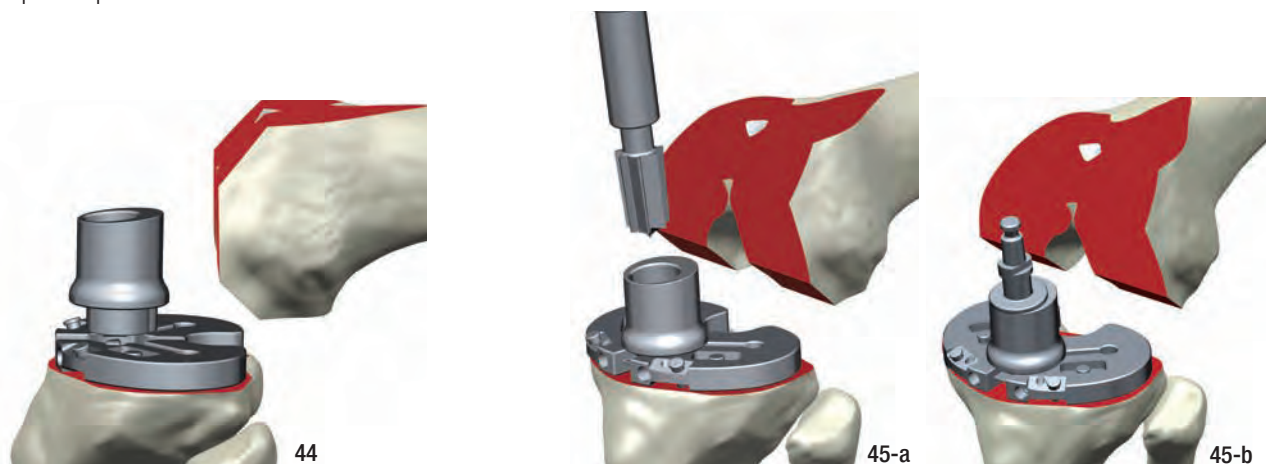
Tibial Stem Preparation

The blade chisel is used to prepare the two guides and the anchoring holes for the drill pins for the tibia base plate (43-a, 43-b).

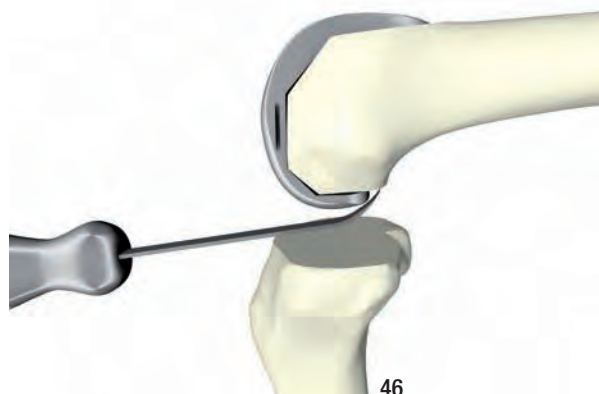


Then the guide sleeve is inserted (44) and the taper guide is reamed (45-a, 45-b).

Note: The choice of reamer depends on which treatment option is selected: tibial taper cap or stem extension.



To avoid impingement in flexion, remove any excess bone between the posterior tibial implant and the posterior femoral condyles in flexion. Use a curved osteotome or gouge to remove any remaining bone and osteophytes (46).



Patella Preparation (Patella Resurfacing)

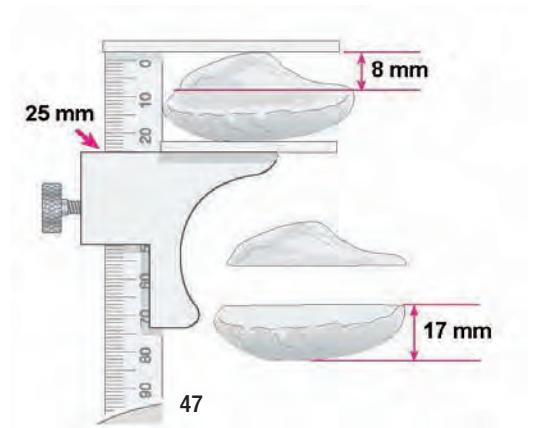
The following operating instructions describe the use of the LINK Patella Component and assume the use of the instrument set available for this procedure. Both the “reaming of the patella surface” technique and the “resection of the patella surface” technique are shown.

Using the calliper allows the height of the patella to be determined (47). The dimension is established and an amount corresponding to the size of the selected implant subtracted. The remainder equals the target dimension following resection. A minimal residual dimension of 12 mm should be maintained.

Example:

For a patella size 2 (patella diameter 28 mm), the following calculation is performed:

1. patella 25 mm thick,
2. resection 8 mm,
3. 17mm re-maining patella bone (47).



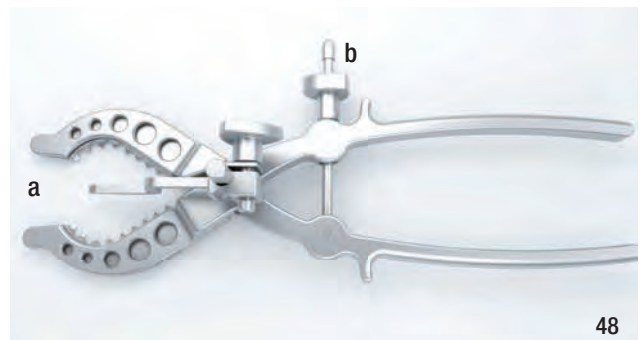
Patella Size	Patella-Ø	Patella Height
1	25 mm	7 mm
2	28 mm	8 mm
3	31 mm	9 mm
4	34 mm	10 mm

Preparation for Patella Component

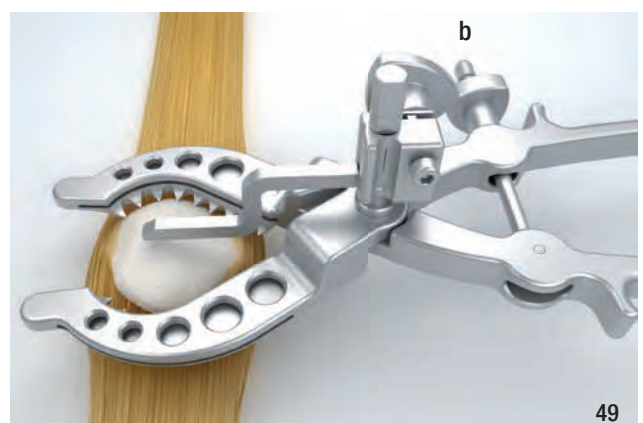
The patella surface can be prepared using the onlay technique by resecting with an oscillating saw or with the aid of the patella reamer.

Resection

The height of the bone to be resected can be adjusted using the height calliper (a) on the resection clamp (48).



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 firmly, the clamp is compressed firmly and fixed using the lateral setting screw (b) (49).



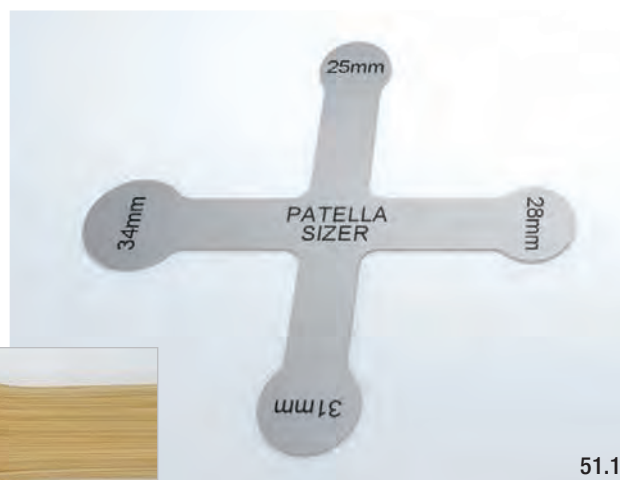
The resection is carried out using an oscillating saw with a 1.27 mm thick sawblade. The saw is guided using the saw slots of the resection clamp (50).



Sizing

A patella sizing template corresponding to the implants is available (51.1)

The template is selected that most adequately covers the articular surface without any 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 (51.2).

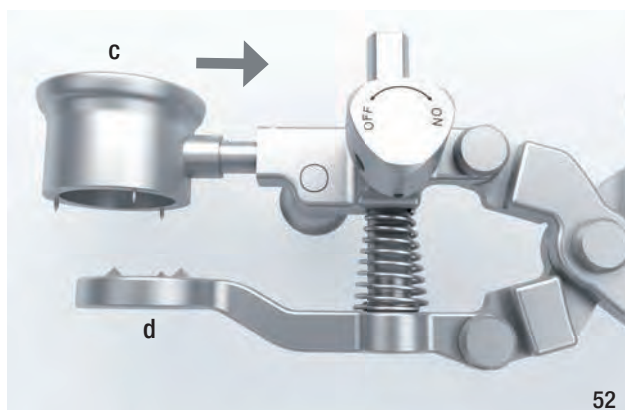


Option: Onlay Reaming

Reaming Preparation

The reaming guide (c) of the appropriate size is inserted into the patella clamp (d) (52).

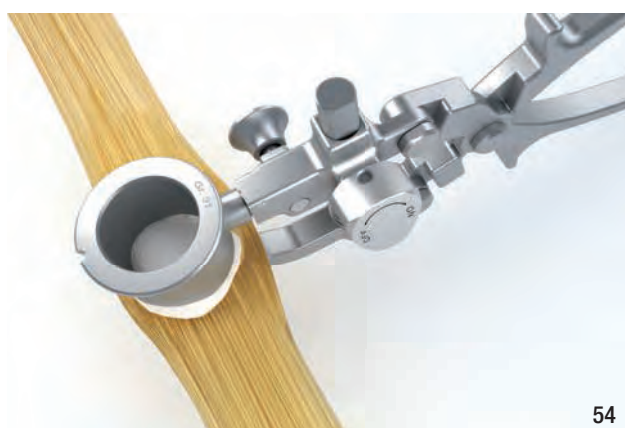
Note: Press the button on the side to insert and remove the guide.



A ratchet can be activated on the clamp with the retaining screw (e). By turning the screw to “ON” the clamp is held shut. By turning the screw to “OFF”, the ratchet is released (53).

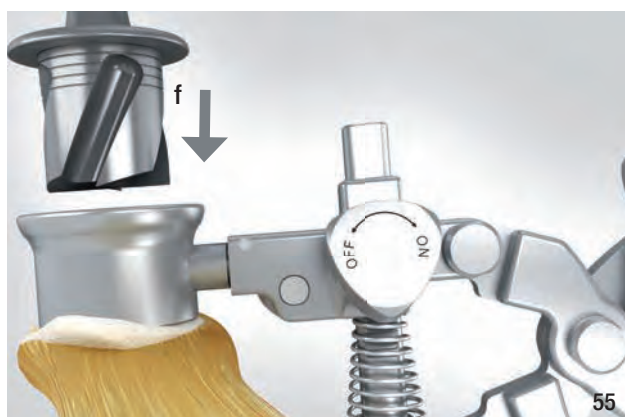


Following removal of the peripheral osteophytes, the patella is clamped with the patella holding clamp, aiming at the most central position possible (54). Good fixation is achieved when the spikes on the guide grip into the bone.



Reaming

The patella reamer is selected (f) to match the implant size which was previously determined and the corresponding reaming guide (55). The patella reamer has a Hudson drill connection for direct fixation with corresponding power tool connection. It is compatible with other machine systems by using an adapter for snap lock chuck.



The patella surface is prepared using the patella reamer (f). Reaming depth is verified by means of the mechanical stop on the reamer. In addition, there are marking grooves at 2 mm intervals. The maximum reaming depth is reached when the reamer collar makes contact with the reaming guide (56).

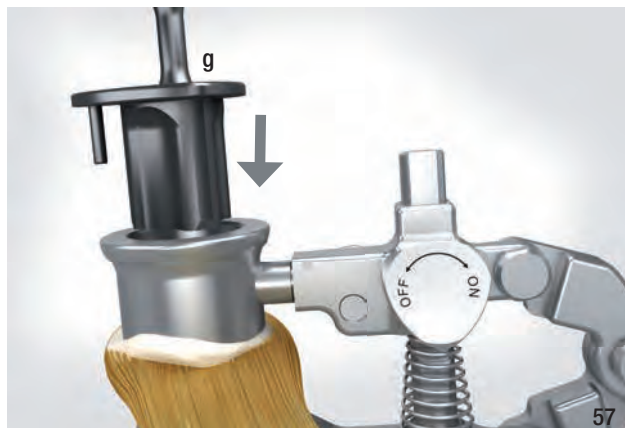


Fixation Hole Drilling

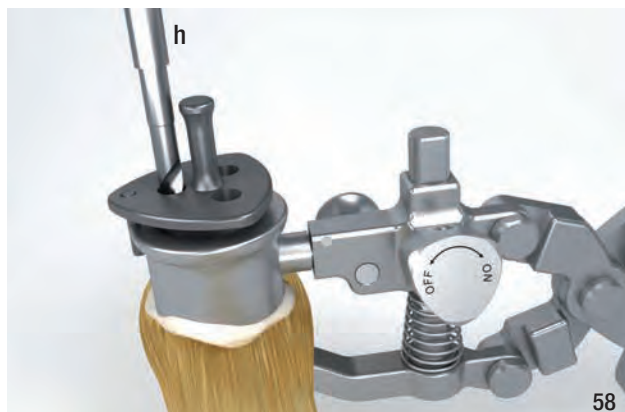
If the saw blade resection option is selected, the patella is to be fixed with the patella holding clamp as follows:

- Insert the patella reaming guide into the patella holding clamp
- Ratchet function “ON”
- Clamp the patella firmly

Insert the drilling guide (g) for the anchoring holes which corresponds to the chosen implant size into the reaming guide (57).



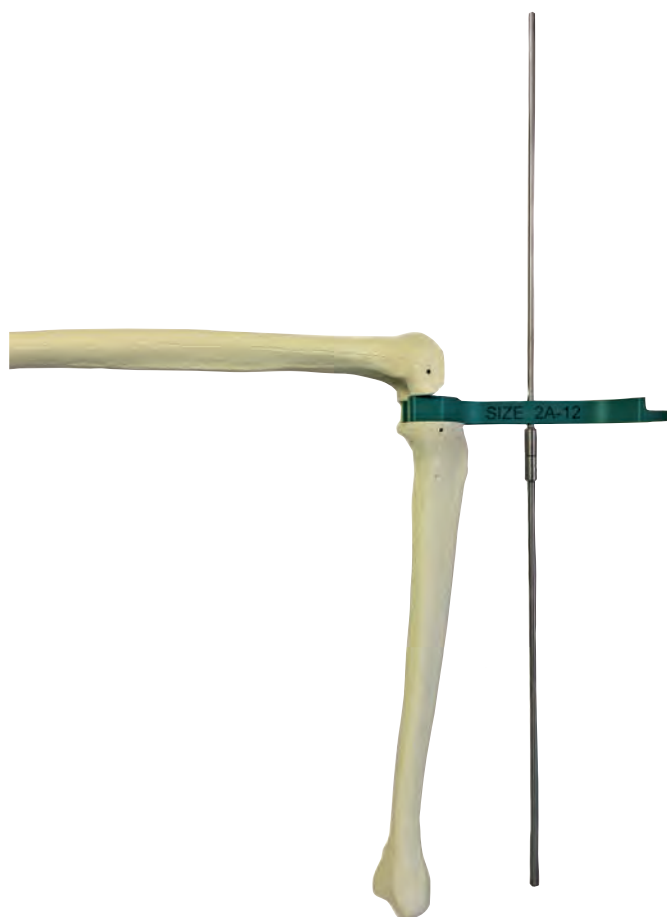
In doing so, ensure that the guide pin on the drilling guide lies in the opening made for it in the reaming guide. Using the appropriately-sized patella drill (h), 6.5 mm drill through the drilling guide until stopped by the depth stop with the appropriately sized patella drill (58).



Option: Final Assessment of Extension and Flexion Gap and Alignment of Axis

After final preparation the final spacer according to the determined femoral size is chosen and inserted. (59-a, 59-b).

The axial alignment is evaluated in extension by means of the extramedullary alignment rod which is referring to the mechanical axis.



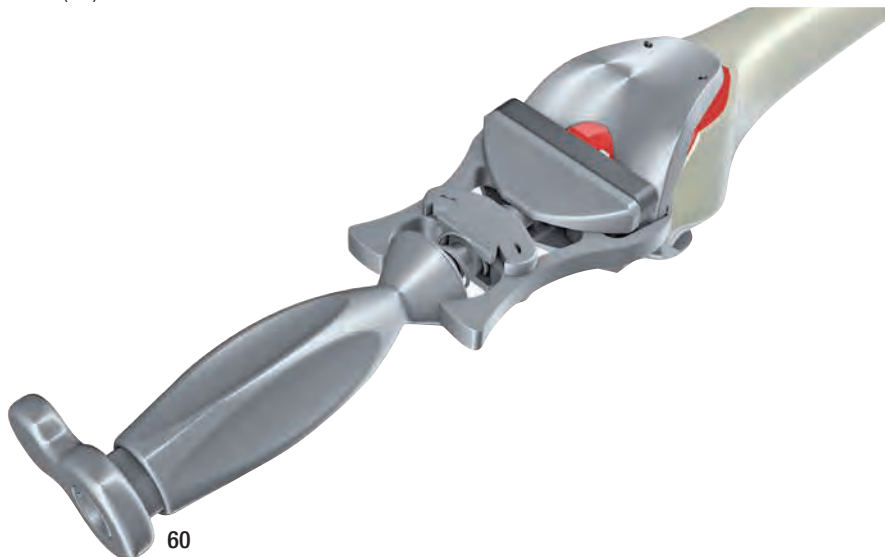
59-a



59-b

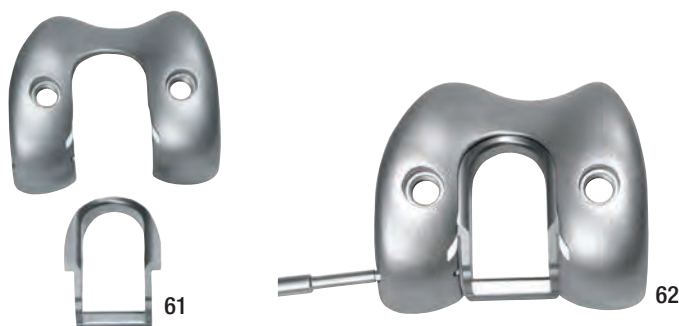
Trial Reduction and Functional Test

The femur trial is selected according to the resected femoral size and is positioned with the attachable handle and impactor (60).

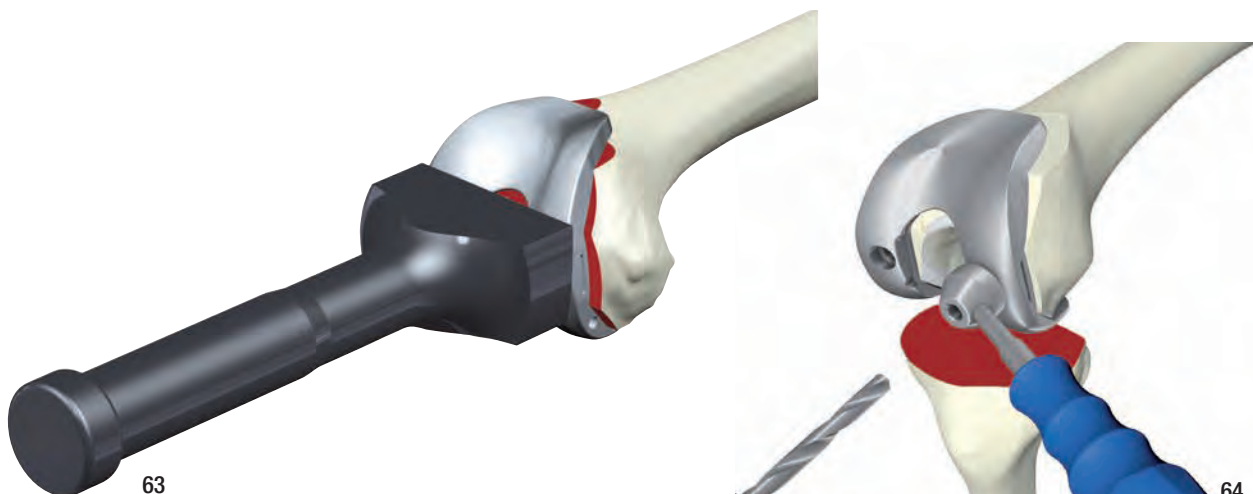


Procedure for GEMINI PS

The femur trial box PS is inserted into the femur trial (61) and fixed with the securing screw (62). Then the trial is positioned with the attachable handle and impactor.



In addition, the trial can be inserted into its final position using the driver (63). Then the securing holes are drilled with the 5.5 mm twist drill (64). A drill guide is applied for guiding the twist drill.



The trial plateau is selected and used according to which type of prosthesis is chosen: Fixed Bearing CR (B), Fixed Bearing PS (C) or Mobile Bearing (A). The different heights are set by means of the shim (D) (65).

