REVISION
KNEE SYSTEM

ADAPTIVE • SMART • COMPLETE

SURGICAL TECHNIQUE

Lima Corporate
Orthopaedic motion

REVISION KNEE SYSTEM SURGICAL TECHNIQUE

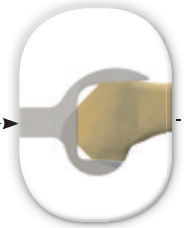
Index

Limacorporate S.p.A. is a manufacturer of prosthetic implants and as such dœs not perform medical procedures. This documentation concerning surgical techniques, which provides surgeons with general guidelines for implanting the REVISION KNEE SYSTEM*, was developed with the advice of a team of surgical experts. All decisions as to the type of surgery and most suitable technique are obviously the responsibility of the health care professional. Surgeons must make their own decisions as to the adequacy of each planned implant technique based on their training, experience and the clinical condition of the patient. For further information about our products, please visit our web site at www.limacorporate.com*

REVISION KNEE SYSTEM SURGICAL TECHNIQUE

Surgical Steps

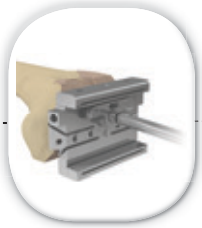
Components removal



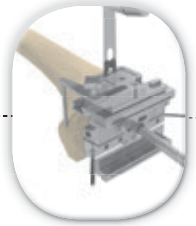
Femoral size determination (1-5)

Femoral stem size determination (from S to L)

Distal resection (with or without 9mm) check medial epicondyle ref.



Femoral Resection and femoral offset determination (0/-3/+3)



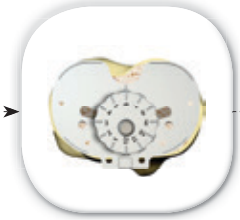
Femoral box preparation

Femoral trials

Tibial stem size determination (from S to L)

CCK Tibial resection 6° slope

H Tibial resection 0° slope



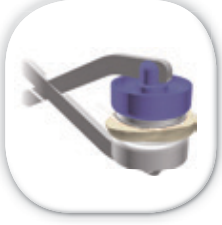
Tibial plate sizing and stem offset determination 360° 0° - 3° - 6° offset possible

Tibial keel preparation

Tibial trials

OPTIONAL

Patellar preparation



Patellar definitve implant

Articular test

Stem impaction,
morse taper

OPTIONAL

CCK or H Definitive
femoral implant assembly

Augments

OPTIONAL

CCK definitive Tibial
implant assembly

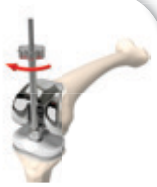
CCK definitive Tibial
insert assembly

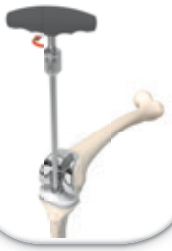
MULTIGEN CCK
definitive Implant

Augments

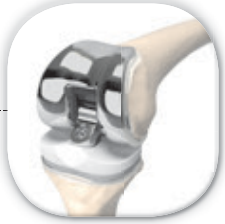
OPTIONAL

H definitive Tibial
implant assembly





H Hinge mechanism
final assembly



MULTIGEN H
definitive Implant

REVISION
KNEE SYSTEM

ADAPTIVE • SMART • COMPLETE

THE MULTIGEN-PLUS H TOGETHER WITH THE MULTIGEN-PLUS CCK, CONSTITUTE A COMPLETE REVISION KNEE SYSTEM

REGAINING MOBILITY

The LimaCorporate Multigen Plus Total Knee system provides the surgeon with a solution to most knee surgery cases, from simple to complex primary and revision.

MODULAR

Different modules to adapt the stem positioning and improve the fit for each individual patient.

SMART

The interchageability of the components and a common instrument set for the CCK and the Hinge facilitates the surgical steps.

COMPLETE

The system can solve several challenging situations in revision surgery thanks to a condylar constrained and a hinged knee configuration, designed to maximize stability alongside mobility.

REVISION KNEE SYSTEM SURGICAL TECHNIQUE

Indications, Contraindications and Warnings

INDICATIONS

Please follow the instructions for use enclosed in the product packaging.

- Advanced articular destruction generated by primary degenerative or post-traumatic arthrosis or rheumatoid arthritis;
- Traumatic events with articular pain;
- Avascular necrosis;
- congenital or acquired deformity;
- failures of previous operations, articular reconstruction, arthrodesis, hemi- arthroplasty or total arthroplasty.

CONTRAINDICATIONS

- Acute or chronic infections, local or systemic infections;
- serious muscular, neurological or vascular diseases affecting the concerned limb;
- bone destruction or poor bone quality, which could compromise implant's stability;
- any concomitant disease and dependence that might affect the implanted prosthesis;
- allergy to material.

RISK FACTORS

The following risk factors may lead to poor results by implanting this prosthesis:

- overweight - According to the definition of the World Health Organization (WHO), Body Mass Index (BMI) greater than or equal to 25 Kg/m^2;
- strenuous physical activities (active sports, heavy physical work);
- fretting of modular junctions;
- incorrect implant positioning;
- insufficient bone to support the femoral and/or tibial components;
- medical disabilities which can lead to an unnatural gait and loading of the knee joint;
- muscle deficiencies;
- multiple joint disabilities;
- refusal to modify postoperative physical activities;
- patient's history of infections or falls;
- systemic diseases and metabolic disorders;
- local or disseminated neoplastic diseases;
- drug therapies that adversely affect bone quality, healing, or resistance to infection;
- drug use or alcoholism;
- marked osteoporosis or osteomalacia;
- patient's resistance to disease generally weakened (HIV, tumour, infections);
- severe deformity leading to impaired anchorage or improper positioning of implants;
- mistakes while performing the surgical technique;
- Lack of tightening of the hinge locking screw (only for MULTIGEN PLUS H).

NOTE. *With CCK-H it is always necessary to use modules in combinations with stems.*

WARNINGS

Surgeons must carefully plan the procedure after viewing the surgical technique to be used to implant this system.

ALLOWED/PROHIBITED COMBINATIONS

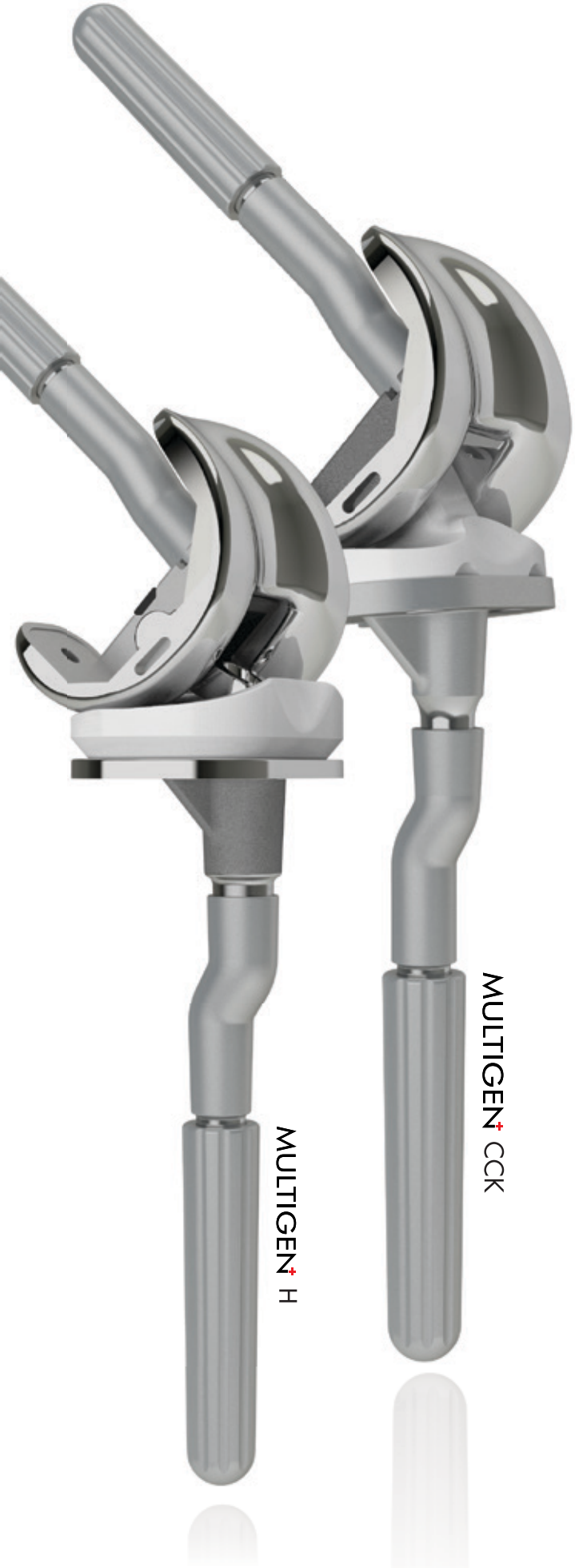
For the MULTIGEN-PLUS CCK system, the following combinations of sizes are allowed:

MULTIGEN CCK		FEMORAL COMPONTENT				
		#1	#2	#3	#4	#5
TIBIAL COMPONENT= TIB. LIN.	#1	OK	OK	NO	NO	NO
	#2	OK	OK	OK	NO	NO
	#3	NO	OK	OK	OK	NO
	#4	NO	NO	OK	OK	OK
	#5	NO	NO	NO	OK	OK

For the MULTIGEN PLUS H system, the following combinations of sizes are allowed:

MULTIGEN H		FEM. COMP.= TIB. LIN.				
		#1	#2	#3	#4	#5
TIBIAL COMPONENT	#1	OK	OK	NO	NO	NO
	#2	OK	OK	OK	NO	NO
	#3	OK	OK	OK	OK	NO
	#4	OK	OK	OK	OK	OK
	#5	OK	OK	OK	OK	OK

- The CCK Tibial modules can be assembled only with CCK tibial component and with a CCK/H stem.
- The Tibial augments can be assembled only with cemented fixed tibial component.
- The H Tibial modules can be assembled only with an H tibial component and with a CCK/H stem.
- The H Tibial augments can be assembled only with an H tibial component.
- The H Tibial liners must be coupled only with H tibial component.



INTRODUCTION

In Revison Knee Surgery (Revision TKA) the surgeon removes a previous implant and replaces it with a new prosthesis. Revision implants may also be used in primary cases with severe bone loss, traumatic events or compromised ligaments.

Failures in primary TKA are not common, but actually they result to be very problematic for the patient. TKA patients in need of a revision, have often compromised collateral ligaments and subsequently suffer from varus/valgus instability. The common device used to treat these cases is a Constrained Condylar Knee (CCK) implant.

Rotating-Hinge total knee prostheses (H) is used for the treatment of global instability due to weakness or absence of collateral ligaments or severe bone loss around the joint. A ligament deficiency in the knee can be related to a previous trauma, associated with severe varus-valgus deformities, or due to revision surgery associated with severe bone losses. The rotating-hinge arthroplasty offers enough stability, allowing an intrinsic rotation that stimulates the biomechanical reply of a normal knee and reduces the stress produced by an elevated constriction.

With the REVISION KNEE SYSTEM, MULTIGEN-PLUS CONDYLAR CONSTRAINED KNEE together with the MULTIGEN-PLUS HINGE KNEE, Lima Corporate, provides a solution for most of knee surgery situations from complex primary to revision cases.

NOTE. *The Multigen plus system has the same A/P resections on the femoral component for primary and revision therefore it is a bone sparing system.*

Surgical Technique

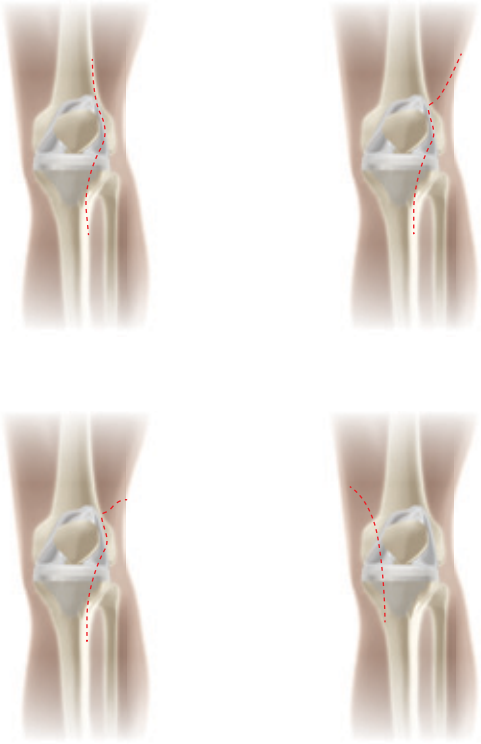


Figure 1

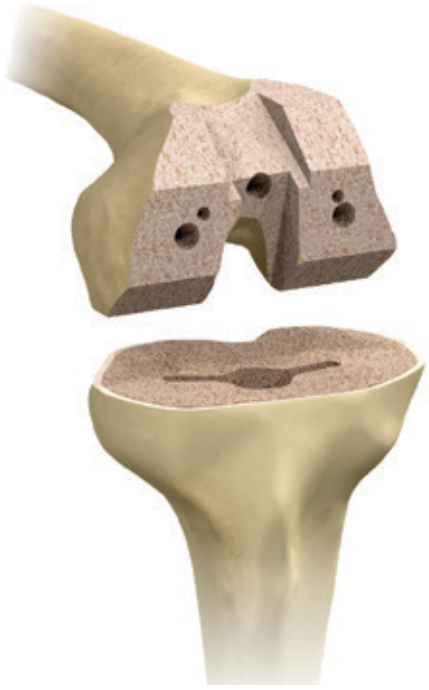


Figure 2

APPROACH

When possible, follow the scar left by the primary procedure *(Fig. 1)*. Where parallel incisions are present, the more lateral is usually preferred, as the blood supply to the extensor surface is medially dominant.

CAPSULAR INCISION

The fascial incision extends from the rectus femoris proximal margin to the distal margin of the tibial tubercle following the patella's medial border.
Where mobilisation of the extensor mechanism and patella is problematic, extend the skin and capsular incisions proximally.

NOTE.
CCK or Hinged knee can be used:
- in a revision surgery to replace a failed primary system depending on the ligaments;
- in cases of bone defects, trauma, tumors or other non standard situations (In this case there is no necessity of implant removal).

PREVIOUS IMPLANT REMOVAL

Remove the previously implanted components as well as any residual cement from bone surfaces, taking care to preserve as much bone as possible *(Fig. 2)*.

Figure 3

TIBIA

TIBIAL STEM SIZE DETERMINATION

Introduce the first smallest reamer (14mm) into the tibial canal *(Figs. 3-4)*.

Progressively ream the canal until cortical contact is achieved.

If the stability is reached at the reference number S, it means that a short stem is needed *(Fig. 5)*.
The trial short stem (9066.47.230 - 9066.47.255) needs to be assembled in combination with the correct tibial offset trial module (0/+3/+6).

For the definitive implant the correct stem diameter + SHORT tibial module straight /+3mm/+6mm should be taken.

NOTE. *The thickness of the stem should always be the thinnest one when in between 2 sizes, otherwise can lead to stem tip pain.*

Figure 4

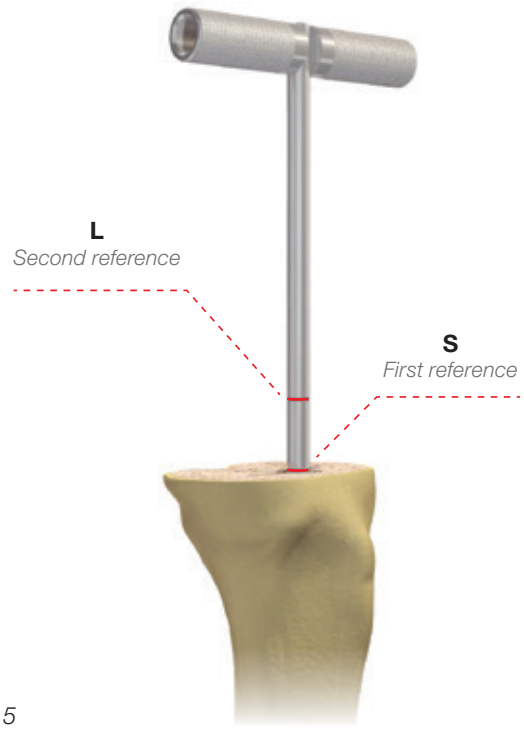


Figure 5

CCK Tibia

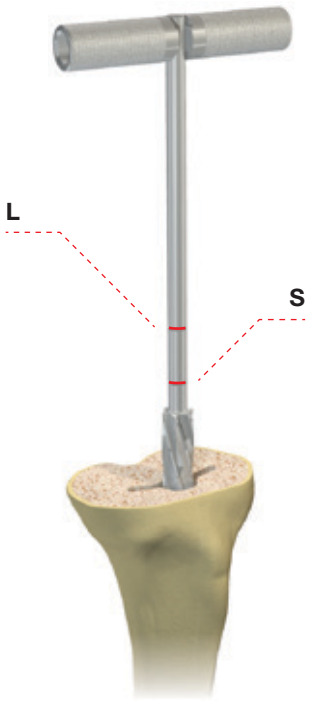


Figure 6

If the second line (L) is reached, it means a long stem is needed *(Fig. 6)*. Therefore use the trial tibial stem connected with the choosen tibial trial offset module (straight/+3mm/+6mm) and the extension module (long) (9066.47.615). The final implant will consist of the definitive stem and the "L" module *(Tab. 1)*.

Tab. 1

Ref	LENGTH	TRIAL	DEFINITIVE
S	30mm	S Tibial Module	S Tibial Module
L	55mm	S Tibial Module + L Extension	L Tibial Module

Whether the reamer goes below the L reference use reamers with the highest reference point as diameters.

If there is a difference between the medial and the lateral plateau use the highest as reference.

The size of the latest reamer used corresponds to the diameter of both trial and definitive stem.

