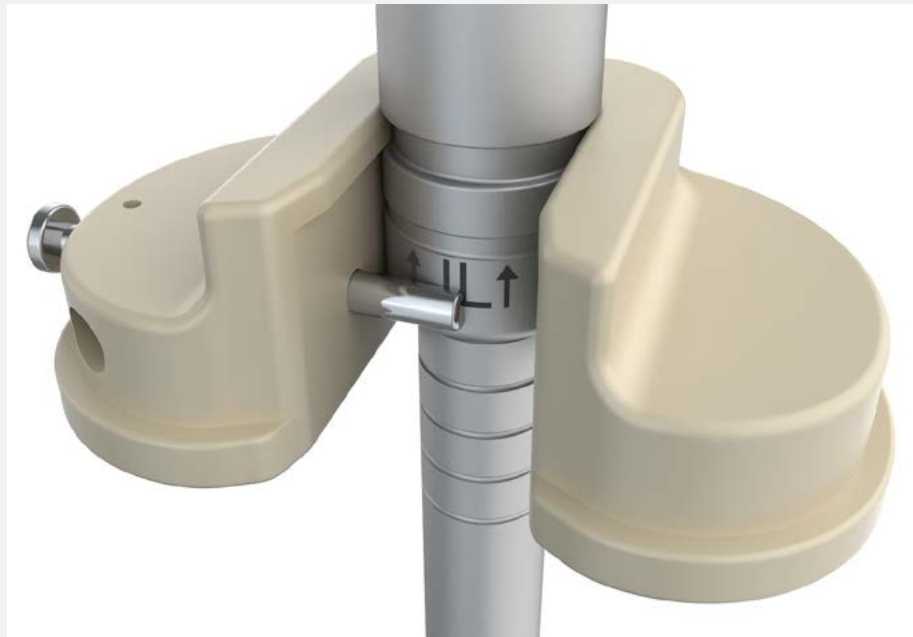


A Preparation tibia and femur with Reamer with Guide Rod

The Drive Shaft for Reamer with Guide Rod is fixed at the Handle with AO-Coupling short and coupled with the Reamer with Guide Rod. For referencing the joint line, optionally the Tibial Joint Line Plate, primary with the Caliper for Tibial Joint Line Plate (2) or (10), or the Tibial Joint Line Plate for revision procedures (defect greater 10 mm) can be used and must be attached to the Drive Shaft for Reamer with Guide Rod:



Tibial Joint Line Plate, primary secured



Tibial Joint Line Plate secured

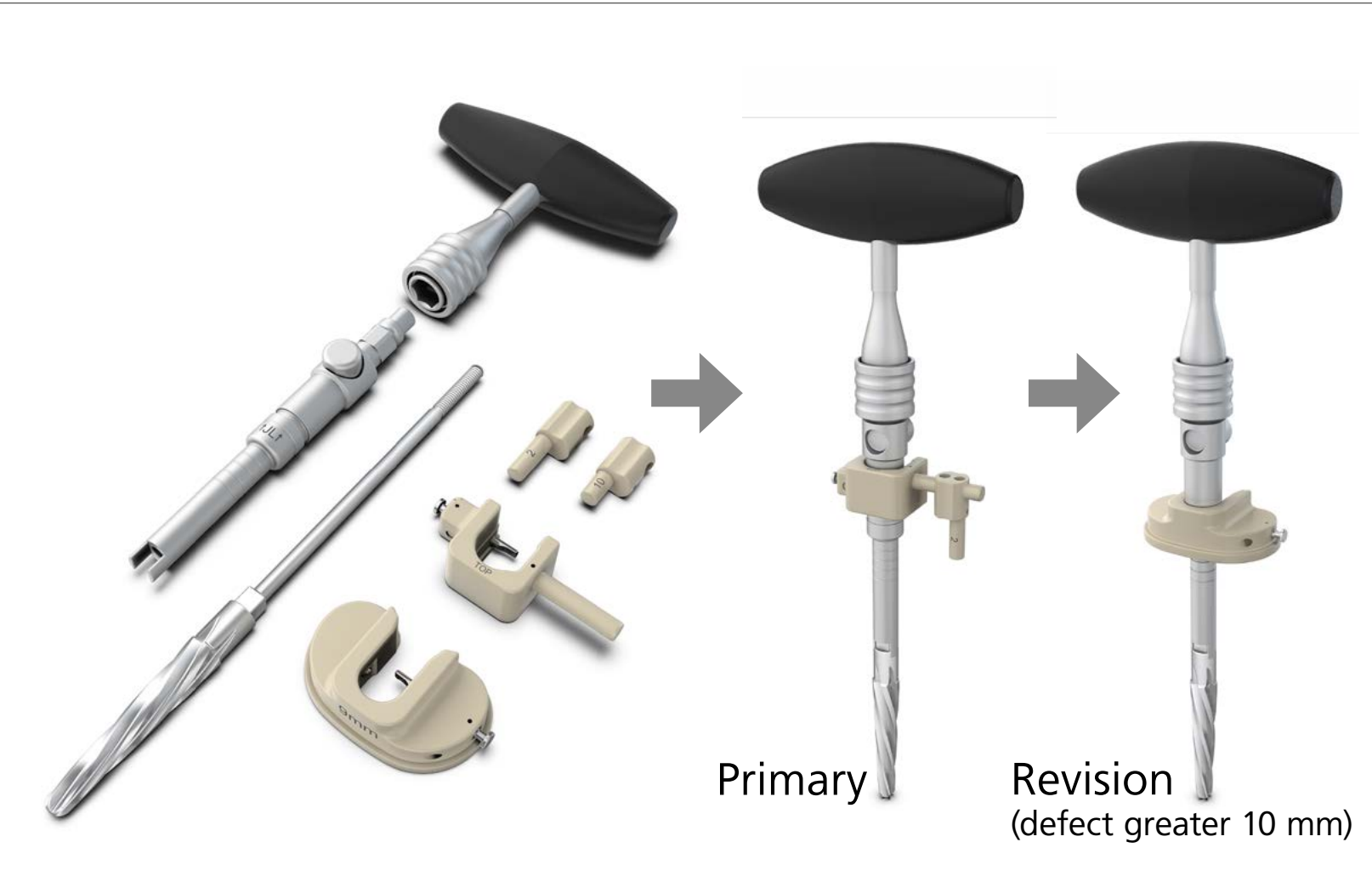
Based on the natural anatomy, the implant system requires a minimum tibial resection of 11.5 mm (TIBIA Component 4.5 mm, plus PE-INSERT height of 7 mm).

The setup for femoral medullary preparation is identical. Optionally the Femoral joint line plate for Bony Defects or the Femoral joint line plate w/out bony Defects is attached and secured at the Drive Shaft for Reamer with Guide Rod.

The Tibial and Femoral Joint Line Plates are not mandatory. Alternatively, the drilling depth can be determined using the markings on the Drive Shaft for Reamer with Guide Rod. The markings on the Drive Shaft for Reamer with Guide Rod represent the joint line (JL). The first marking below (JL) indicates possible bone loss of 10 mm. Each additional marking represents augment heights of 5 mm.

Then the Drive Shaft for Reamer with Guide Rod and the Handle with AO-Coupling short are removed.

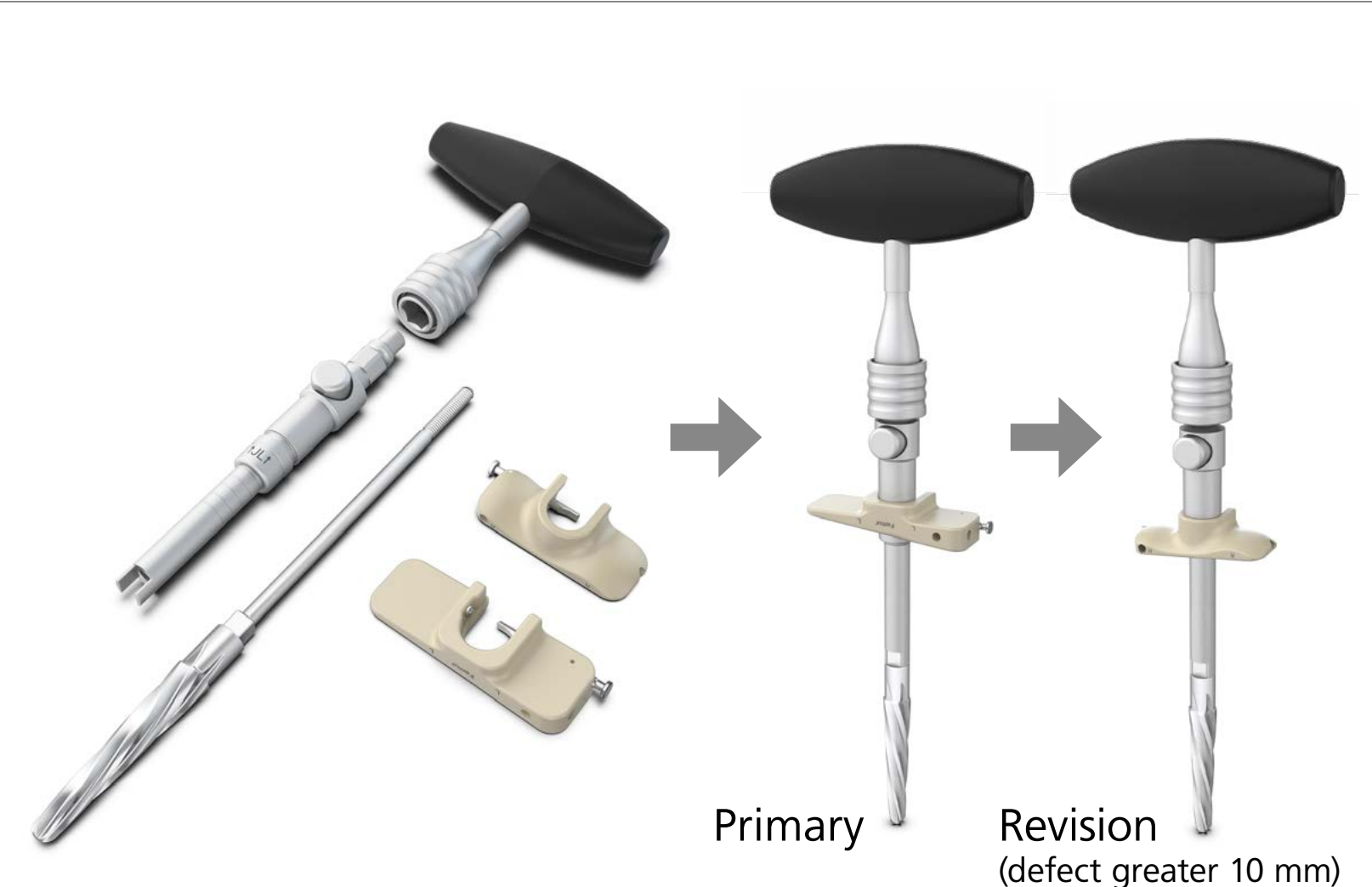
For primary accesses, the medullary canal is opened with Drill for Intramedullary Access.



Handle, Drive Shaft, Reamer and Tibial Joint Line Plate



Preparing the medullary canal



Handle, Drive Shaft, Reamer and Femoral joint line plates



Preparing the medullary canal

B Preparation tibia and femur with Reference Stem straight (alternatively)

If the Reamer with Guide Rod is not seated securely, the Reference Stem straight is alternatively used. For this purpose the Reamer with Guide Rod is removed, the Guide Rod with the desired Reference Stem straight is assembled on the Handle Impactor/Extractor with the Knurled Screw S.

The procedure for reconstructing the joint line is identical to the use of the Reamer with Guide Rod and the Tibial or Femoral Joint Line Plates.