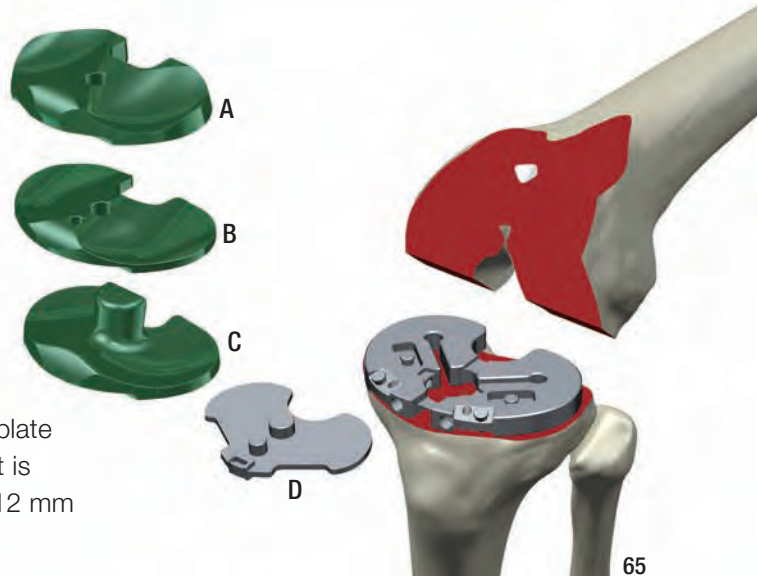
Attention!

Shims are available in 2 mm-steps, marking shows total height:

Height	Marking
+ 2 mm	12 mm
+ 4 mm	14 mm
+ 6 mm	16 mm
+ 8 mm	18 mm

Attention!

Trial plateaus together with tibial preparation plate imitate 10 mm height. For Mobile Bearing A it is mandatory to assemble the shim (+2 mm) = 12 mm



Procedure:

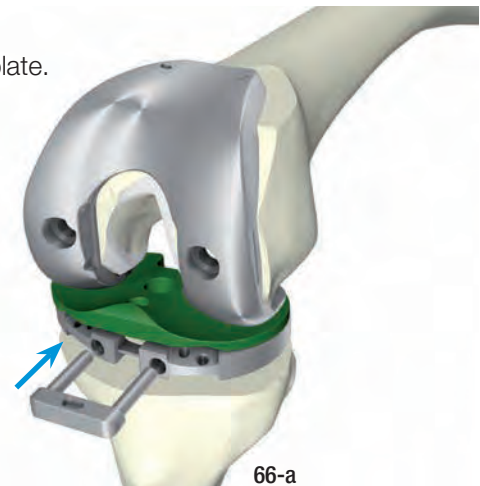
Mobile Bearing

1. Insert tibial trial plateau assembled with shim into tibial preparation plate.
2. Position femoral trial prosthesis.

Fixed Bearing/Fixed Bearing PS

1. Position femoral trial prosthesis.
2. Insert tibial trial plateau (optimal with assembled shim) into tibial preparation plate.

Note: There is a locking clip to lock the trial plateau with the tibial preparation plate during trial reduction (66-a).



Then trial reduction is performed with the knee joint in extension and flexion, and the ligament tension is checked (66-b).

Height correction:

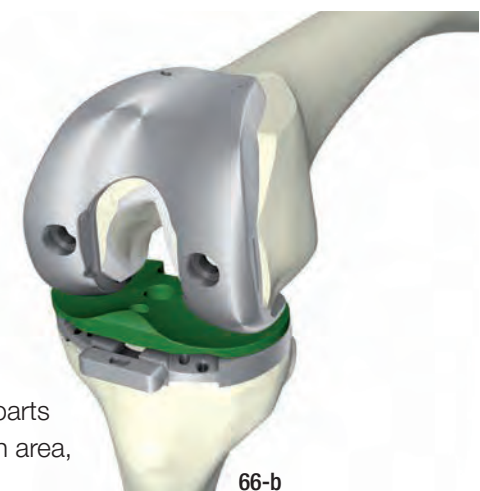
Fixed Bearing/Fixed Bearing PS

For adjusting the height the trial plateau is removed. Then the shim assembled accordingly.

Mobile Bearing

For correction of pure plateau height at lying femoral trial prosthesis, the trial plateau must be used for Fixed Bearing.

Note: Make sure that no bony structures (e.g., osteophytes) or tissue parts interfere with the movement. If necessary, rework the bone in the notch area, but especially on the dorsal condyles, using a small curved chisel.



The trial implants are then removed again.

Implantation

Compatibility Table

The following table shows (67) possible size combinations.

Compatibility: Femoral/Tibial Components

		Femoral Components							
		1	1B	2	2A	2B	3	4	5
PE Articulating Surfaces		1	1B	2	2A/B		3	4	5
Tibial Components	1	XX	X	X	-	-	-	-	-
	2	XX	XX	XX	X	X	X	-	-
	3	XX	XX	XX	XX	XX	XX	X	-
	4	XX	XX	XX	XX	XX	XX	XX	X
	5	XX	XX	XX	XX	XX	XX	XX	XX

XX = unrestricted compatibility
 XX = recommended combination
 X = restricted compatibility, depending on the patient's soft tissue situation in relation to the articulating surface
 - = prohibited combination

67

Implantation Sequence

Mobile Bearing

- 1 Assembly of Mobile PE Articulating Surface (refer to the compatibility table) with Mobile Tibial Component
- 2 Implantation of Tibial Component complete with PE Articulating Surface (refer to the compatibility table)
- 3 Implantation of Femoral Component

Fixed Bearing/Fixed Bearing PS

- 1 Implantation of Fixed Tibial Component
- 2 Implantation of Femoral Component
- 3 Insertion of Fixed or Fixed PS PE Articulating Surface (refer to the compatibility table)

Tibia Implant Overview:



Optionally, a taper cap or stem extensions can be placed on the taper and fixed with a screw. The taper cap and the stem extensions are available in cemented and cementless versions (68).

Note: If the tibial component with stem extension is used, ensure that the tibial medullary canal is suitably prepared prior to placement.

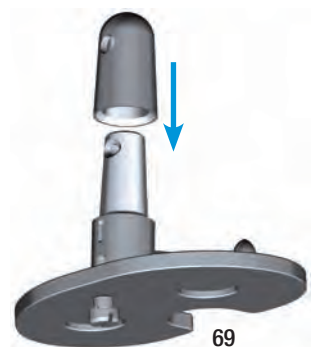
Note: Installing taper cap or stem extension. The taper cap or stem extension is fixed primarily by taper clamping, and doubly secured with securing screws.

Attention!

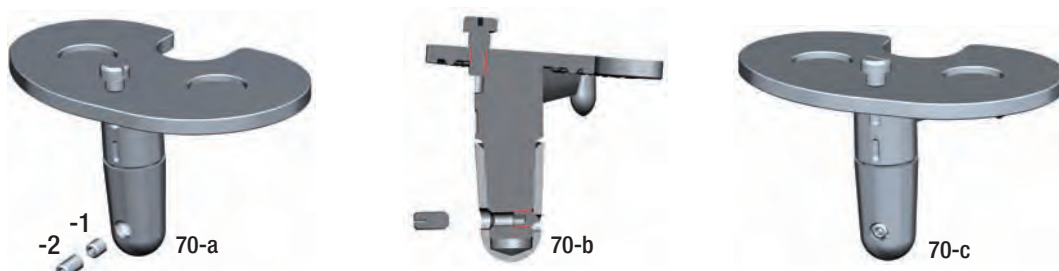
A first stem securing screw (grub screw with point is already in place in the taper hole. The second securing screw is supplied, in sterile packaging, together with the tibial component.

The taper cap or stem extension is selected according to the planned type of treatment, and is placed on the taper of the tibial component. When doing this, align the mark on the taper cap or stem extension with the mark on the taper of the tibial component. Then fix with a hammer blow (69).

Note: Place gauze over the surface to protect it from the hammer blow.



The first stem securing screw (grub screw with point) (70-a -1) is screwed in and tighten it strongly by hand. Then screw in the second securing screw (70-a -2, 70-b) with flat point for double securing. Use screwdriver 319-540/00 (allen wrench 2.0 mm) for both securing screws.

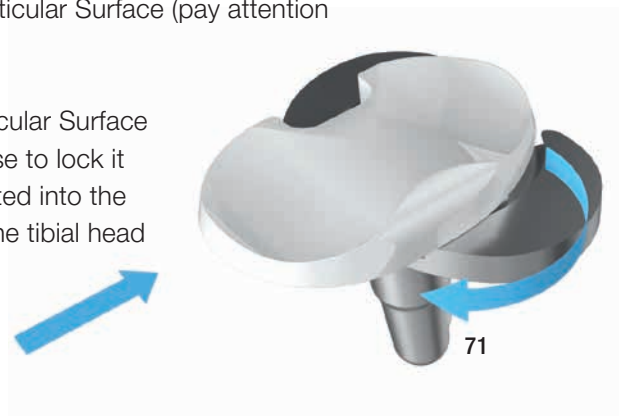


Implantation: Mobile Bearing

Cemented Tibial Component

The bone cement is prepared following the specific manufacturer's instructions, and applied. Select the appropriate Mobile Bearing PE Articular Surface (pay attention to compatibility chart page 33).

Onto the surgical table, place the Mobile Bearing PE Articular Surface sideways in longitudinal direction and turn it 90° clockwise to lock it in its final position (71). The tibial component is then inserted into the resected tibia, and driven onto the resection surface of the tibial head with the impactor (72, 73).



Attention!

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

Cementless Tibial Component

The cementless tibial component is introduced directly into the resected tibia and driven onto the resection surface of the tibial head with the impactor.

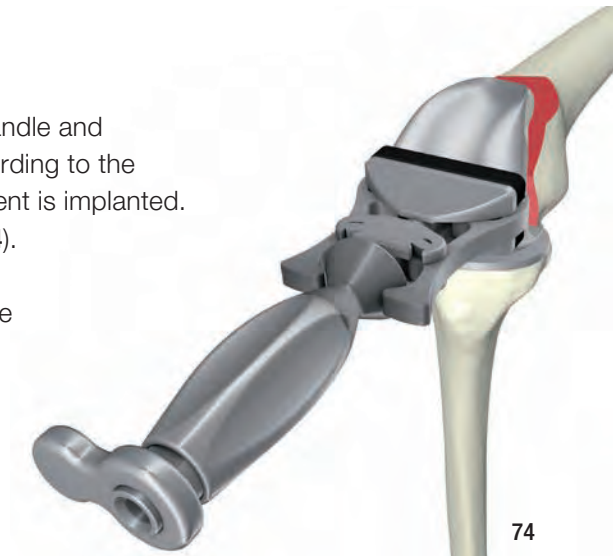
Note: For each type of fixation (cemented/cementless), only use the correspondingly marked implants.



Cemented Femoral Component

The femoral component is coupled with the attachable handle and impactor. After applying the bone cement, prepared according to the specific manufacturer's instructions, the femoral component is implanted. It is driven on with the attachable handle and impactor (74).

To finish, the femoral component can be re-driven with the plastic impactor (75).



Important!

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

Cementless Femoral Component

The cementless femoral component is coupled in the same way as described above for the cementable version, using the attachable handle and impactor. Positioning of the femoral component and implantation are performed with several measured but forceful hammer blows.

Implantation: Fixed Bearing and Fixed Bearing PS

Cemented Tibial Component

Attention!

The retaining screw for fixing the UHMWPE articulating surface has been screwed into the tibial component. It must not be removed for cementing.

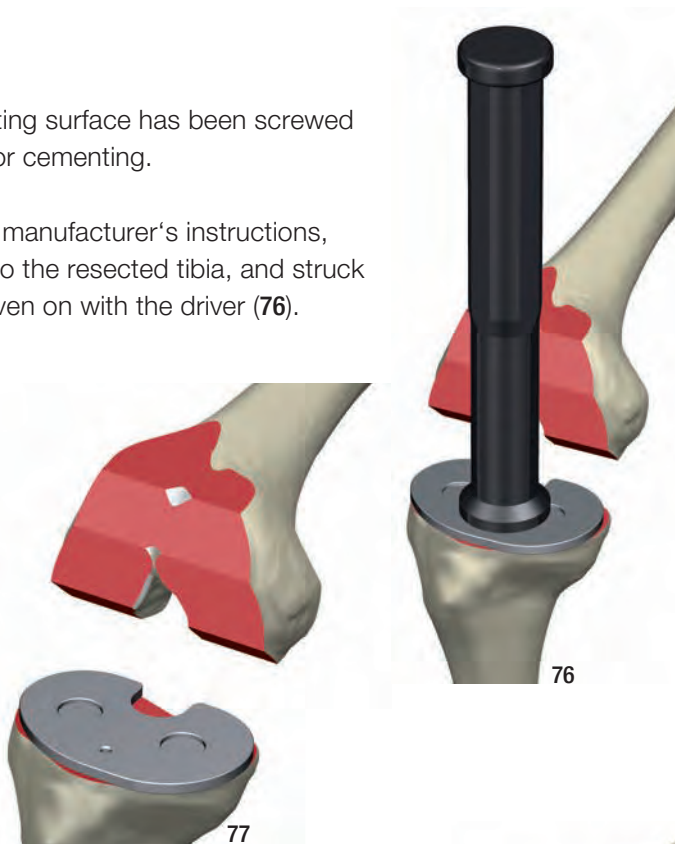
The bone cement is prepared following the specific manufacturer's instructions, and applied. The tibial metal tray is then inserted into the resected tibia, and struck onto the resection surface of the tibial head and driven on with the driver (76).

Attention!

Ensure that excess bone cement is completely re-moved and no loose bone cement particles remain, especially in the dorsal joint section (77).

Cementless Tibial Component

The cementless tibial component is introduced directly into the resected tibia and driven on.



Cemented Femoral Component

The femoral component is coupled with the attachable handle and impactor. After applying the bone cement, prepared according to the specific manufacturer's instructions, the femoral component is implanted. It is driven on with the attachable handle and impactor (78).

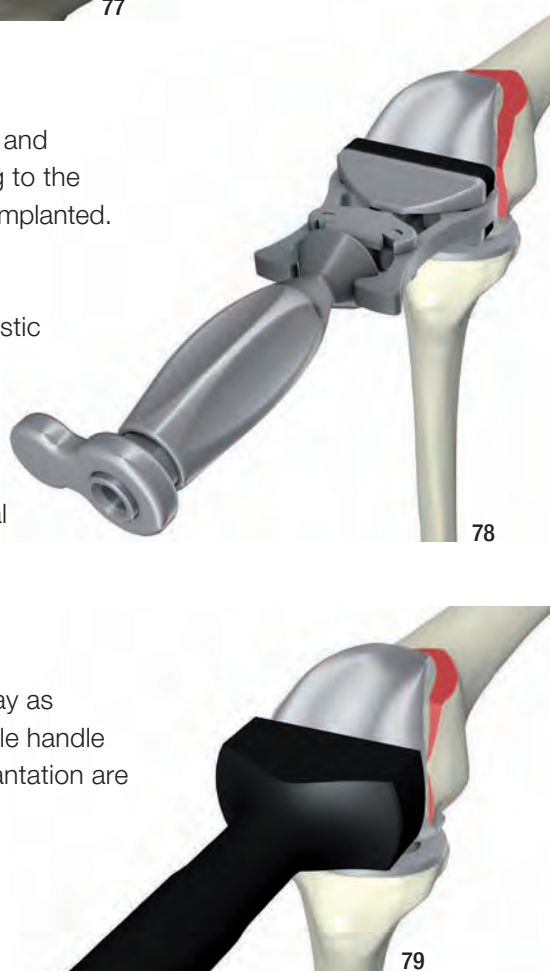
To finish, the femoral component can be re-driven with the plastic impactor (79).

Attention!

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

Cementless Femoral Component

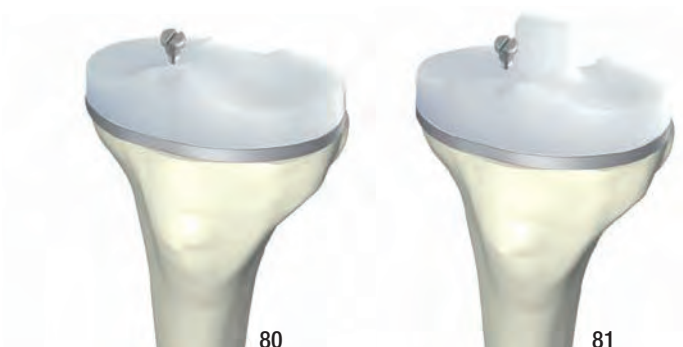
The cementless femoral component is coupled in the same way as described above for the cemented version, using the attachable handle and impactor. Positioning of the femoral component and implantation are performed with several measured but forceful hammer blows.



PE Articulating Surface

The holding screw is removed from the tibial component. The PE articulating surface (Fixed CR or PS) corresponding to the femoral component is selected and inserted. Ensure that the two securing pins on the bottom surface of the articulating surface are positioned in the recesses of the component.

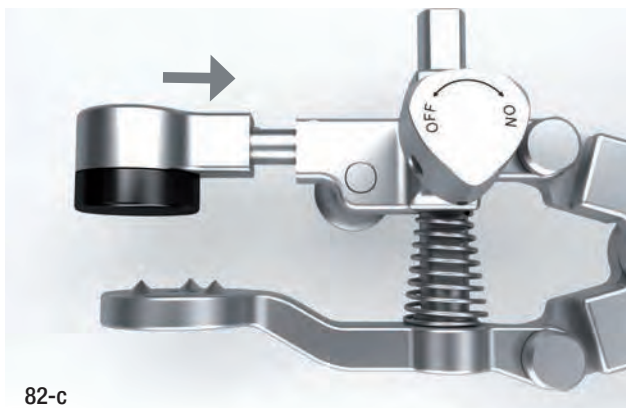
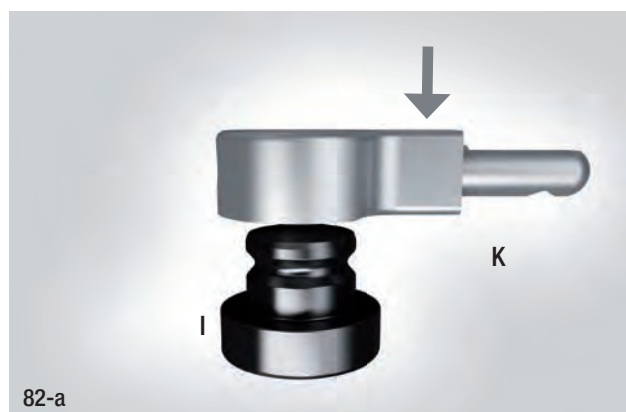
To finish, the PE articulating surface is fixed to the component using the retaining screw supplied together with the component (**80+81**).



Note: The plateau locking screw has a „self cutting thread“. While tightened the fixation hole of the PE articular surface will be deformed. In case the plateau locking screw will be released and needs to be refixed again it will not be securely locked. In such a situation a new PE articular surface has to be chosen.

Patella Implantation

The reaming guide is removed from the patella clamp. The polyethylene insert (I) is pressed into the patella pusher inserter (K) (**82-a, 82-b**) and the pusher inserter is then inserted into the patellar clamp (**82-c**).



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 using the patella clamp with the pusher inserter (83).

Caution!

Prepare the bone cement according to the manufacturer's instructions.

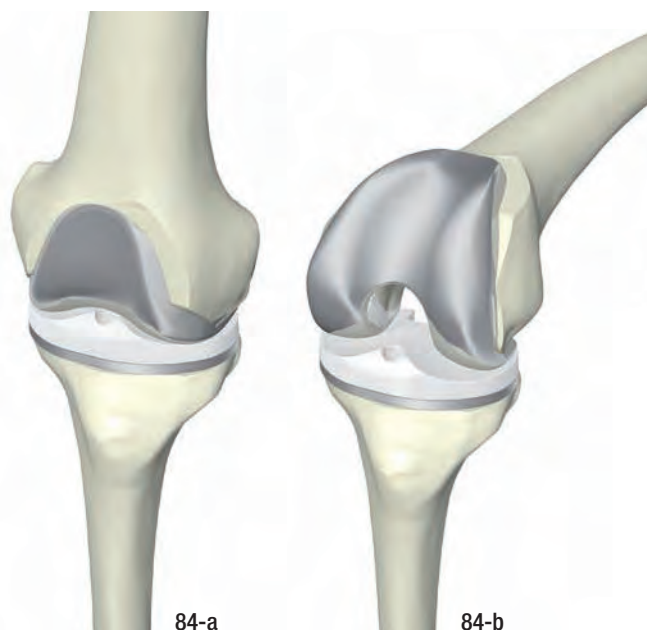
Ensure that excess bone cement is completely removed and that no loose particles of bone cement remain in the joint.



Functional Test

Implanted femoral and tibial components (84-a, 84-b).

The concluding functional test is designed to check that the components are correctly positioned in extension and flexion of the knee joint, and also to check for correct ligament tension.



APPENDIX 1: Precision Tibial Resection Alignment

The Precision Tibial Resection Alignment can be used either extramedullary or intramedullary.