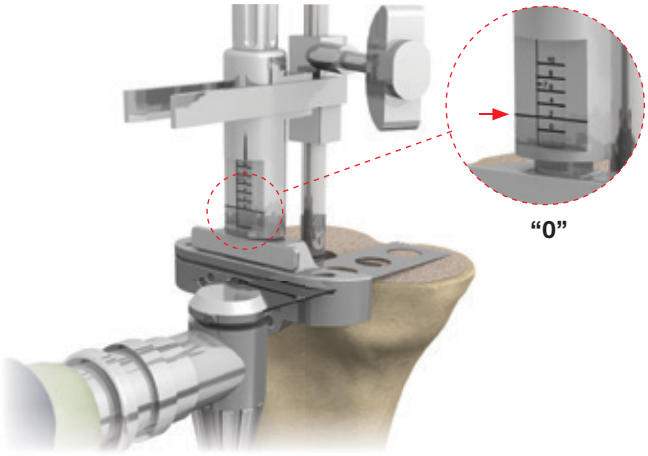


Figure 7

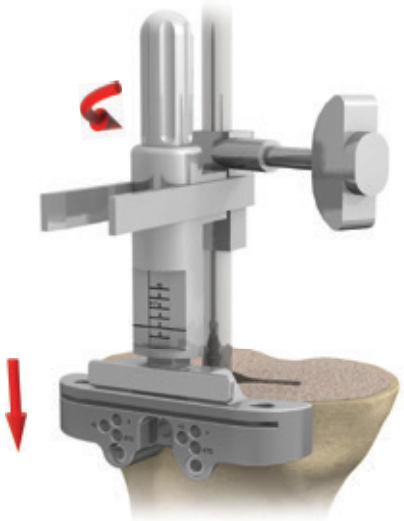


Figure 8

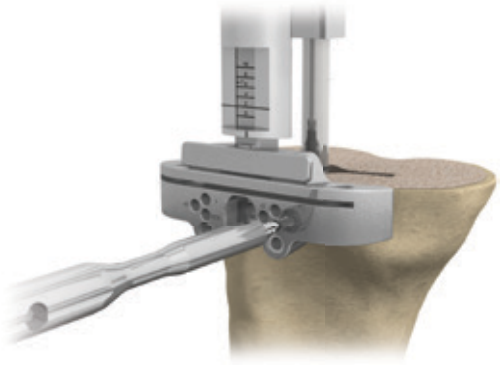


Figure 9

TIBIAL RESECTION (CCK TIBIAL SLOPE 6°)

Remove the handle from the reamer and insert the prismatic guide onto the reamer shaft. Insert the tibial cutting guide (9066.22.120) on the prismatic guide.

NOTE. *The CCK tibia resection guide has a 6° of tibial slope (9066.22.120) (Fig. 7). Please be aware of the correct rotation.*

Rotate the milimetric screw until the "0" marking is reached on the tibial cutting guide.
Introduce the sickle (9066.12.010) or a free blade with thickness 1.27mm through the cutting guide slot and place it on the highest tibial plateau *(Fig. 7)* (if there is any difference between the medial and the lateral plateau).

Lock the screw of the prismatic guide on the reamer shaft. Rotate the millimetric screw until the desired resection level is reached *(Fig. 8)* and secure the tibia resection guide using pins *(Fig. 9).*

It is also possible to use the +0mm tibia depth resection gauge adapting the space (9066.25.160) to measure the gap between the two tibial emiplateau.

REVISION KNEE SYSTEM SURGICAL TECHNIQUE

CCK Tibia

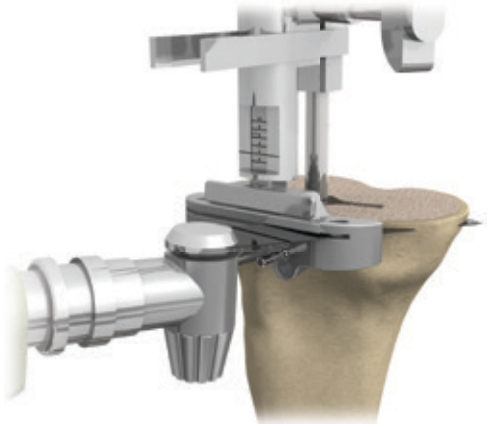


Figure 10

Proceed with the tibial resection (Fig. 10).

Whether a tibial augment is needed it's possible to directly perform the +7mm or the +12mm resection to host it. Rotate the millimetric screw untill the desired resection level +7mm or +12mm, referring to the last performed resection, is reached *(Fig. 11).*

Remove the pins, the IM tibial resection guide and the prismatic guide.

If needed, it is possible to perform the tibial augment cuts after the tibial resection guide has been removed, using the augment tibial resection guide (9066.47.055) that has to be inserted onto the reamer shaft as well *(Fig. 12).*

You can also use the standard IM tibial cutting guide, where there is a need for augments *(Figs. 13-14).*
Whether an augment is needed it's possible to directly perform the +7mm or the +12mm resection through the dedicated slot on the IM Tibial cutting guide for CCK (9066.47.050)

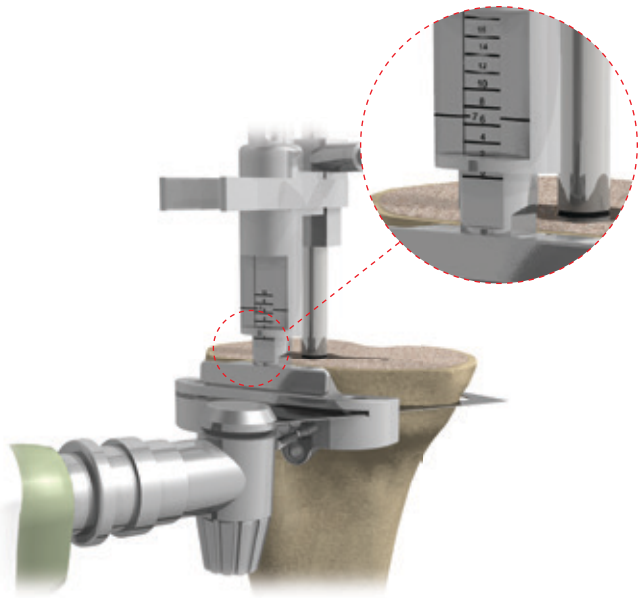
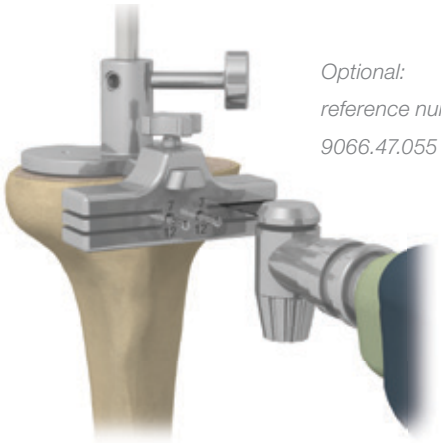


Figure 11



Optional:
reference number
9066.47.055

Figure 12

9066.47.050

Figure 13

2 different trial tibial augments
can be used:
7mm (9066.47.315/325/335/345/355)
12mm (9066.47.320/330/340/350/360)

Figure 14

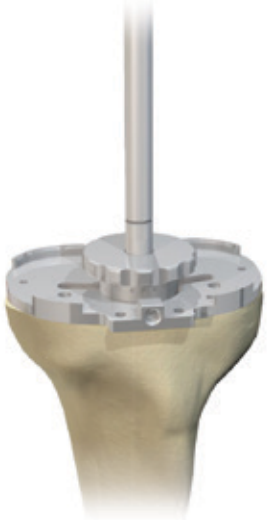


Figure 15

TIBIAL PLATE SIZE AND TIBIAL STEM OFFSET DETERMINATION

Leaving the reamer in situ, place the trial tibial plate (9066.47.050-150) on the tibial surface.
Slide the straight tibial dialer (9066.47.170) along the arm and insert it into the circular slot of the trial tibial plate.
At the straight tibial dialer corresponds the trial short straight tibial module (9066.47.200) (without offset).

Select the tibial size to achieve maximal tibial coverage *(Figs. 15-16)*.

NOTE. *In a CCK surgery be aware of using the tibial trial plates without the marking "H".*

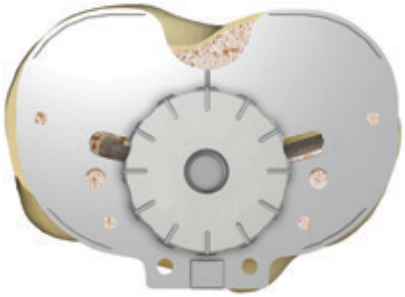


Figure 16

CCK Tibia

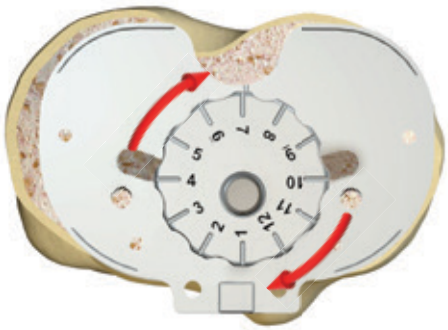


Figure 17

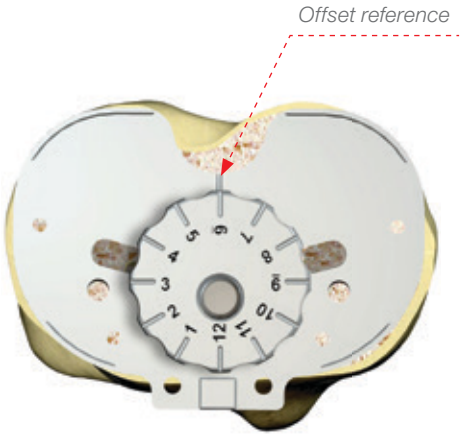


Figure 18

If a tibial augment is required, a trial augment (9066.47.315-360) of the same size of the tibial plate can be fixed magnetically to the trial plate.
To obtain a better coverage of the resected tibial surface, it could be necessary to offset the trial tibia plate replacing the neutral dialer with the +3mm or +6mm eccentrical dialer and rotating until the best positioning is reached *(Fig. 17)*.

A +3mm and +6mm dialer corresponds to a +3mm and +6mm tibial module *(see Tab. 2)*.

Tab. 2

Dialer	Trial/Definitive
0	trial short straight tibial module
+3	+3 trial short offset +3mm tibial module
+6	+6 trial short offset +6mm tibial module

NOTE. *Once the right positioning is reached, take note of the number marked on the dialer aligned with the reference on the trial tibial plate (Fig. 18).*

Figure 19

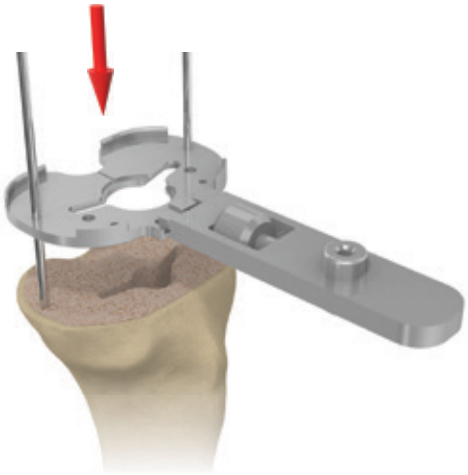


Figure 20

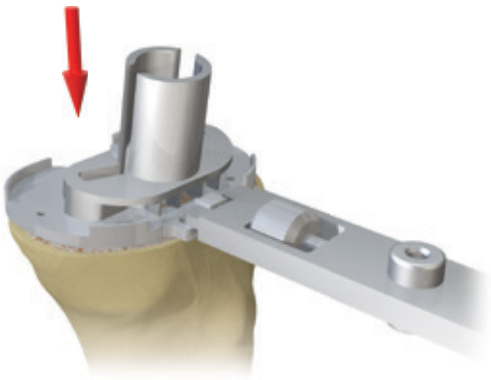


Figure 21

TIBIAL KEEL PREPARATION

Insert two K-wires (dia. 2mm) through the small diameter holes of the CCK trial tibial plate *(Fig. 19)*.

NOTE. *The K-wires are not included in the set.*

Remove the dialer, the CCK trial tibial plate and the reamer.

Reposition the CCK trial tibial plate using the two K-wires as guides *(Fig. 20)* and secure the tibial plate using the pins.

If a trial tibial augment is used, secure the plate using the long pins.

Remove the two K-wires.

NOTE. *Make sure to use the winged broach for CCK (without H) (9066.47.180).*

Insert the guide for the winged broach onto the trial tibial plate *(Fig. 21)*.

CCK Tibia

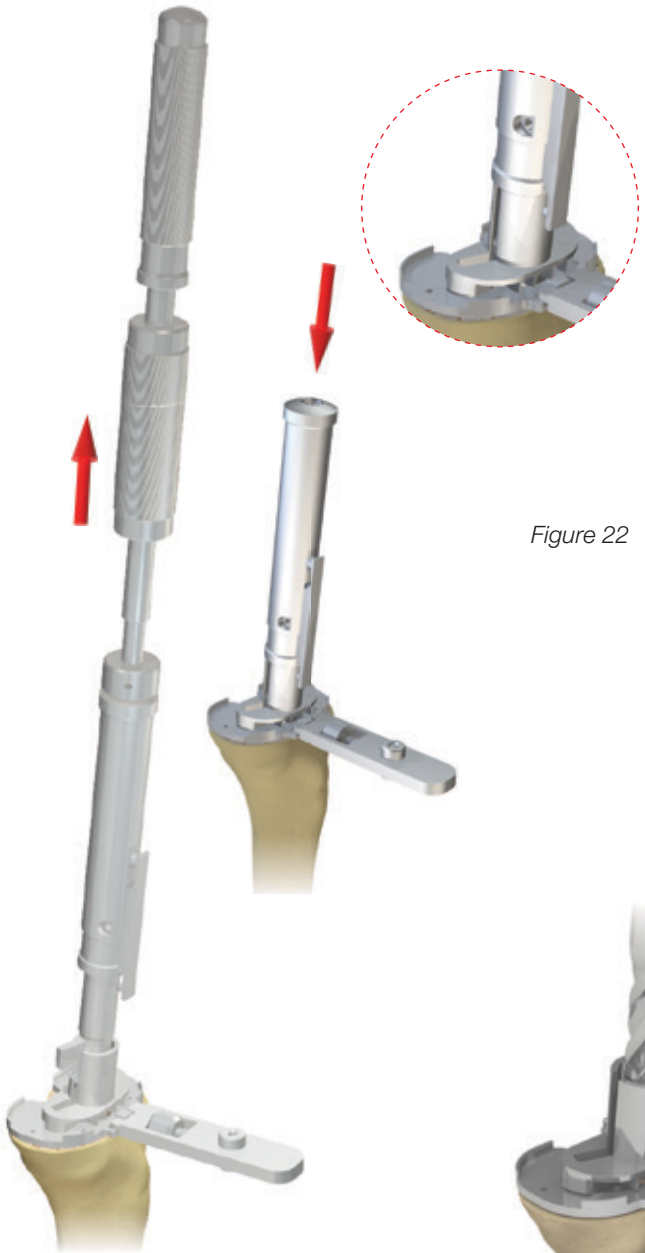


Figure 22

Insert the CCK winged broach into the guide and hammer it axially until the lever tooth engages the tibial winged broach to the guide for the winged broach *(Fig. 22)*.

Use the extractor to remove the broach and the guide *(Fig. 23)*.

In order to avoid any interference between tibial module and bone, reattach the guide for the broach onto the trial tibial plate and ream the tibia using the tibial reamer for offset until it's in even contact with the guide for the tibial broach *(Fig. 24)*.

This procedure is necessary when a tibial module with +6mm offset needs to be used.

If a tibial module with + 3mm offset is used this procedure is necessary only if the last reamer was smaller than 20mm.

To check the tibial alignment, the alignment rod (9066.15.090) can be used through the slot of the handle (Fig. 24).

Figure 23

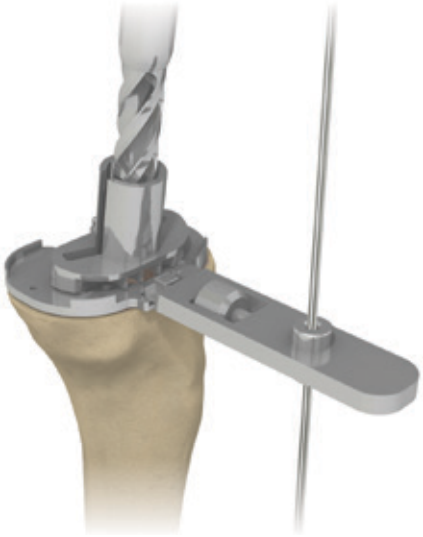


Figure 24

Figure 25

Figure 26

Figure 27

TIBIAL TRIALS

Connect the CCK trial tibial plate with the CCK tibial keel (9066.47.180) and the choosen tibial module, using the trial tibial locking screw (9066.47.190) *(Fig. 25)*.

The position of the trial module must correspond to the previously determined reference (ex. reference n°6) *(Fig. 26)*.
If the reamer has reached the reference L, the additional L extension must be tightened to the S module *(Fig. 26)*.
Select the appropriate trial stem diameter and tighten it to the module or to the L extension *(Fig. 27)*.

The trial stem diameter corresponds to the one of the last reamer used *(see Tab. 3)*.

Tab. 3

Stem diameters & length	Stem + S Module 30mm (N, +3, +6)	Stem + S Module 30mm (N, +3, +6) + L extension 25mm (total 55mm)
Dia. 14mm length 60mm	L = 90mm	L = 115mm
Dia. 16mm length 60mm	L = 90mm	L = 115mm
Dia. 18mm length 85mm	L = 115mm	L = 140mm
Dia. 20mm length 85mm	L = 115mm	L = 140mm
Dia. 22mm length 110mm	L = 140mm	L = 165mm
Dia. 24mm length 110mm	L = 140mm	L = 165mm

If necessary, connect under the surface of the trial tibial plate the trial tibial augment of the corresponding size with the appropriate thickness. The augment is magnetically attached to the trial tibial plate *(*see page *18* for the preparation*)*.

NOTE. *To perform a CCK, be aware of using the trial components without the "H" marking. Using the "H" trial tibial plate would lead to misalignment since the hinged system has a 0° tibial slope instead of 6° (CCK).*

Figure 28

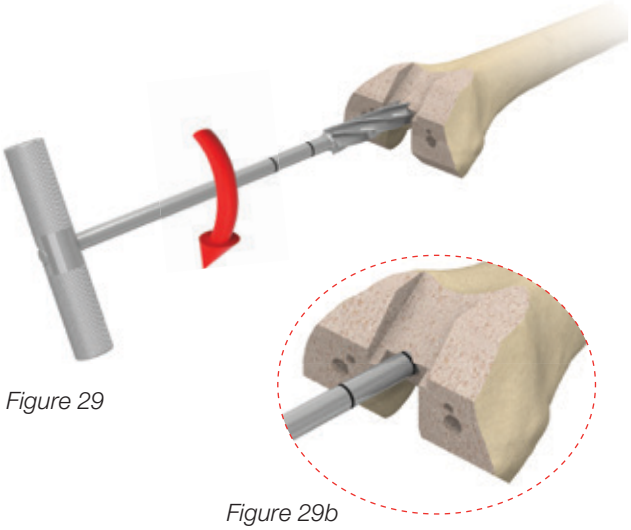


Figure 29

Figure 29b

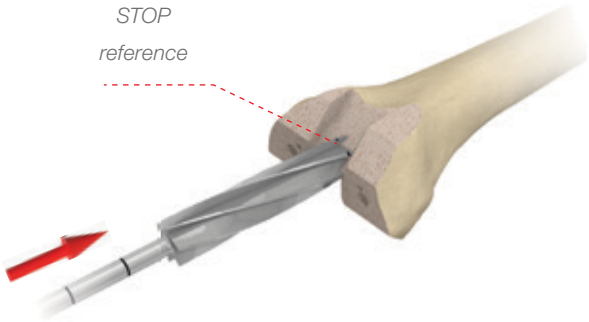


Figure 30

FEMUR

FEMORAL SIZE DETERMINATION

Use the phantoms #1-5 to trial the size of the femur (9066.47.410-450) to approximate femoral size *(Fig. 28)*.