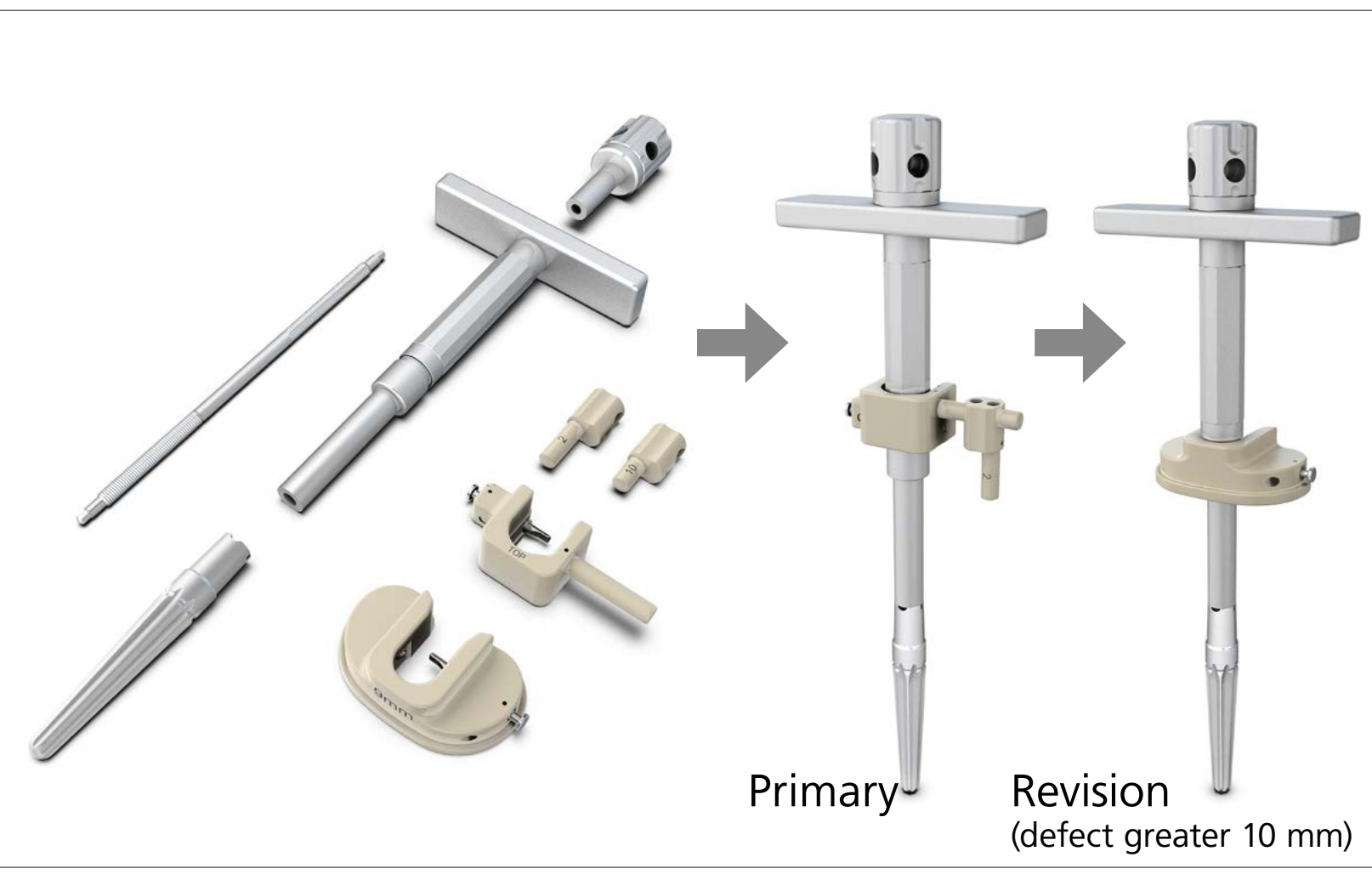
A change of 1 mm in stem diameter corresponds to about a 1-2 cm change in position (height) depending on bone quality.

When using the Femoral Joint Line Plates, be sure to align R (right) and L (left).



Femoral Joint Line Plate R (right) and L (left)

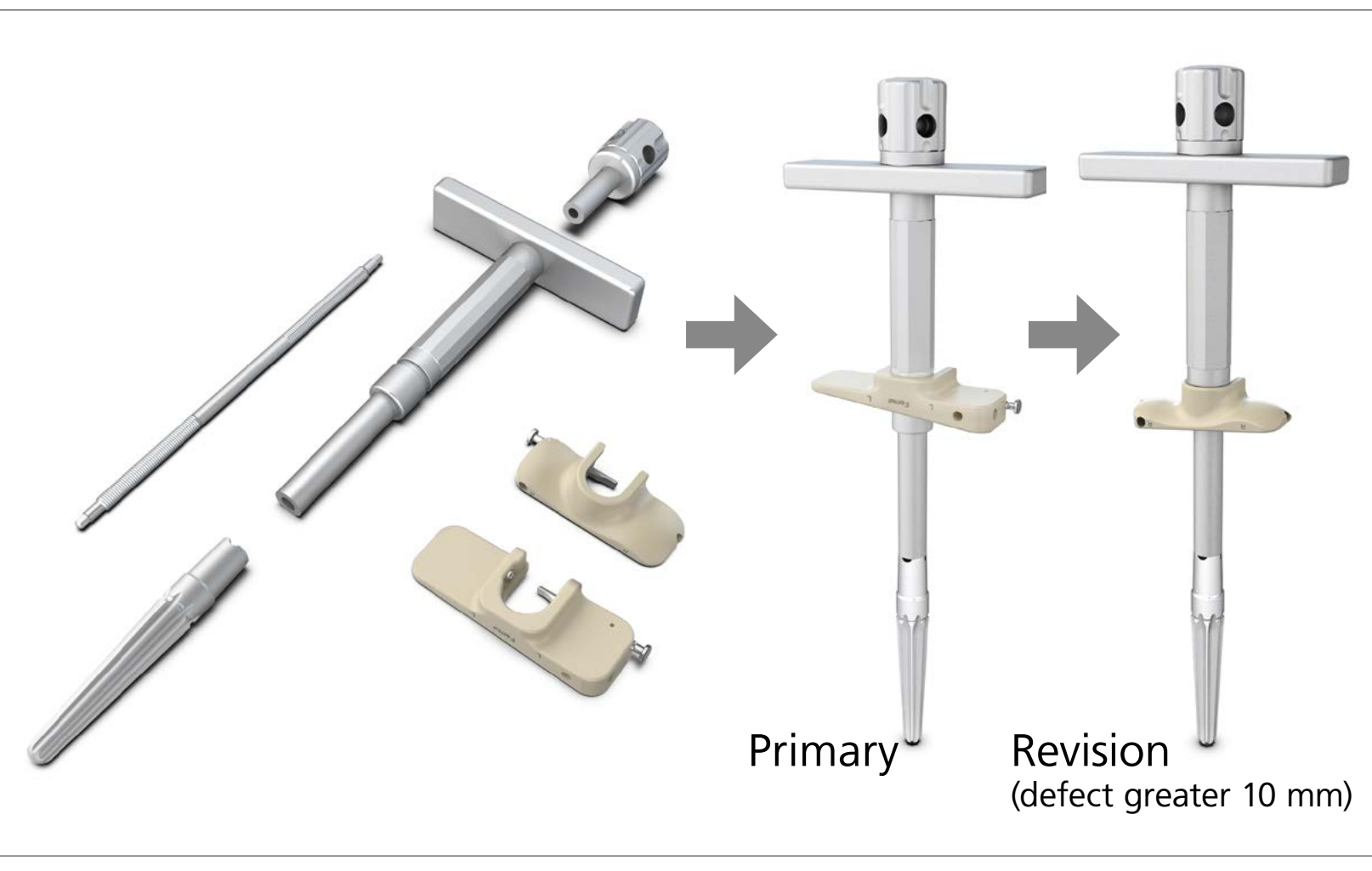
After setting the desired joint line level, the Knurled Screw S is opened and the Handle Impactor/Extractor with the Tibial or Femoral Joint Line Plate is removed.



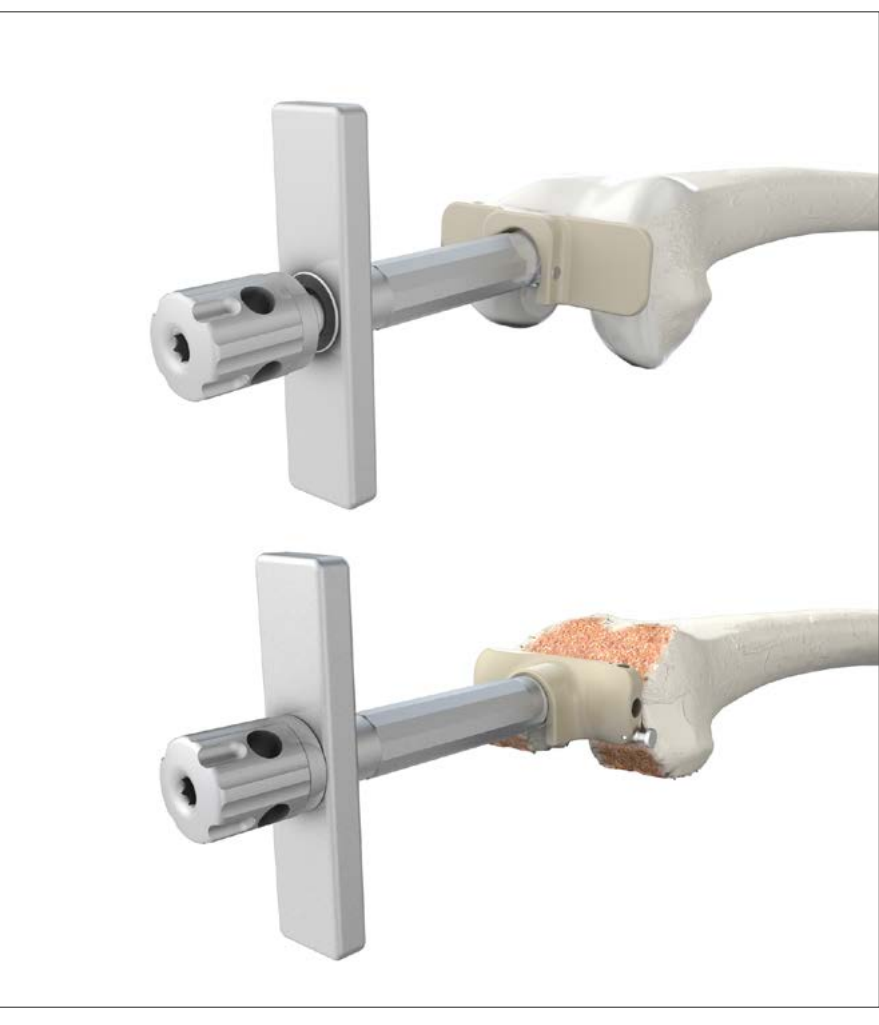
Guide Rod, Handle Impactor/Extractor, Knurled Screw S, Reference Stem straight, Tibial Joint Line Plate



Anchoring Reference Stem straight



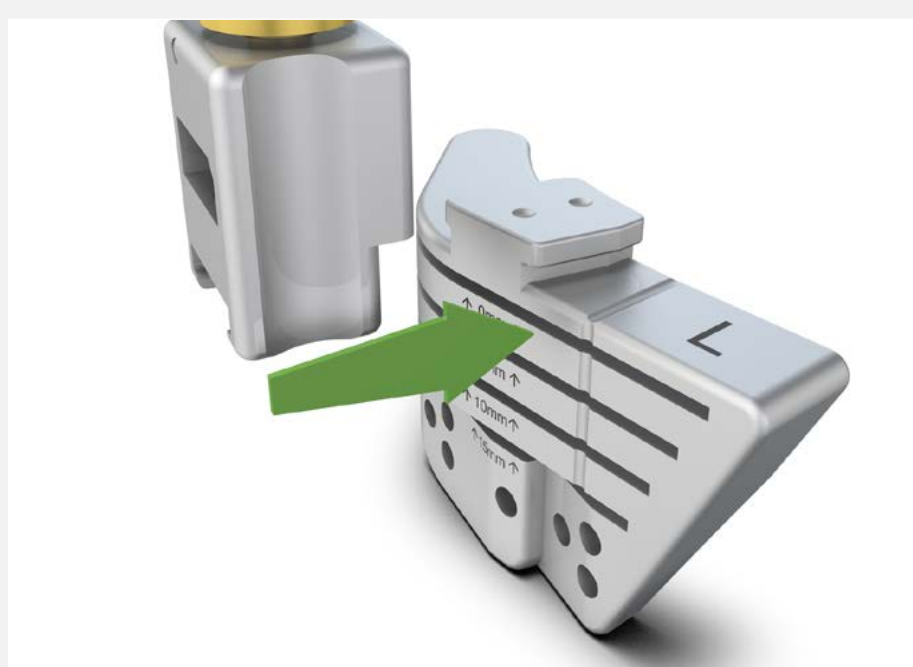
Guide Rod, Handle Impactor/Extractor, Knurled Screw S, Reference Stem straight, Femoral Joint Line Plate