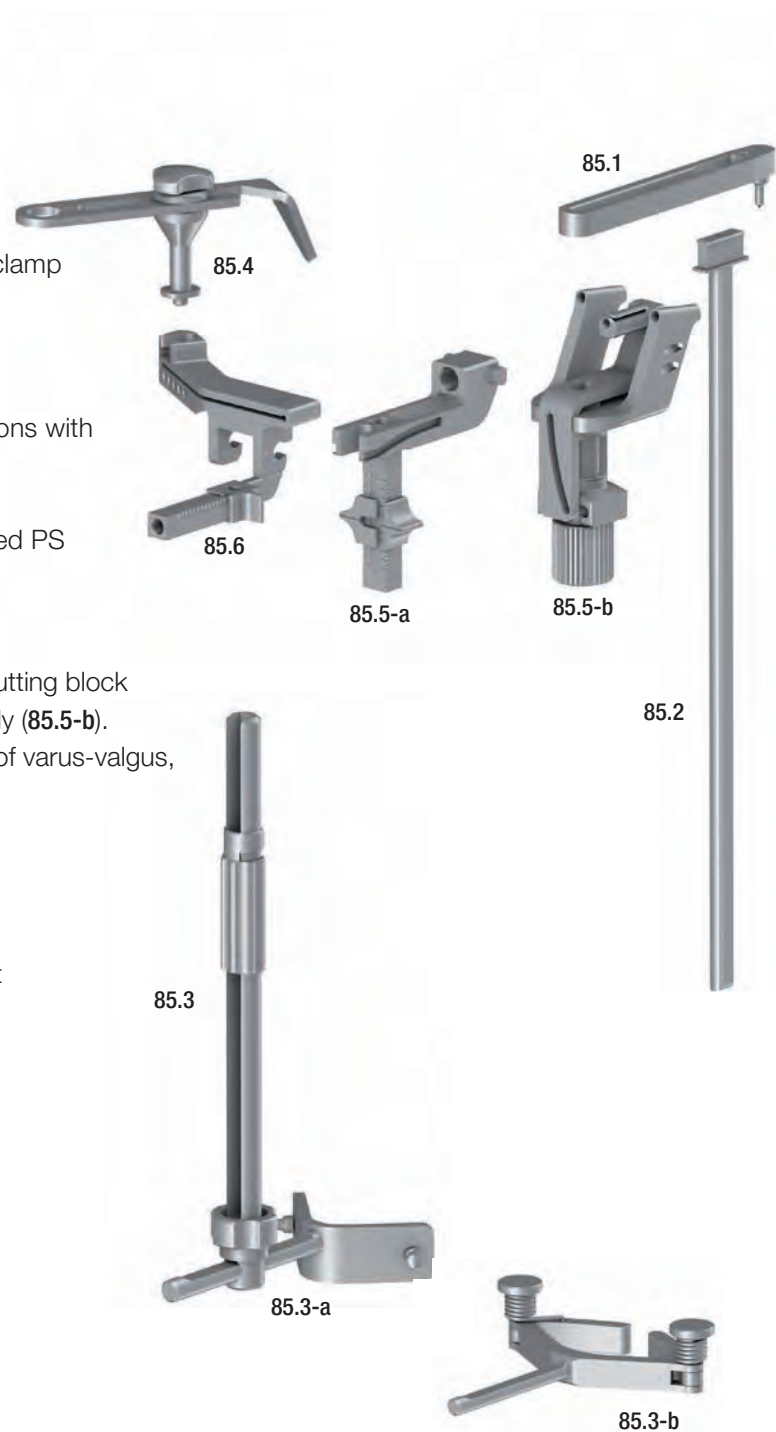
Extramedullary Alignment

Overview of components:

- EM Fixation Jig (85.1)
- EM Alignment Rod (85.2)
- EM Alignment Guide (85.3) with a foot clamp
 - silicone belt fixation (85.3 -a)
 - with spring fixation (85.3 -b)
- Stylus with Guide (85.4)

The stylus comes in the following versions with the following designations:

 - „12“ for GEMINI SL Mobile Bearing
 - „10“ for GEMINI SL Fixed CR and Fixed PS
 - „2“ for GEMINI SL defect referencing



- Tibial Base Guide (85.5)

The tibial base guide consists of tibial cutting block holder (85.5-a) and tibial base guide body (85.5-b). The tibial base guide allows fine tuning of varus-valgus, posterior slope and resection level.
- Tibial Cutting Block (85.6)
 - Symmetrical
 - Asymmetrical (medial approach), left
 - Asymmetrical (medial approach), right

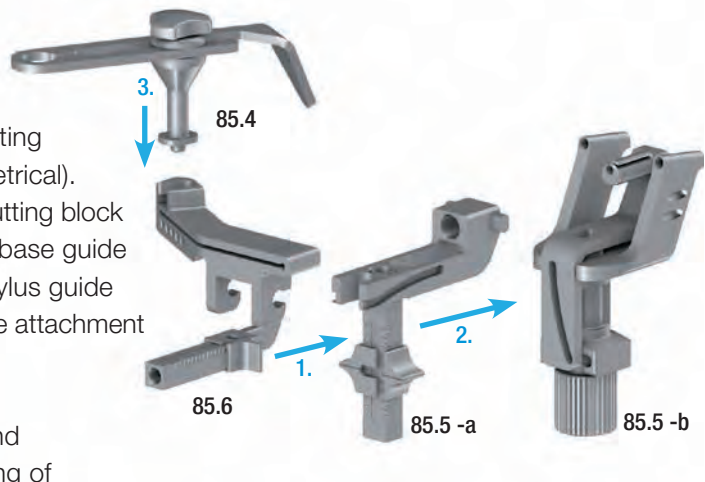
Assembly

Components are assembled accordingly:

Step 1:

First the tibial cutting jig is assembled.

According to the preferred technique the tibial cutting block (85.6) is determined (symmetrical or asymmetrical). The tibial cutting block is mounted with the tibial cutting block holder (85.5 -a) and then connected with the tibial base guide body (85.5 -b). Release the locking screw at the stylus guide then insert the foot of the stylus guide (85.4) into the attachment of the tibial cutting block.



Note: Preselect varus/valgus adjustment to „0“ and posterior slope to „5“. The device allows fine tuning of the adjustment after the tibial cutting jig has been fixed to the tibia.

Step 2:

The EM alignment rod (85.2) is assembled with the EM fixation jig (85.1) and then pushed through the tibial base guide of the tibial cutting jig. Proximal tibial cutting jig (85.7).



Step 3:

Insert the foot clamp (85.3-a) into the alignment guide (85.3) and hand-tighten the locking screw (A).



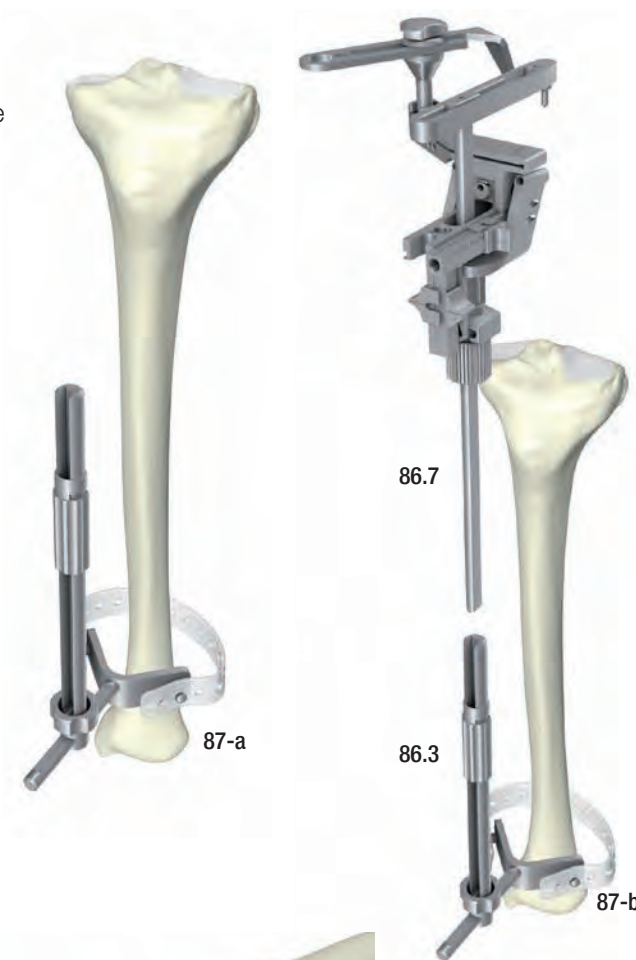
Positioning

Attach the foot clamp to the ankle joint and secure with the silicone belt (87-a).

Option: The foot clamp can be chosen either spring clamp or silicone belt.

The EM orientation rod with the fixation jig (86.7) is inserted through the tibial base guide (86.3) and into the distal guide tube, and is secured with the connecting sleeve (87-b).

Note: The connecting sleeve secures the proximal tibial cutting jig of an anterior release. The cutting jig can still be moved proximal/ distal.



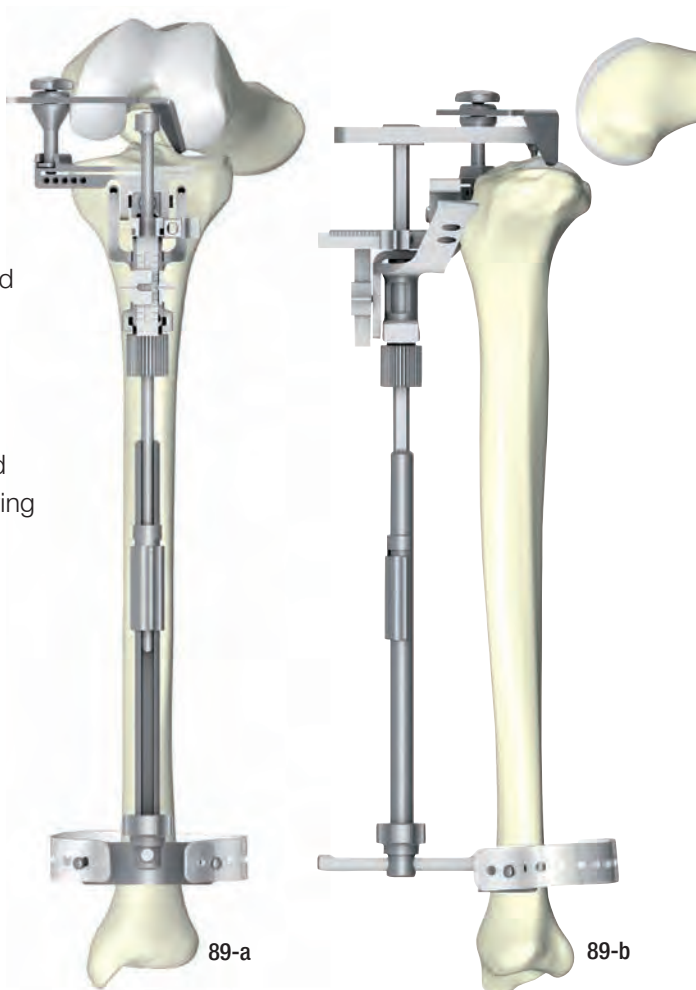
Proximal, the tip of the fixation jig initially rests in the area of the point of attachment of the anterior cruciate ligament, roughly centrally in the region of the intercondylar eminence on the tibial plateau (88-a). Then the tip is knocked in with a hammer (88-b). The alignment instrument can still be rotated.

Rotation Definition and Axial Alignment

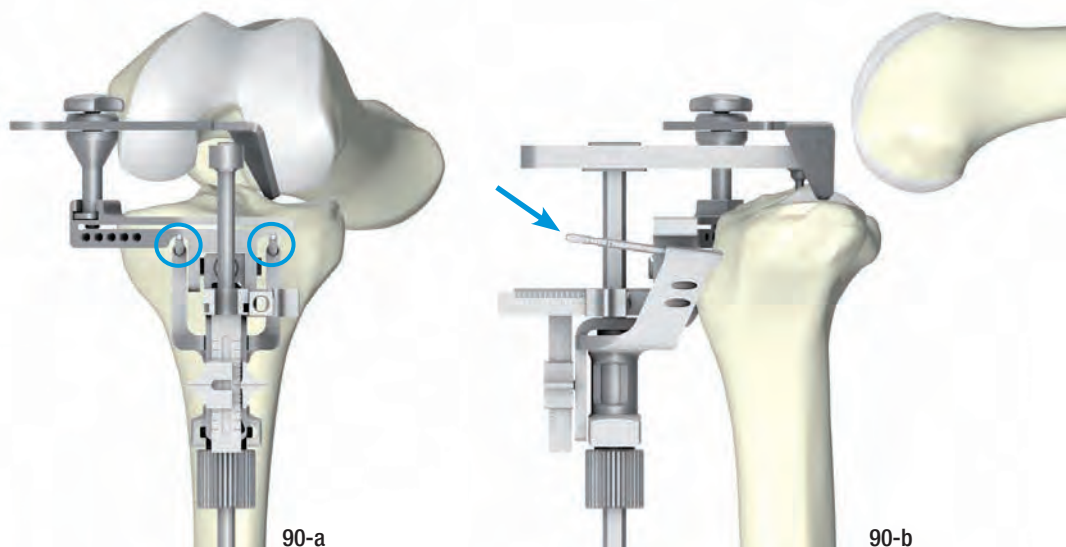
To determine the correct alignment of the rotation, the alignment instrument is aligned centrally along the tibial shaft axis (89-a).

Note: For assistance, the center of the tibia, the tibial tuberosity and the second toe can be marked with a sterile marker pen.

When the alignment instrument, viewed from the side, is parallel to the ventral tibia, this means that the saw guide is set in the previously selected posterior slope. Fine adjustment is possible following alignment (89-b).



Then secure the tibial resection alignment proximal with two drill pins through the dedicated holes of the tibial base guide (90-a, 90-b).



Resection Adjustment

The EM fixation jig and the stylus are removed and the EM Alignment Rod is slid distal into the EM Alignment Guide allowing now for micro adjustment of the tibial resection.

Fine Tuning for the Tibial Resection

Correct alignment can be checked using the cutting template (91).

Posterior Slope

GEMINI SL Tibia Slope Recommendations: For a Mobile Bearing and Fixed Bearing Cruciate Retaining (CR) configuration it is recommended to set the tibial posterior slope at 5 degrees. For a Fixed Bearing Posterior Stabilized (PS) configuration, a range of 0–5 degrees of tibial posterior slope is recommended. Posterior slope can be adjusted in 1° steps with the micro adjustment (A) (92).

Tibial Resection Height

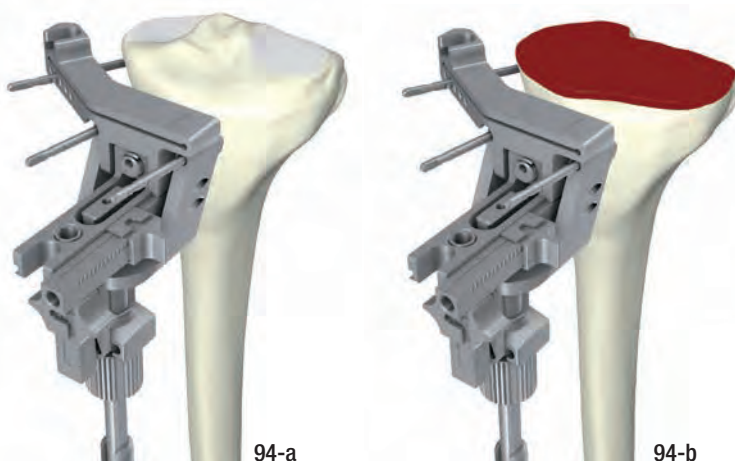
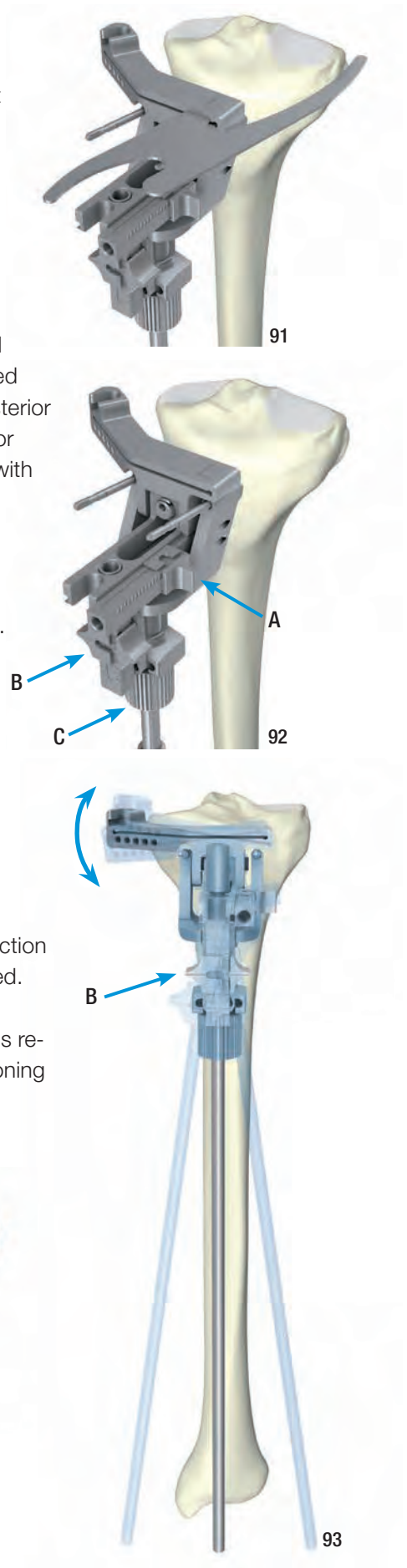
After presetting the resection height with the selected stylus version, the resection height can now be micro adjusted with the screw (C) (92).

Varus-valgus Adjustment

The micro adjustment (B) allows precise correction of the varus or valgus alignment. The alignment can be checked by inserting the EM alignment rod (93).

Then the tibial cutting block is fixed with a drill pin (94-a) and the resection is performed (94-b). The cross-pin of the tibial cutting block is removed.

The fixation of the ankle clamp is taken off then the alignment device is removed leaving the two pins in place which will allow a simple repositioning if re-resection is necessary.



APPENDIX 2: Precision Tibial Resection Alignment

Intramedullary Alignment

Overview of the components:

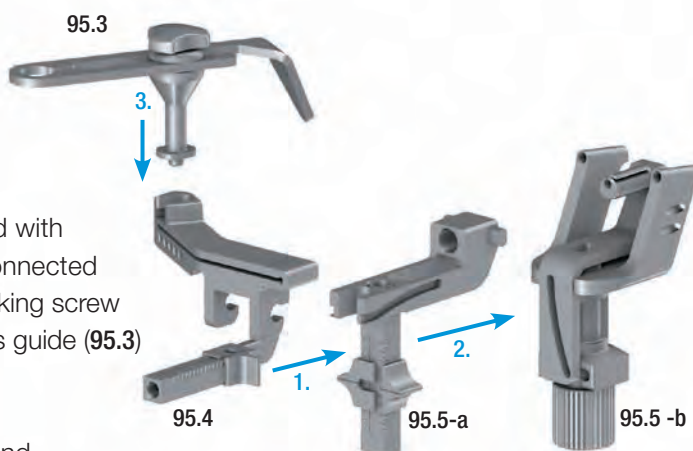
- IM Fixation Jig (95.1)
- EM Alignment Rod (95.2)
- Stylus with Guide (95.3)
The stylus comes in the following versions with the following designations:
 - „12“ for GEMINI SL Mobile Bearing
 - „10“ for GEMINI SL Fixed and Fixed PS
 - „2“ for GEMINI SL defect referencing
- Tibial Cutting Block (95.4)
 - Symmetrical
 - Asymmetrical (medial approach), left
 - Asymmetrical (medial approach), right
- Tibial Base Guide (95.5)
The tibial base guide consists of tibial cutting block holder (95.5-a) and tibial base guide body (95.5-b). The tibial base guide allows fine tuning of varus-valgus, posterior slope and resection level.
- T-Handle (95.6)
- IM Guide Rod (95.7)



Assembly:

Step 1:

First the tibial cutting jig is assembled. According to the preferred technique the tibial cutting block (95.4) is determined (symmetrical or asymmetrical). The tibial cutting block is mounted with the varus/valgus adjustment (95.5 -a) and then connected with the tibial base guide (95.5 -b). Release the locking screw at the stylus guide then insert the foot of the stylus guide (95.3) into the attachment of the tibial cutting block.



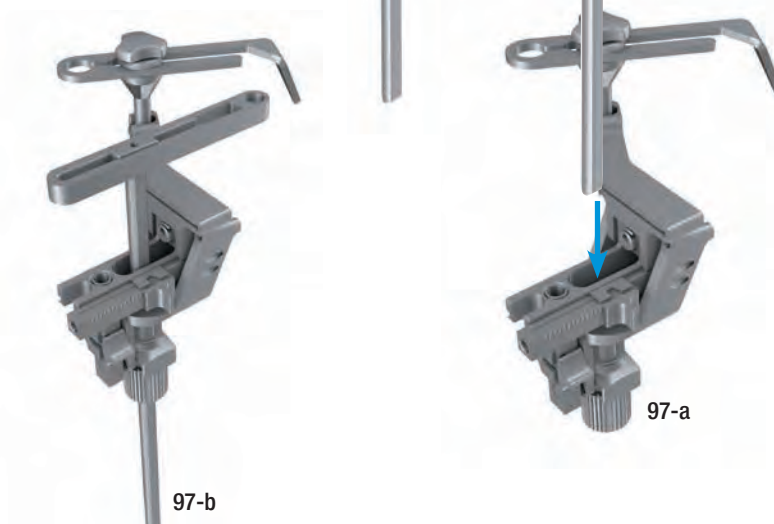
Note: Preselect varus/valgus adjustment to „0“ and posterior slope to „5“. The device allows micro tuning of the adjustment after the tibial cutting jig has been fixed to the tibia.