FEMORAL STEM SIZE DETERMINATION

Insert the handle on the reamer shaft. Introduce the smallest reamer (14mm) into the femoral canal. Progressively ream the canal until cortical contact is achieved. *(Fig. 29)*.

If the first reference (S) is reached, it means the short trial stem needs to be used together with the correct trial offset module for the femur (+3/-3 L/R) *(Fig. 29b)* (9066.47.570-595).
If the second reference (L) is reached, it means the long trial stem needs to be used, in combination with the long extension module. Therefore for the final implant assembly, the definitive stem will be assembled with the "L" module *(see Tab. 4)*.

Tab. 4

Ref	Length	Trial	Definitive
S	30mm	S Femoral Module	S Femoral Module
L	55mm	S Femoral Module + L Extension	L Femoral Module

In case of sinking over the L reference, proceed with bigger diameter reamers. The last used reamer corresponds to the trial and definitive stem.

NOTE. *Take note of the diameter and of the depth level (S or L) reached.*
In order to avoid any interference between femoral module and bone, ream again the femur using the last reamer until the stop reference line is reached (Fig. 30).

Care should be taken to chose the correct diameter of the stem to avoid pain in the diaphyseal part of the bone.

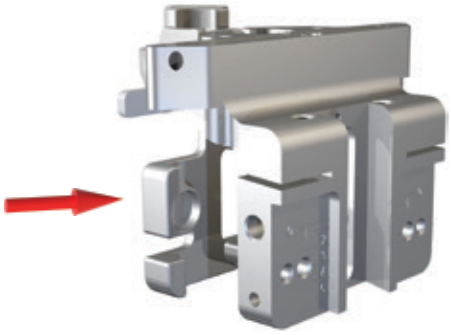


Figure 31

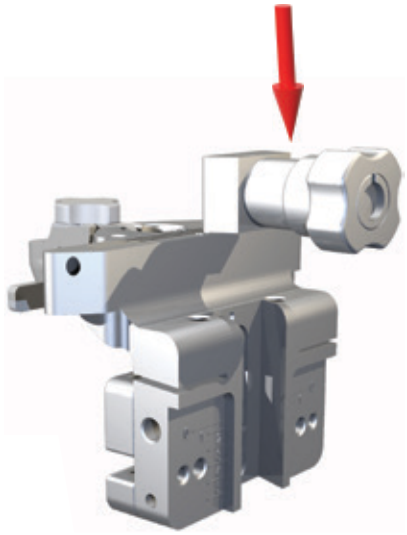


Figure 32

Figure 33

DISTAL RESECTION

To re-cut, the distal resection guide (9066.15.050) + the distal re-cut spacer of 9mm (9066.47.480) + the angle guide 6° 9066.47.470 need to be connected over the reamer *(Figs. 31-32)*.

Leaving the reamer in situ, slide onto it the distal resection mask. Place the mask on the existing distal surface. Lock the angled guide by turning the screw.
Secure the jig with pins and proceed with the distal resection by introducing the oscillating saw-blade through the +3mm slot *(Fig. 33).*

FEMORAL ROTATION

Check the rotation to position the distal resection guide in line with the epicondylar axis and verify the anatomical landmarks in combination with realeases when necessary. The tibial shaft axis can be used as a reference for femoral rotation.

REVISION KNEE SYSTEM SURGICAL TECHNIQUE

CCK Femur

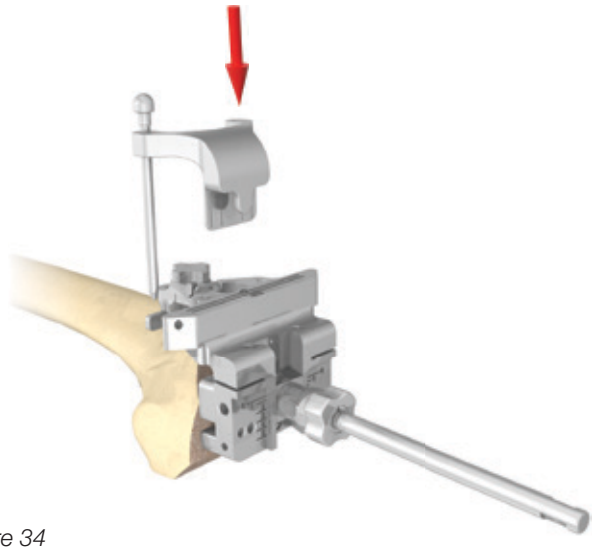


Figure 34

In case of relevant bone loss, it can be difficult to position the distal resection guide. The medial epicondyle can then be used as a reference, by introducing the femoral joint line guide (9066.47.064) into the slot of the distal resection guide *(Fig. 34)*.
If the epicondyle is missing please refer to other anatomical landmarks to guide you in finding the right position.

In order to position the distal resection level at the correct distance from the femoral distal surface, slide the distal resection guide until the joint line guide is touching the medial epicondyle *(Fig. 35)*.

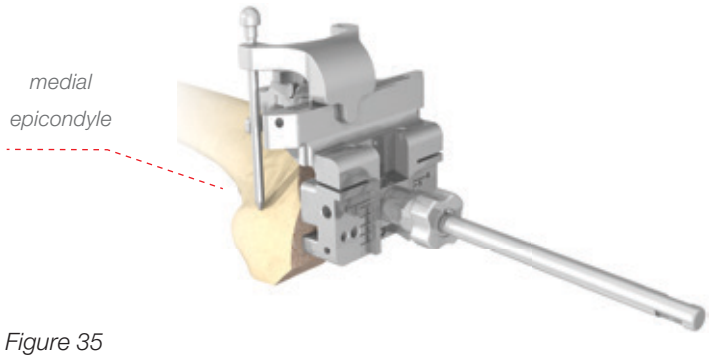


Figure 35

Secure the guide with pins and proceed with the distal resection introducing the saw blade 1.27mm into the +3mm slot *(Fig. 33)*.
Remove the pins and the guide, leaving the reamer into the canal.

FLEXION GAP & LIGAMENT TENSION

To check the flexion gap after the distal cut, the blue blocks for the trial ligament tension thickness (9066.20.710-750) can be positioned on the tibia. This gives you an idea about the flexion gap, the rotation of the femur and the ligament tension *(Fig. 36)* when trialing, please remove the reamer & cutting blocks.

Figure 36

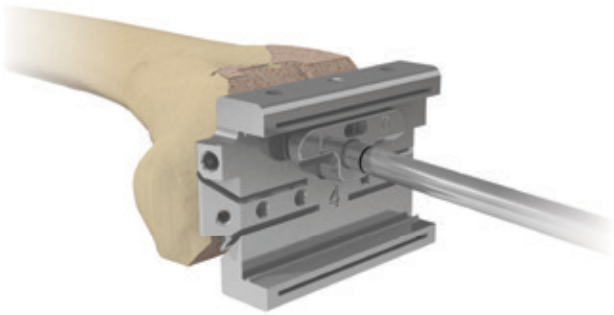


Figure 37

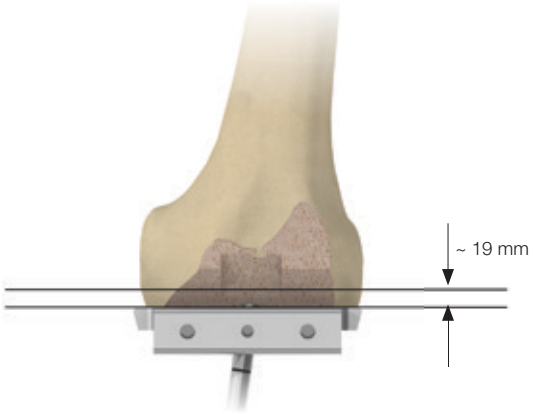


Figure 38

ANTERIOR, POSTERIOR AND CHAMFER RESECTIONS

Take the 4-in-1 femoral guide (9066.47.510-550) of the appropriate size, together with the trial Rt-Lt /Rt+3 Lt -3/ Rt -3 Lt +3 short femoral modules (9066.47.570/575/580/585/590/595) (L or R) and insert both over the reamer difining the correct offset *(Fig. 37)*.

With the MULTIGEN-PLUS system the average distance between the center of the medial epicondyle and the distal surface is ~19mm *(Fig. 38)*.

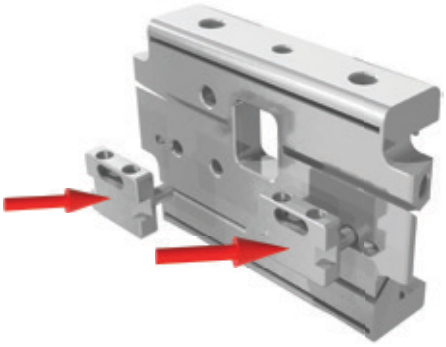


Figure 39

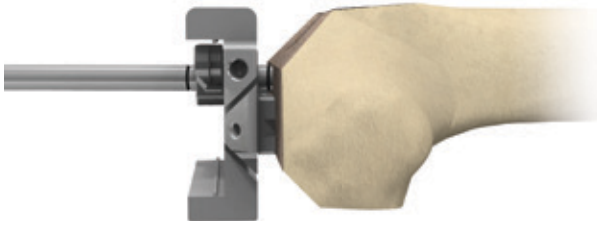


Figure 40

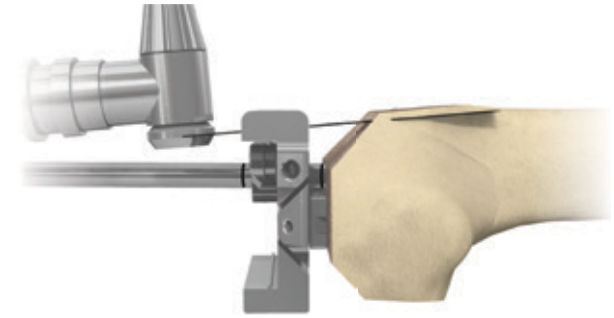


Figure 41

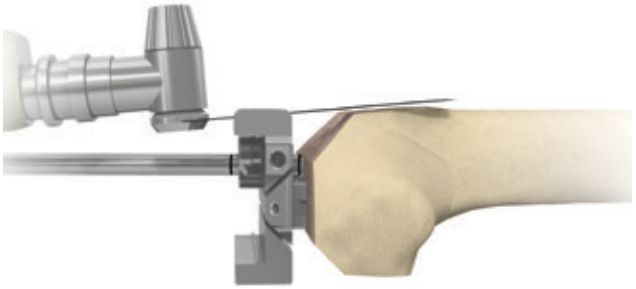


Figure 42

In case of relevant bone loss, to aid stability of the 4-in-1 femoral guide, it's possible to insert on the back of the guide two trial distal augments (5mm and 10mm) (9066.47.650/655), guided by the dedicated holes *(Figs. 39-40)*.

Align the 4-in-1 femoral guide to the transepicondylar line or rotate it until the lower part of the femoral guide surface is parallel to the resected posterior condyles.

NOTE. *Be aware that for size 1, only augment 5mm is available.*

FEMORAL OFFSET DETERMINATION

Introduce a feeler blade or a sickle through the anterior slot of the 4 in 1 guide to evaluate the A/P position of the anterior cut.
This allows to understand if the neutral femoral alignment guide assures the right positioning.
It is possible to move the 4 in 1 guide anteriorly (in order to avoid notching) or posteriorly (getting nearer to the anterior cortex) substituting the neutral femoral alignment guide with an offset femoral alignment guide (+3mm, -3mm) *(Figs. 41-42)*.

Each femoral alignment guide corresponds to one different trial and definitive femoral module *(See Tab.5)*.

Tab. 5

Femoral alignment guide	Femoral module
R-L	R / L Module
R+3 or L-3	R+3 / L-3 Module
R-3 or L+3	R-3 / L+3 Module

R = Right; L = Left

Secure the femoral guide and proceed with the anterior, posterior and chamfers resections.

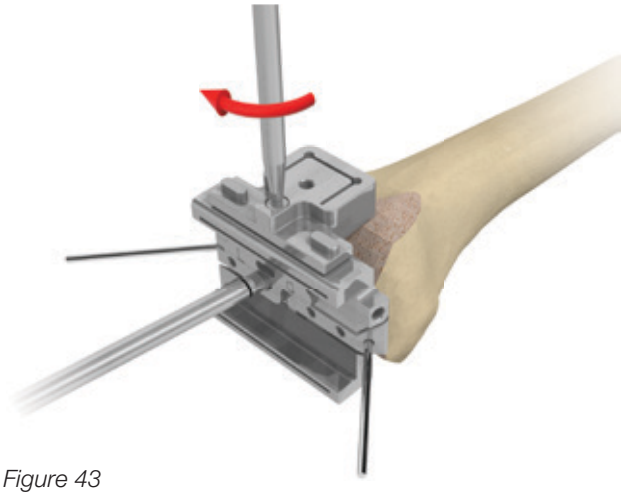


Figure 43

FEMORAL CCK/H BOX RESECTION

Connect the CCK/H box mask onto the 4-in-1 guide. Secure the screw for CCK/H box built-in the CCK/H box mask *(Fig. 43).*

To improve stability of the CCK/H box mask in case of bone loss on the anterior part of the femur, insert the screw for CCK/H box (9066.47.071) and tighten it until touching the reamer shaft *(Fig. 44)*.

Insert a narrow saw blade 1.27mm through the slots and proceed with the box preparation *(Fig. 45).*

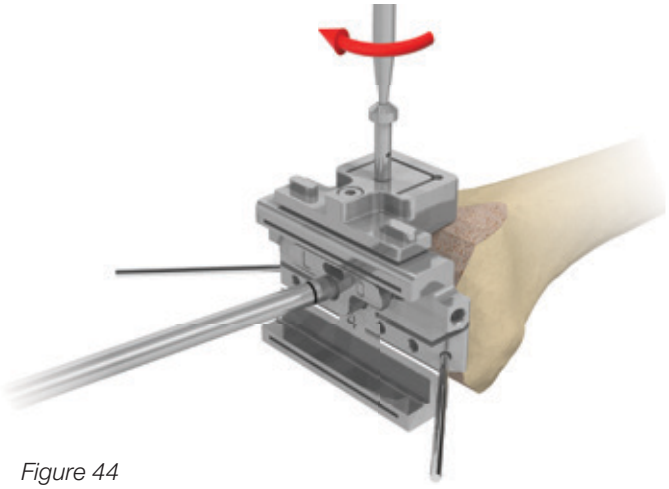


Figure 44

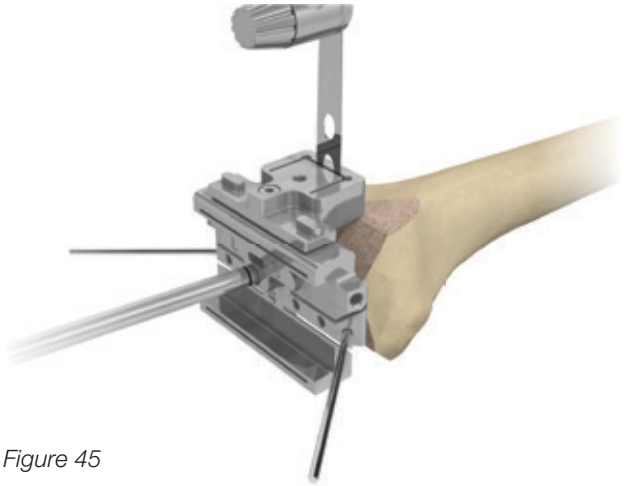


Figure 45

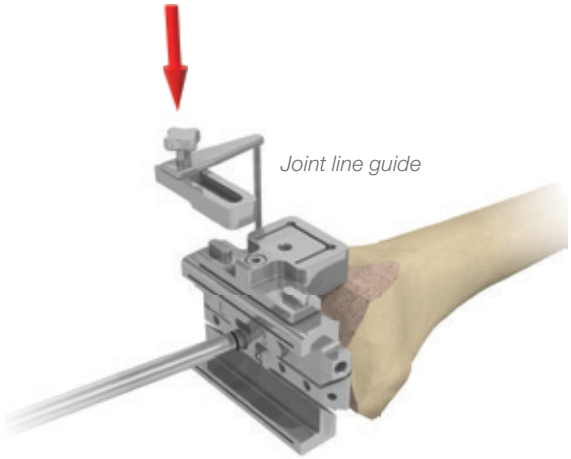


Figure 46

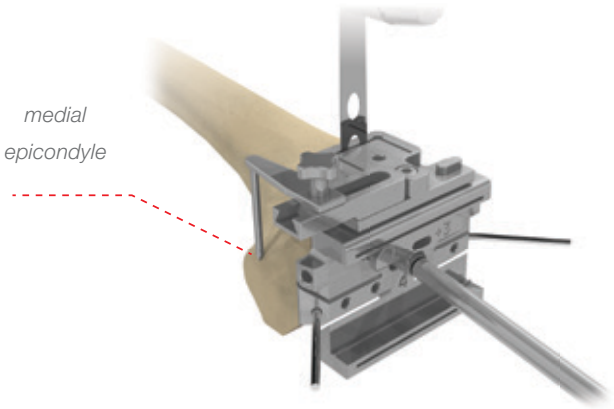


Figure 47

NOTE. *If the distal resection is not possible, use directly the femoral guide.*

WARNING

It is important to know exactly the correct position of the femoral guide respect to the medial epicondyle; to define this position insert the joint line guide for femoral box mask (9066.47.065) (R02) into the femoral guide *(Fig. 46).*

Once the joint line guide is touching the medial epicondyle, secure the 4-in-1 femoral guide with pins and proceed with the preparation of the box introducing the saw blade into the slots *(Fig. 47).*

Remove the joint line guide for femoral box, the femoral box mask, the 4-in-1 femoral guide and the reamer.
Finish the box preparation.

Figure 48

FEMORAL TRIALS

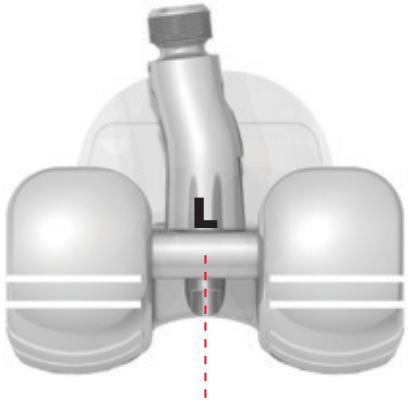
Connect the CCK/H trial femoral component #1-#5 (9066.20.015/025/035/045/055) of the appropriate size with the femoral module *(see Tab. 5)* using the femoral locking screw (9066.47.195) *(Fig. 48).*

Positioning check: the mark of the module must be read looking the femoral component from the posterior side *(Fig. 49).*

If the reamer has reached the reference L, the additional L extension must be tightened to the S module *(Fig. 50).*

Fasten the trial stem with the trial femoral module (or with the L Extension) *(Fig. 51).*

Impact the femoral trial components with the provided impactor *(Fig. 52)*.