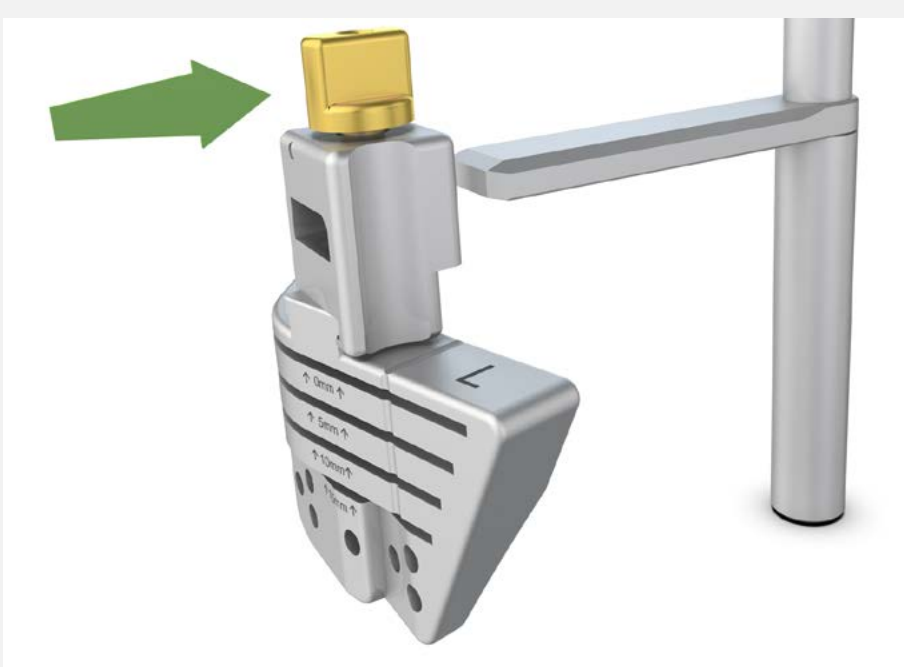
Anchoring Reference Stem straight

C Resection tibia

The Tibial cutting block anatomic SC/RH/TH (right or left) is attached to the Adapter for Tibial cutting block SC/RH/TH and slid onto the Outrigger for Tibial cutting block:



Tibial cutting block anatomic SC/RH/TH Adapter for Tibial cutting block SC/RH/TH



Outrigger for Tibial cutting block

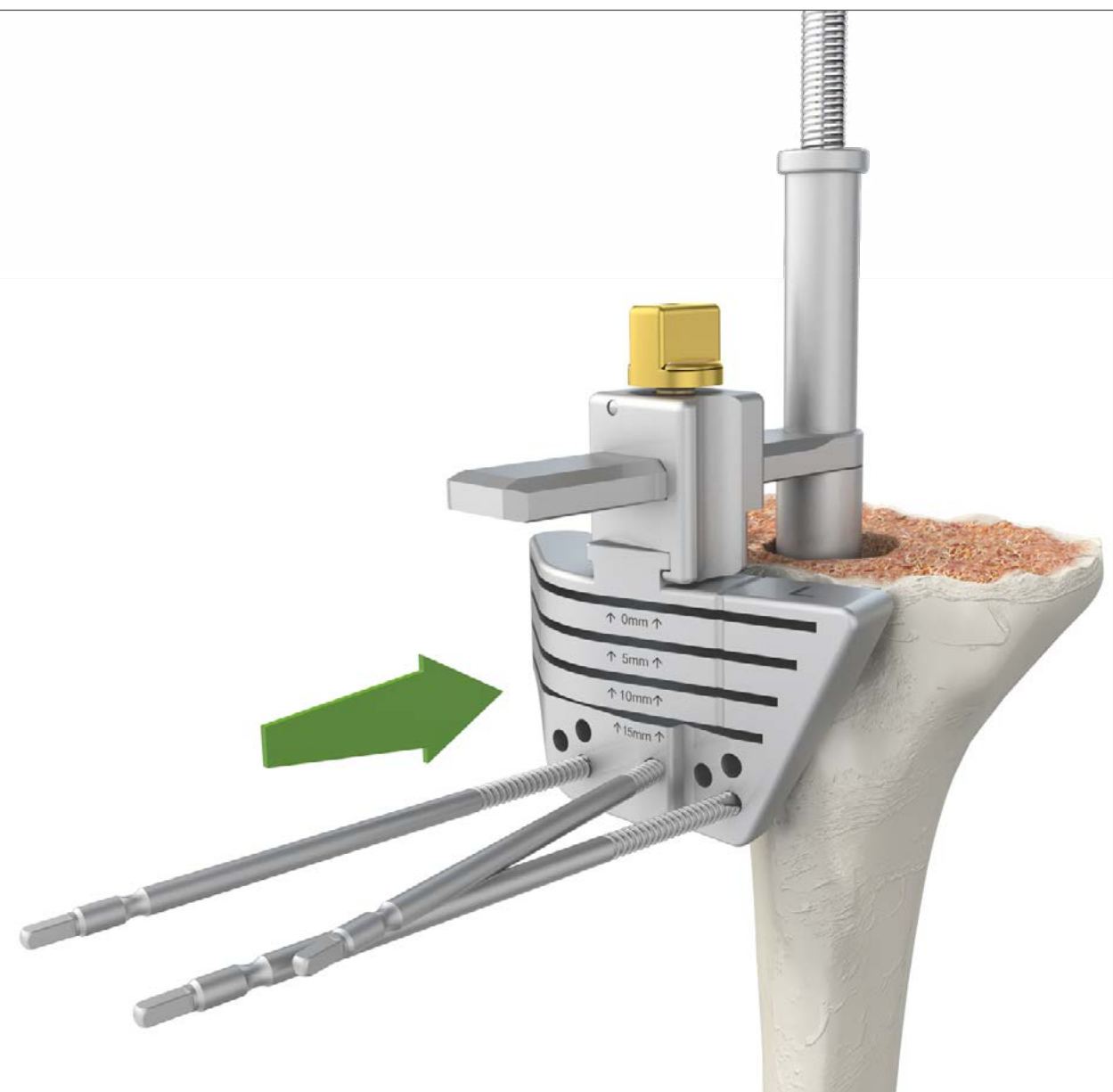
Next the assembled Tibial cutting block anatomic SC/RH/TH is positioned over the Guide Rod or the Reamer with Guide Rod. After verifying the resection level using the Visualisation Guide S, the Tibial cutting block anatomic SC/RH/TH (right or left) is secured by Pins with Corticalis Thread Size: Ø 3, 15 x 70 mm.

After removing the Adapter for Tibial cutting block SC/RH/TH, the Outrigger for Tibial cutting block and the Guide Rod, the osteotomy is performed and the Tibial cutting block anatomic SC/RH/TH is removed.

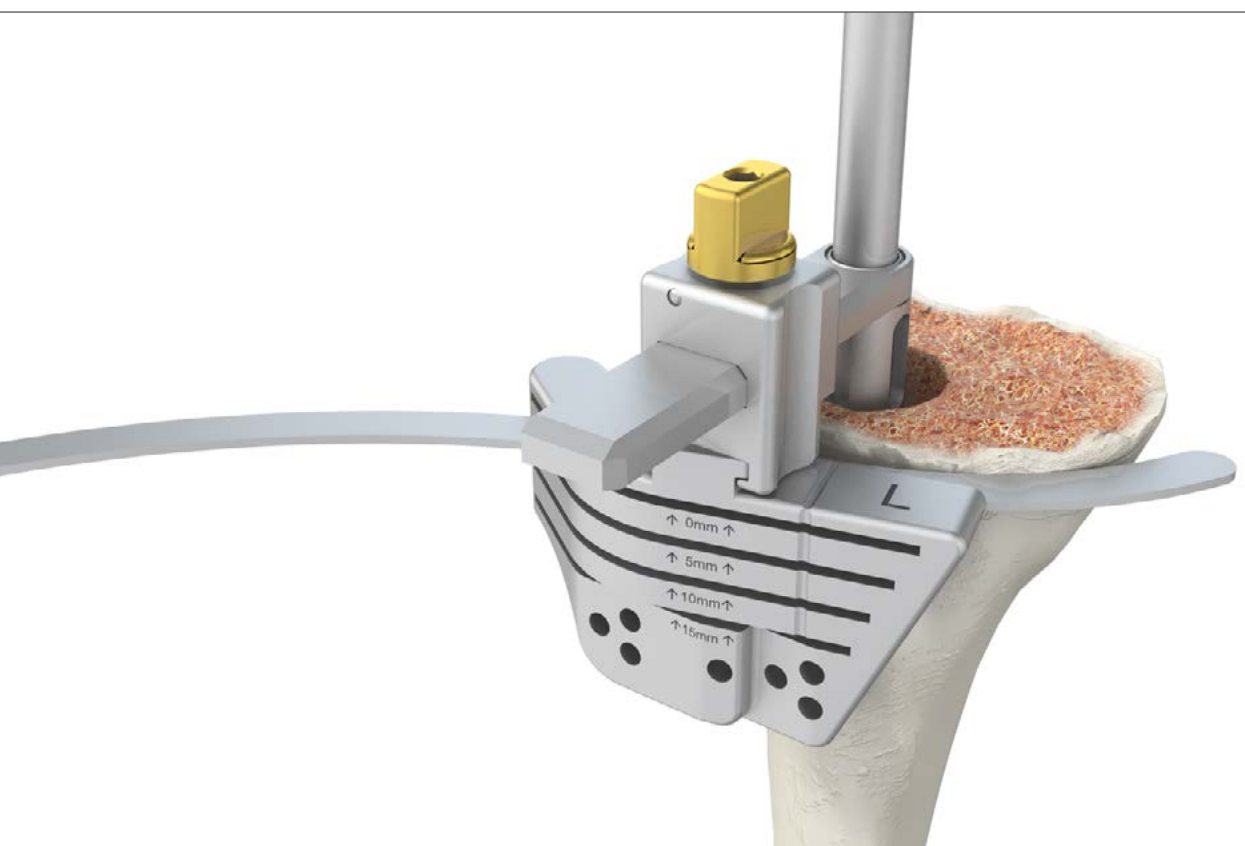
The maximum tibial augmentation height of 15 mm can be achieved using 5 mm medial and lateral AUGMENTS Tibia. AUGMENTS Tibia of different sizes can be combined as needed.