Step 2:

The EM alignment rod (96.2) is assembled with the IM fixation jig (96.1) and then pushed through the tibial base guide of the tibial cutting jig (97-a, 97-b).



Proximal tibial cutting jig.



Positioning

The entrance to the medullary canal is opened using the step drill having a pilot tip (98).



Connect the T-Handle with the IM guide rod (99-a).
Insert the IM guide rod carefully into the tibial canal until the isthmus is firmly engaged (99-b)

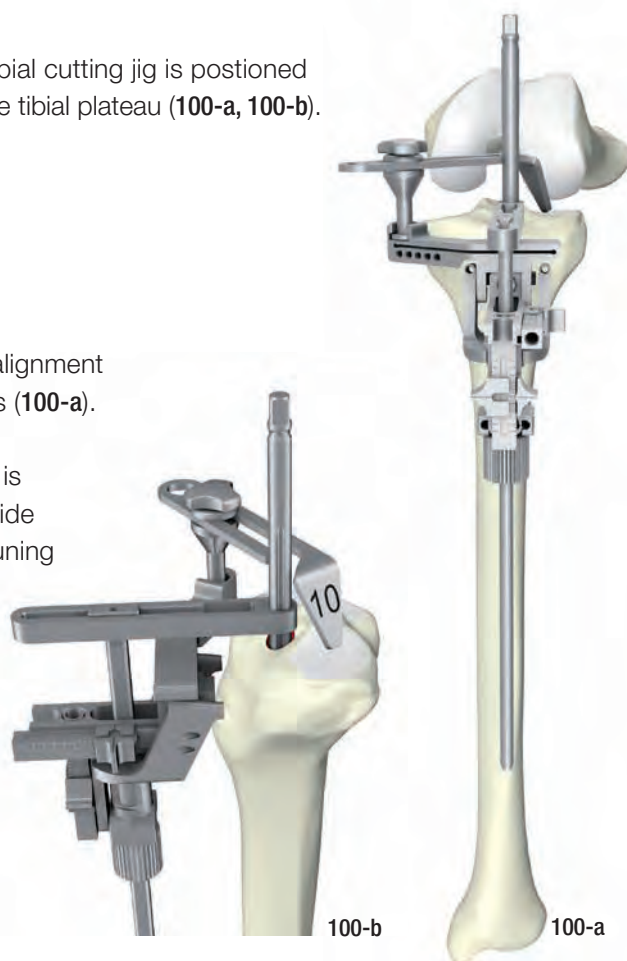


The T-Handle is removed. The previously assembled tibial cutting jig is positioned on the IM guide rod until the tip of the stylus rests on the tibial plateau (**100-a, 100-b**).

Rotation Definition and Axial Alignment

To determine the correct alignment of the rotation, the alignment instrument is aligned centrally along the tibial shaft axis (**100-a**).

When the alignment instrument, viewed from the side, is parallel to the anterior tibia, this means that the sawguide is set in the previously selected posterior slope. Fine tuning is possible following alignment (**100-b**).

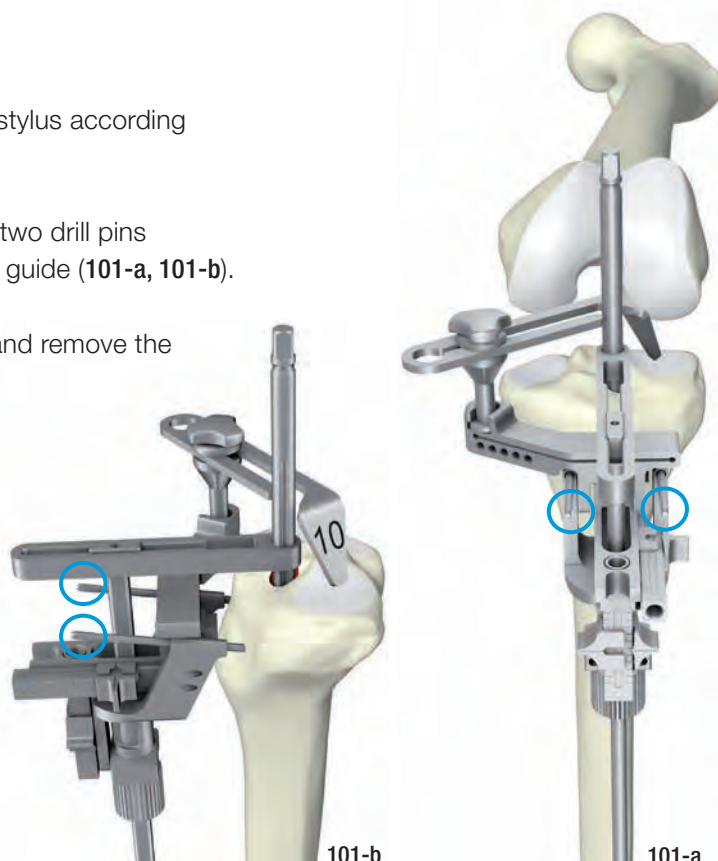


Determination of Resection Height

The resection height is determined using the stylus according to preferred referencing.

Then secure the tibial cutting jig anterior with two drill pins through the dedicated holes of the tibial base guide (**101-a, 101-b**).

Connect the T-Handle with the IM guide rod and remove the IM guide rod.



Resection Adjustment

The IM fixation jig and the stylus with guide are removed and the EM alignment rod is pushed distal into the tibaoil base guide.

Fine Tuning for the Tibial Resection

The tibial saw guide is now pushed against the anterior tibial cortical bone as far as the limit stop. Correct alignment can be checked using the cutting template (102).

Posterior Slope

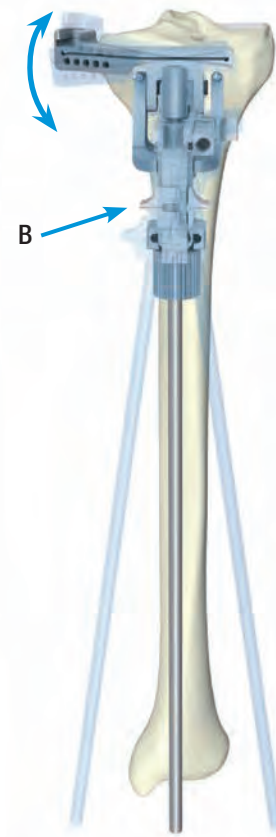
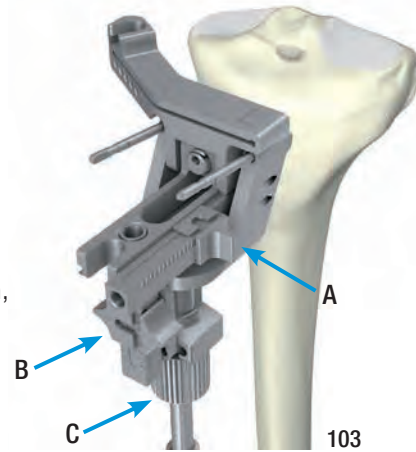
GEMINI SL: Tibia Slope Recommendations: For Mobile Bearing and Fixed Bearing Cruciate Retaining (CR) configuration it is recommended to set the tibial posterior slope at 5 degrees. For a Fixed Bearing Pos-terior Stabilized (PS) configuration, a range of 0–5 degrees of tibial posterior slope is recommended. Posterior slope can be adjusted in 1° steps with the fine tuning (A) (103).

Tibial Resection Height

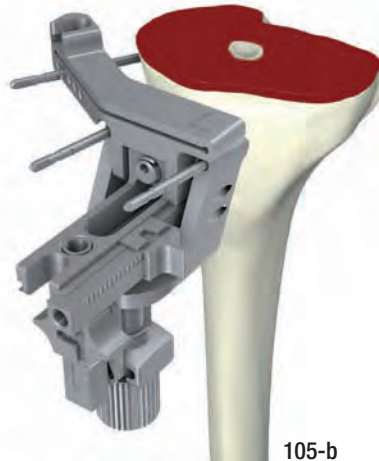
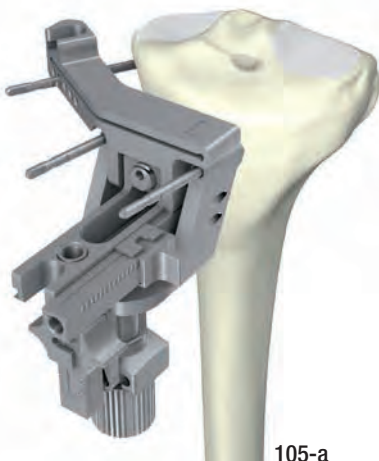
After presetting the resection height with the selected stylus version, the resection hight can now be fine tuned with the screw (C) (103).

Varus-valgus Adjustment

The fine tuning (B) allows precise correction of the varus or valgus alignment (103). The alignment can be checked by inserting the EM alignment rod (104).



Then the tibial cutting block is fixed with a drill pin (105-a) and the resection is performed (105-b).



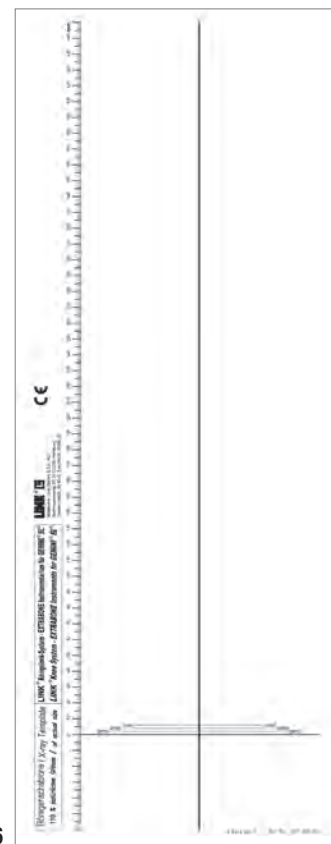
104

APPENDIX 3: GEMINI SL EXTRABONE – Extramedullary Femoral Referencing

Preoperative Planning

With **EXTRABONE**, the position and alignment of the distal femoral resection plane are planned on the A/P femoral X-ray. A special X-ray template (**106**) is available for this purpose. The long axis is aligned to the head of the femur. The short axis is applied tangentially to the widest point of the distal femoral condyle. Then the distance to the shorter femoral condyle is determined as the difference. In the example (**107-a, 107-b**), there is a 2 mm of set between the medial and lateral femoral condyles. With this method, the cartilage layer is not taken into account, as it is not visualized by the imaging technique. Therefore the cartilage layer has to be removed intraoperatively in order to create the same preoperative condition.

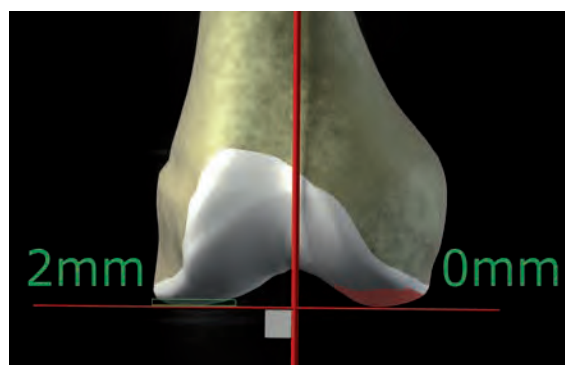
Note: The basis for a correct technique is accurate preplanning based on a X-ray of the total femur.



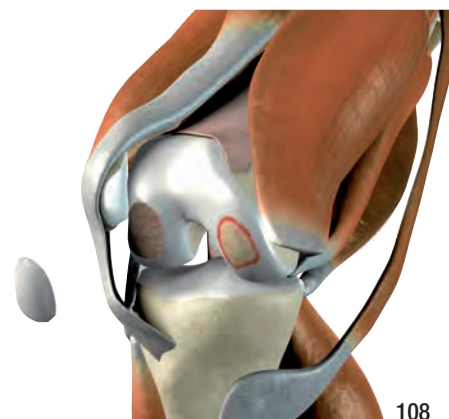
106



107-a



107-b



108

As the cartilage was not taken into account in the preceding radiological planning, the cartilage layer – if still present – has to be removed (**108**).

Femur Preparation – Distal Resection

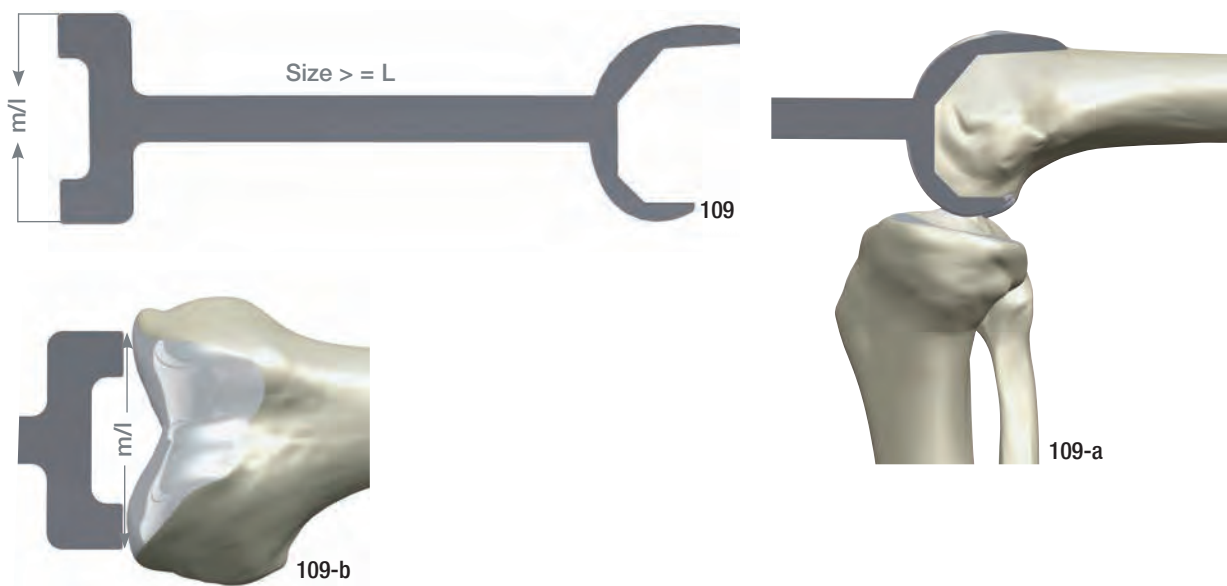
With **EXTRABONE**, extramedullary referencing for the distal femoral resection is performed as follows.

The **GEMINI SL** femoral component permits size-specific distal resection:

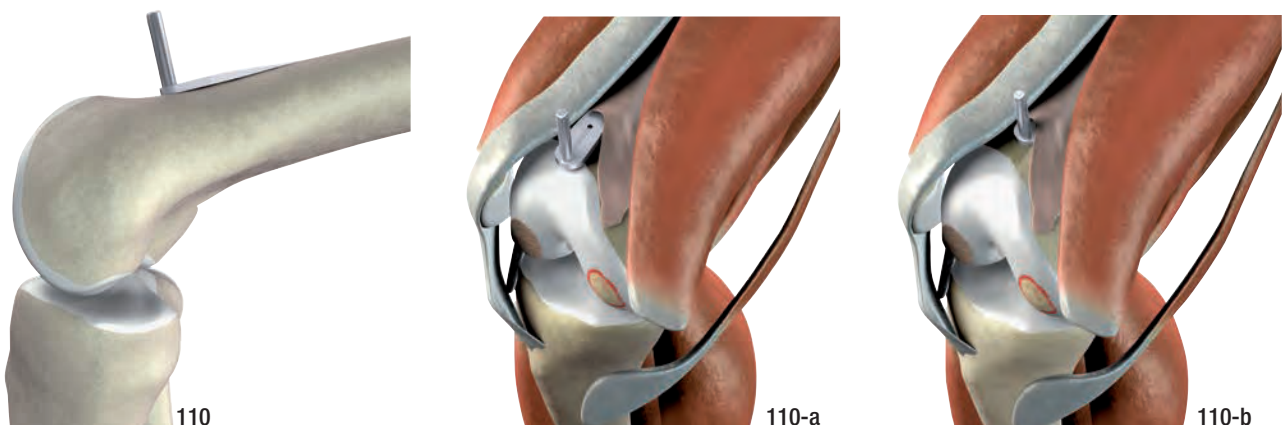
Sizes **1-2B** distal femoral cutting block "S"

Sizes **3-5** distal femoral cutting block "L"

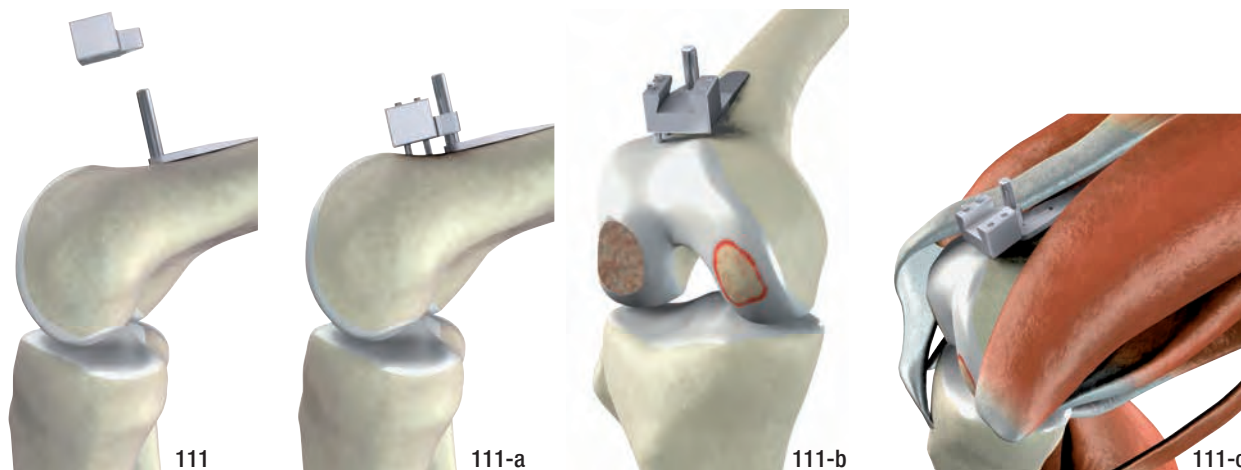
The femoral sizer is used to verify the femoral size determined in preoperative planning and to select the distal femoral cutting block (**109, 109-a, 109-b**). The sizer is held against the femur to determine its size. The contour shown below corresponds to size 3. If the femur profile is smaller, the distal cutting block "S" should be selected. If the femur profile is a perfect fit or larger, the distal cutting block "L" should be selected. The m/l dimension can be checked in addition.



The guide for flexion/extension alignment is placed on the anterior bone (**110, 110-a, 110-b**).

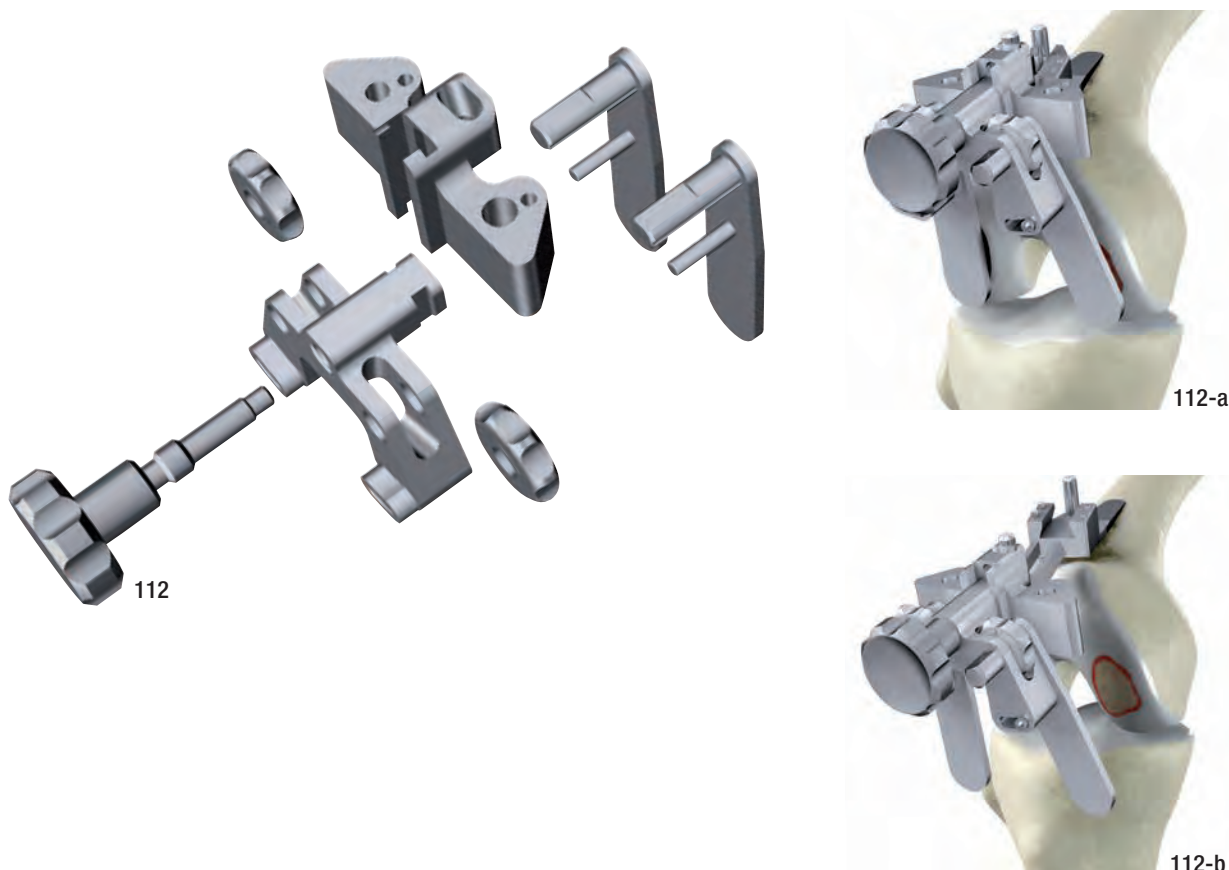


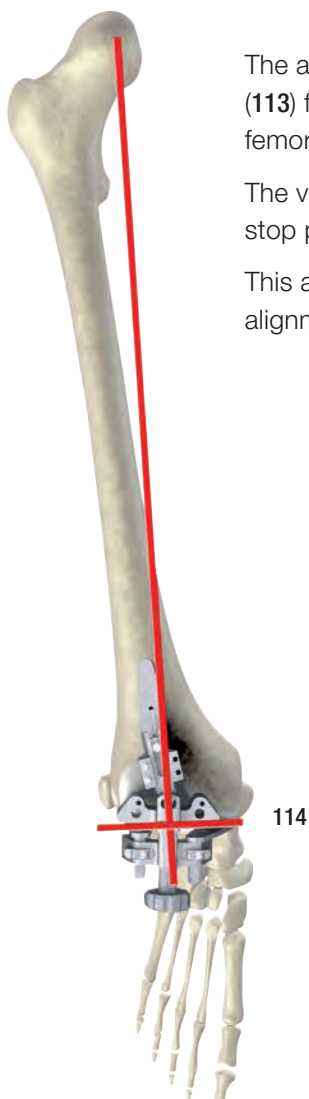
The positioner guide is placed vertically onto the guide and fixed with two drill pins (111, 111-a, 111-b, 111-c).