Left knee (L, L+3, L-3)

Figure 49

Figure 51

Figure 50

Figure 52

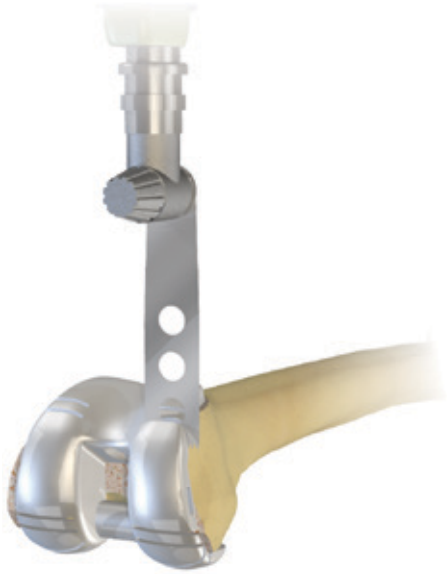


Figure 53

FEMORAL AUGMENTS

Once the femoral trial component is on place, check if it is necessary to perform the resections to host the distal and posterior augments *(Fig. 55)*.

Perform the resections *(Figs. 53-54)* and remove the components to assemble the trial distal /posterior femoral augments #1-#5 (9066.71.105/205/210/305/310/405/410/505/510) (9066.72.105/205/210/305/310/405/410/505/510).

Impact the femoral trial component.

Figure 54

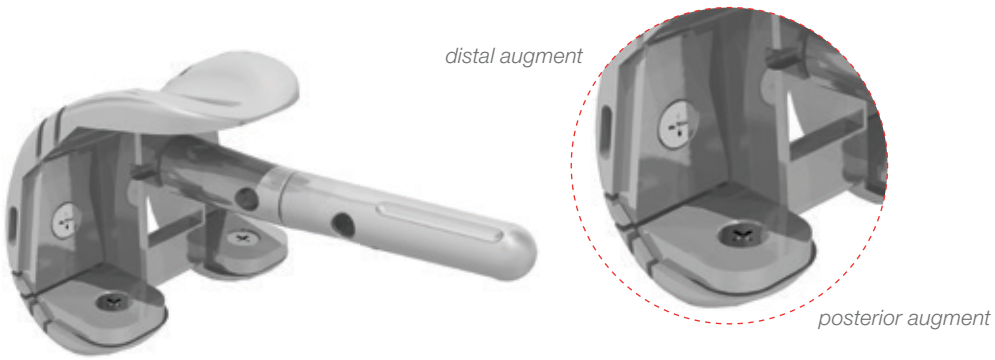


Figure 55

Figure 56

TRIAL REDUCTION

TIBIAL TRIALS WITH LINER

Introduce all the previously assembled trial components into the tibial canal.

NOTE. *Before inserting the definitive implants, trial reduction is required (Fig. 57).*

Insert the CCK cam (9066.35.137) into the tibial trial liner with the appropriate thickness *(Fig. 56)*.

Insert the liner onto the trial tibial plate *(Fig. 57).*

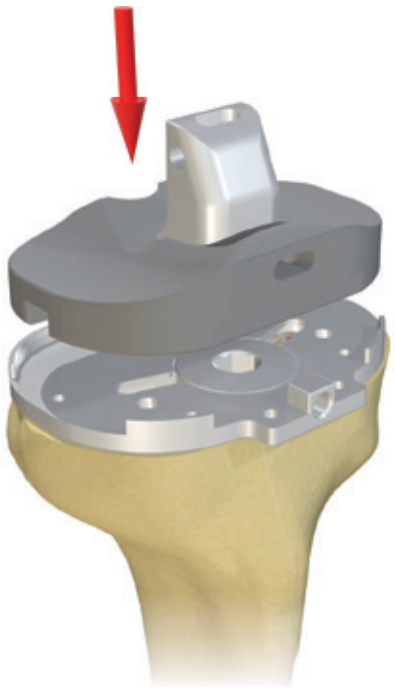


Figure 57

CCK Trial Reduction

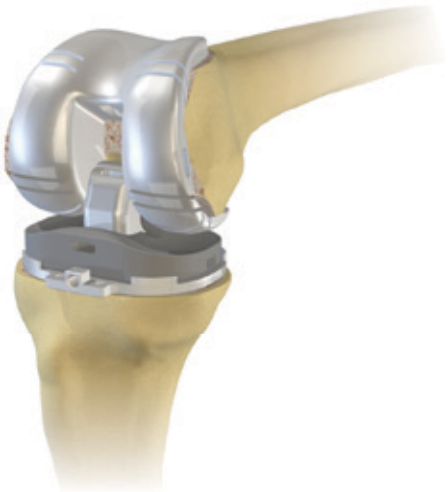


Figure 58

Figure 59

Figure 60

ARTICULAR TEST

Perform the final trial reduction. Check the position of the components and the liner thickness (9066.35.110-610) *(Fig. 58)*.

After the trial reduction remove first the trial tibial liner with the plier for Trial Tibial Liner (9066.35.610) *(Fig. 59)* and then remove all the components without disassembling them.

Use the multifunction extractor (9066.25.190) to remove the tibial trials assembly *(Fig. 60)*.

NOTE. *To prevent the tibial plate from shifting the position you can, fix it with 2 long pins for Trial Tibial Plates 9069.10.285 (M9).*

Figure 61

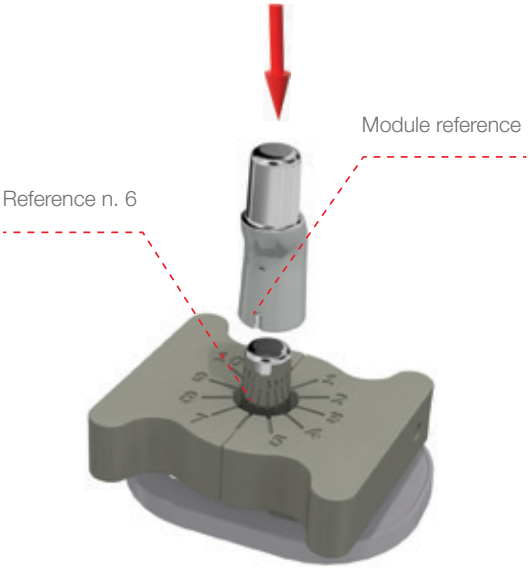


Figure 62

Figure 63

DEFINITIVE IMPLANT

Open the definitive components (CCK) and assemble them.

TIBIAL IMPLANT

The CCK tibial module +3/+6 must be assembled with the definitive cemented fixed tibial plate in the same position determined during the trial.

Overturn the definitive tibial plate attaching the two parts of the tibial module positioning jig (9066.48.190) around the tibial keel (magnetically) *(Fig. 61).*

Align the CCK tibial module reference mark to the number engraved on the positioning jig which corresponds to the offset position, previously determinated during the trial *(Fig. 62).*

Assemble the CCK tibial module onto the tibial plate by hammering it once, in order to couple the Morse taper. Assemble the appropriate CCK/H stem to the CCK tibial module using the same procedure *(Fig. 63)*.

CCK Definitive Implant

Figure 64

NOTE. *If a tibial augment is utilized, position the augment on the underside of the tibial plate and secure it with two screws from the top using the hexagonal screwdriver 3.5mm (Fig. 64).*
Use the screws contained in the package to secure the augment to the tibial plate.
Screw slightly both of them before fully tightening.

Apply a layer of bone cement on the underside of the definitive tibial component.

Carefully insert the definitive CCK tibial component avoiding malrotation. When the implant is fully inserted ensure the fixation by hammering with the tibial impactor (9066.25.110) *(Fig. 65).*

Remove all the cement residual.

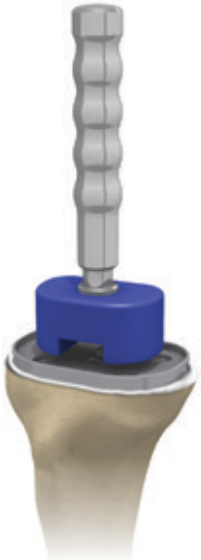


Figure 65

Figure 66

Figure 67

Figure 68

FEMORAL IMPLANT

Use the femoral module stems coupling base (9066.49.900) to assemble the definitive femoral component with the choosen femoral module.

Femoral module positioning check: as previously done with the femoral trials, the mark on the module must be read looking the CCK femoral component from the posterior side *(Fig. 66)*.

Assemble the femoral module onto the CCK femoral component by hammering it once in order to couple the morse taper *(Fig. 67)*.

Then assemble the appropriate CCK/H stem to the femoral module using the same procedure *(Fig. 68)*.

CCK Definitive Implant

Figure 69

If distal or posterior augments are used, connect the augments onto the CCK femoral component. Insert the screw through the augments and tighten with the cardan hexagonal screwdriver 3.5 mm (9095.10.223, 9095.10.224) *(Fig. 69)*.

NOTE. *Use the screw contained in the package to secure the femoral augment to the femoral component.*

Place a layer of cement on the underside of the CCK femoral prosthesis
Insert the CCK femoral component onto the distal femur.

WARNING

Make sure to avoid scratching on the definitive implant.

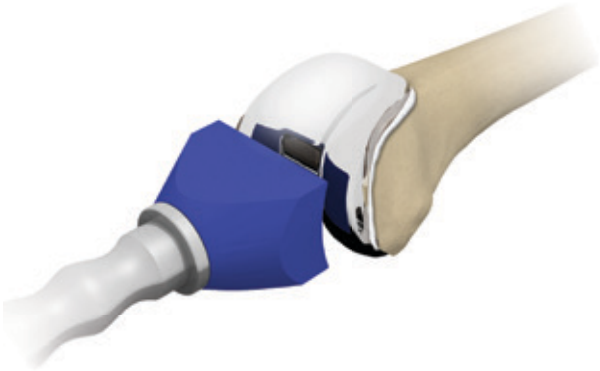


Figure 70

Be sure that soft tissue is not trapped beneath the implant. Use the Femoral Impactor to fully seat the femoral component *(Fig. 70)*.
Check the medial and lateral sides to make sure the CCK femoral component is fully impacted.

Remove any cement particulate or presence of soft tissue from the definitive tibial plate. Insert onto the tibial plate the appropriate definitive tibial liner.

First, slide the definitive CCK liner posteriorly onto the tibial plate in order to insert the polyethylene back lip beneath the posterior tooth of the tibial plate.
Then connect the liner anteriorly with continous pressure to avoid a rebound of the cemented implant.

As an alternative wait untill the cement has hardened to impact the liner with the impactor *(9066.30.160) (Fig. 71).*

Figure 71

Figure 72

NOTE. *Position the knee in light flexion (10°) to let harden the cement out (Fig. 73)*

A locking screw is required for the CCK tibial liner. Insert the screw through the tibial liner post and then strongly tighten it using the hexagonal screwdriver 3.5mm *(Fig. 72)*.

Proceed with the CCK definitive implant *(Fig. 73)* move the yellow part to the previous part: and position the knee in light flexion (10°) to let harden the cement out.

NOTE. *The locking screw is packaged with the CCK tibial liner. The locking screw has an anti-unscrewing system which keeps the screw itself completely inside the tibial liner post.*

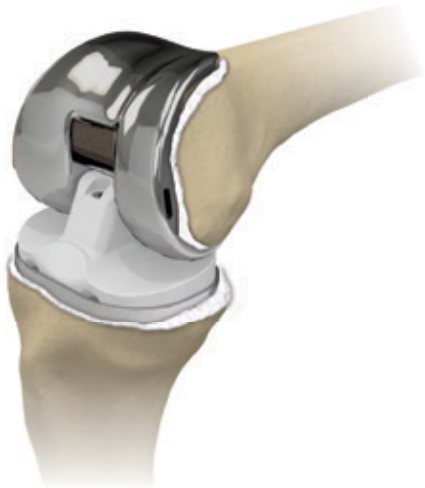


Figure 73

Figure 1

TIBIA

TIBIAL STEM SIZE DETERMINATION

Introduce the first smallest reamer (14mm) into the tibial canal *(Figs. 1-2)*.

Progressively ream the canal until cortical contact is achieved.

If the stability is reached at the reference number S, it means that a short stem is needed *(Fig. 3)*.
The trial short stem (9066.47.230 - 9066.47.255) needs to be assembled in combination with the correct tibial offset trial module (0/+3/+6).

For the definitive implant you should take the correct stem diameter + SHORT tibial module straight/+3mm/+6mm.

Figure 2

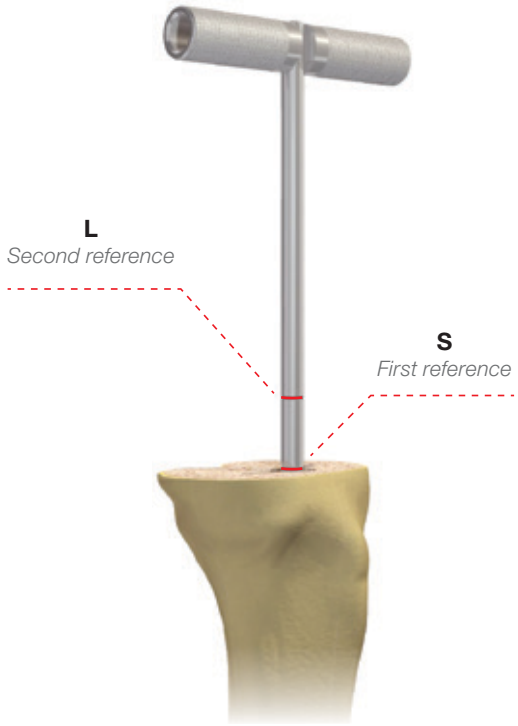


Figure 3

H Tibia

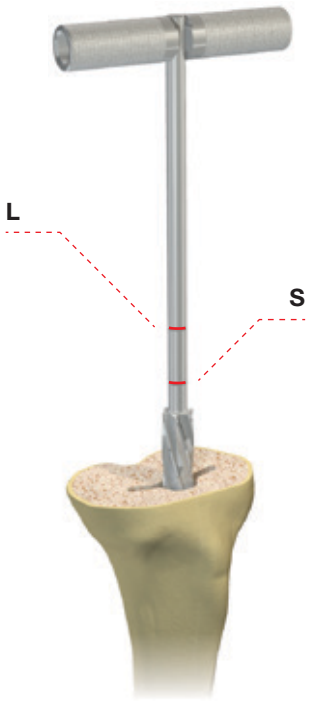


Figure 4

If the second line (L) is reached, it means a long stem is needed *(Fig. 4)*. Therefore use the trial tibial stem connected with the choosen tibial trial offset module (straight/+3mm/+6mm and the extension module (long) (9066.47.615). The final implant will consist of the definitive stem and the "L" module *(Tab. 1)*.

Tab. 1

Ref	LENGTH	TRIAL	DEFINITIVE
S	30mm	S Tibial Module	S Tibial Module
L	55mm	S Tibial Module + L Extension	L Tibial Module

Whether the reamer goes below the L reference use reamers with the highest reference point as diameters.

If there is a difference between the medial and the lateral plateau use the highest as reference.

The size of the latest reamer used corresponds to the diameter of both trial and definitive stem.
When between 2 sizes please chose the smaller one to avoid pain in the diaphyseal part of the bone.

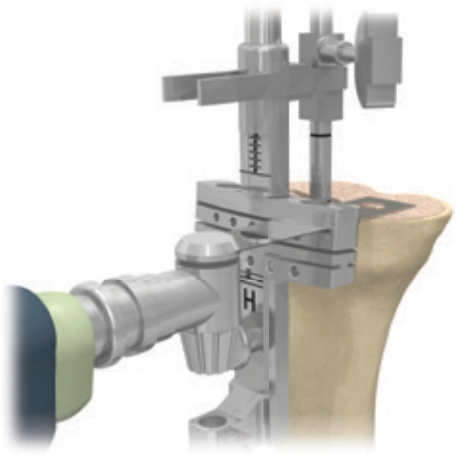


Figure 5

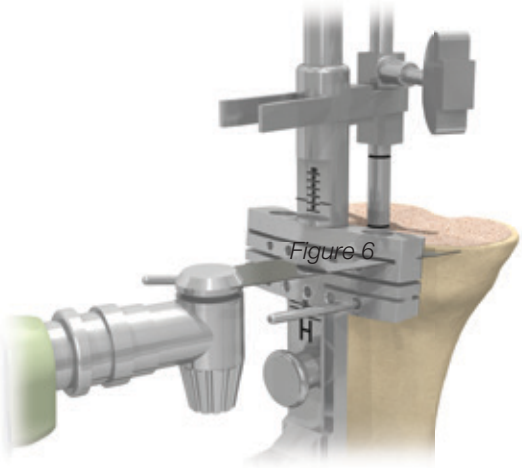


Figure 6

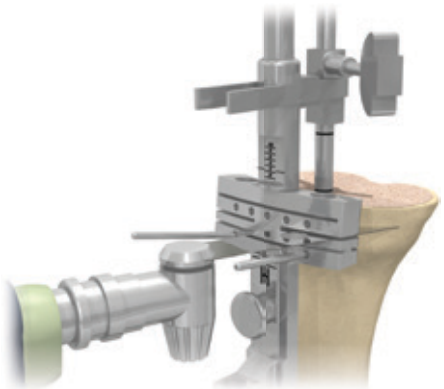


Figure 7

TIBIAL RESECTION (HINGE 0° OF SLOPE)

Remove the handle from the reamer and insert the prismatic guide onto the reamer shaft.
Insert the IM tibial cutting guide H (9066.48.050) on the prismatic guide.

NOTE. *The H tibial resection jig has a 0° tibial slope.*

Introduce the sickle (9066.12.010) or a free blade through the cutting guide slot and place it on the highest tibial plateau (if there is any difference between the medial and the lateral plateau) *(Fig. 5).*

Lock the screw of the prismatic guide on the reamer arm. Rotate the millimetric screw until the desired resection level is reached and secure the jig using pins.
It is also possible to use the +0mm tibial depth resection (H2) (9066.25.160) gauge to measure the gap.
Proceed with the resection *(Fig. 6)*.

Whether a tibial augment is needed it's possible to directly perform the +7mm or the +12mm resection to host it. Rotate the millimetric screw untill the desired resection level +7mm or +12mm, referring to the last performed resection, is reached *(Fig. 7).*

Remove the pins and the resection jig.

If needed, it is possible to perform the tibial augments cuts after the tibial resection mask has been removed, using the augment tibial resection guide that has to be inserted onto the reamer shaft as well *(Fig. 12)* on page *18.*

optional
9066.48.055

2 different trial tibial augments can be used:
7mm (9066.47.315/325/335/345/355)
12mm (9066.47.320/330/340/350/360)

H Tibia

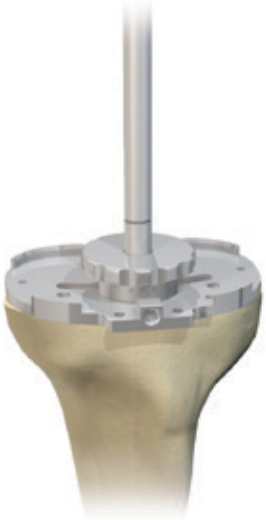


Figure 8

TIBIAL PLATE SIZE AND TIBIAL STEM OFFSET DETERMINATION

Leaving the reamer in situ, place the trial tibial plate (9066.48.110-9066.48.150) on the tibial surface.
Slide the straight tibial dialer (9066.47.170) along the shaft and insert it into the circular slot of the trial tibial plate.
At the straight tibial dialer corresponds the trial short straight tibial module (without offset) (9066.47.200).