Setup for tibial resection



Fixation of Tibial cutting block anatomic SC/RH/TH



Tibial cutting block anatomic SC/RH/TH with Visualisation Guide S



Tibial resection

BPK-S INTEGRATION

BRIEF INSTRUCTION REVISION SURGICAL TECHNIQUE

(SOURCE: SURGICAL TECHNIQUE - BPK-S INTEGRATION REVISION)

D Assembling the Tibial base plate

The size of the TIBIA Component can be determined by placing the *Tibial base plate*. If the resection allowed for augments, then *TRIAL Tibial Augments* must be attached to the *Tibial base plate* and secured with *Locking Pin for Tibial Augment*:



Tibial base plate, Locking Pin for Tibial Augment



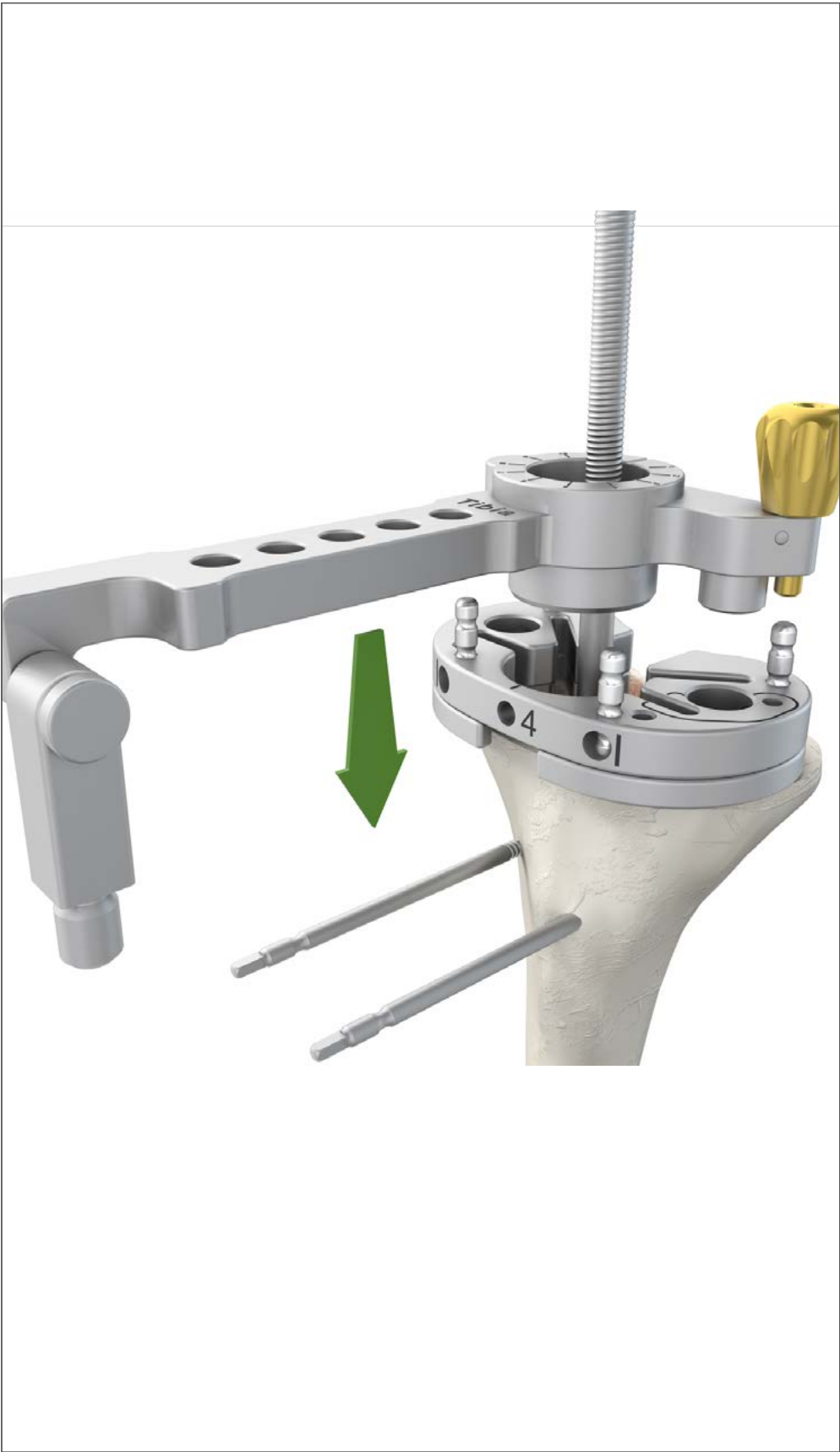
TRIAL Tibial Augment

To achieve optimal cortical contact, **AUGMENTS Tibia** can be freely combined with all sizes (maximum 3 x 5 mm) of TIBIA Components as needed.

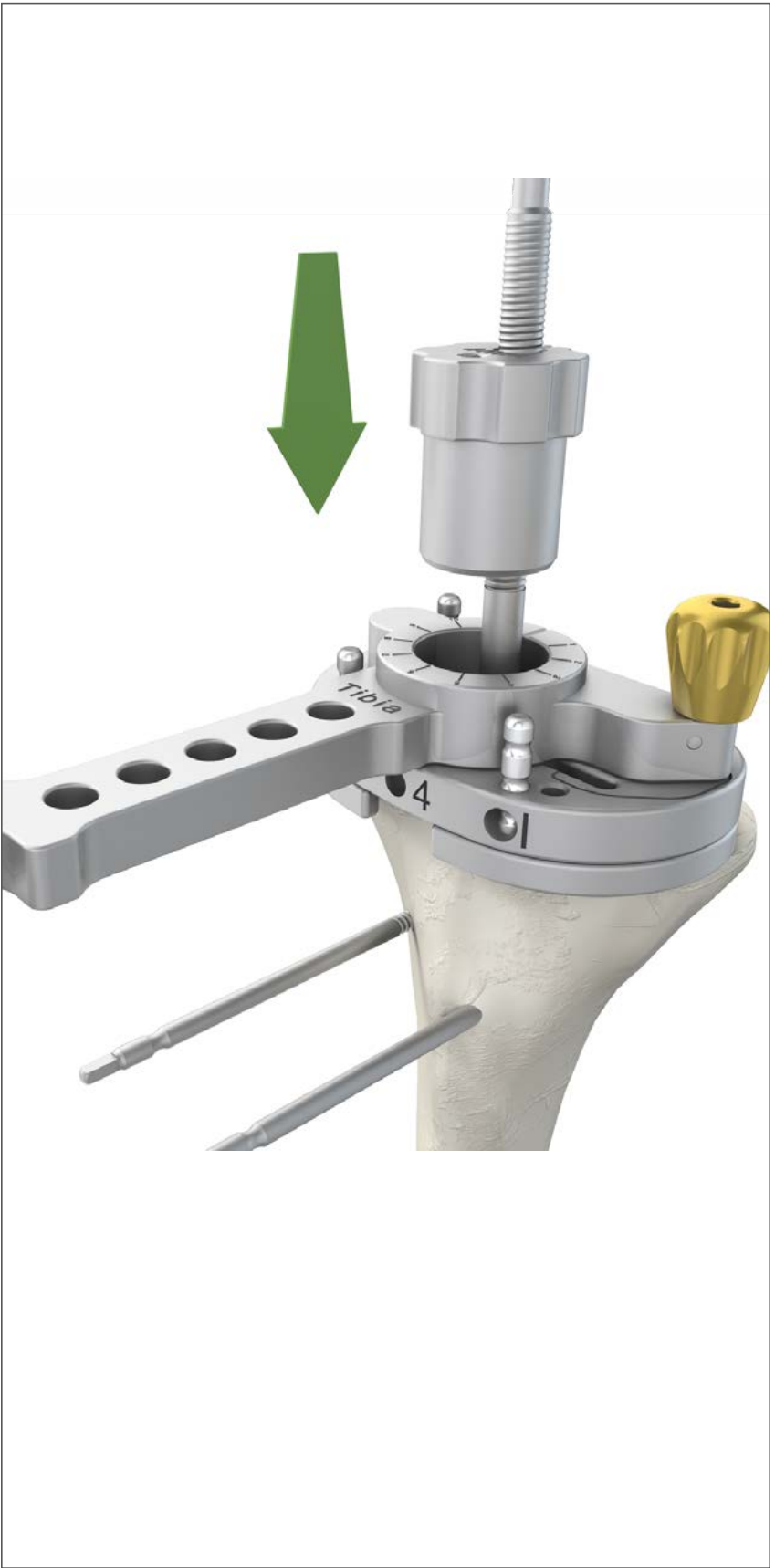
After the *Guide Rod* has been inserted again, if necessary, the *Tibial alignment guide* is secured to the top of the *Tibial base plate*. In order to achieve the best cortical coverage, the *Centralizer Bushing* (0, 4, or 6 mm offset) is inserted over the *Guide Rod* or the *Reamer with Guide Rod* into the *Tibial alignment guide*.



Determining tibial size



Fixation *Tibial alignment guide*



Centralizer Bushing
(0, 4, or 6 mm offset)

E Adjusting the tibial offset

The alignment guide consisting of the *Alignment Rod* and the *Alignment Sleeve* is attached to the *Tibial alignment guide*. The pendulum pointer provides a means of verifying rotation against the ankle.



Display Offset setting

Centralizer Bushings with Offset are rotated on the *Guide Rod* or the *Reamer with Guide Rod* with the *Socket Wrench AF3,5* until the best possible cortical coverage with satisfactory rotational alignment has been achieved.

The *Tibial base plate* is secured and the offset adjustment is noted to ensure it is correctly transferred to the implant.

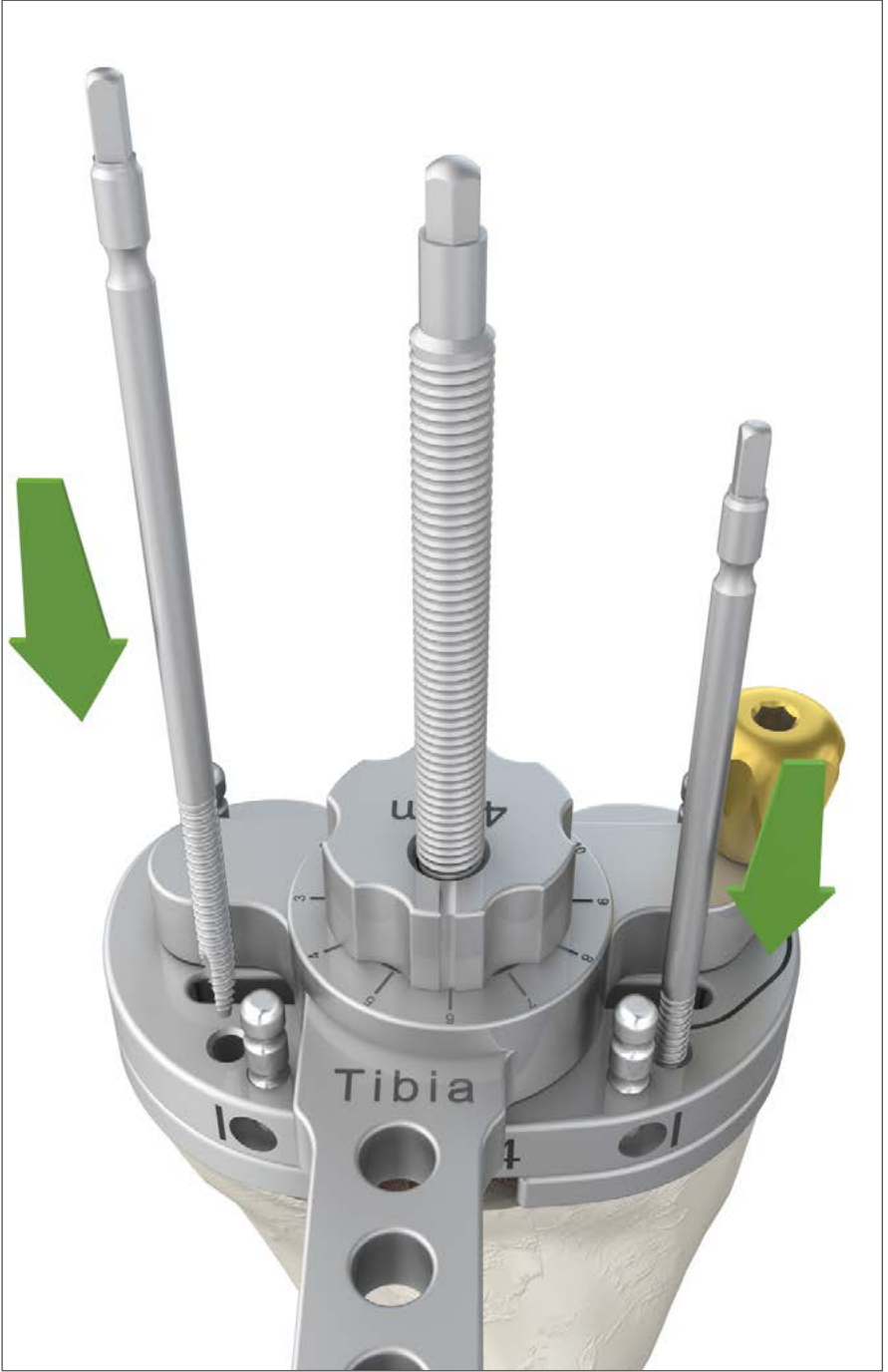
Should the *Centralizer Bushing* that is being used fail to achieve satisfactory cortical contact, it has to be checked whether a different offset option might be more suitable.