The alignment instrument for holding the distal cutting block is attached with the connection piece (112) and inserted into the positioner guide (112-a). The alignment instrument is inserted far enough that the two condyle stop plates rest against the distal medial and lateral femoral condyles (112-b).

The condyle stop plates can be swiveled from 0° to 25° to ensure that they are precisely positioned.

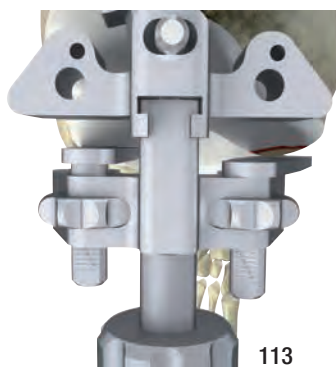




The alignment instrument has a setting screw and scale medially and laterally (113) for transferring the preoperative planning data for the offset of the distal femoral condyles to the distal femur.

The varus/valgus orientation of the resection is achieved by adjusting the condyle stop plates with the medial and lateral setting screws.

This alignment can be verified intraoperatively with the axial alignment guide and an alignment rod (114).

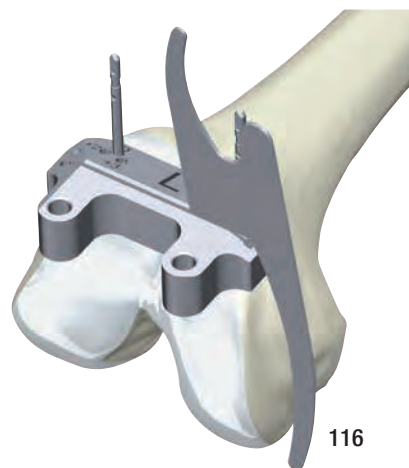


113



115

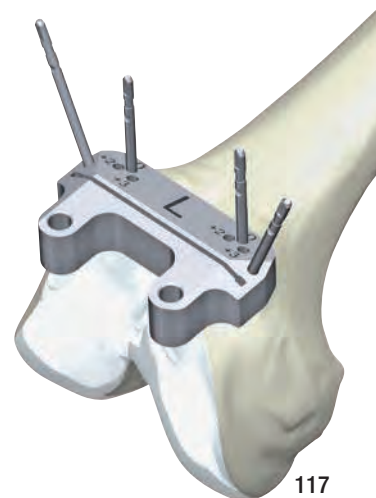
Two drill pins are positioned for referencing the position of the distal femoral cutting block. The distal femoral cutting block is positioned over these two drill pins, taking into account the previously determined size ("S" or "L") (115).



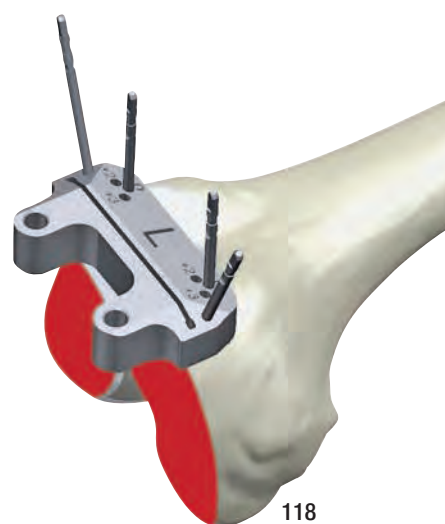
116

The cutting template can be used to check the alignment of the distal resection (116).

To make the cutting block more stable, a third drill pin is fixed into the lateral diagonal hole. There is the option of inserting a fourth drill pin (117).

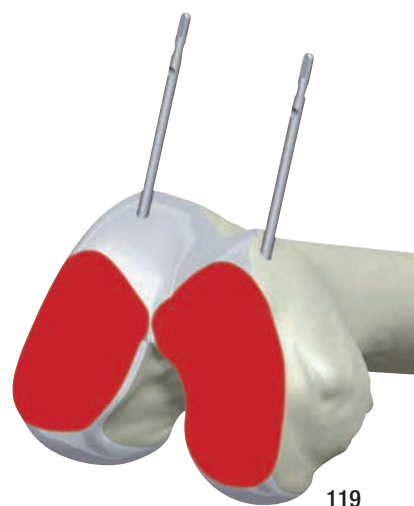


The distal saw cut is made at 90° flexion (118).



The parallel drill pins remain in position (119).

Note: It is possible to adjust the extension gap by repeating the resection.

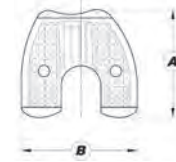


The rest of the procedure is performed in the same way as with the standard surgical technique GEMINI SL Total Knee System.

GEMINI SL Femoral Components – Fixed Bearing CR / Mobile Bearing

to be used with Fixed Bearing CR and Mobile Bearing PE Articulating Surfaces

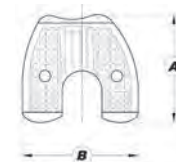
cemented



MAT CoCrMo **MAT** CoCrMo **MAT** CoCrMo/TiNbN

SMS* REF	SpheroGrip REF	SMS*/LINK PorEx** REF	Size	Side	A mm	B mm	Identi- fication
318-102/01	318-402/01	318-206/01	x-small	right	52	55	R1
318-102/16	318-402/16	318-206/16	x-small plus	right	55	62	R1B
318-102/02	318-402/02	318-206/02	small	right	59	62	R2
318-102/25	318-402/25	318-206/25	medium small	right	59	69	R2A
318-102/26	318-402/26	318-206/26	medium small plus	right	62	69	R2B
318-102/03	318-402/03	318-206/03	medium	right	65	69	R3
318-102/04	318-402/04	318-206/04	large	right	67	72	R4
318-102/05	318-402/05	318-206/05	x-large	right	72	76	R5
318-103/01	318-403/01	318-207/01	x-small	left	52	55	L1
318-103/16	318-403/16	318-207/16	x-small plus	left	55	62	L1B
318-103/02	318-403/02	318-207/02	small	left	59	62	L2
318-103/25	318-403/25	318-207/25	medium small	left	59	69	L2A
318-103/26	318-403/26	318-207/26	medium small plus	left	62	69	L2B
318-103/03	318-403/03	318-207/03	medium	left	65	69	L3
318-103/04	318-403/04	318-207/04	large	left	67	72	L4
318-103/05	318-403/05	318-207/05	x-large	left	72	76	L5

cementless



MAT CoCrMo/TiCaP*** **MAT** CoCrMo/TiNbN/TiCaP***

SMS* REF	SMS*/LINK PorEx** REF	Size	Side	A mm	B mm	Identi- fication
318-204/01	318-208/01	x-small	right	52	55	R1
318-204/16	318-208/16	x-small plus	right	55	62	R1B
318-204/02	318-208/02	small	right	59	62	R2
318-204/25	318-208/25	medium small	right	59	69	R2A
318-204/26	318-208/26	medium small plus	right	62	69	R2B
318-204/03	318-208/03	medium	right	65	69	R3
318-204/04	318-208/04	large	right	67	72	R4
318-204/05	318-208/05	x-large	right	72	76	R5
318-205/01	318-209/01	x-small	left	52	55	L1
318-205/16	318-209/16	x-small plus	left	55	62	L1B
318-205/02	318-209/02	small	left	59	62	L2
318-205/25	318-209/25	medium small	left	59	69	L2A
318-205/26	318-209/26	medium small plus	left	62	69	L2B
318-205/03	318-209/03	medium	left	65	69	L3
318-205/04	318-209/04	large	left	67	72	L4
318-205/05	318-209/05	x-large	left	72	76	L5

* SMS: Squarical Monobloc Structure.

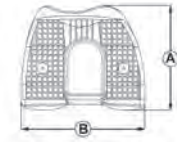
** LINK PorEx: TiNbN = Titanium Niobium Nitride; hypoallergenic coating (gold color).

*** TiCaP double coating: Titan/Calcium Phosphate (CaP).

GEMINI SL Femoral Components – Fixed Bearing PS

to be used with Fixed Bearing PS PE Articulating Surfaces

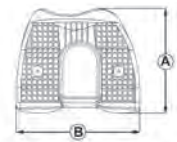
cemented



MAT CoCrMo **MAT** CoCrMo **MAT** CoCrMo/TiNbN

SMS* REF	SpheroGrip REF	SMS*/LINK PorEx** REF	Size	Side	A mm	B mm	Identi- fication
318-112/01	318-412/01	318-214/01	x-small	right	52	55	R1
318-112/16	318-412/16	318-214/16	x-small plus	right	55	62	R1B
318-112/02	318-412/02	318-214/02	small	right	59	62	R2
318-112/25	318-412/25	318-214/25	medium small	right	59	69	R2A
318-112/26	318-412/26	318-214/26	medium small plus	right	62	69	R2B
318-112/03	318-412/03	318-214/03	medium	right	65	69	R3
318-112/04	318-412/04	318-214/04	large	right	67	72	R4
318-112/05	318-412/05	318-214/05	x-large	right	72	76	R5
318-113/01	318-413/01	318-215/01	x-small	left	52	55	L1
318-113/16	318-413/16	318-215/16	x-small plus	left	55	62	L1B
318-113/02	318-413/02	318-215/02	small	left	59	62	L2
318-113/25	318-413/25	318-215/25	medium small	left	59	69	L2A
318-113/26	318-413/26	318-215/26	medium small plus	left	62	69	L2B
318-113/03	318-413/03	318-215/03	medium	left	65	69	L3
318-113/04	318-413/04	318-215/04	large	left	67	72	L4
318-113/05	318-413/05	318-215/05	x-large	left	72	76	L5

cementless



MAT CoCrMo/TiCaP*** **MAT** CoCrMo/TiNbN/TiCaP***

SMS* REF	SMS*/LINK PorEx** REF	Size	Side	A mm	B mm	Identi- fication
318-212/01	318-216/01	x-small	right	52	55	R1
318-212/16	318-216/16	x-small plus	right	55	62	R1B
318-212/02	318-216/02	small	right	59	62	R2
318-212/25	318-216/25	medium small	right	59	69	R2A
318-212/26	318-216/26	medium small plus	right	62	69	R2B
318-212/03	318-216/03	medium	right	65	69	R3
318-212/04	318-216/04	large	right	67	72	R4
318-212/05	318-216/05	x-large	right	72	76	R5
318-213/01	318-217/01	x-small	left	52	55	L1
318-213/16	318-217/16	x-small plus	left	55	62	L1B
318-213/02	318-217/02	small	left	59	62	L2
318-213/25	318-217/25	medium small	left	59	69	L2A
318-213/26	318-217/26	medium small plus	left	62	69	L2B
318-213/03	318-217/03	medium	left	65	69	L3
318-213/04	318-217/04	large	left	67	72	L4
318-213/05	318-217/05	x-large	left	72	76	L5

* SMS: Squarical Monobloc Structure.

** LINK PorEx: TiNbN = Titanium Niobium Nitride; hypoallergenic coating (gold color).

*** TiCaP double coating: Titan/Calcium Phosphate (CaP).

GEMINI SL Tibial Components – Fixed Bearing

to be used with Fixed Bearing CR and PS PE Articulating Surfaces

cemented

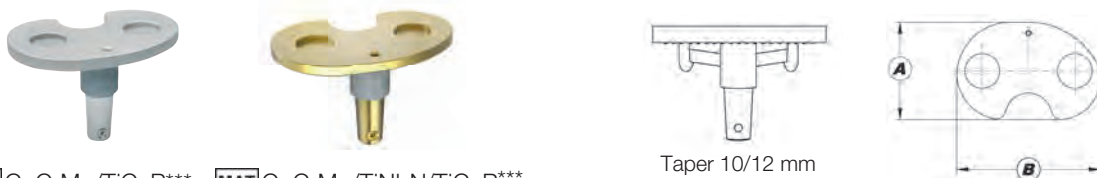


MAT CoCrMo **MAT** CoCrMo **MAT** CoCrMo/TiNbN

SMS* REF	SpheroGrip REF	SMS*/LINK PorEx** REF	Size	Side	A mm	B mm	Identi- fication
318-372/01	318-482/01	318-328/01	x-small	right	42	62	R1
318-372/02	318-482/02	318-328/02	small	right	46	69	R2
318-372/03	318-482/03	318-328/03	medium	right	47	74	R3
318-372/04	318-482/04	318-328/04	large	right	53	78	R4
318-372/05	318-482/05	318-328/05	x-large	right	56	85	R5
318-373/01	318-483/01	318-329/01	x-small	left	42	62	L1
318-373/02	318-483/02	318-329/02	small	left	46	69	L2
318-373/03	318-483/03	318-329/03	medium	left	47	74	L3
318-373/04	318-483/04	318-329/04	large	left	53	78	L4
318-373/05	318-483/05	318-329/05	x-large	left	56	85	L5

incl. Locking Screw for PE Articulating Surface

cementless



MAT CoCrMo/TiCaP*** **MAT** CoCrMo/TiNbN/TiCaP***

SMS* REF	SMS*/LINK PorEx** REF	Size	Side	A mm	B mm	Identi- fication
318-376/01	318-336/01	x-small	right	42	62	R1
318-376/02	318-336/02	small	right	46	69	R2
318-376/03	318-336/03	medium	right	47	74	R3
318-376/04	318-336/04	large	right	53	78	R4
318-376/05	318-336/05	x-large	right	56	85	R5
318-377/01	318-337/01	x-small	left	42	62	L1
318-377/02	318-337/02	small	left	46	69	L2
318-377/03	318-337/03	medium	left	47	74	L3
318-377/04	318-337/04	large	left	53	78	L4
318-377/05	318-337/05	x-large	left	56	85	L5

incl. Locking Screw for PE Articulating Surface

* SMS: Squarical Monobloc Structure.

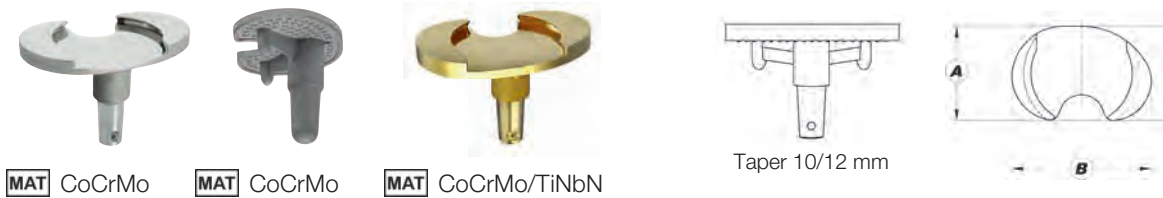
** LINK PorEx: TiNbN = Titanium Niobium Nitride; hypoallergenic coating (gold color).

*** TiCaP double coating: Titan/Calcium Phosphate (CaP).

GEMINI SL Tibial Components – Mobile Bearing

to be used with Mobile Bearing PE Articulating Surfaces

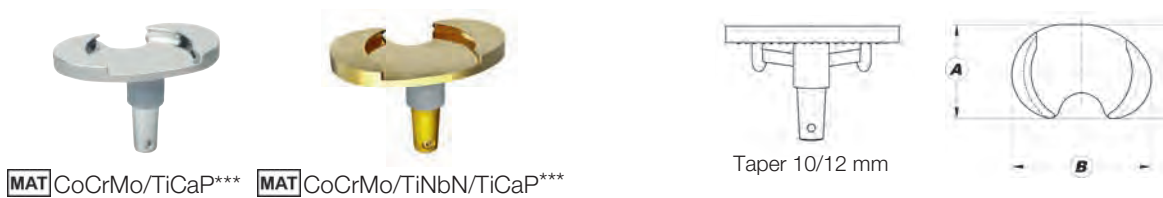
cemented



MAT CoCrMo **MAT** CoCrMo **MAT** CoCrMo/TiNbN

SMS* REF	SpheroGrip REF	SMS*/LINK PorEx** REF	Size	Side	A mm	B mm	Identi- fication
318-312/01	318-452/01	318-324/01	x-small	right	42	62	R1
318-312/02	318-452/02	318-324/02	small	right	46	69	R2
318-312/03	318-452/03	318-324/03	medium	right	47	74	R3
318-312/04	318-452/04	318-324/04	large	right	53	78	R4
318-312/05	318-452/05	318-324/05	x-large	right	56	85	R5
318-313/01	318-453/01	318-325/01	x-small	left	42	62	L1
318-313/02	318-453/02	318-325/02	small	left	46	69	L2
318-313/03	318-453/03	318-325/03	medium	left	47	74	L3
318-313/04	318-453/04	318-325/04	large	left	53	78	L4
318-313/05	318-453/05	318-325/05	x-large	left	56	85	L5

cementless



MAT CoCrMo/TiCaP*** **MAT** CoCrMo/TiNbN/TiCaP***

SMS* REF	SMS*/LINK PorEx** REF	Size	Side	A mm	B mm	Identi- fication
318-316/01	318-326/01	x-small	right	42	62	R1
318-316/02	318-326/02	small	right	46	69	R2
318-316/03	318-326/03	medium	right	47	74	R3
318-316/04	318-326/04	large	right	53	78	R4
318-316/05	318-326/05	x-large	right	56	85	R5
318-317/01	318-327/01	x-small	left	42	62	L1
318-317/02	318-327/02	small	left	46	69	L2
318-317/03	318-327/03	medium	left	47	74	L3
318-317/04	318-327/04	large	left	53	78	L4
318-317/05	318-327/05	x-large	left	56	85	L5

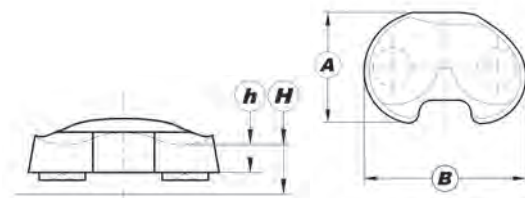
* SMS: Squarical Monobloc Structure.