Select the tibial size to achieve maximal tibial coverage *(Figs. 8-9)*.

NOTE. *In a Hinge surgery be aware of using the tibial trial plates with marking H.*

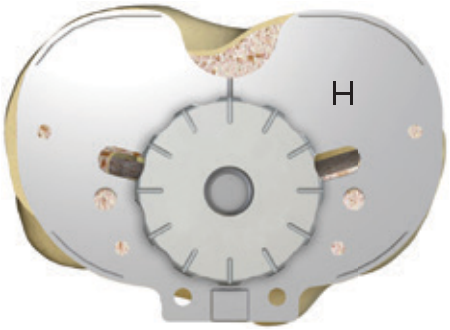


Figure 9

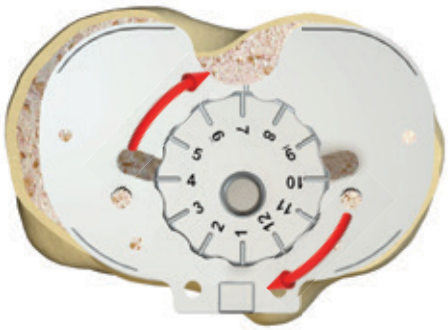


Figure 10

If a tibial augment is required, a trial augment (9066.47.315-360) of the same size of the tibial plate can be fixed magnetically to the trial plate.
To obtain a better coverage of the resected tibial surface, it could be necessary to offset the trial tibia plate replacing the neutral dialer with the +3mm or +6mm eccentrical dialer and rotating it until the best positioning is reached *(Fig. 10)*.

A +3mm and +6mm dialer corresponds to a +3mm and +6mm tibial module *(see Tab. 2)*.

Tab. 2

Dialer	Trial/Definitive
0	trial short straight tibial module
+3	trial short offset +3mm tibial module
+6	trial short offset +6mm tibial module

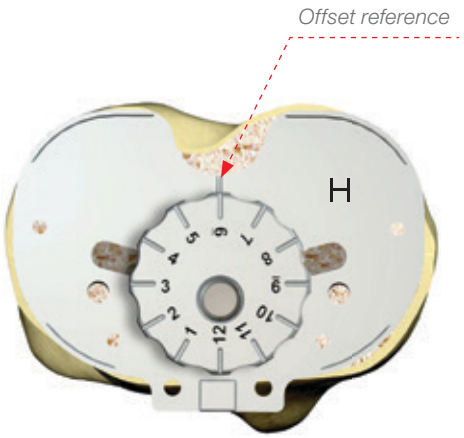


Figure 11

NOTE. *Once the right positioning is reached, take note of the number marked on the dialer aligned with the reference on the trial tibial plate (Fig. 11).*

H Tibia

Figure 12

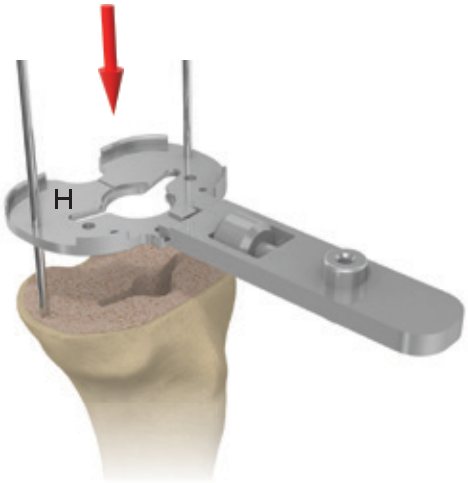


Figure 13

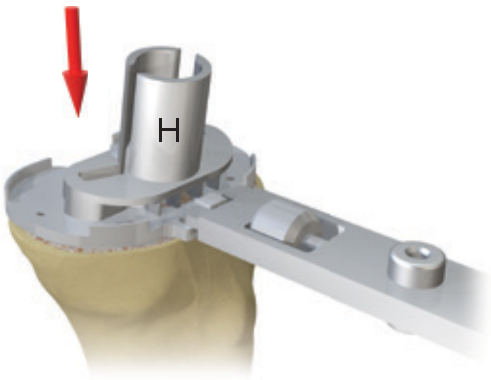


Figure 14

TIBIAL KEEL PREPARATION

Insert two K-wires (dia. 2mm) through the small diameter holes of the H trial tibial plate *(Fig. 12)*.

NOTE. *The K-wires are not included in the set.*

Remove the dialer, the H trial tibial plate and the reamer.

Reposition the H trial tibial plate using the two K-wires as guides *(Fig. 13)* and secure the H tibial plate by using the pins.

If a H trial tibial augment is used, secure the plate using the long pins.

Remove the two K-wires.

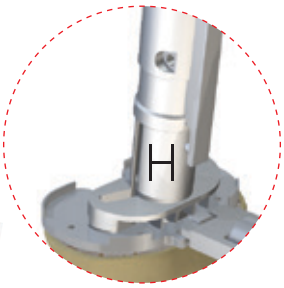
Attach the guide for the “H” Tibial Winged Broach guide (9066.47.095) onto the H trial tibial plate *(Fig. 14)*.

NOTE. *Make sure to use the winged broach for Hinge, the one with the H mark.*

To check the tibial alignment, the alignment rod (9066.15.090) *(Fig. 15)* can be used through the slot of the handle.

Figure 15

H Tibia



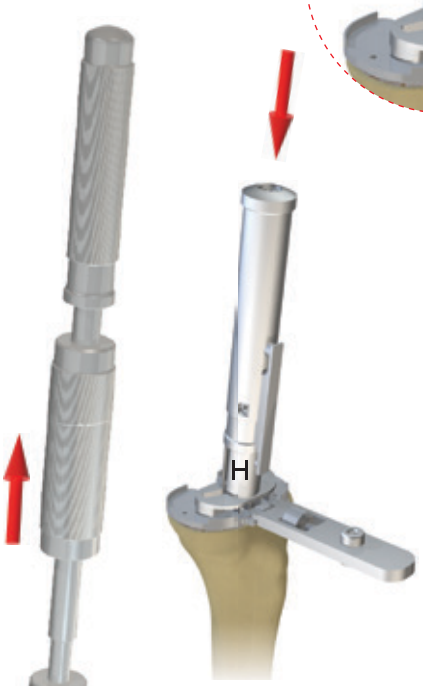


Figure 16

Insert the tibial winged broach (9066.30.100) into the “H” Tibial winged broach guide (9066.47.095) untill the lever tooth engages *(Fig. 16)*.

Use the multifunction extractor (9066.25.190) to remove the “H” tibial winged broach guide and the guide *(Fig. 17)*.

In order to avoid any interference between tibial module and bone, reattach the guide for the broach onto the trial tibial plate and ream the tibia using the tibial reamer (9066.47.225) for until it’s in even contact with the guide for the tibial broach *(Fig. 18)*.

This procedure is necessary when a tibial module with +6mm offset needs to be used and with +3mm ofsset tibial module when the last reamer is smaller then 20mm.

Tibial reamer with stop
9066.47.225

Figure 17

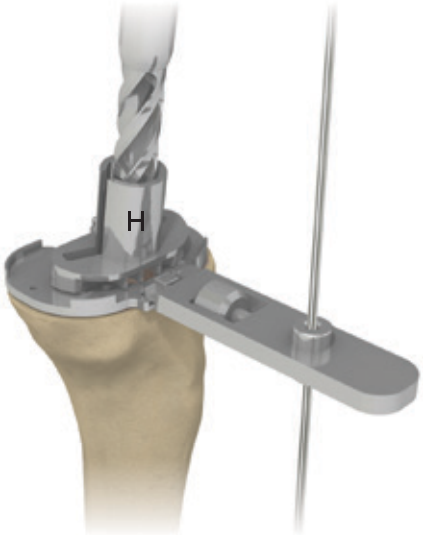


Figure 18

H Tibia

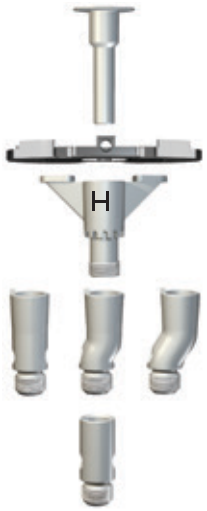


Figure 19

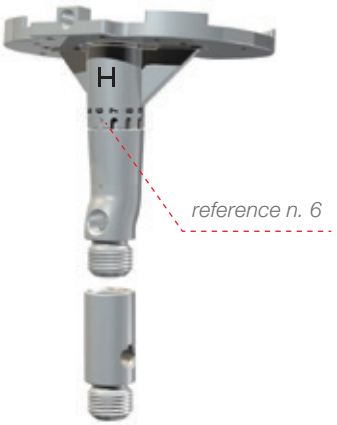


Figure 20

Figure 21

TIBIAL TRIALS

Connect the H trial tibial plate with the H trial tibial keel and the choosen tibial module, using the tibial locking screw *(Fig. 19)*.

The position of the trial module must correspond to the previously determined reference (ex. reference n°6) *(Fig. 20)*.

If the reamer has reached the reference L, the additional L extension must be tightened to the S module *(Fig. 20)*.
Select the appropriate trial stem diameter and tighten it to the module or to the L extension *(Fig. 21)*.
The trial stem corresponds to the last reamer used *(see Tab. 3)*.

Tab. 3

Stem diameters & length	Stem + S Module 30mm (N, +3, +6)	Stem + S Module 30mm (N, +3, +6) + L extension 25mm (total 55mm)
Dia. 14mm length 60mm	L = 90mm	L = 115mm
Dia. 16mm length 60mm	L = 90mm	L = 115mm
Dia. 18mm length 85mm	L = 115mm	L = 140mm
Dia. 20mm length 85mm	L = 115mm	L = 140mm
Dia. 22mm length 110mm	L = 140mm	L = 165mm
Dia. 24mm length 110mm	L = 140mm	L = 165mm

If necessary, connect under the surface of the H trial tibial plate the augments of the corresponding size with the appropriate thickness. The augment is magnetically attached to the H trial tibial plate.

NOTE. *To perform a H, be aware of using the trial components with the "H" marking.*
Using the CCK trial tibial plate would lead to misalignment since the CCK system has a 6° tibial slope instead of a 0° for Hinge.

Figure 22

FEMUR

FEMORAL SIZE DETERMINATION

Use the lateral femoral templates (9066.47.410-450) to approximate femoral size *(Fig. 22)*.

FEMORAL STEM SIZE DETERMINATION

Insert the handle on the reamer shaft. Introduce the smallest reamer (14mm) into the femoral canal. Progressively ream the canal until cortical contact is achieved. *(Fig. 23)*.

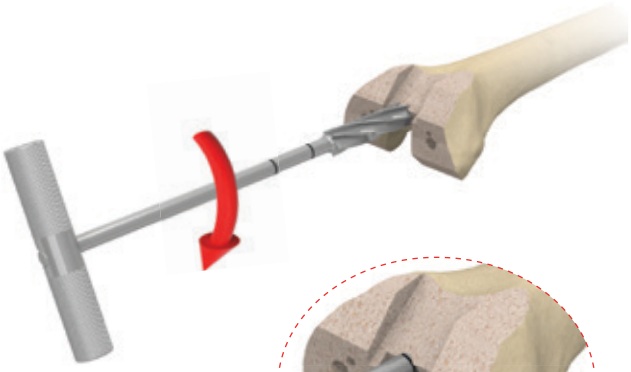


Figure 23

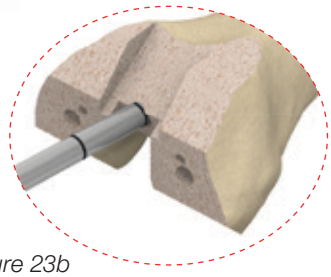


Figure 23b

If the first reference (S) is reached, it means the short trial stem needs to be used together with the correct trial offset module for the femur (+3/-3 L/R) *(Fig. 23b)*.
If the second reference (L) is reached, it means the long trial stem needs to be used, in combination with the long extension module. Therefore for the final implant assembly, the definitive stem will be assembled with the "L" module *(see Tab. 4)*.

Tab. 4

Ref	Length	Trial	Definitive
S	30mm	S Femoral Module	S Femoral Module
L	55mm	S Femoral Module + L Extension	L Femoral Module

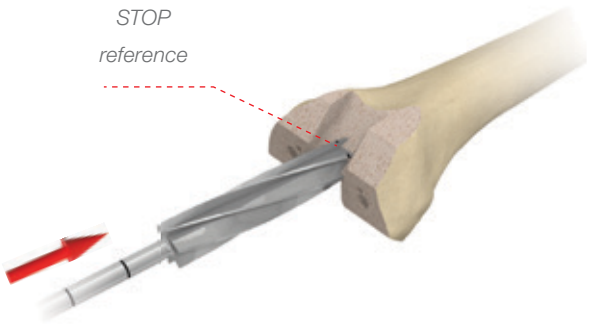


Figure 24

In case of sinking over the L reference, proceed with bigger diameter reamers.
The last used reamer corresponds to the trial and definitive stem.

NOTE. *Take note of the diameter and of the depth level (S or L) reached.*
In order to avoid any interference between femoral module and bone, ream again the femur using the last reamer until the stop reference line is reached (Fig. 24).

When between 2 sizes please chose the smallest one to avoid pain in the diaphyseal part of the bone.

H Femur

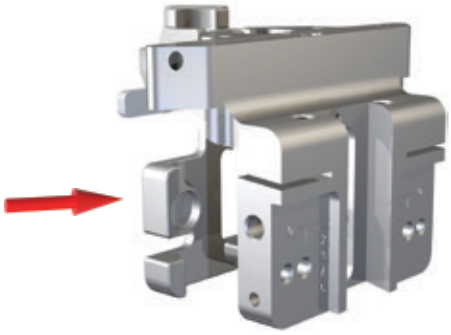


Figure 25

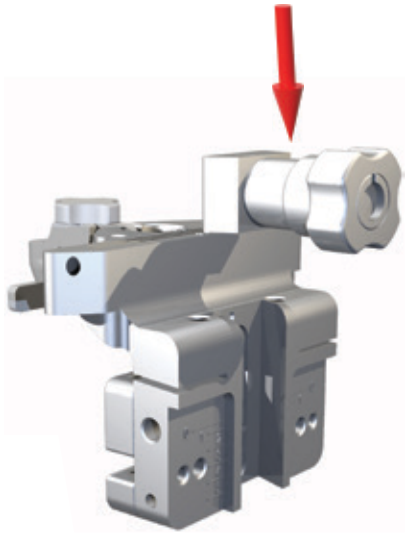


Figure 26

Figure 27

DISTAL RESECTION

To re-cut the distal surface, insert on the distal resection guide the re-cut distal spacer (9066.47.480) *(Fig. 25)*.
The distal resection guide has a 6° of valgus angle build in *(Fig. 26)* and is used for a left and a right knee. M/L positioning is done by the symmetrical sizing.

Leaving the reamer in situ, slide onto it the distal resection guide (9066.15.050) with the angled guide 6° (9066.47.470) in the correct position for a left or a right knee and position on the existing distal surface. Lock the angled guide by turning the screw.
Secure the distal resection guide with pins and proceed with the distal resection by introducing the oscillating saw-blade through the +3mm slot *(Fig. 27).*

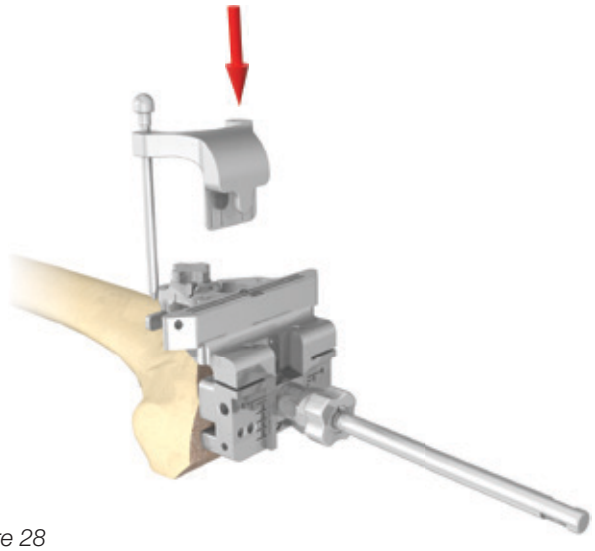


Figure 28

In case of relevant bone loss, it can be difficult to position the distal resection mask. The medial epicondyle can then be used as a reference, by introducing the joint line guide for femoral distal mask (9066.47.064) into the slot of the distal resection guide (9066.15.050) *(Fig. 28)*.

In order to position the distal resection level at the correct distance from the femoral distal surface, slide the distal resection guide until the joint line guide is touching the medial epicondyle *(Fig. 29)*.

Secure the guide with pins and proceed with the distal resection introducing the saw blade into the +3mm slot *(Fig. 27).*
Remove the pins and the jig, leaving the reamer into the canal.

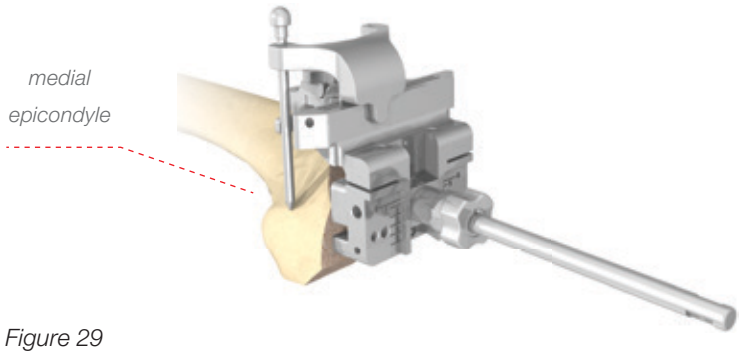


Figure 29

FLEXION GAP & LIGAMENT TENSION

To check the flexion gap after the distal cut, the blue blocks for the trial ligament tension thickness (9066.20.710-750) can be positioned on the tibia. This gives you an idea about the flexion gap, the rotation of the femur and the ligament tension *(Fig. 30)*.
Please remove the reamer and cutting blocks when trialing.

Figure 30

H Femur

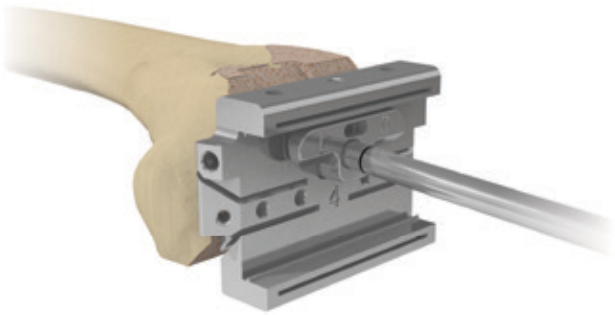


Figure 31

ANTERIOR, POSTERIOR AND CHAMFER RESECTIONS

Take the femoral guide (9066.47.510-550) of the appropriate size, together with the neutral femoral alignment guide (L or R) (9066.47.570-9066.47.585) and insert it over the reamer *(Fig. 31)*.