Alignment Rod and
Alignment Sleeve



Offset adjustment



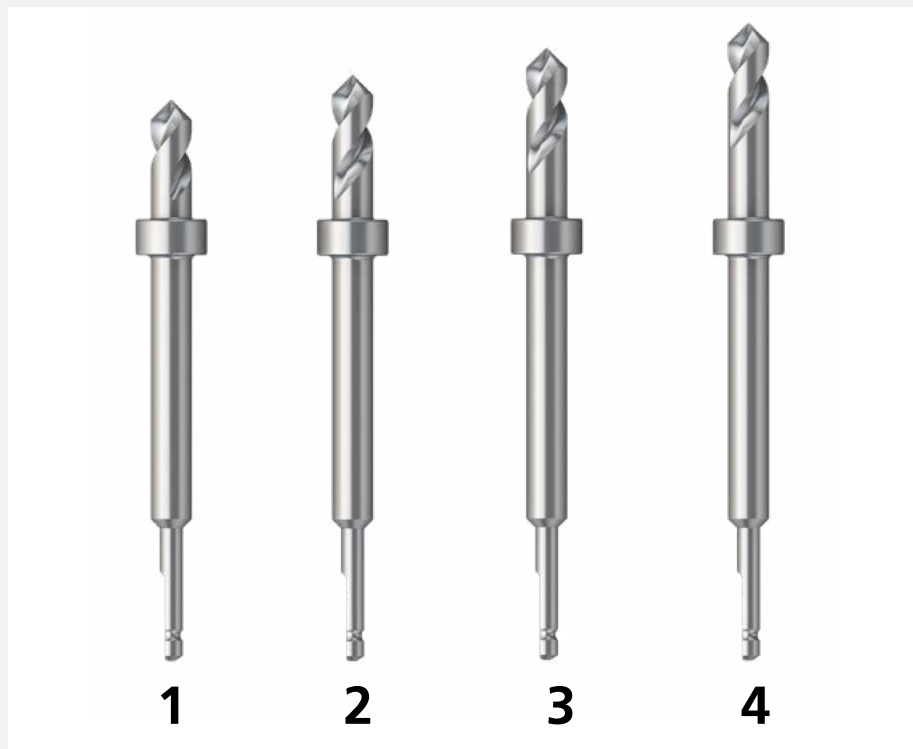
Fixation *Tibial base plate*

F Preparing the tibial implant site

After the *Tibial base plate* has been attached, the *Tibial alignment guide*, the *Centralizer Bushing* and *Guide Rod* or the *Reamer with Guide Rod* is removed.

If it is not possible to remove the *Reamer with Guide Rod* through the opening of the *Tibial base plate*, then the *Tibial base plate* must be removed with the *Tibial alignment guide* attached and then placed back in position using the remaining pins.

The *Tibial reaming guide SC/RH/TH* is attached to the *Tibial base plate* and secured with the gold-coloured screw.



Drill for Tibial Augments

With the *Drill for Tibial Augments* suitable for the overall height of the augments (without Tibia Augments (1), 5 mm (2), 10 mm (3), 15 mm (4)), the medial and lateral required bore for the CLAMP SCREWS for Augment is drilled.

The tibia is reamed to an inner taper up to the stop with the *Tibial Reamer SC/RH/TH*. To determine the rotational alignment, the *Tibial punch SC/RH/TH* is used to punch the keel.

Subsequently all instruments are removed.



Tibial reaming guide SC/RH/TH



Drill for Tibial Augments



Tibial Reamer SC/RH/TH



Tibial punch SC/RH/TH

BPK-S INTEGRATION

BRIEF INSTRUCTION REVISION SURGICAL TECHNIQUE

(SOURCE: SURGICAL TECHNIQUE - BPK-S INTEGRATION REVISION)

G Femoral preparation

The size of the FEMUR Component is determined by using the *Femoral Sizing Templates*:

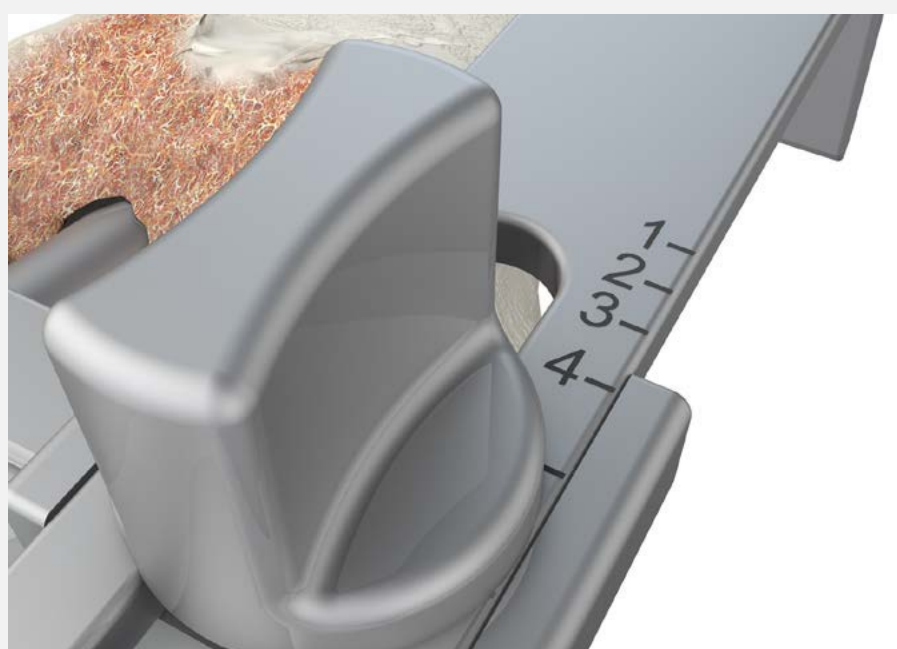


Femoral Sizing Templates

First the *Adapter Femur* with the desired offset (0, 4, or 6 mm) is advanced over the *Guide Rod* or the *Reamer with Guide Rod* into the medullary canal until it is in contact with the *Reference Stem straight* or the *Reamer with Guide Rod*. Then the *Femoral cutting block A/P* of the preselected size is placed on the *Adapter Femur* and stabilised by assembling the *Hexagonal clamping nut PEEK*. Be sure to use the proper right or left option on the *Femoral cutting block A/P*.

To verify proper rotational alignment, the epicondyle feeler gauge consisting of the *Adapter Epicondyle Feeler* with the *Guide Epicondyle Feeler* and 2 x *Epicondyle Feeler* is attached to one of the posterior osteotomy guides on the *Femoral cutting block A/P*. The *Femoral stylus* is set to the size of the *Femoral cutting block A/P* and attached to the anterior osteotomy guide.

When aligning the *Femoral cutting block A/P*, make sure the *Femoral stylus* is in contact with the anterior lateral cortex of the femur. The epicondyle feeler gauge is used to verify rotational alignment with respect to the femoral epicondyles.



Adjustment Femoral stylus



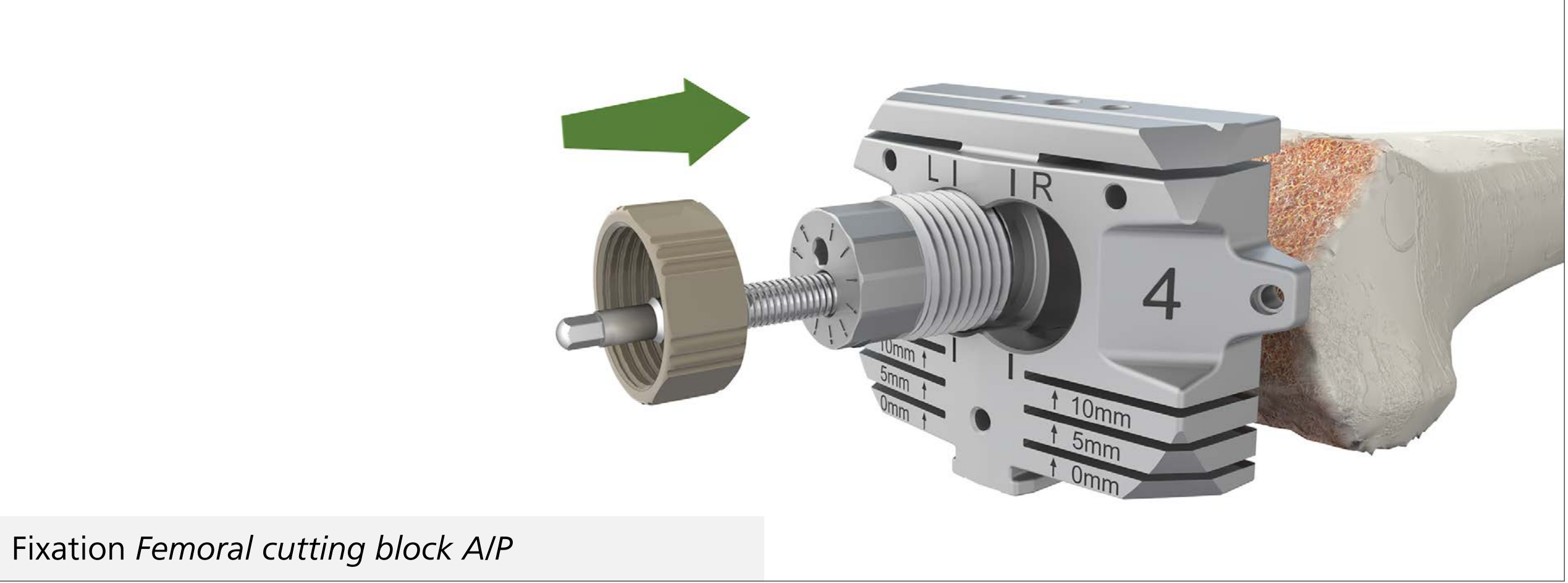
Alignment Femoral stylus



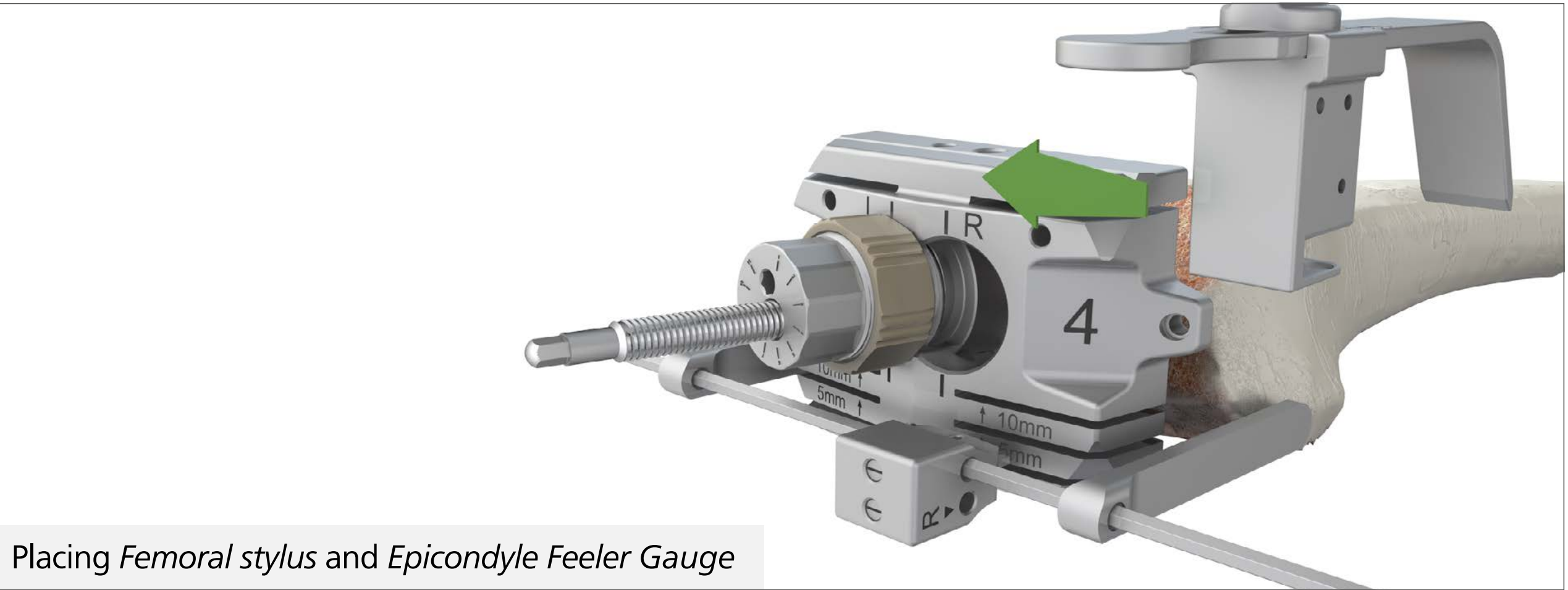
Rotational Alignment with epicondyle feeler gauge