** LINK PorEx: TiNbN = Titanium Niobium Nitride; hypoallergenic coating (gold color).

*** TiCaP double coating: Titan/Calcium Phosphate (CaP).

GEMINI SL Tibial Components – Fixed Bearing CR

to be used with Femoral Components CR (Cruciate Retaining) and Fixed Bearing Tibial Components



Fixed Bearing CR - PE Articulating Surfaces

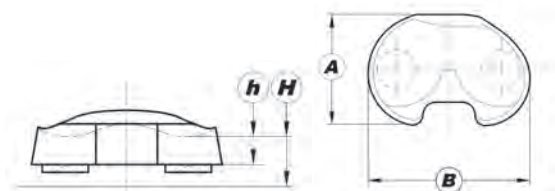
MAT UHMWPE

REF	Size	Side	H mm	h mm	A mm	B mm	Identification
318-231/10	x-small	right	10	6	42	62	R1
318-238/10	x-small plus	right	10	6	46	69	R1B
318-232/10	small	right	10	6	46	69	R2
318-237/10	medium small / medium small plus	right	10	6	47	74	R2A / R2B
318-233/10	medium	right	10	6	47	74	R3
318-234/10	large	right	10	6	53	78	R4
318-235/10	x-large	right	10	6	56	85	R5
318-241/10	x-small	left	10	6	42	62	L1
318-248/10	x-small plus	left	10	6	46	69	L1B
318-242/10	small	left	10	6	46	69	L2
318-247/10	medium small / medium small plus	left	10	6	47	74	L2A / L2B
318-243/10	medium	left	10	6	47	74	L3
318-244/10	large	left	10	6	53	78	L4
318-245/10	x-large	left	10	6	56	85	L5
318-231/12	x-small	right	12	8	42	62	R1
318-238/12	x-small plus	right	12	8	46	69	R1B
318-232/12	small	right	12	8	46	69	R2
318-237/12	medium small / medium small plus	right	12	8	47	74	R2A / R2B
318-233/12	medium	right	12	8	47	74	R3
318-234/12	large	right	12	8	53	78	R4
318-235/12	x-large	right	12	8	56	85	R5
318-241/12	x-small	left	12	8	42	62	L1
318-248/12	x-small plus	left	12	8	46	69	L1B
318-242/12	small	left	12	8	46	69	L2
318-247/12	medium small / medium small plus	left	12	8	47	74	L2A / L2B
318-243/12	medium	left	12	8	47	74	L3
318-244/12	large	left	12	8	53	78	L4
318-245/12	x-large	left	12	8	56	85	L5
318-231/14	x-small	right	14	10	42	62	R1
318-238/14	x-small plus	right	14	10	46	69	R1B
318-232/14	small	right	14	10	46	69	R2
318-237/14	medium small / medium small plus	right	14	10	47	74	R2A / R2B
318-233/14	medium	right	14	10	47	74	R3
318-234/14	large	right	14	10	53	78	R4
318-235/14	x-large	right	14	10	56	85	R5

Further implant sizes on next page...

Fixed Bearing CR - PE Articulating Surfaces

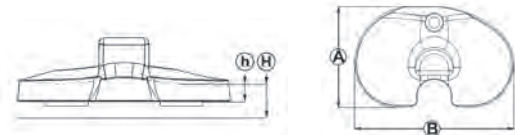
MAT UHMWPE



REF	Size	Side	H mm	h mm	A mm	B mm	Identification
318-241/14	x-small	left	14	10	42	62	L1
318-248/14	x-small plus	left	14	10	46	69	L1B
318-242/14	small	left	14	10	46	69	L2
318-247/14	medium small / medium small plus	left	14	10	47	74	L2A / L2B
318-243/14	medium	left	14	10	47	74	L3
318-244/14	large	left	14	10	53	78	L4
318-245/14	x-large	left	14	10	56	85	L5
318-231/16	x-small	right	16	12	42	62	R1
318-238/16	x-small plus	right	16	12	46	69	R1B
318-232/16	small	right	16	12	46	69	R2
318-237/16	medium small / medium small plus	right	16	12	47	74	R2A / R2B
318-233/16	medium	right	16	12	47	74	R3
318-234/16	large	right	16	12	53	78	R4
318-235/16	x-large	right	16	12	56	85	R5
318-241/16	x-small	left	16	12	42	62	L1
318-248/16	x-small plus	left	16	12	46	69	L1B
318-242/16	small	left	16	12	46	69	L2
318-247/16	medium small / medium small plus	left	16	12	47	74	L2A / L2B
318-243/16	medium	left	16	12	47	74	L3
318-244/16	large	left	16	12	53	78	L4
318-245/16	x-large	left	16	12	56	85	L5
318-231/18	x-small	right	18	14	42	62	R1
318-238/18	x-small plus	right	18	14	46	69	R1B
318-232/18	small	right	18	14	46	69	R2
318-237/18	medium small / medium small plus	right	18	14	47	74	R2A / R2B
318-233/18	medium	right	18	14	47	74	R3
318-234/18	large	right	18	14	53	78	R4
318-235/18	x-large	right	18	14	56	85	R5
318-241/18	x-small	left	18	14	42	62	L1
318-248/18	x-small plus	left	18	14	46	69	L1B
318-242/18	small	left	18	14	46	69	L2
318-247/18	medium small / medium small plus	left	18	14	47	74	L2A / L2B
318-243/18	medium	left	18	14	47	74	L3
318-244/18	large	left	18	14	53	78	L4
318-245/18	x-large	left	18	14	56	85	L5

GEMINI SL Tibial Components – Fixed Bearing PS

to be used with Femoral Components PS (Posterior Stabilized) and Fixed Bearing Tibial Components



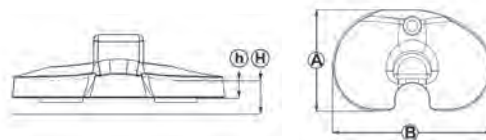
Fixed Bearing PS - PE Articulating Surfaces

MAT UHMWPE

REF	Size	Side	H mm	h mm	A mm	B mm	Identi- fication
318-251/10	x-small	right	10	6	42	62	R1
318-258/10	x-small plus	right	10	6	46	69	R1B
318-252/10	small	right	10	6	46	69	R2
318-256/10	medium small / medium small plus	right	10	6	47	74	R2A / R2B
318-253/10	medium	right	10	6	47	74	R3
318-254/10	large	right	10	6	53	78	R4
318-255/10	x-large	right	10	6	56	85	R5
318-261/10	x-small	left	10	6	42	62	L1
318-268/10	x-small plus	left	10	6	46	69	L1B
318-262/10	small	left	10	6	46	69	L2
318-266/10	medium small / medium small plus	left	10	6	47	74	L2A / L2B
318-263/10	medium	left	10	6	47	74	L3
318-264/10	large	left	10	6	53	78	L4
318-265/10	x-large	left	10	6	56	85	L5
318-251/12	x-small	right	12	8	42	62	R1
318-258/12	x-small plus	right	12	8	46	69	R1B
318-252/12	small	right	12	8	46	69	R2
318-256/12	medium small / medium small plus	right	12	8	47	74	R2A / R2B
318-253/12	medium	right	12	8	47	74	R3
318-254/12	large	right	12	8	53	78	R4
318-255/12	x-large	right	12	8	56	85	R5
318-261/12	x-small	left	12	8	42	62	L1
318-268/12	x-small plus	left	12	8	46	69	L1B
318-262/12	small	left	12	8	46	69	L2
318-266/12	medium small / medium small plus	left	12	8	47	74	L2A / L2B
318-263/12	medium	left	12	8	47	74	L3
318-264/12	large	left	12	8	53	78	L4
318-265/12	x-large	left	12	8	56	85	L5

Further implant sizes on next page...

Fixed Bearing PS - PE Articulating Surfaces

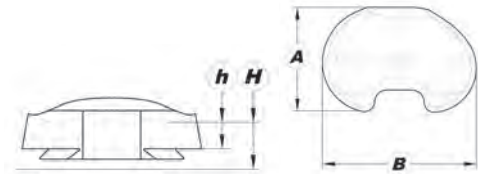


MAT UHMWPE

REF	Size	Side	H mm	h mm	A mm	B mm	Identi- fication
318-251/14	x-small	right	14	10	42	62	R1
318-258/14	x-small plus	right	14	10	46	69	R1B
318-252/14	small	right	14	10	46	69	R2
318-256/14	medium small / medium small plus	right	14	10	47	74	R2A / R2B
318-253/14	medium	right	14	10	47	74	R3
318-254/14	large	right	14	10	53	78	R4
318-255/14	x-large	right	14	10	56	85	R5
318-261/14	x-small	left	14	10	42	62	L1
318-268/14	x-small plus	left	14	10	46	69	L1B
318-262/14	small	left	14	10	46	69	L2
318-266/14	medium small / medium small plus	left	14	10	47	74	L2A / L2B
318-263/14	medium	left	14	10	47	74	L3
318-264/14	large	left	14	10	53	78	L4
318-265/14	x-large	left	14	10	56	85	L5
318-251/16	x-small	right	16	12	42	62	R1
318-258/16	x-small plus	right	16	12	46	69	R1B
318-252/16	small	right	16	12	46	69	R2
318-256/16	medium small / medium small plus	right	16	12	47	74	R2A / R2B
318-253/16	medium	right	16	12	47	74	R3
318-254/16	large	right	16	12	53	78	R4
318-255/16	x-large	right	16	12	56	85	R5
318-261/16	x-small	left	16	12	42	62	L1
318-268/16	x-small plus	left	16	12	46	69	L1B
318-262/16	small	left	16	12	46	69	L2
318-266/16	medium small / medium small plus	left	16	12	47	74	L2A / L2B
318-263/16	medium	left	16	12	47	74	L3
318-264/16	large	left	16	12	53	78	L4
318-265/16	x-large	left	16	12	56	85	L5
318-251/18	x-small	right	18	14	42	62	R1
318-258/18	x-small plus	right	18	14	46	69	R1B
318-252/18	small	right	18	14	46	69	R2
318-256/18	medium small / medium small plus	right	18	14	47	74	R2A / R2B
318-253/18	medium	right	18	14	47	74	R3
318-254/18	large	right	18	14	53	78	R4
318-255/18	x-large	right	18	14	56	85	R5
318-261/18	x-small	left	18	14	42	62	L1
318-268/18	x-small plus	left	18	14	46	69	L1B
318-262/18	small	left	18	14	46	69	L2
318-266/18	medium small / medium small plus	left	18	14	47	74	L2A / L2B
318-263/18	medium	left	18	14	47	74	L3
318-264/18	large	left	18	14	53	78	L4
318-265/18	x-large	left	18	14	56	85	L5

GEMINI SL Tibial Components – Mobile Bearing

to be used with Femoral Components CR (Cruciate Retaining) and Mobile Bearing Tibial Components



Mobile Bearing - PE Articulating Surfaces

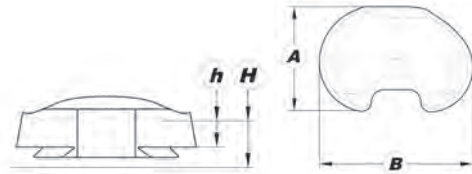
MAT UHMWPE

REF	Size	Side	H mm	h mm	A mm	B mm	Identification
318-431/12	x-small	right	12	5	42	62	R1
318-438/12	x-small plus	right	12	5	46	69	R1B
318-432/12	small	right	12	5	46	69	R2
318-437/12	medium small / medium small plus	right	12	5	47	74	R2A / R2B
318-433/12	medium	right	12	5	47	74	R3
318-434/12	large	right	12	5	53	78	R4
318-435/12	x-large	right	12	5	56	85	R5
318-441/12	x-small	left	12	5	42	62	L1
318-448/12	x-small plus	left	12	5	46	69	L1B
318-442/12	small	left	12	5	46	69	L2
318-447/12	medium small / medium small plus	left	12	5	47	74	L2A / L2B
318-443/12	medium	left	12	5	47	74	L3
318-444/12	large	left	12	5	53	78	L4
318-445/12	x-large	left	12	5	56	85	L5
318-431/14	x-small	right	14	7	42	62	R1
318-438/14	x-small plus	right	14	7	46	69	R1B
318-432/14	small	right	14	7	46	69	R2
318-437/14	medium small / medium small plus	right	14	7	47	74	R2A / R2B
318-433/14	medium	right	14	7	47	74	R3
318-434/14	large	right	14	7	53	78	R4
318-435/14	x-large	right	14	7	56	85	R5
318-441/14	x-small	left	14	7	42	62	L1
318-448/14	x-small plus	left	14	7	46	69	L1B
318-442/14	small	left	14	7	46	69	L2
318-447/14	medium small / medium small plus	left	14	7	47	74	L2A / L2B
318-443/14	medium	left	14	7	47	74	L3
318-444/14	large	left	14	7	53	78	L4
318-445/14	x-large	left	14	7	56	85	L5
318-431/16	x-small	right	16	9	42	62	R1
318-438/16	x-small plus	right	16	9	46	69	R1B
318-432/16	small	right	16	9	46	69	R2
318-437/16	medium small / medium small plus	right	16	9	47	74	R2A / R2B
318-433/16	medium	right	16	9	47	74	R3
318-434/16	large	right	16	9	53	78	R4
318-435/16	x-large	right	16	9	56	85	R5

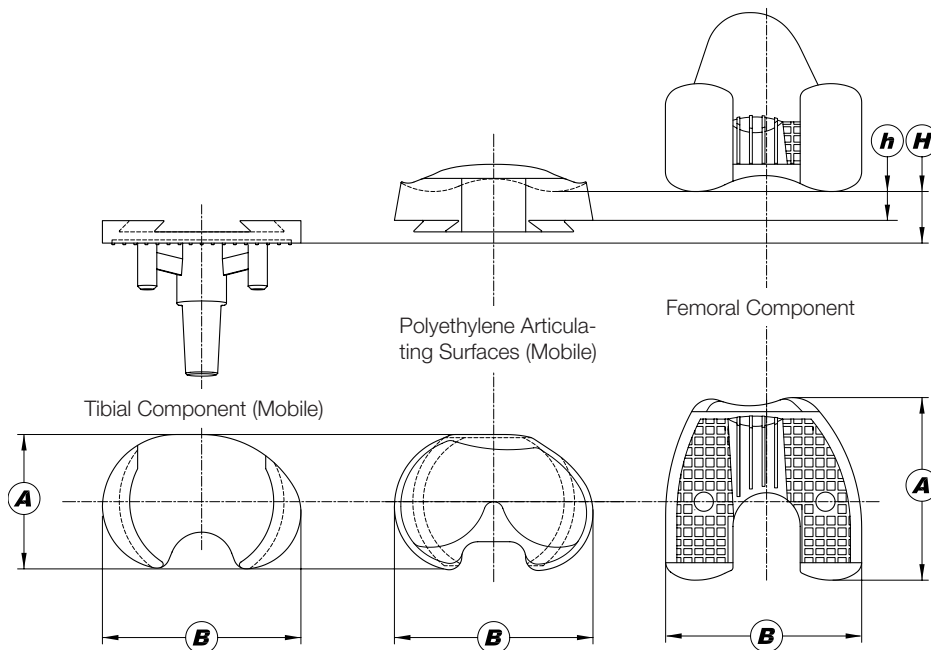
Further implant sizes on next page...

Mobile Bearing - PE Articulating Surfaces

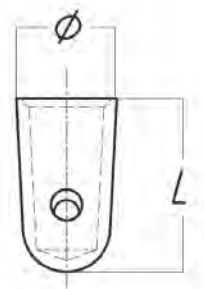
MAT UHMWPE



REF	Size	Side	H mm	h mm	A mm	B mm	Identification
318-441/16	x-small	left	16	9	42	62	L1
318-448/16	x-small plus	left	16	9	46	69	L1B
318-442/16	small	left	16	9	46	69	L2
318-447/16	medium small / medium small plus	left	16	9	47	74	L2A / L2B
318-443/16	medium	left	16	9	47	74	L3
318-444/16	large	left	16	9	53	78	L4
318-445/16	x-large	left	16	9	56	85	L5
318-431/18	x-small	right	18	11	42	62	R1
318-438/18	x-small plus	right	18	11	46	69	R1B
318-432/18	small	right	18	11	46	69	R2
318-437/18	medium small / medium small plus	right	18	11	47	74	R2A / R2B
318-433/18	medium	right	18	11	47	74	R3
318-434/18	large	right	18	11	53	78	R4
318-435/18	x-large	right	18	11	56	85	R5
318-441/18	x-small	left	18	11	42	62	L1
318-448/18	x-small plus	left	18	11	46	69	L1B
318-442/18	small	left	18	11	46	69	L2
318-447/18	medium small / medium small plus	left	18	11	47	74	L2A / L2B
318-443/18	medium	left	18	11	47	74	L3
318-444/18	large	left	18	11	53	78	L4
318-445/18	x-large	left	18	11	56	85	L5



GEMINI SL Total Knee Replacement



Taper Caps with LINK PorEx (TiNbN = Titanium Niobium Nitride) available as custom-made implant on request.

Taper Caps for Tibial Components

cemented	
REF	MAT CoCrMo
318-314	Ø 16 mm, length (L) 28 mm

cementless	
REF	MAT CoCrMo/TiCaP*
318-314/01	Ø 16 mm, length (L) 28 mm
REF	MAT Ti6Al4V (Tilastan)
318-315	Ø 16 mm, length (L) 28 mm

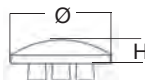
The taper of the tibial component for coupling with modular stems can be covered with the taper cap, thus providing a short prosthesis stem (overall length = 49 mm). The cap is fixed to the taper by means of a hex screw using a hex screwdriver (hex. 2.0 mm). The cap is provided separately in sterile packaging.

* TiCaP double coating: Titan (Ti)/Calcium Phosphate (CaP)



Patella Resurfacing Components, 3-pegs

MAT UHMWPE



REF	Size	Ø mm	Height mm
318-401/25	1	25	7
318-401/28	2	28	8
318-401/31	3	31	9
318-401/34	4	34	10



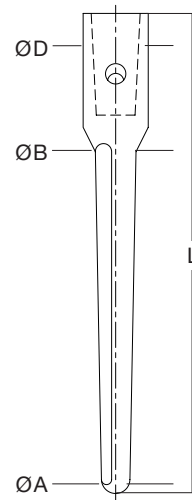
Instrument Set for Patella Components are available on request.

Tibial Stems

MAT Ti6Al4V (Tilastan)

cemented

REF	Ø A mm	Ø B mm	Ø D mm	L mm	LT mm
318-190/07	7	10	16	50	70
318-190/10	7	10	16	80	100
318-190/14	7	10	16	120	140

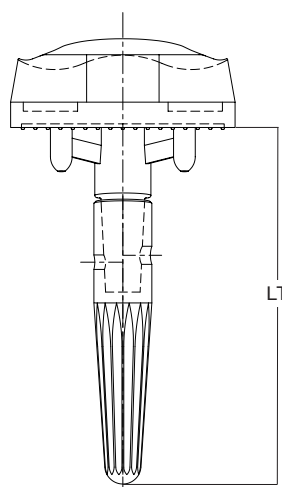
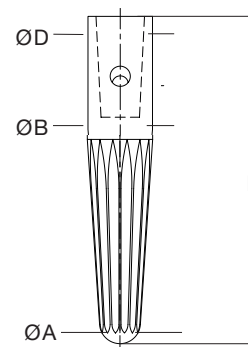


Tibial Stems

MAT Ti6Al4V (Tilastan)

cementless

REF	Ø A mm	Ø B mm	Ø D mm	L mm	LT mm
318-191/07	10	16	16	50	70
318-191/10	10	16	16	80	100
318-191/14	10	16	16	120	140

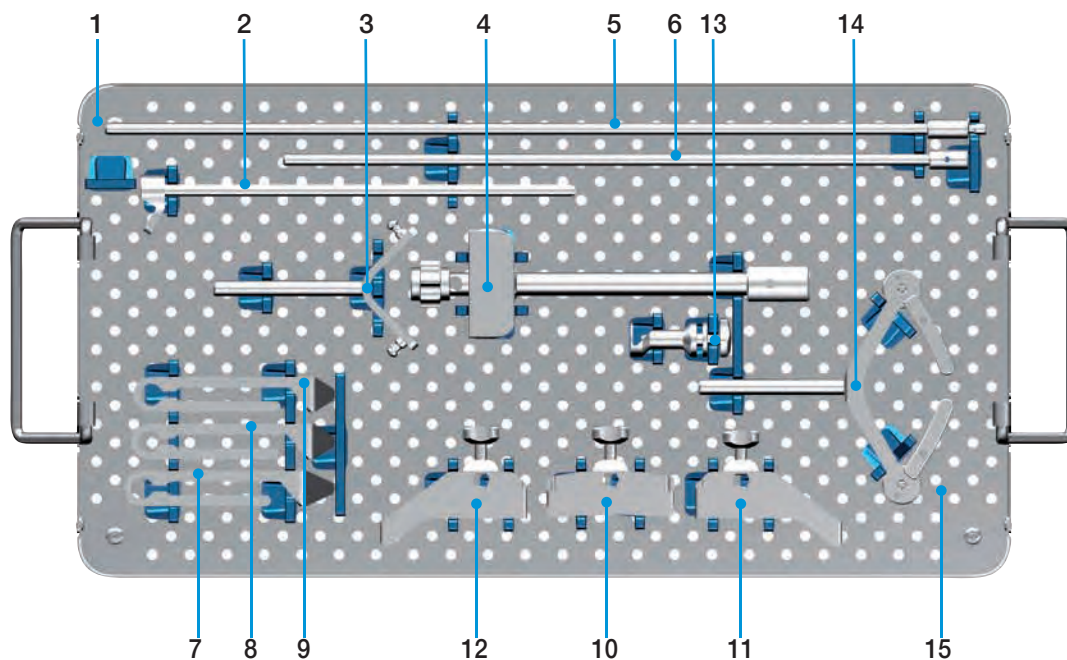


GEMINI SL Instrument Set – Overview



REF	GEMINI SL Instrument Sets	
319-011/31	Case 1	SIT-CUT Easy Tibia Resection Alignment
319-020/31	Case 2	Femoral Preparation
319-030/31	Case 3	Spacer
319-040/31	Case 4	Tibia Preparation
445-008/00	Case 5	Femoral Trial Prostheses
319-060/32	Case 6	Femoral PS Preparation
319-070/31	Case 7	General Instruments
319-080/31	Case 8	Final Spacer
340-200/01	Patella Instrument Set	
	Additional Instrument Sets:	
319-010/31	Precision Tibia Resection Alignment	
317-800/00	EXTRABONE Instrument Set	