With the MULTIGEN-PLUS system the average distance between the center of the medial epicondyle and the distal surface is ~19 mm *(Fig. 32)*.

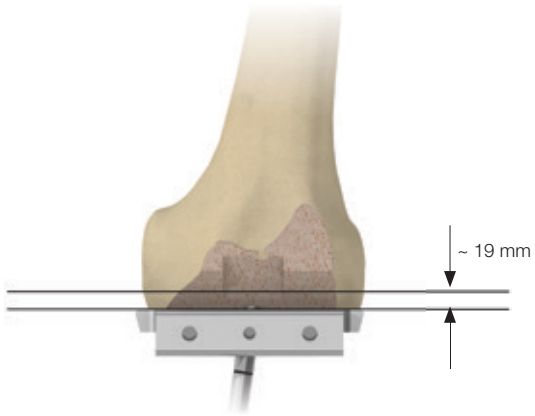


Figure 32

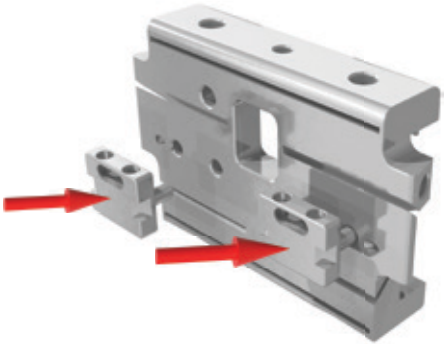


Figure 33

In case of relevant bone loss, to aid stability of the femoral guide, it's possible to insert on the back of the mask two trial distal augments (5mm and 10mm) (9066.47.650/655), guided by the dedicated holes *(Fig. 33-34)*.

Align the femoral guide to the transepicondylar line or rotate it until the lower mask surface is parallel to the resected posterior condyles.

NOTE. *Be aware that for size 1, only augment 5mm is available.*

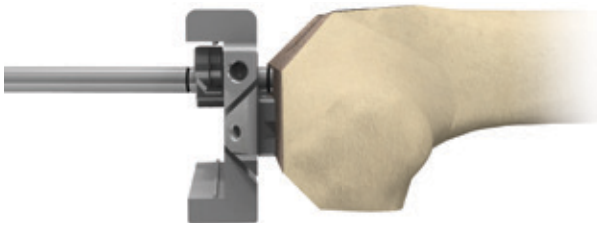


Figure 34

FEMORAL OFFSET DETERMINATION

Introduce a feeler blade or a sickle through the anterior slot of the the femoral guide to evaluate the A/P position to the anterior cut.
This allows to understand if the neutral femoral alignment guide assures the right positioning.
It is possible to move the femoral guide anteriorly (in order to avoid notching) or posteriorly (getting nearer to the anterior cortex) substituting the neutral femoral alignment guide with an offset femoral alignment guide (+3mm, -3mm) (9066.47.575/580/590/595) *(Fig. 35-36)*.

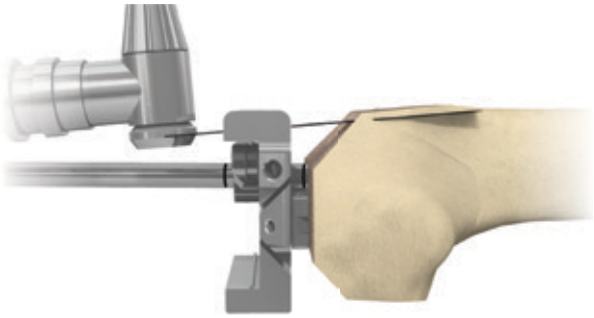


Figure 35

Each femoral alignment guide corresponds to one different trial and definitive femoral module *(See Tab.5)*.

Tab. 5

Femoral alignment guide	Femoral module
R-L	R / L Module
R+3 or L-3	R+3 / L-3 Module
R-3 or L+3	R-3 / L+3 Module

R = Right; L = Left

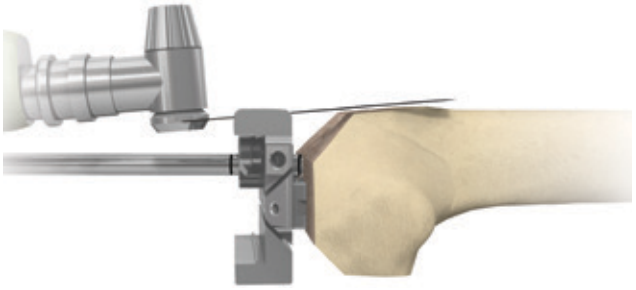


Figure 36

Secure the femoral guide and proceed with the anterior, posterior and chamfer resections.

H Femur

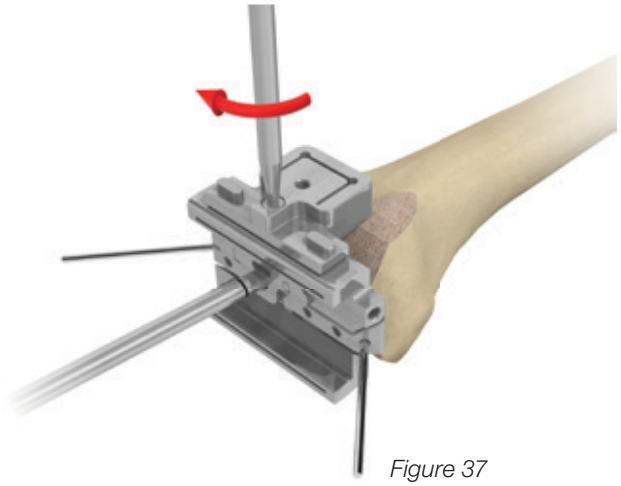


Figure 37

FEMORAL CCK/H BOX RESECTION

Connect the CCK/H box mask (9066.47.070) onto the femoral guide.
Secure the CCK/H box with the screw built-in the femoral box mask *(Fig. 37)*.

To improve stability of th CCK/H box mask in case of bone loss on the anterior part of the femur, insert the screw for CCK/H box (9066.47.071) and tighten it until touching the reamer shaft *(Fig. 38)*.

Insert a narrow saw blade through the slots and proceed with the box preparation *(Fig. 39)*.

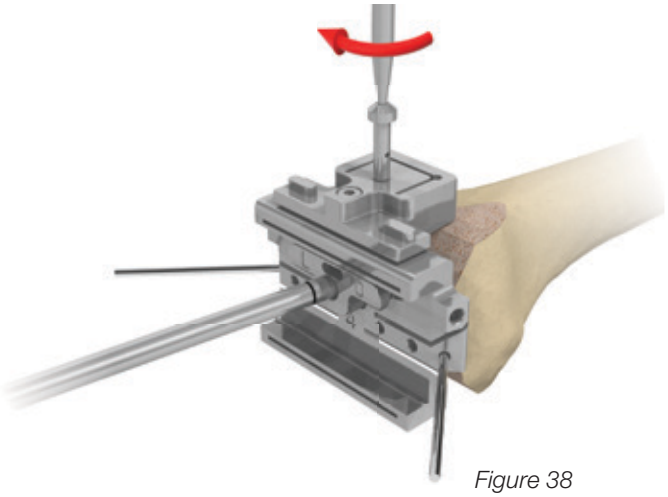


Figure 38

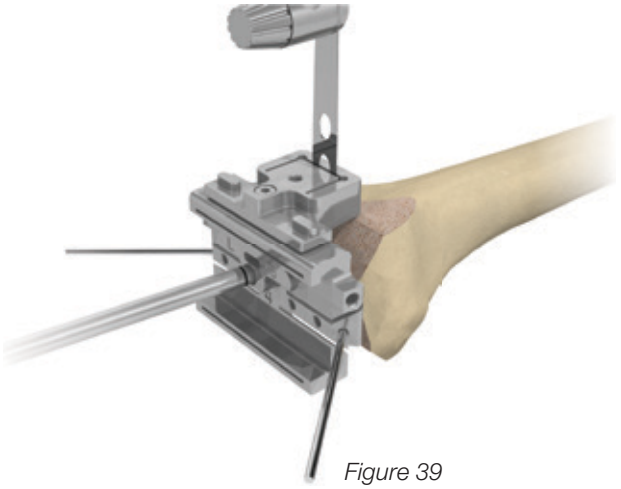


Figure 39

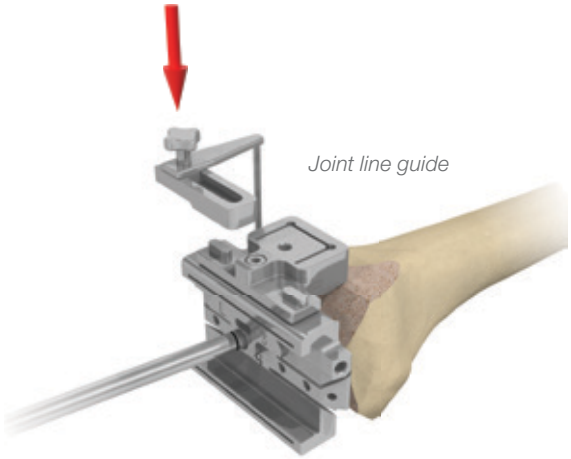


Figure 40

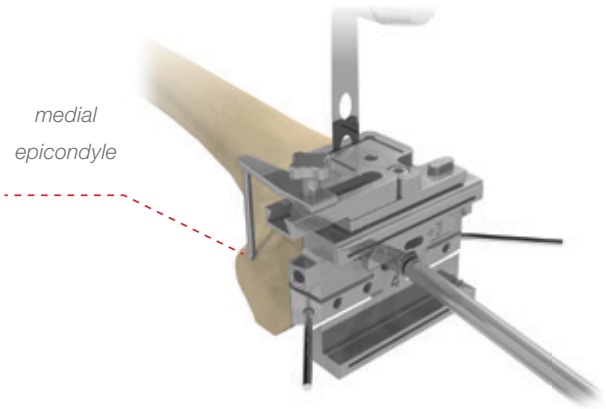


Figure 41

NOTE. *If the distal resection is not possible, use directly the femoral guide.*

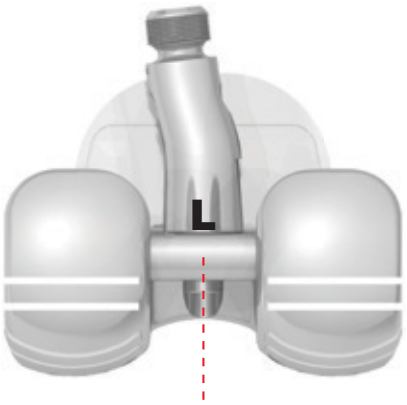
WARNING

It is important to know exactly the correct position of the femoral guide in respect to the medial epicondyle; to define this position, insert the joint line guide for femoral box mask (9066.47.065) into the femoral guide *(Fig. 40).*

Once the joint line guide is touching the medial epicondyle, secure the femoral guide with pins and proceed with the preparation of the box introducing the saw blade into the slots *(Fig. 41).*

Remove the joint line guide for femoral box, the femoral box mask, the femoral guide and the reamer.
Finish the box preparation.

Figure 42



Left knee (L, L+3, L-3)

Figure 43

Figure 44

FEMORAL TRIALS

Connect the trial femoral component (9066.20.015-055) of the appropriate size with the trial femoral module *(see Tab. 5)* using the femoral locking screw ((9066.47.195) *(Fig. 42).*

Positioning check: the mark of the module must be read looking the femoral component from the posterior side *(Fig. 43).*

If the reamer has reached the reference L, the additional L extension ((9066.47.615) must be tightened to the S module *(Fig. 44).*

Fasten the trial stem with the trial femoral module (or with the L Extension) *(Fig. 45).*

Impact the femoral trial components with the provided impactor (9069.10.220).

Figure 45

Figure 46

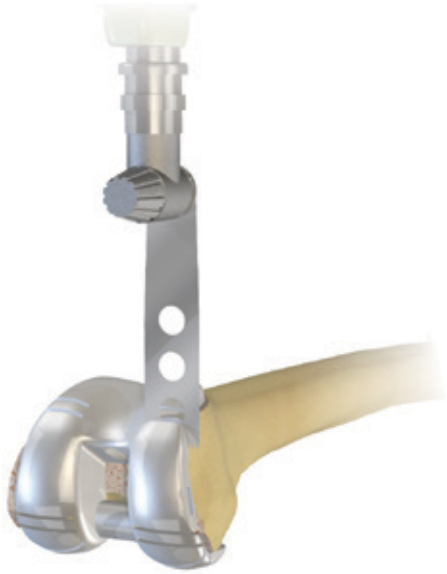


Figure 47

FEMORAL AUGMENTS

Once the femoral trial component is on place, check if it is necessary to perform the resections to host the distal and posterior augments *(Fig. 47)*.

Perform the resections *(Figs. 48-49)* and remove the components to assemble the augments.

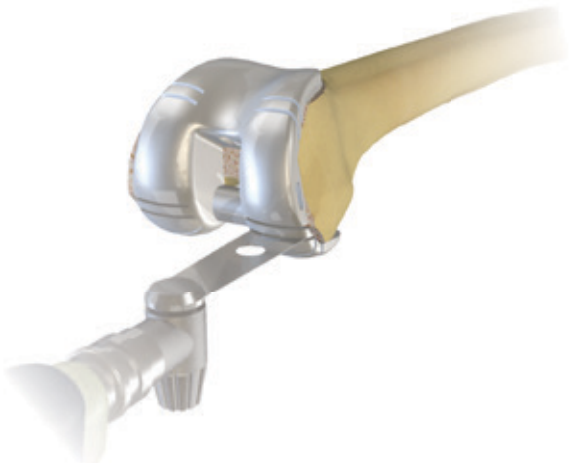


Figure 48

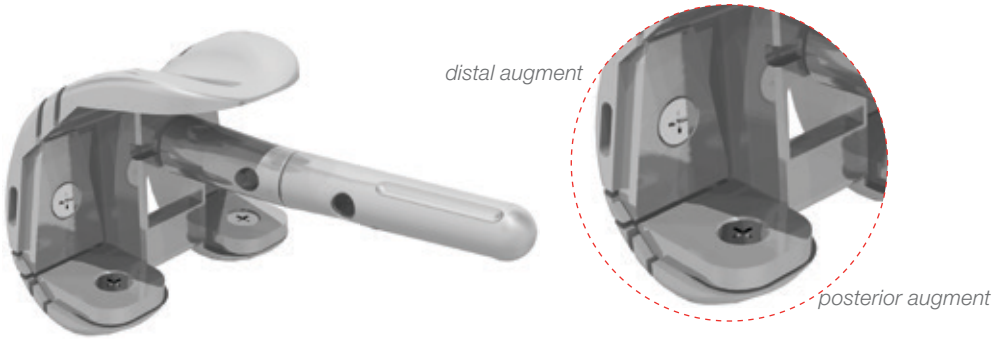


Figure 49

H Trial Reduction

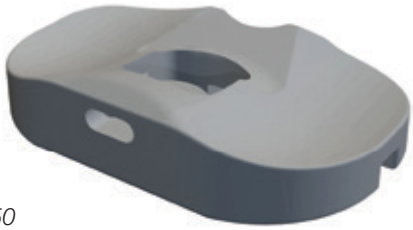


Figure 50

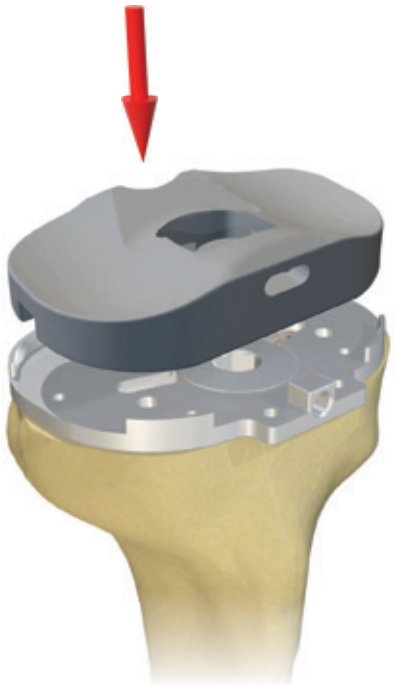


Figure 51

H TRIAL REDUCTION

TIBIAL TRIALS WITH LINER

Introduce all the previously assembled trial components into the tibial canal, and gently impact them with the tibial impactor (9066.25.110).

Insert the CCK/H tibial trial liner with the appropriate thickness and balance the gap *(Fig. 50-51)*.

NOTE. To prevent translational forces, tilting and subluxation with the trials you can use the CCK peg to trial with the trial femur as well. In case of trialing with the definitive Hinge implant, you can't use the peg because of the Hinge mechanism.

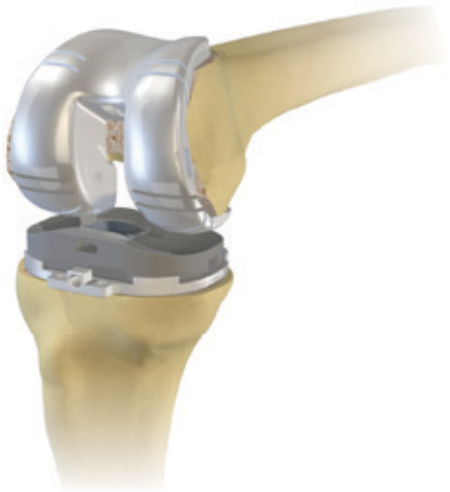


Figure 52

ARTICULAR TEST

Perform the final trial reduction. Check the position of the components and the liner thickness *(Fig. 52)*.

After the trial reduction, remove all the components without disassembling them.

Use the multifunction extractor to remove the tibial trials assembly *(Fig. 53)*.

NOTE. *For Hinged you can use the definitive femoral component in combination with the trial liner without cam.*

For Hinged you can also use the definitive femoral component in combination with the trial liner without cam.

multifunction extractor
(9066.25.190)

Figure 53

H Definitive implant

Figure 54

H TIBIAL IMPLANT

The H tibial module with offset (straight/+3/+6) must be assembled with the definitive H tibial plate in the same position determinated during the trial.

Use the definitive H tibial plate and attach the two parts of the tibial module positioning jig (9066.48.190) around the tibial keel, (the 2 parts are magnetic) *(Fig. 54)*.

Align the H tibial module with reference mark to the number engraved on the positioning jig, which corresponds to the offset position previously determinated during the tibial preparation *(Fig. 55)*.