Placing Adapter Femur



Fixation Femoral cutting block A/P



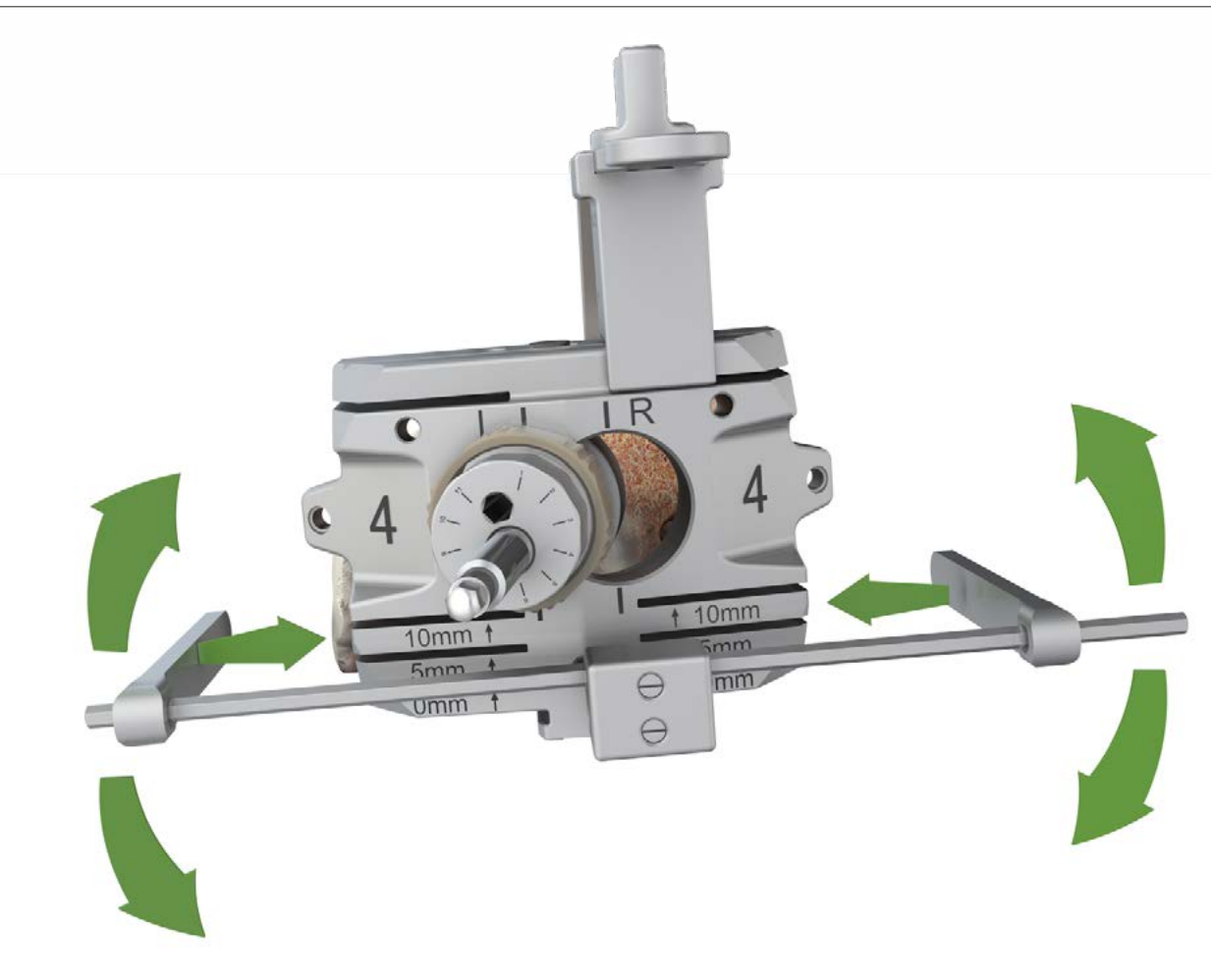
Placing Femoral stylus and Epicondyle Feeler Gauge

H Alignment and offset adjustment

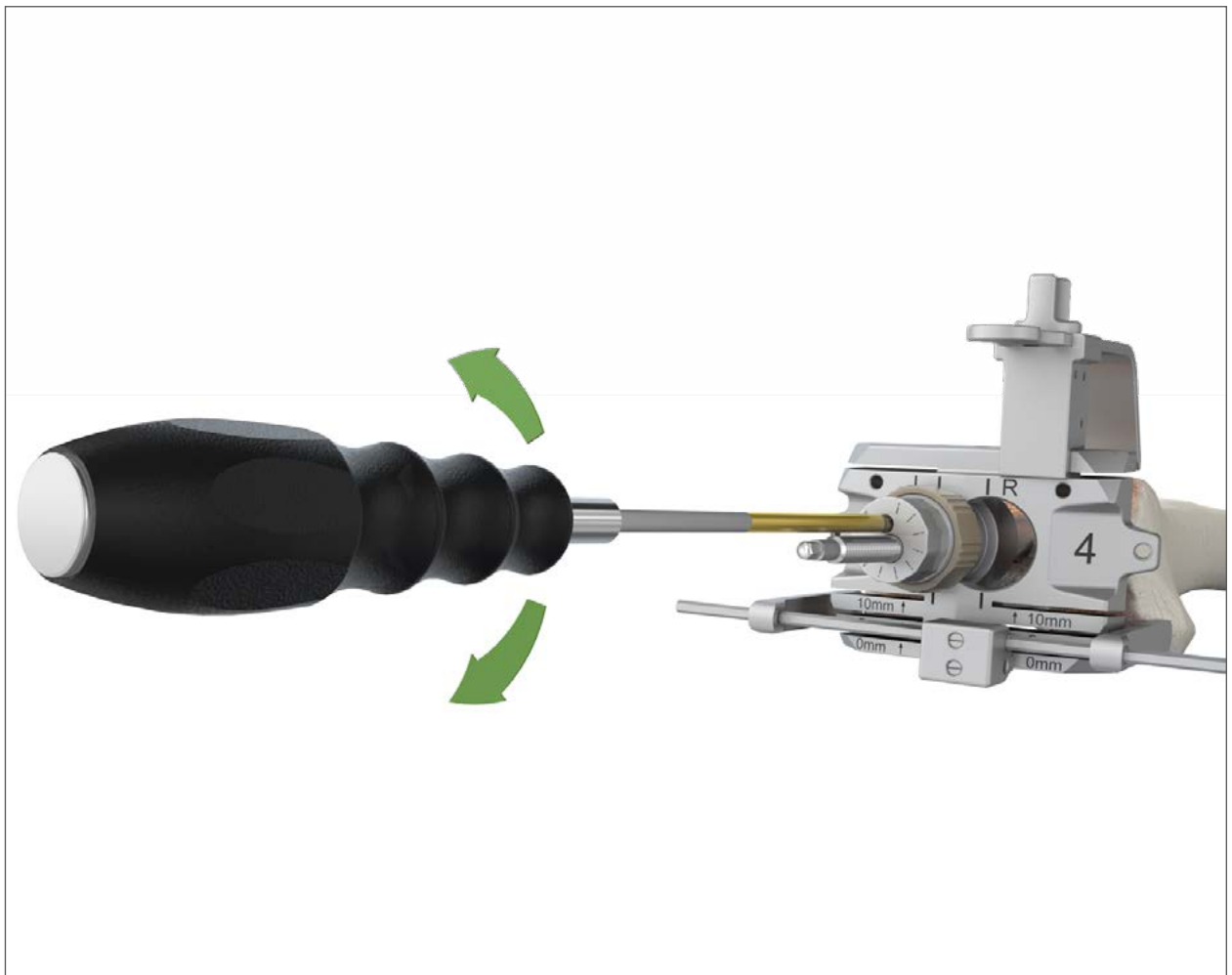
M/L alignment can be estimated from the width of the *Femoral cutting block A/P*, as the M/L dimension of the *Femoral cutting block A/P* corresponds to the respective implant size.

Adapters Femur 4 or 6 mm are rotated with the *Socket Wrench AF3,5* until the best possible A/P and M/L alignment with satisfactory rotational alignment and anterior position of the *Femoral stylus* have been achieved. The offset adjustment is noted to ensure it is correctly transferred to the implant.

The anterior vertical marking on the *Femoral cutting block A/P* indicates the offset on the *Adapter Femur*.



Rotational alignment



Offset adjustment

I Fixation and A/P resection femur

After the construct has been aligned, it is secured by oblique *Pins with Corticalis Thread Size: Ø 3,15 x 70 mm* and the epicondylar feeler gauge is removed.

Additionally, the *Hexagonal clamping nut PEEK* is secured with the *Ring-Wrench for Hexagonal Clamping Nut*, and the *Clamping nut* is secured with the *Flat Wrench AF14*.