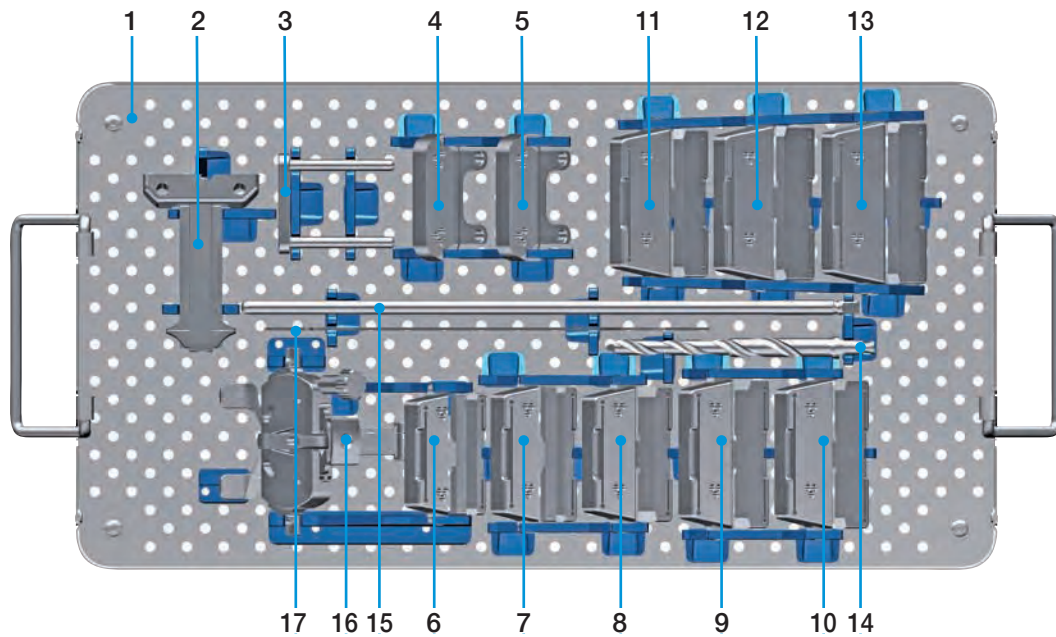
319-011/31 Case 1 – **SIT-CUT** Easy Tibia Resection Alignment



1	319-611/31	Instrument Tray 1B, empty, 485 x 253 x 100 mm (incl. lid)
2	319-180/01	EM Alignment Rod
3	319-182/00	Foot Clamp, silicon belt connection
4	319-181/01	EM Alignment Guide
5	319-525/00	Alignment Rod, extramedullary
6	319-520/01	Alignment Rod, extramedullary
7	319-125/01	Stylus, Referencer Defect Compartment (2 mm)
8	319-130/01	Stylus, Referencer Intact Compartment (10 mm)
9	319-135/01	Stylus, Referencer Intact Compartment (12 mm)
10	319-185/00	Cutting Block, Tibial Plateau, symmetrical, right and left
11	319-186/00	Cutting Block, Tibial Plateau, asymmetrical, left
12	319-187/00	Cutting Block, Tibial Plateau, asymmetrical, right
13	319-184/00	Stylus Guide
14	319-183/00	Foot Clamp, spring fixation
15	317-538/01	Plastic Connector*

* without illustration

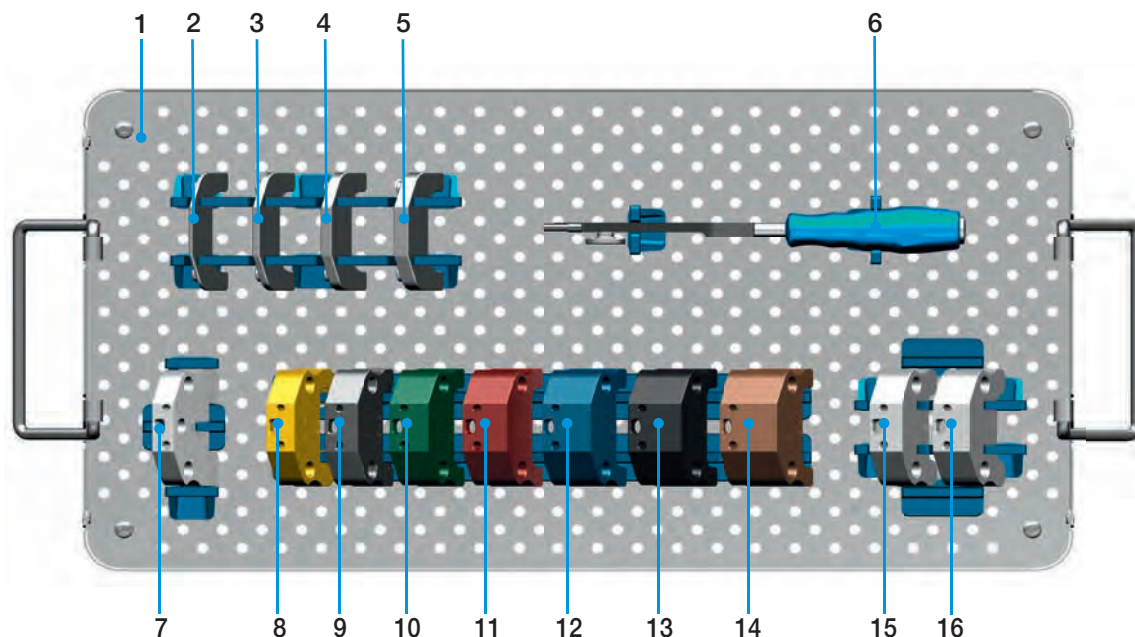
319-020/31 Case 2 – Femoral Preparation



1	319-620/31	Instrument Tray 2, empty, 485 x 253 x 100 mm (incl. lid)
2	319-210/00	IM Alignment Instrument, femoral varus/valgus adjustment
3	319-211/01	Guide U-Bolt
4	319-215/00	Cutting Block, distal femur cut „S“
5	319-220/00	Cutting Block, distal femur cut „L“
		Cutting Blocks, 4-in-1-Femur Cutting Block
6	319-202/01	for size 1
7	319-202/16	for size 1B
8	319-202/02	for size 2
9	319-202/25	for size 2A
10	319-202/26	for size 2B
11	319-202/03	for size 3
12	319-202/04	for size 4
13	319-202/05	for size 5
14	319-505/00B*	Step Drill
15	319-510/00	Guide Rod, intramedullary
16	319-200/02	Femoral Sizing/Rotation Alignment Instrument, femoral sizing and rotation adjustment
17	317-845/00	Femoral Sizer

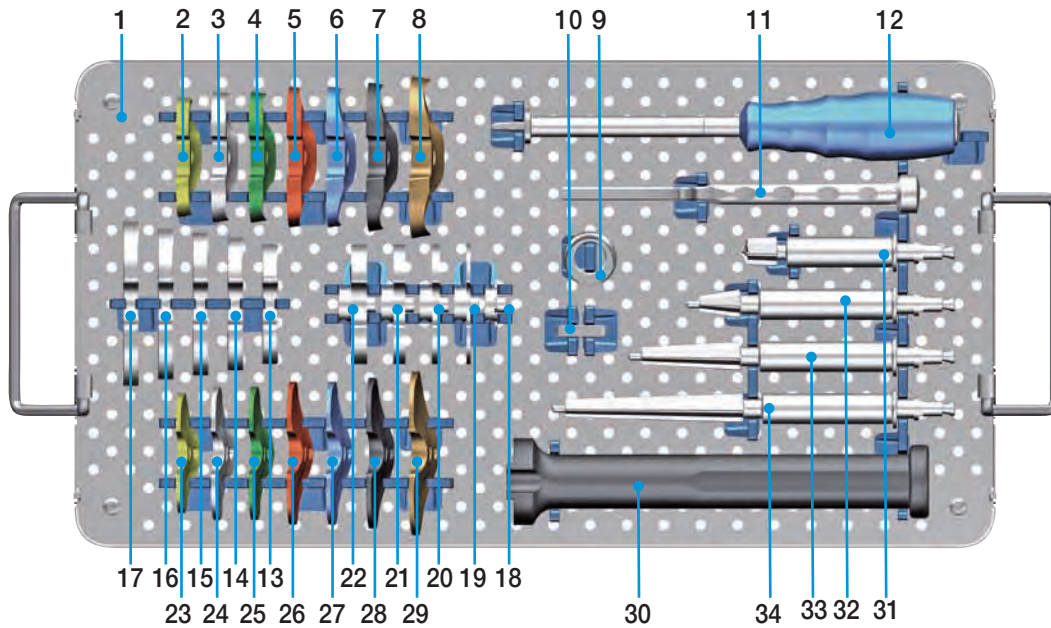
* with B = Hudson-Fitting

319-030/31 Case 3 – Spacer



1	319-630/31	Instrument Tray 3, empty, 485 x 253 x 100 mm (incl. lid)
		Shims
2	319-330/12	12 mm
3	319-330/14	14 mm
4	319-330/16	16 mm
5	319-330/18	18 mm
6	319-300/00	T-Handle
7	319-335/01	Correction Spacer, universal, white
		Spacers for flexion gap
8	319-322/01	Size 1, yellow
9	319-322/16	Size 1B, grey
10	319-322/02	Size 2+2A, green
11	319-322/26	Size 2B, red
12	319-322/03	Size 3, blue
13	319-322/04	Size 4, black
14	319-322/05	Size 5, brown
		Spacers for extension gap
15	319-310/01	Size „S“, white
16	319-315/01	Size „L“, white

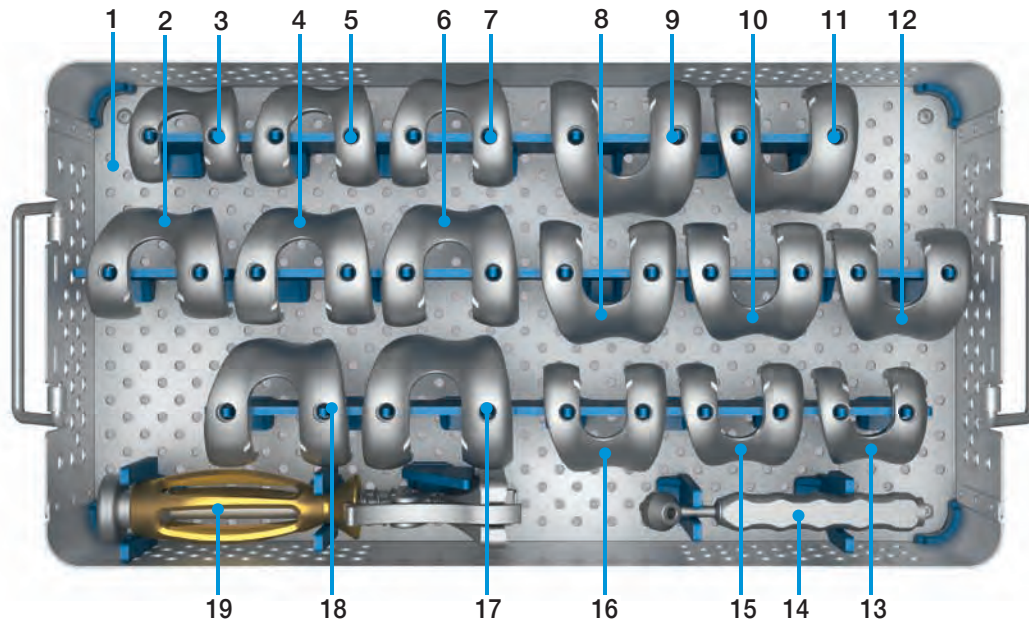
319-040/31 Case 4 – Tibia Preparation



1	319-640/31	Instrument Tray 4, empty, 485 x 253 x 100 mm (incl. lid)
Trial Plateaus		
2	319-415/01	Size 1
3	319-415/16	Size 1B
4	319-415/02	Size 2
5	319-415/25	Size 2A/2B
6	319-415/03	Size 3
7	319-415/04	Size 4
8	319-415/05	Size 5
9	319-430/01	Guide Sleeve
10	319-401/00	Locking Clip
11	319-570/00	Insertion Forceps
12	319-425/00	Tibial Blade Chisel
Tibial Preparation Plates, right/left		
13	319-400/01	Size 1
14	319-400/02	Size 2
15	319-400/03	Size 3
16	319-400/04	Size 4
17	319-400/05	Size 5
Shims		
18	319-407/10	10 mm
19	319-407/12	12 mm
20	319-407/14	14 mm
21	319-407/16	16 mm
22	319-407/18	18 mm
Trial Plateaus – Fixed Bearing		
23	319-410/01	Size 1
24	319-410/16	Size 1B
25	319-410/02	Size 2
26	319-410/25	Size 2A/2B
27	319-410/03	Size 3
28	319-410/04	Size 4
29	319-410/05	Size 5
30	319-450/00	Impactor Handle for Tibial Component
31	319-437/03B*	Tapered Reamer (Taper Cap)
32	319-437/05B*	Tapered Reamer (L 50 mm)
33	319-437/08B*	Tapered Reamer (L 80 mm)
34	319-437/12B*	Tapered Reamer (L 120 mm)

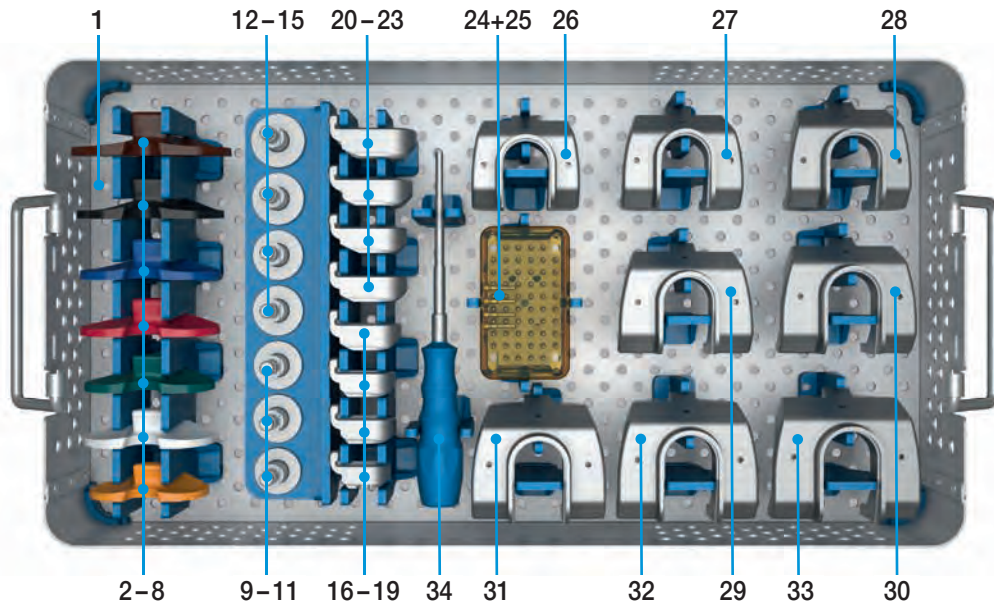
* with B = Hudson-Fitting

445-008/00 Case 5 – Femoral Trial Prostheses



1	445-080/00	Instrument Tray 8, empty, 485 x 253 x 100 mm (incl. lid)
2	317-668/25	Femoral Trial, left, size 2A
3	317-668/01	Femoral Trial, left, size 1
4	317-668/26	Femoral Trial, left, size 2B
5	317-668/16	Femoral Trial, left, size 1B
6	317-668/03	Femoral Trial, left, size 3
7	317-668/02	Femoral Trial, left, size 2
8	317-667/03	Femoral Trial, right, size 3
9	317-667/05	Femoral Trial, right, size 5
10	317-667/26	Femoral Trial, right, size 2B
11	317-667/04	Femoral Trial, right, size 4
12	317-667/25	Femoral Trial, right, size 2A
13	317-667/01	Femoral Trial, right, size 1
14	445-205/00	Drill Template, Ø 5.5 mm
15	317-667/16	Femoral Trial, right, size 1B
16	317-667/02	Femoral Trial, right, size 2
17	317-668/05	Femoral Trial, left, size 5
18	317-668/04	Femoral Trial, left, size 4
19	445-210/00	Femoral Inserter/Extractor

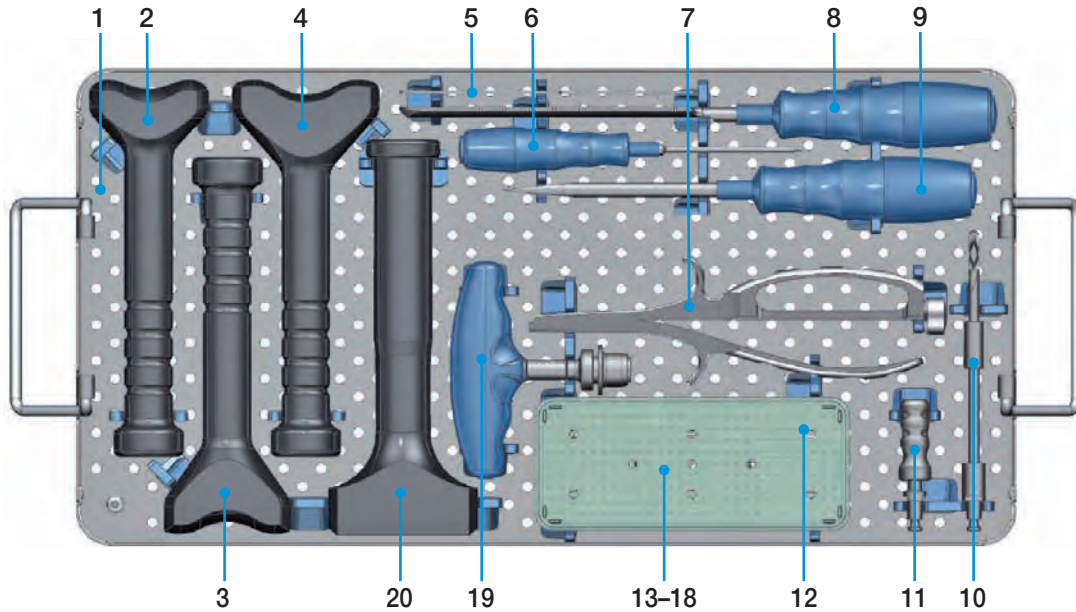
319-060/32 Case 6 – Femoral PS Preparation



1	319-660/32	Instrument Tray 6, empty, 485 x 253 x 100 mm (incl. lid)
Trial Plateaus – Fixed Bearing PS		
2	319-420/01	Size 1
3	319-420/16	Size 1B
4	319-420/02	Size 2
5	319-420/25	Size 2A/2B
6	319-420/03	Size 3
7	319-420/04	Size 4
8	319-420/05	Size 5
Femoral Trial Boxes		
9	317-717/01B*	Size 1
10	317-717/16B*	Size 1B
11	317-717/02B*	Size 2
12	317-717/25B*	Size 2A/2B
13	317-717/03B*	Size 3
14	317-717/04B*	Size 4
15	317-717/05B*	Size 5
Femur-Probekästen		
16	317-669/01	Size 1
17	317-669/16	Size 1B
18	317-669/02	Size 2
19	317-669/25	Size 2A
20	317-669/26	Size 2B
21	317-669/03	Size 3
22	317-669/04	Size 4
23	317-669/05	Size 5
24	317-668	Fixation Screws (4 pieces)
25	319-601/30	Sterilizing Box with base, silicon base and lid
Box Guides		
26	317-618/01	Size 1
27	317-618/16	Size 1B
28	317-618/02	Size 2
29	317-618/25	Size 2A
30	317-618/26	Size 2B
31	317-618/03	Size 3
32	317-618/04	Size 4
33	317-618/05	Size 5
34	319-535/00	Screwdriver, hex 2.5 mm