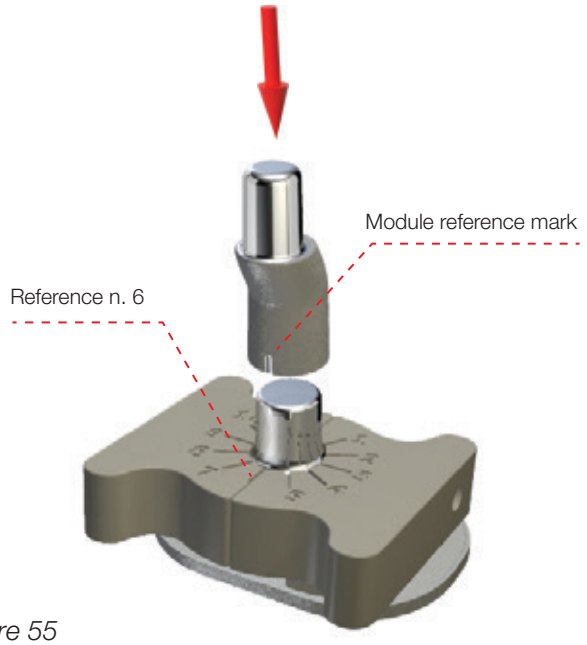


Figure 55

H Definitive implant

Figure 56

Assemble the H tibial module onto the H tibial plate by striking it untill the connection is stable with a hammer, in order to couple the Morse taper.

Using the same procedure, assemble the appropriate CCK/H stem to the H tibial module *(Fig. 56)*.

If a H tibial augment is utilized, firmly fasten the screws to the tibial plate *(Fig. 57)* using the following procedure:
1. the screws must be completely tightened to the H tibial augment;
2. the protruding part of the screws must be inserted into their seat on the H tibial plate, and then the H tibial augment must be pressed on the H tibial plate.

Figure 57

NOTE. *Use the two screws contained in the package to secure the H tibial augment to the tibial plate.*

Apply a layer of bone cement to the underside of the definitive H tibial component.

Carefully insert the definitive H tibial component avoiding malrotation. When fully inserted, several hammer blows might be delivered to the end of the tibial impactor.
Remove all residual cement *(Fig. 58)*.

Figure 58

H Definitive implant

Figure 59

Figure 60

Figure 61

H FEMORAL IMPLANT

Use the femoral module stems coupling base (9066.49.900) to assemble the definitive appropriate sized H femoral component with the appropriate femoral module.

Femoral module positioning check: as previously done with the femoral trials, the mark of the module must be read looking the H femoral component from the posterior side.

Assemble the femoral module onto the H femoral component by hammering once in order to couple the morse taper *(Fig. 59)*.

Using the same procedure, assemble the appropriate CCK/H stem to the femoral module *(Fig. 60)*.
If distal or posterior augments are used, attach the definitive augment onto the H femoral component. Insert the screw through the augment and tighten with the Hexagonal Screwdriver 3.5 mm (cardan joint) *(Fig. 61)*.

NOTE. *Use the screw contained in the package to secure the femoral augment to the H femoral component.*

Place a layer of cement on the innerside of the H femoral prosthesis. Insert the H femoral component onto the distal femur. Make sure to avoid scratching the implant component surfaces.

Be sure that soft tissue is not trapped beneath the implant. Use the Femoral Impactor to fully seat the H femoral component *(Fig. 62)*. Check the medial and lateral sides to make sure the H femoral component is fully impacted.

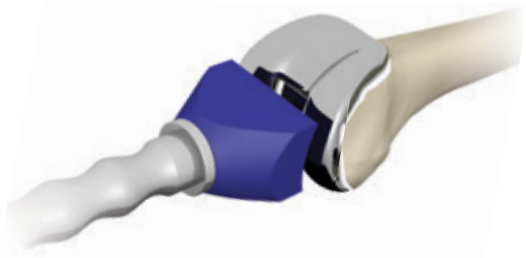


Figure 62

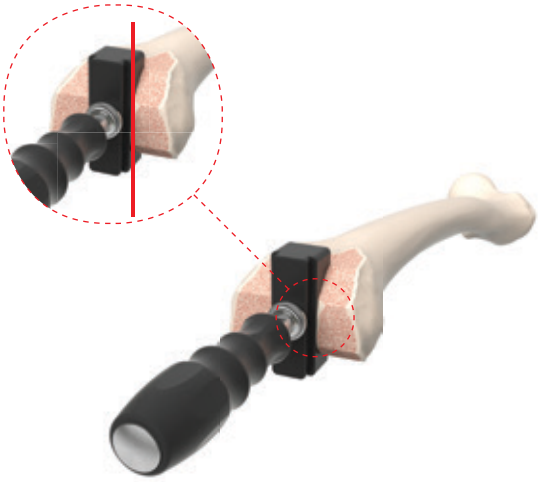


Figure 63

FEMORAL BOX CHECK

Before opening the definitive implant, insert the femoral box gauge (9066.48.220) between the femoral condyles, and check if the central distal resection is deep enough. Then, place the definitive implant following the instructions below *(Fig. 63)*.

H HINGE FINAL ASSEMBLY

WARNING

It is very important to follow the procedure step by step.

WARNING

The use of the code 9066.51.000 (CCK-H System Additional Set - Multigen Plus) in combination with the code 9095.11.751 (Torque wrench) IS MANDATORY.

Figure 64

Open the definitive H tibial liner.
Take the polyethylene component only, and place it onto the metal peg on the H tibial plate *(Fig. 64)*.

Insert the H Hinge through the H tibial liner into the hole on the H tibial plate *(Fig. 65)*.

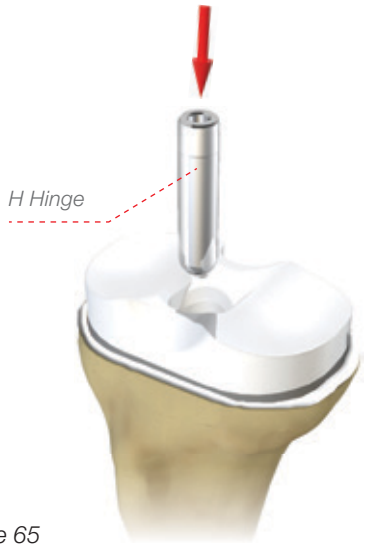


Figure 65

While distracting the joint, flex the femoral Hinge Post to align it perfectly with the Morse taper of the H Hinge *(Fig. 66)*.

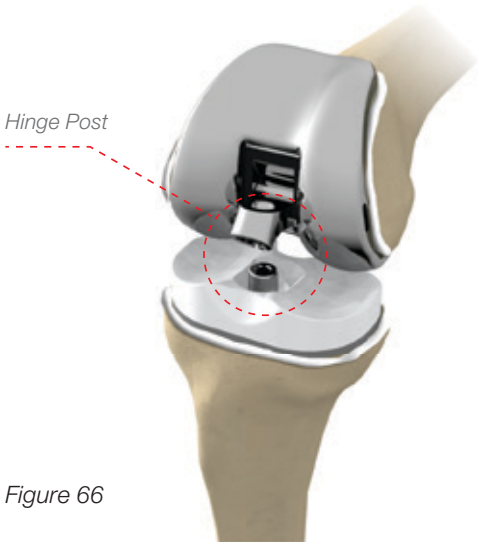


Figure 66

H Definitive implant

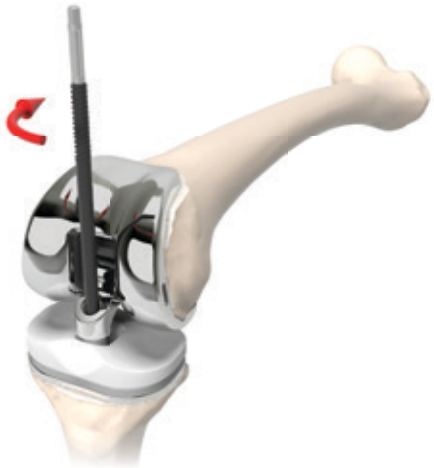


Figure 67

PREPARATION PHASE

Insert the threaded shaft of the tibial pin positioner (9066.48.205) through the hole of the hinge post and screw it gently to the H-Hinge untill it stops automatically *(Fig. 67)*.

NOTE. *"Finger tight" do not over tighten.*

Insert the femoral counter Tourque (9066.48.200) on the threaded shaft and flush it against the femoral condyles, holding it firmly *(Fig. 68)*.

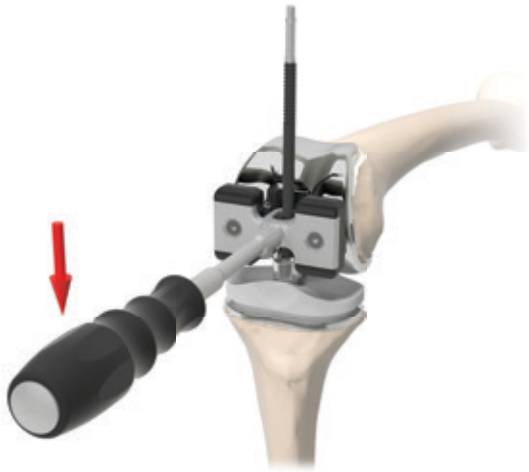


Figure 68

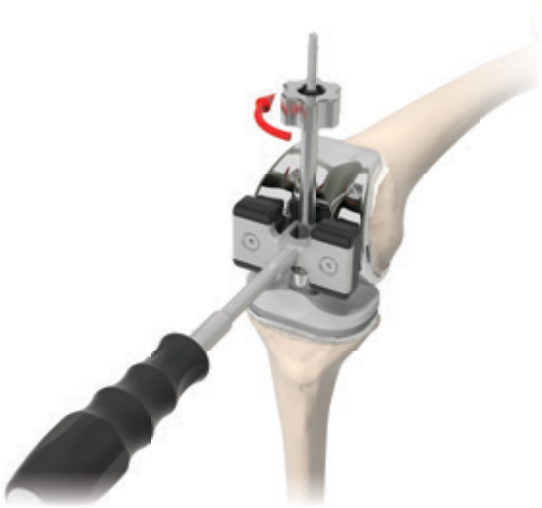


Figure 69

Slide the ferrule of the tibial pin positioner second part of the tibial pin positioner (9066.48.205) the threaded shaft and screw it clockwise until it is locked *(Fig. 69)*.

This procedure will move the Morse cone upwards into the female cone of the hinge coupling the two components *(Fig. 70)*.

Insert the tibial pin positioner adapter (9066.48.210) *(Fig. 71)* along the threaded shaft of the tibial pin positioner and couple its hex extremity with the hexagonal slot of the upper part of the ferrule.

WARNING

Do not push downwards during this step.

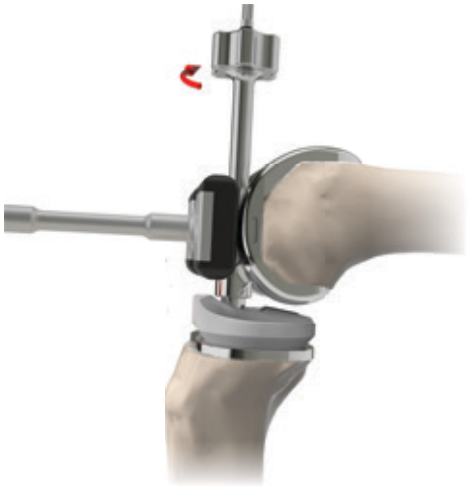


Figure 70

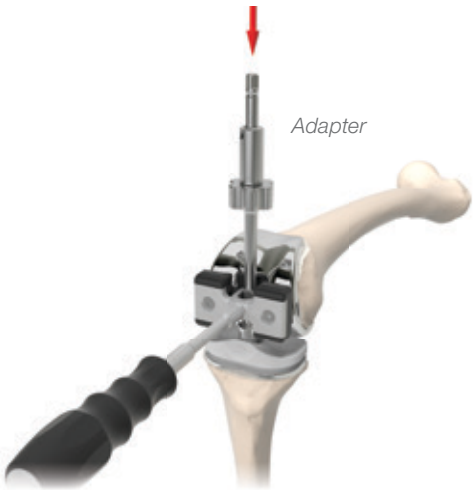


Figure 71

H Definitive implant

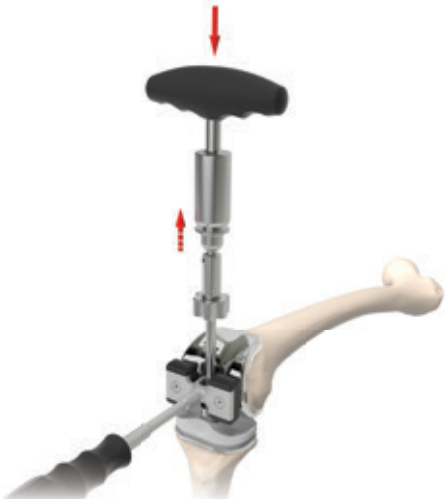


Figure 72

Place the torque wrench (9095.11.751) on the tibial pin positioner adapter *(Fig. 72)*.

NOTE. *The torque wrench 9095.11.751 is not included for quality reasons in the set 9066.51.000.*

Turn the torque wrench clockwise until a “click” is heard *(Fig. 73)*.

Loosen the torque wrench a half-turn counterclockwise to remove it from the tibial pin positioner adapter *(Fig. 74)*. Remove the torque wrench and the tibial pin positioner adapter.

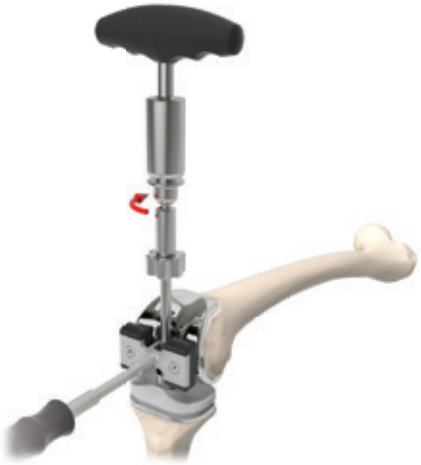


Figure 73

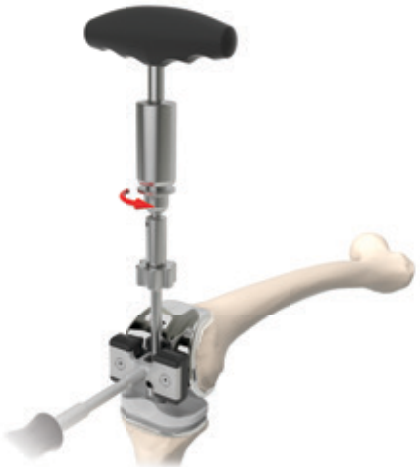


Figure 74

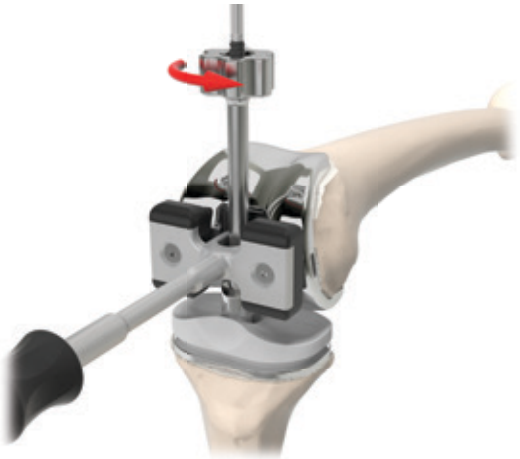


Figure 75

Remove the tibial pin positioner ferrule by turning it counterclockwise *(Fig. 75)*.

In order to remove the threaded shaft, use the hexagonal slot of the pin postitioner adapter to engage its extremity *(Fig. 76)*.

Then unscrew the threaded shaft using the adapter as a lever. Eventually remove all the instruments *(Fig. 77)*.

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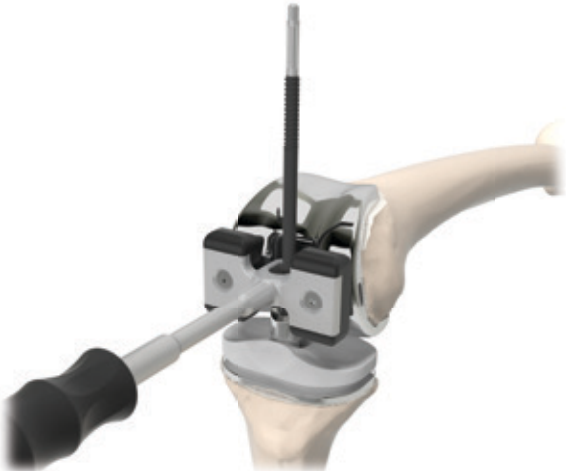


Figure 76

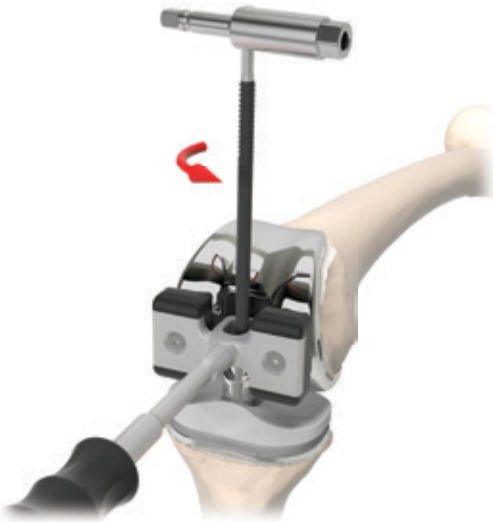


Figure 77

H Definitive implant

Figure 78

Figure 79

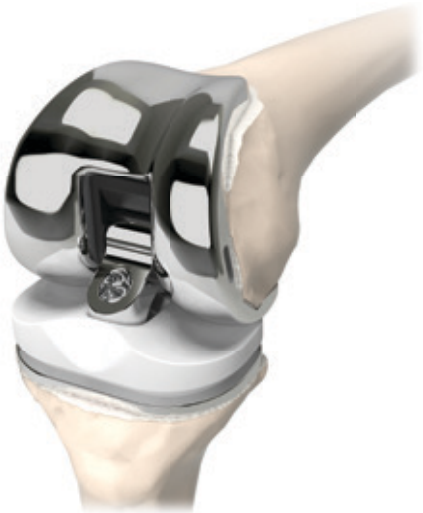


Figure 80

FINAL PHASE

Use the dynamometric screwdriver 3.5mm 5Nm (9095.10.226) to insert the H locking screw through the hinge post and then tighten it until the 5 mark reaches the reference line *(Fig. 78)*.
Remove the dynamometric screwdriver *(Fig. 80)*.

NOTE. *5Nm is the required torque in order to fully tighten the screw, ensuring the system to be safe, well assembled and locked. This value is marked on the dynamometric screwdriver: it is raccomended not to exceed this value to avoid any damage on the screw (Fig. 79).*

Extraction of Hinge components

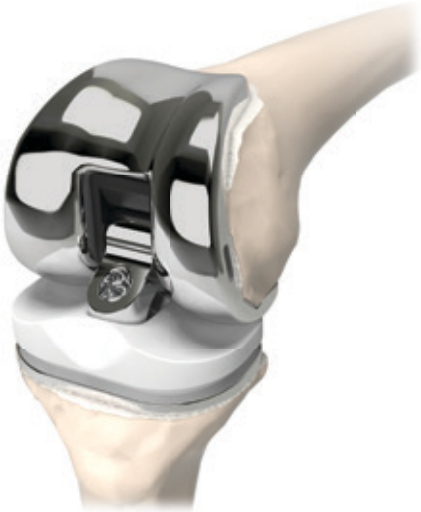


Figure 81

EXTRACTION

To extract the implant flex the knee and start to remove the top screw by using the dynamometric screwdriver *(Fig. 81)*.