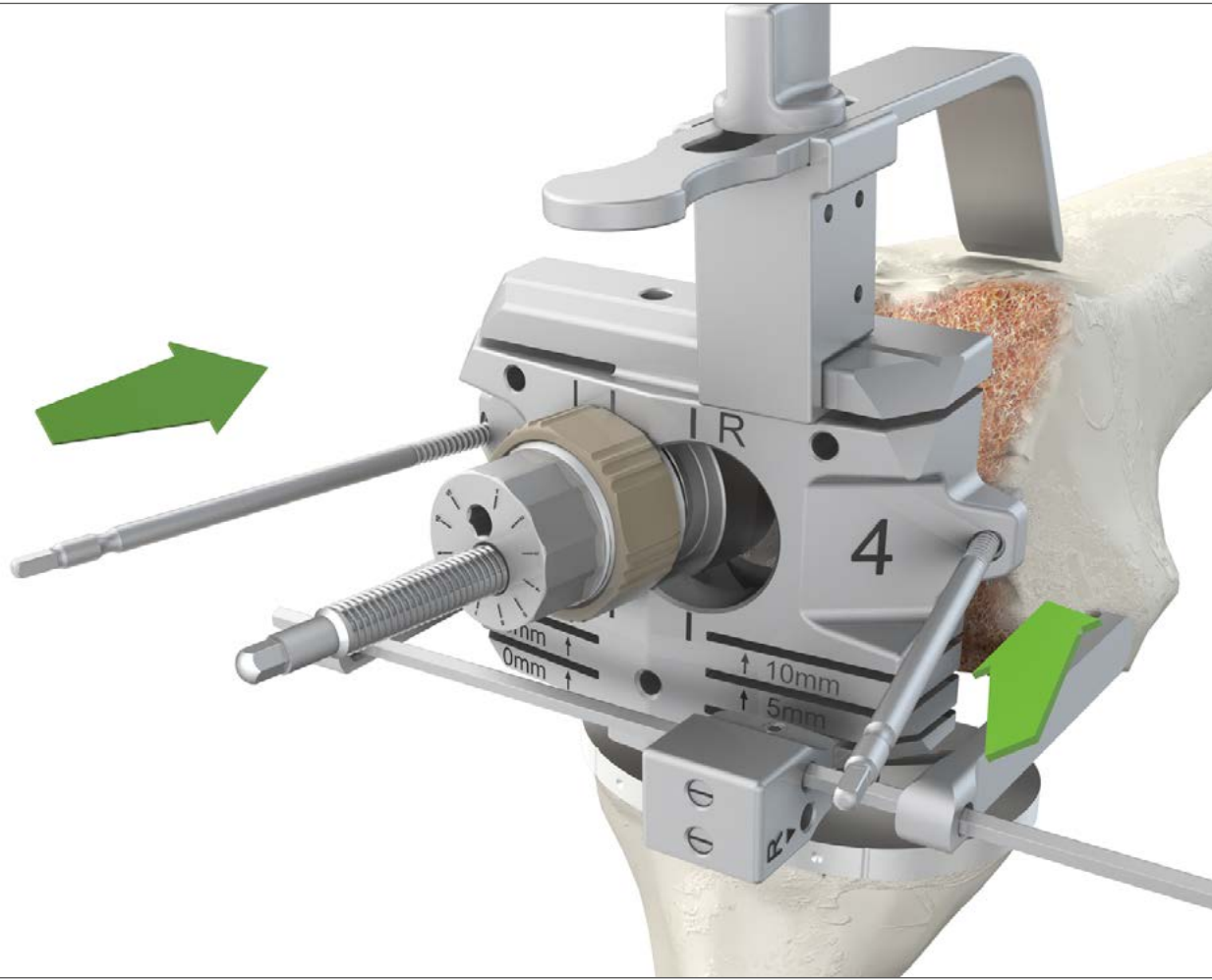


Securing Hexagonal clamping nut PEEK

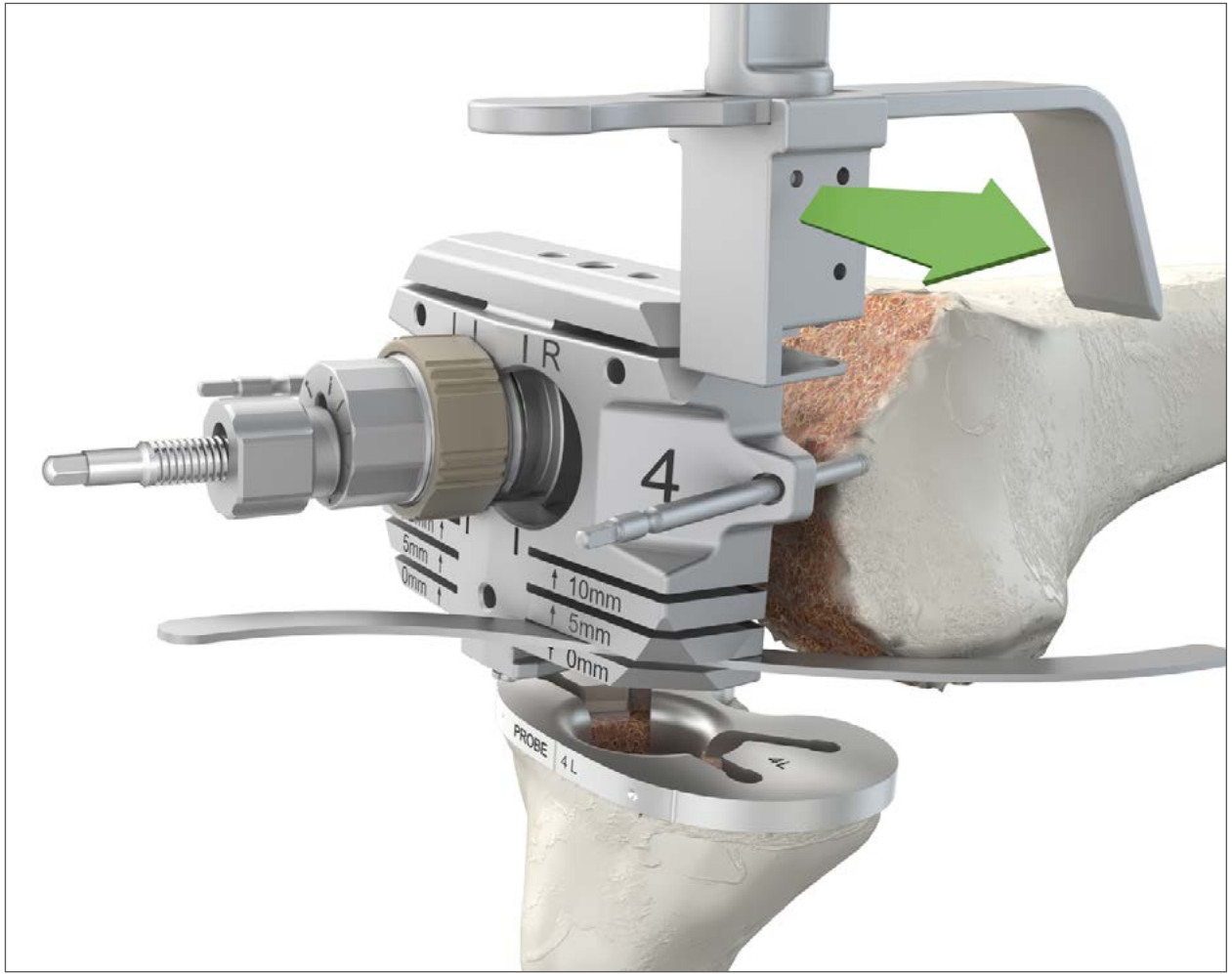


Securing Clamping nut

Then the A/P resections are verified with the *Visualisation Guide S* and the instruments for adjusting rotational alignment as well as the *Femoral stylus* are removed, A/P resections are performed.



Fixation with Pins with Corticalis Thread Size: Ø 3.15 x 70 mm



Verifying A/P resections



A/P resections



Posterior resection guides 0 mm, for Augments 5 mm und 10 mm

BPK-S INTEGRATION

BRIEF INSTRUCTION REVISION SURGICAL TECHNIQUE

(SOURCE: SURGICAL TECHNIQUE - BPK-S INTEGRATION REVISION)

J Distal resection

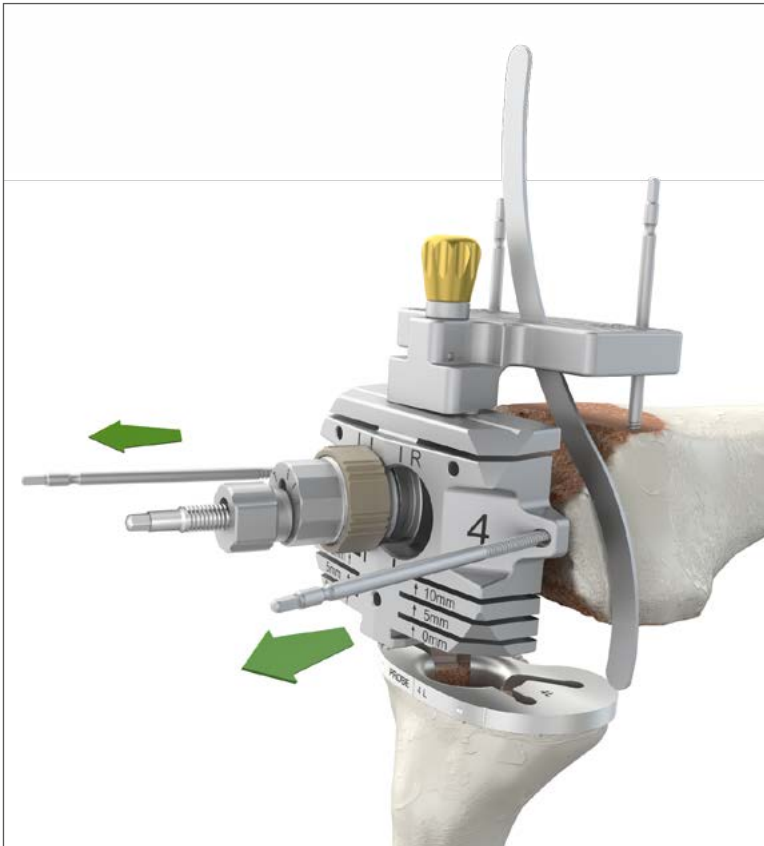
First the *Femoral cutting block distal* is attached to the *Femoral cutting block A/P* and secured with 2 Pins with Corticalis Thread Size: Ø 3,15 x 70 mm. The pins on the *Femoral cutting block A/P* are removed, the distal osteotomy is checked with the *Visualisation Guide 5* and the distal osteotomy is performed.



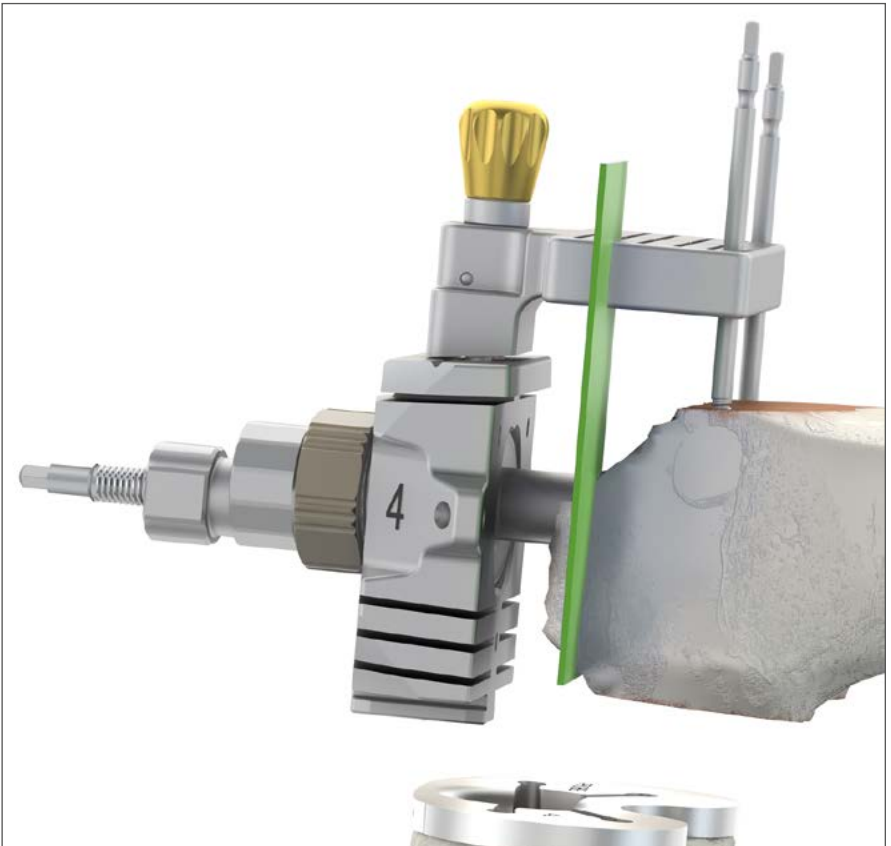
Femoral cutting block distal for 0 mm and Augments 5, 10, 15 and 20 mm



Fixation Femoral cutting block distal



Verification with Visualisation Guide 5



Distal resection

K Assembling and placing the Box preparation

If the resection considered augments, then the appropriate *Box-Augment distal* and *posterior* must be inserted into the *Box preparation*.



Box-Augments



Assembling Box-Augments

The *Drill Guide Ø 19 mm for Box preparation* is inserted into the *Box preparation* of the appropriate size and assembled on the distal femur guided by the *Guide Rod* or the *Reamer with Guide Rod*. Ensure to use the proper right „R“ or left „L“ position marked on the *Drill Guide Ø 19 mm for Box preparation*. The label on the instrument indicating the position must be visible anteriorly.

Then the *Centralizer bushing* with appropriate offset is slid over the *Guide Rod* or the *Reamer with Guide Rod* into the *Drill Guide Ø 19 mm for Box preparation* to obtain the desired M/L alignment.