* with B = Hudson-Fitting

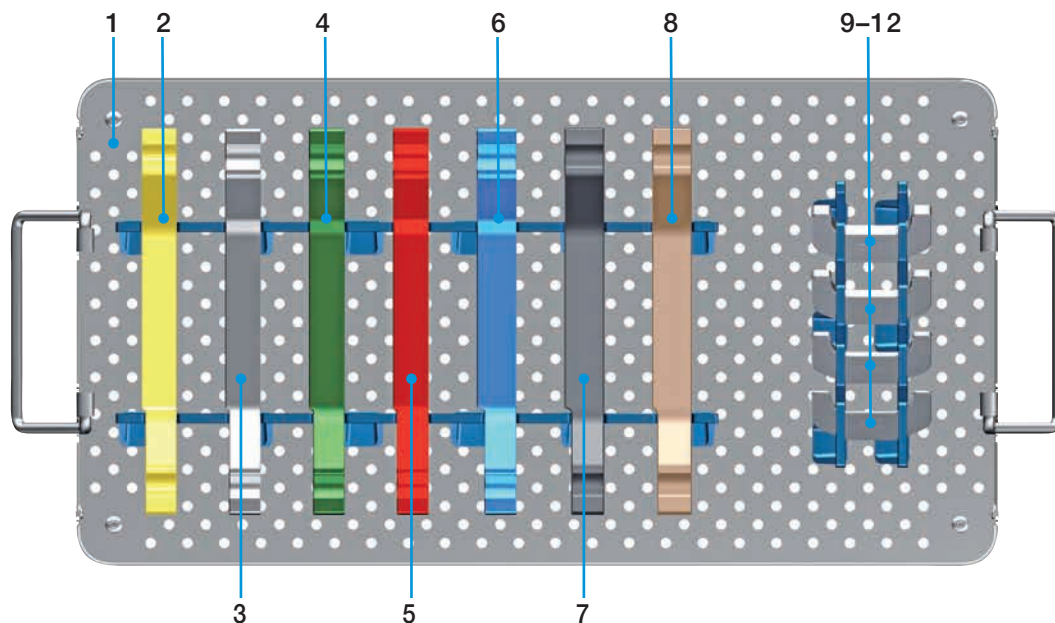
319-070/31 Case 7 – General Instruments



1	319-670/31	Instrument Tray 7, empty, 485 x 253 x 100 mm (incl. lid)
2	317-802/10	Impactor for Tibial Component, incl. PE Plateau, Gr. 1, 1B, 2
3	317-802/11	Impactor for Tibial Component, incl. PE Plateau, Gr. 2A, 2B, 3, 4
4	317-802/12	Impactor for Tibial Component, incl. PE Plateau, Gr. 5
5	317-802/53	Cutting Template
6	319-540/00	Screwdriver, hex. 2.0 mm
7	317-586	Insertor/Extraction Forceps for Wire Pins
8	319-260/00	Rasp
9	319-530/01	Screwdriver
10	317-649/08B*	Twist Drill, Ø 5.5 mm
11	16-3287/00B*	Adapter, for LINK power tool snap lock coupling
12	319-602/30	Sterilizing Box with base, silicon mat and lid consisting of:
13	319-555/01	Head Pin, 4 pieces
14	319-566/00	Drill Pin, 85 mm, Ø 3.0/3.5 mm, with stop, 4 pieces
15	319-581/00	Drill Pin, 80 mm, Ø 3.0 mm, 4 pieces
16	319-582/00	Drill Pin, 110 mm, Ø 3.0 mm, 4 pieces
17	319-560/02	Thread Pin, 85 mm, Ø 3.0/3.5 mm, with stop, 4 pieces
18	319-212/00	Fixation Adapter, 2 pieces
19	319-500/00	T-Handle
20	317-646	Driver

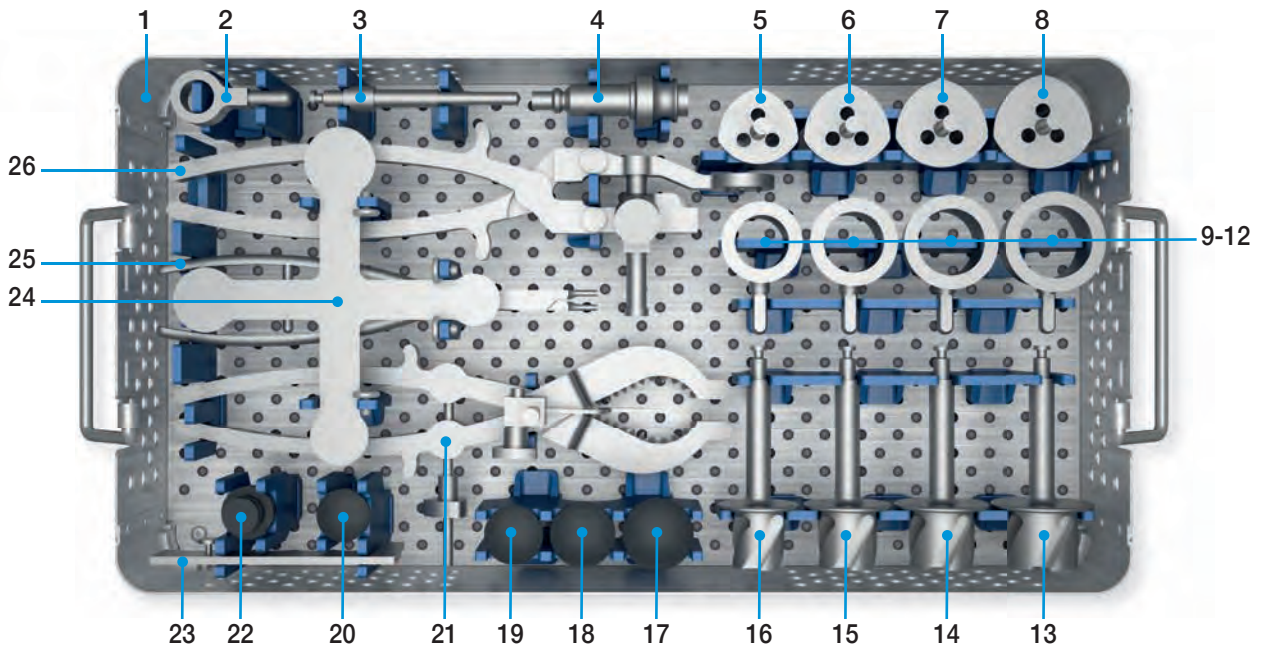
* with B = Hudson-Fitting

319-080/31 Case 8 – Final-Spacer



1	319-680/31	Instrument Tray 8, empty, 485 x 253 x 100 mm (incl. lid)
Final-Spacer		
2	319-341/01	Size 1
3	319-341/16	Size 1B
4	319-341/02	Size 2
5	319-341/25	Size 2A/B
6	319-341/03	Size 3
7	319-341/04	Size 4
8	319-341/05	Size 5
Shim		
9	319-330/12	12 mm
10	319-330/14	14 mm
11	319-330/16	16 mm
12	319-330/18	18 mm

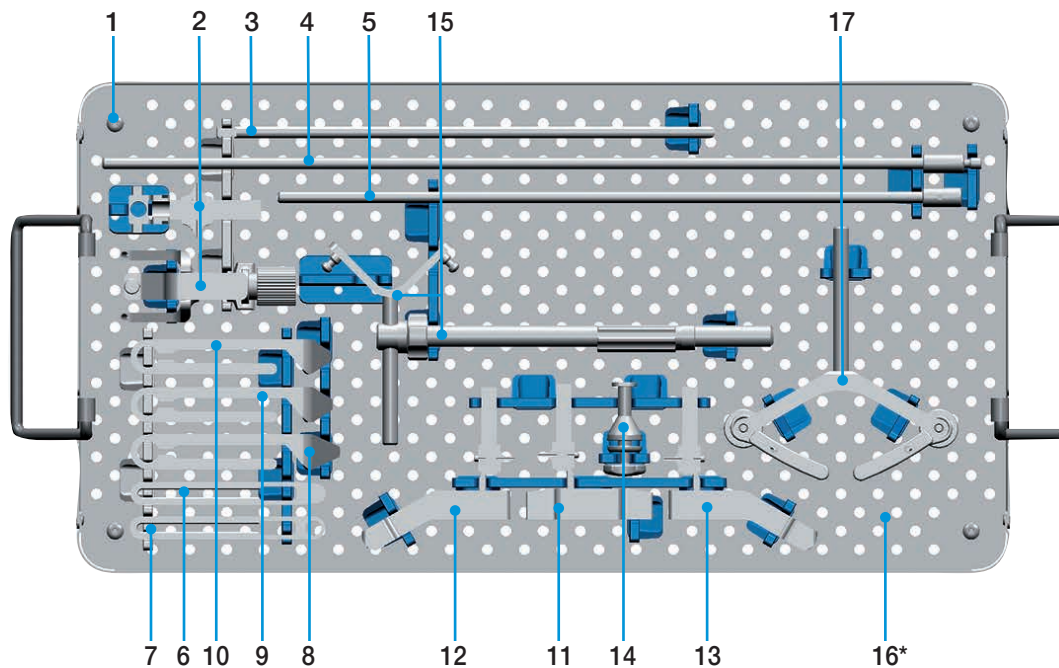
340-200/01 Patella Instrument Set



1	340-015/01	Instrument Tray , empty, 485 x 253 x 100 mm (incl. lid)
2	340-007	Patella Pusher Attachment
3	340-306B	Patella Drill , Ø 6.3 mm, with Hudson fitting, for Patella Component 3-pegs
4	optional*	Adapter for snap lock chuck, optional (see page 64)
		Patella Drill Guides for patella holding clamp, Patella Component 3-pegs
5	340-225	Size 25 for 318-401/25
6	340-228	Size 28 for 318-401/28
7	340-231	Size 31 for 318-401/31
8	340-234	Size 34 for 318-401/34
		Patella Reaming Guides for patella holding clamp, Patella Component 3-pegs
9	340-025	Size 25 for 318-401/25
10	340-028	Size 28 for 318-401/28
11	340-031	Size 31 for 318-401/31
12	340-034	Size 34 for 318-401/34
		Patella Reamers for patella reaming guides, Patella Component 3-pegs, with Hudson fitting
13	340-134B	Size 34 for 318-401/34
14	340-131B	Size 31 for 318-401/31
15	340-128B	Size 28 for 318-401/28
16	340-125B	Size 25 for 318-401/25
		Patella Trial Prostheses for Patella Component 3-pegs
17	340-334	Size 34 for 318-401/34
18	340-331	Size 31 for 318-401/31
19	340-328	Size 28 for 318-401/28
20	340-325	Size 25 for 318-401/25
21	340-006	Patella Resection Clamp
22	340-009	Patella Pusher Inserter
23	65-2000	Townley Femur Caliper
24	340-010	Patella Sizing Template
25	15-2042	Inserting Forceps for inserting the manipulating bearings, 215 mm
26	340-005	Patella Holding Clamp

* Adapter optional: 16-3283/00, 16-3284/00, 16-3285/00

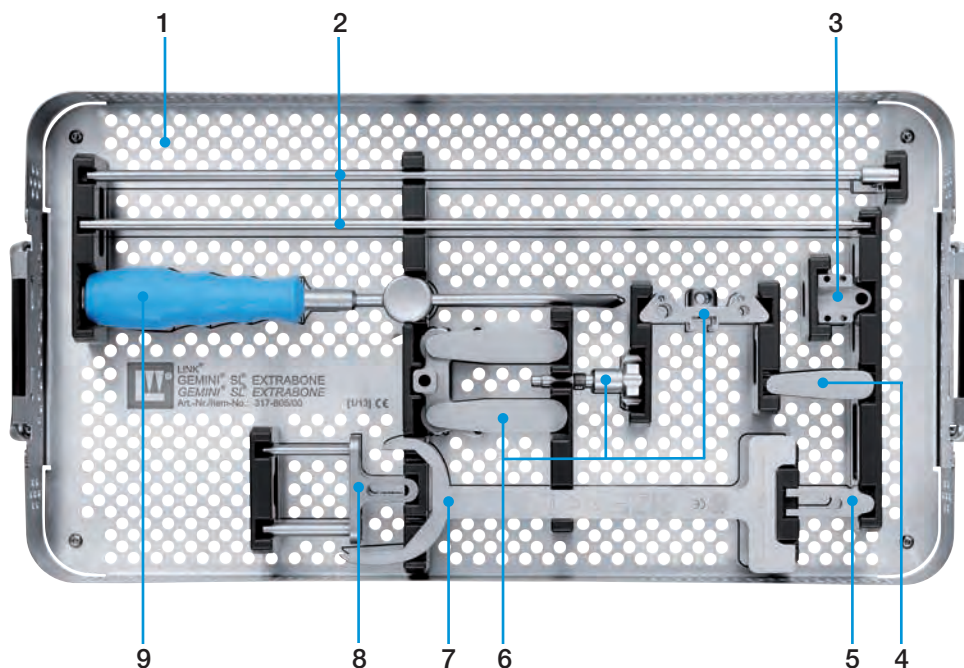
319-010/31 Precision Tibia Resection Alignment



1	319-610/31	Instrument Tray 1, empty, 485 x 253 x 100 mm (incl. lid)
2	319-140/01	Tibial Base Guide
3	319-110/01	EM Alignment Rod
4	319-525/00	Alignment Rod, extramedullary (external thread)
5	319-520/01	Alignment Rod, extramedullary (female thread)
6	319-115/01	Fixation Jig, extramedullary
7	319-165/00	Fixation Jig, extramedullary
8	319-125/01	Stylus, Referencer Defect Compartment (2 mm)
9	319-130/01	Stylus, Referencer Intact Compartment (10 mm)
10	319-135/01	Stylus, Referencer Intact Compartment (12 mm)
11	319-145/01	Cutting Block (symmetrical), right and left
12	319-150/01	Cutting Block (asymmetrical), right
13	319-155/01	Cutting Block (asymmetrical), left
14	319-120/01	Guide
15	319-160/00	Foot Clamp, intramedullary, silicon belt connection
16	317-538/01	Plastic Connector *
17	319-183/00	Foot Clamp, spring fixation

* without illustration

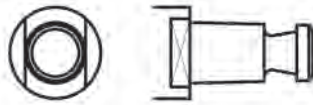
317-800/00 EXTRABONE Instrument Set



1	317-805/00	Instrument Tray, empty, 485 x 253 x 120 mm
2	317-840/00	Alignment Rod
3	317-815/00	Positioner Guide
4	317-825/00	Guide
5	317-820/00	Connector (3 parts)
6	317-810/00	Alignment Instrument
7	317-845/00	Femoral Sizer
8	317-835/00	Axis Alignment Guide
9	317-830/00	Positioner

Additional Instruments

Hudson-Fitting (B)
Standard tool connection.



Adapter for power tool chuck
Different adapters are available to ensure compatibility to allow various connections:

REF	Attachment	
16-3283/01	Jacobs-Fitting (E)	
16-3284/00	AO-Fitting (D)	
16-3285/00	Harris-Fitting (C)	



Sawblade,
without offset teeth, 1.24 mm thick

Width (A) 25 mm REF	Width (A) 13 mm REF	Fitting
317-654/10	317-656/10	Synthes
317-654/11	317-656/11	Aesculap combi
317-654/12	317-656/12	3M
317-654/13	317-656/13	Zimmer/Hall combi
317-654/14	317-656/14	Stryker system 4

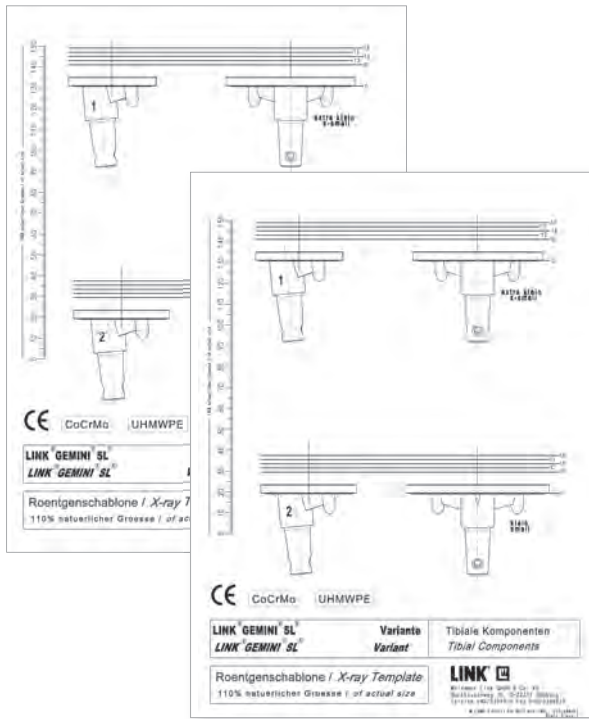
REF 317-588/01
Gauge for ligament tension



X-ray Templates

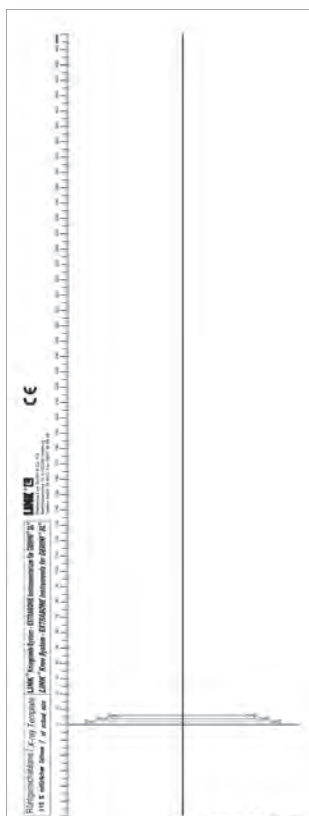
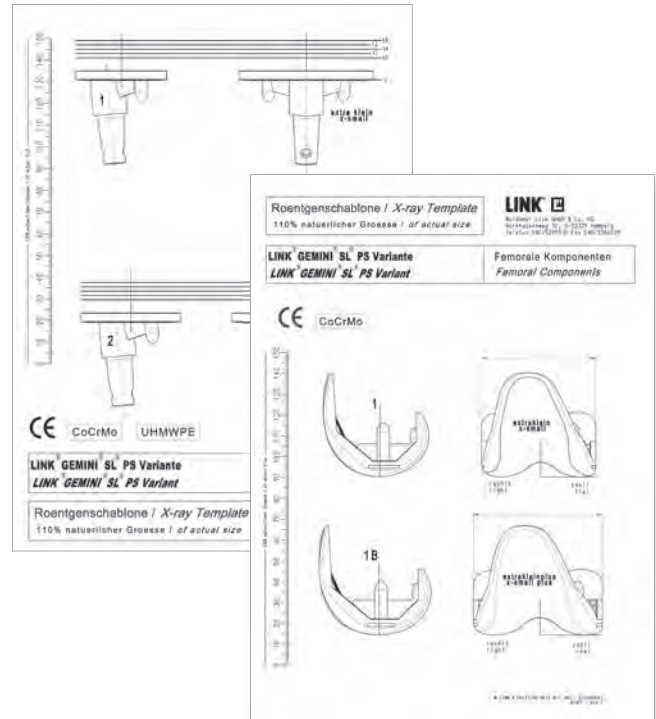
317-684/01

X-ray Templates for GEMINI SL,
Set contains femoral and tibial implants Fixed Bearing, 110% actual size, 1 set of 7 sheets



317-683/01

X-ray Templates for GEMINI SL – PS version,
Set contains femoral and tibial implants PS (Posterior Stabilized), 110% actual size, 1 set of 7 sheets



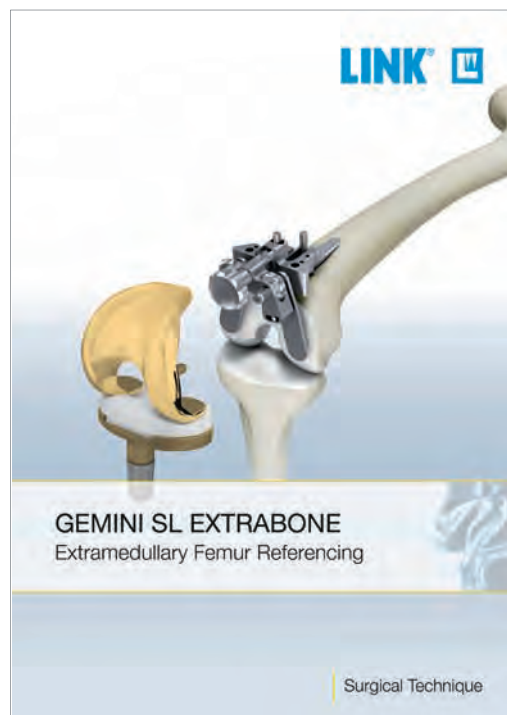
317-658/00

X-ray Template GEMINI SL EXTRABONE,
110% actual size, 1 sheet



PCL Protector

Instrument for the protection of the posterior cruciate ligament during resection of the tibia.



GEMINI SL EXTRABONE

Extramedullary Femur Referencing



LINK PorEx (TiNbN = Titan-Niobium-Nitrid)
Surface Modification for LINK implants



Patella Components
for LINK Knee Prosthesis Systems



For more information please register for our LINK Media Library (linkorthopaedics.com)

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

All content in this catalog, including text, pictures and data, is protected by law. Every instance of use, whether in part or in whole and which is not permitted by law, is subject to our prior consent. In particular, this applies to the reproduction, editing, translation, publishing, saving, processing, or passing on of content stored in databases or other electronic media and systems, in any manner or form. The information in the catalogs is solely intended to describe the products and does not constitute a guarantee.

The Surgical Technique described has been written to the best of our knowledge and belief, but it does not relieve the surgeon of his/her responsibility to duly consider the particularities of each individual case.

Products shown in this document may not be available in your country. The product availability is subject to the approval and/or registration regulations of the respective country. Please contact Waldemar Link GmbH & Co. KG if you have questions about the availability of LINK products in your country.

Waldemar Link GmbH & Co. KG and/or other corporate affiliated entities own, use or have applied for the following trademarks in many jurisdictions: LINK, BiMobile, SP II, Modell Lubinus, E-Dur, EndoDur, T.O.P. II, BetaCup, CombiCup PF, CombiCup SC, CombiCup R, MobileLink, C.F.P., LCU, SP-CL, LCP, MIT-H, Endo-Model, Endo-Model SL, MP, MEGASYSTEM-C, GEMINI SL, SPAR-K, LCK, Link OptiStem, HX, TiCaP, X-LINKed, PorAg, LINK PorEx, BiPorEx, PorEx-Z, TrabecuLink, Tilastan, customLINK, RescueSleeve, Stactip, VACUCAST.

Other trademarks and trade names may be used in this document to refer to either the entities claiming the marks and/or names or their products and are the property of their respective owners.



Waldemar Link GmbH & Co. KG

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