Applying Box preparation and Drill Guide



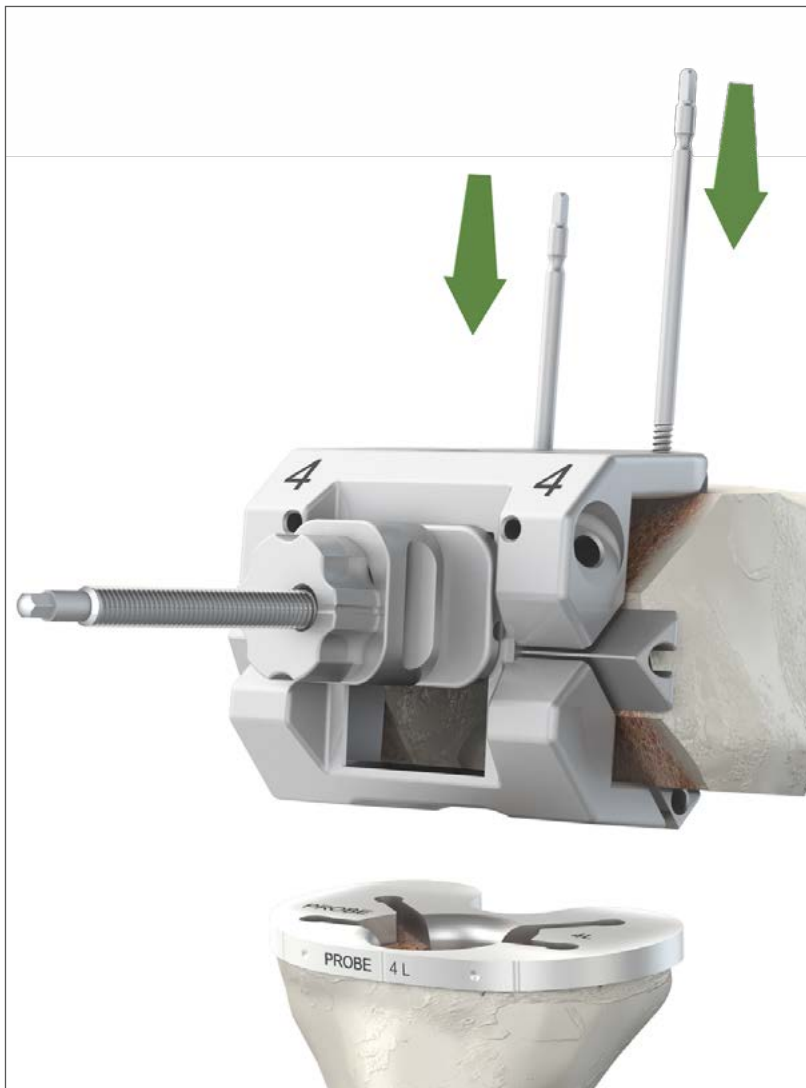
Adjusting Box preparation

L Fixation, diagonal osteotomies and drilling the offset

The *Box preparation* is secured with 2 Pins with Corticalis Thread Size: Ø 3,15 x 70 mm. Then the *Centralizer bushing*, the *Drill Guide Ø 19 mm for Box preparation*, and the *Guide Rod* or the *Reamer with Guide Rod* are removed and the oblique osteotomies are performed.

If it is not possible to remove the *Reamer with Guide Rod* through the opening of the *Box preparation*, then the *Box preparation* must be removed with it. Distally inserted Pins with Corticalis Thread Size: Ø 3,15 x 70 mm or an anterior marking can be used to ensure reliable repositioning.

After the *Drill Guide Ø 19 mm for Box preparation* has been reinserted, the femur is drilled with the *Drill Size: Ø 19 mm*.



Fixation Box preparation



Oblique osteotomies



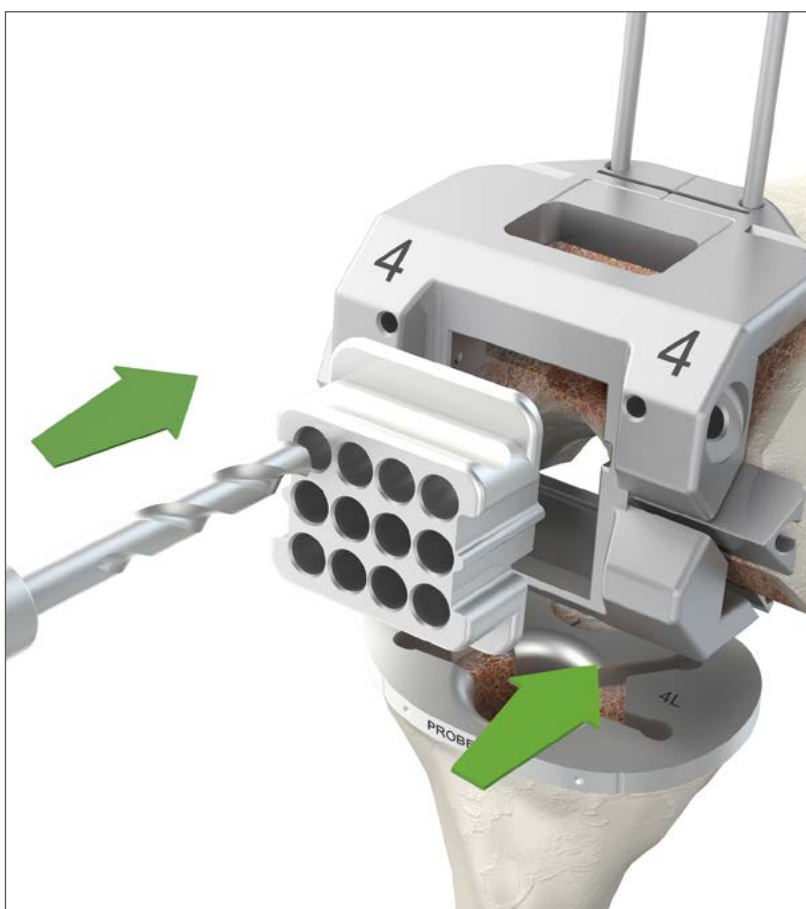
Drill Size: Ø 19 mm

M Preparing the femoral box (alternative 1)

The *Drill Guide Ø 6 mm* and the *Drill AO-Coupling Size: Ø 6 mm* can be used to remove excess bone in the box.

The edges of the box can be created with the *Box Chisel*. The *Handle for Impactor/Extractor* is attached to the *Box Chisel* for this purpose. The *Cutting chisel* is used to remove any remaining structures.

Make sure the „anterior“ marking on the *Box Chisel* is visible from above in order to protect posterior and intercondylar structures.



Drill Guide Ø 6 mm and Drill AO-Coupling Size: Ø 6 mm



Box Chisel

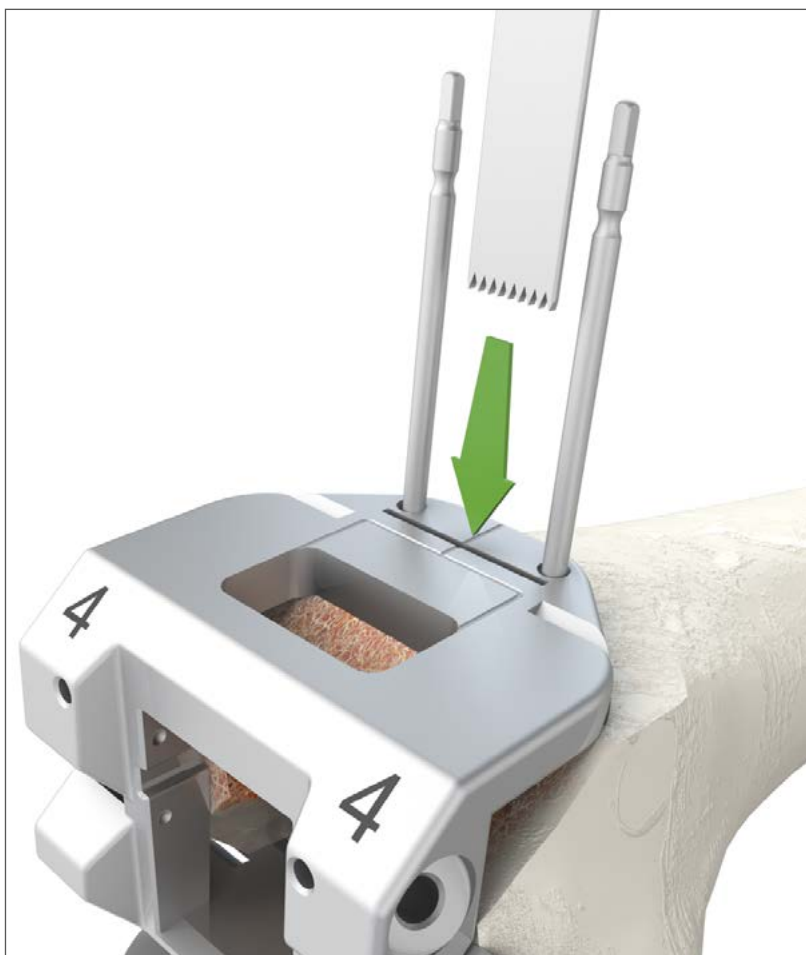


Cutting chisel

N Preparing the femoral box (alternative 2)

Alternatively, the box can be dissected with an oscillating saw. First the distal resection is performed through the anterior slot in the *Box preparation*. Be careful to maintain proper axial alignment during the resection.

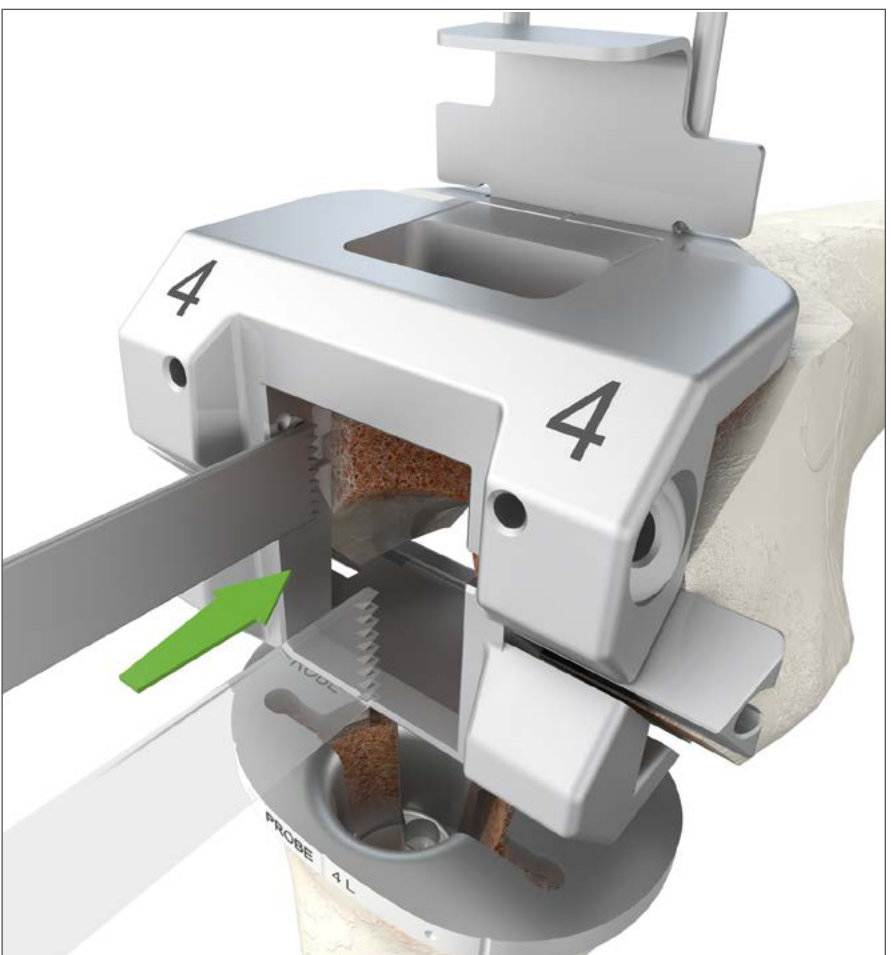
After the *Depth Stop for Box Preparation* has been inserted, a distal originated osteotomy is carried out as far as the *Depth Stop for Box preparation* to mobilize the block of bone.



Distal resection



Depth Stop for Box Preparation



Resection from distal