Insert the threaded shaft of the tibial pin positioner through the hinge, into the hinge post and thread it ("finger tight" do not over tighten) *(Fig. 82)*.

Figure 82

Extraction of Hinge components

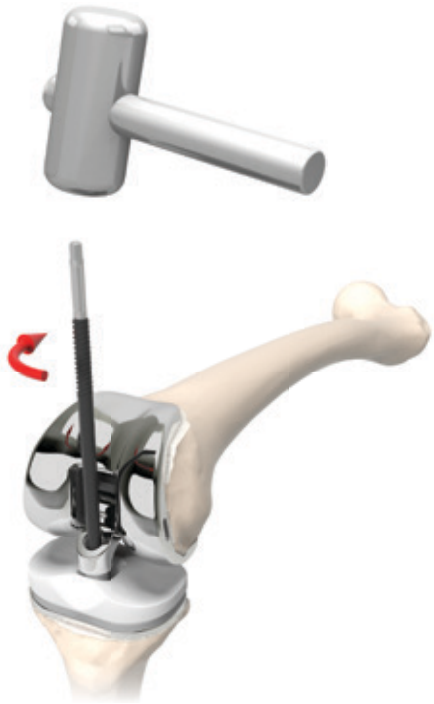


Figure 83

Slightly hammer on it to deconnect the taper *(Fig. 83)*.

Extract the threaded shaft and uncouple the parts to be removed *(Fig. 80)*.

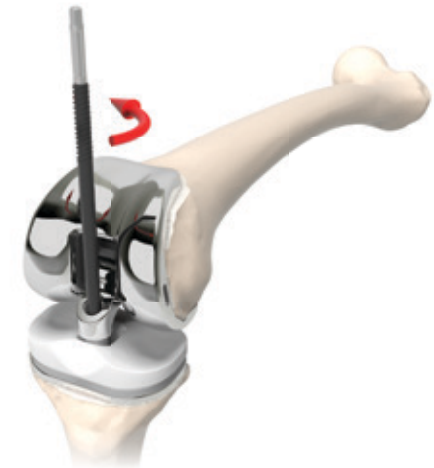


Figure 84

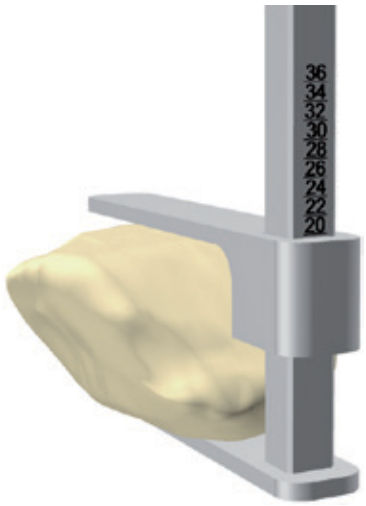


Figure 1

PATELLAR PROSTHESIS

MEASUREMENT OF THE PATELLA

Using the patellar gauge, measure the thickness of the patella before the resection *(Fig. 1)*.

PATELLAR RESECTION

If the patella is 20mm thick at least, let the stylus marked 10mm STD rest on the patella. In this case the amount of bone resection will be 10mm, the same thickness as the definitive patellar prosthesis *(Fig. 2)*.

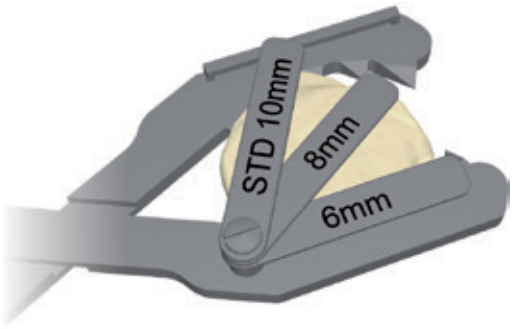


Figure 2

If the measured thickness is lower than 20mm, in order to mantain at least 10mm of bone, the amount of bone resection must be lower than 10mm.

Let the 8mm or 6mm stylus rest on the patella.
In this case the amount of bone resection and the thickness of the definitive patellar prosthesis will be 8 or 6mm.

For the resection, insert the saw blade through the slot from the lateral side of the plier *(Fig. 3)*.

Figure 3

Patellar prosthesis

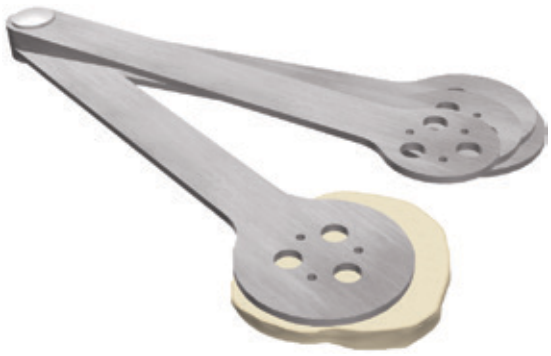


Figure 4

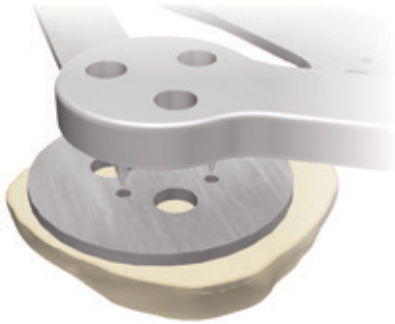


Figure 5

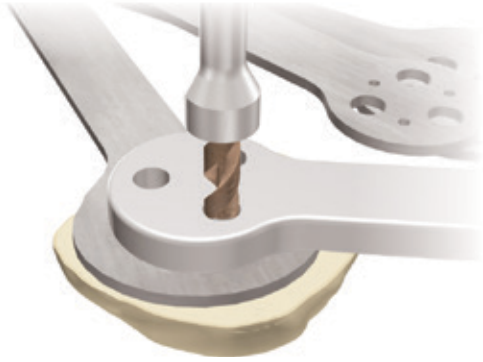


Figure 6

FINAL PATELLA PREPARATION

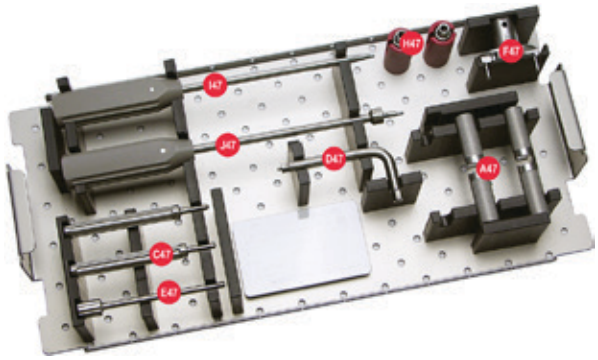
Place and align the appropriate sized patellar drilling guide to the center of resected patellar surface and secure it *(Fig. 4)*.

Position the patellar drilling guide on the patellar mask and drill the peg holes using the patellar drill *(Figs. 5-6)*.

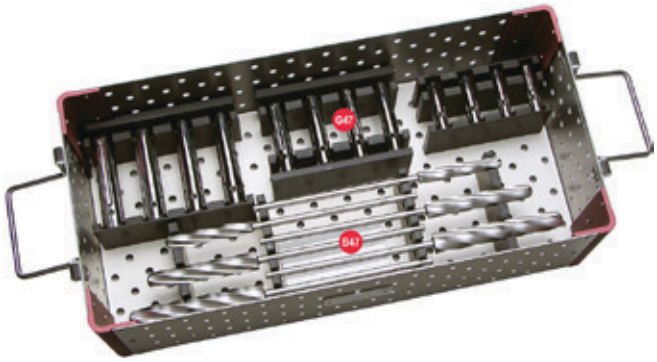
Place the trial patellar component onto the resected patellar surface and check the patellar tracking.

NOTE. *A domed symmetric patella should always be placed on the medial border of the bony cortex to avoid tilting. The full coverage is not possible and needed, while a proper alignment is mandatory.*

9066.47.000 MULTIGEN-PLUS CCK-H Common Set n. 8



Upper tray



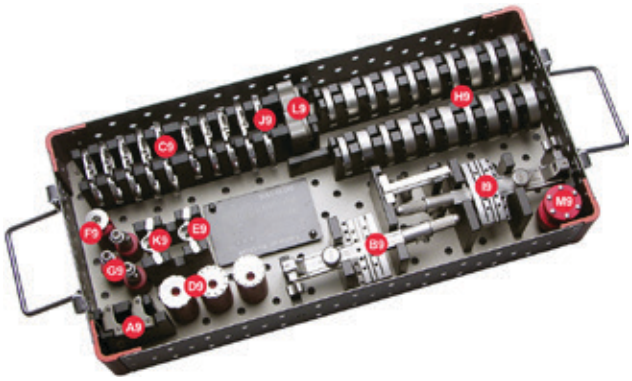
Lower tray

Ref.	CODE	DESCRIPTION	Qty.
A47	9066.47.005	Handle for Reamers	2
B47	9066.47.014	Reamer Dia. 14mm	1
B47	9066.47.016	Reamer Dia. 16mm	1
B47	9066.47.018	Reamer Dia. 18mm	1
B47	9066.47.020	Reamer Dia. 20mm	1
B47	9066.47.022	Reamer Dia. 22mm	1
B47	9066.47.024	Reamer Dia. 24mm	1
C47	9066.47.080	Unlock Pivot	2
D47	9066.47.085	"L" Hexagonal Wrench 8mm - 3mm	1
E47	9066.47.090	M8-M6 Adaptor	1
F47	9066.47.095	"H" Tibial Winged Broach	1
G47	9066.47.230	Trial Stem Dia. 14mm	2
G47	9066.47.235	Trial Stem Dia. 16mm	2
G47	9066.47.240	Trial Stem Dia. 18mm	2
G47	9066.47.245	Trial Stem Dia. 20mm	2
G47	9066.47.250	Trial Stem Dia. 22mm	2
G47	9066.47.255	Trial Stem Dia. 24mm	2
H47	9066.47.615	Extension	2
I47	9095.10.223	Hexagonal Screwdriver 3.5mm	1
J47	9095.10.224	Hexagonal Screwdriver 3.5mm Cardan Joint	1
	9066.47.950	Sterilizable Box	1

REVISION KNEE SYSTEM SURGICAL TECHNIQUE

Instrument Set

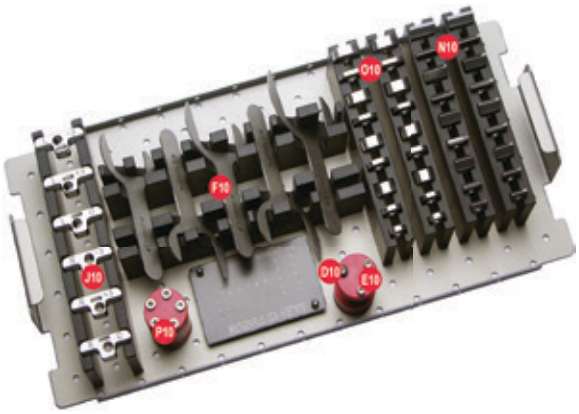
9066.48.000 MULTIGEN-PLUS CCK-H Tibia Set n. 9



Ref.	CODE	DESCRIPTION	Qty.
A9	9066.35.137	CCK-H Cam #1-5	2
B9	9066.47.050	IM Tibial Cutting Guide	1
C9	9066.47.110	CCK Trial Tibial Plate #1	1
C9	9066.47.120	CCK Trial Tibial Plate #2	1
C9	9066.47.130	CCK Trial Tibial Plate #3	1
C9	9066.47.140	CCK Trial Tibial Plate #4	1
C9	9066.47.150	CCK Trial Tibial Plate #5	1
D9	9066.47.170	Straight Tibial Dialer	1
D9	9066.47.173	3mm Eccentrical Tibial Dialer	1
D9	9066.47.176	6mm Eccentrical Tibial Dialer	1
E9	9066.47.180	CCK Tibial Keel	1
F9	9066.47.190	Trial Tibial Locking Screw	1
G9	9066.47.200	Trial Short Straight Tibial Module	1
G9	9066.47.203	Trial Short Offset +3mm Tibial Module	1
G9	9066.47.206	Trial Short Offset +6mm Tibial Module	1
H9	9066.47.315	Trial Tibial Augment #1 h=7mm	2
H9	9066.47.320	Trial Tibial Augment #1 h=12mm	2
H9	9066.47.325	Trial Tibial Augment #2 h=7mm	2
H9	9066.47.330	Trial Tibial Augment #2 h=12mm	2
H9	9066.47.335	Trial Tibial Augment #3 h=7mm	2
H9	9066.47.340	Trial Tibial Augment #3 h=12mm	2
H9	9066.47.345	Trial Tibial Augment #4 h=7mm	2
H9	9066.47.350	Trial Tibial Augment #4 h=12mm	2
H9	9066.47.355	Trial Tibial Augment #5 h=7mm	2
H9	9066.47.360	Trial Tibial Augment #5 h=12mm	2
I9	9066.48.050	IM Tibial Cutting Guide H	1
J9	9066.48.110	H Trial Tibial Plate #1	1
J9	9066.48.120	H Trial Tibial Plate #2	1
J9	9066.48.130	H Trial Tibial Plate #3	1
J9	9066.48.140	H Trial Tibial Plate #4	1
J9	9066.48.150	H Trial Tibial Plate #5	1
K9	9066.48.180	H Tibial Keel	1
L9	9066.48.190	Tibial Module Positioning Jig	1
M9	9069.10.285	Long Pins for Trial Tibial Plates	6
	9066.48.950	Sterilizable Box	1

99066.49.000 MULTIGEN-PLUS CCK-H Femur Set n. 10

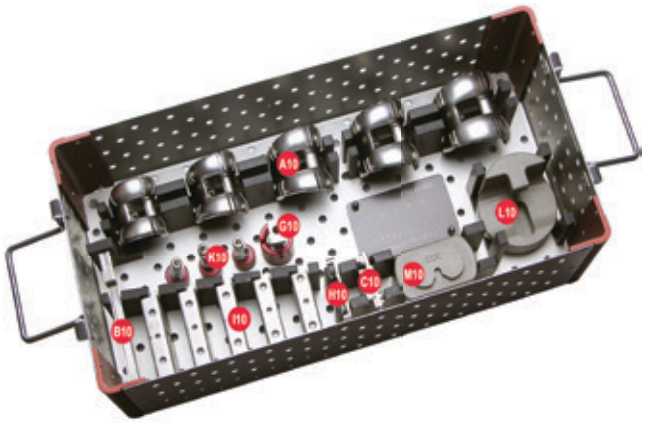
Ref.	CODE	DESCRIPTION	Qty.
D10	9066.47.071	Screw for CCK-H box	1
E10	9066.47.195	Trial Femoral Locking Screw	2
F10	9066.47.410	Phantom #1	1
F10	9066.47.420	Phantom #2	1
F10	9066.47.430	Phantom #3	1
F10	9066.47.440	Phantom #4	1
F10	9066.47.450	Phantom #5	1
J10	9066.47.570	Right Femoral Aligment Guide	1
J10	9066.47.575	Right Offset +3mm Fem. Aligment Guide	1
J10	9066.47.580	Right Offset -3mm Fem. Aligment Guide	1
J10	9066.47.585	Left Femoral Aligment Guide	1
J10	9066.47.590	Left Offset +3mm Fem. Aligment Guide	1
J10	9066.47.595	Left Offset -3mm Fem. Aligment Guide	1
N10	9066.71.105	Trial Distal Femoral Augment #1 h=5mm	2
N10	9066.71.205	Trial Distal Femoral Augment #2 h=5mm	2
N10	9066.71.210	Trial Distal Femoral Augment #2 h=10mm	2
N10	9066.71.305	Trial Distal Femoral Augment #3 h=5mm	2
N10	9066.71.310	Trial Distal Femoral Augment #3 h=10mm	2
N10	9066.71.405	Trial Distal Femoral Augment #4 h=5mm	2
N10	9066.71.410	Trial Distal Femoral Augment #4 h=10mm	2
N10	9066.71.505	Trial Distal Femoral Augment #5 h=5mm	2
N10	9066.71.510	Trial Distal Femoral Augment #5 h=10mm	2
O10	9066.72.105	Trial Posterior Femoral Augment #1 h=5mm	2
O10	9066.72.205	Trial Posterior Femoral Augment #2 h=5mm	2
O10	9066.72.210	Trial Posterior Femoral Augment #2 h=10mm	2
O10	9066.72.305	Trial Posterior Femoral Augment #3 h=5mm	2
O10	9066.72.310	Trial Posterior Femoral Augment #3 h=10mm	2
O10	9066.72.405	Trial Posterior Femoral Augment #4 h=5mm	2
O10	9066.72.410	Trial Posterior Femoral Augment #4 h=10mm	2
O10	9066.72.505	Trial Posterior Femoral Augment #5 h=5mm	2
O10	9066.72.510	Trial Posterior Femoral Augment #5 h=10mm	2
P10	6622.15.020	Femoral Augment Locking Screw	5



Upper tray

REVISION KNEE SYSTEM SURGICAL TECHNIQUE

Instrument set

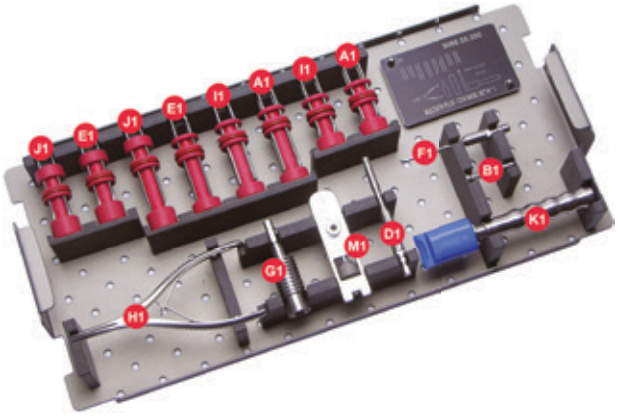


Lower tray

Ref.	CODE	DESCRIPTION	Qty.
A10	9066.20.015	CCK/H Trial Femoral Component - #1	1
A10	9066.20.025	CCK/H Trial Femoral Component - #2	1
A10	9066.20.035	CCK/H Trial Femoral Component - #3	1
A10	9066.20.045	CCK/H Trial Femoral Component - #4	1
A10	9066.20.055	CCK/H Trial Femoral Component - #5	1
B10	9066.47.060	Thickness Gauge	1
C10	9066.47.070	CCK/H Box Mask	1
G10	9066.47.470	Angled Guide 6°	1
H10	9066.47.480	Distal Re-Cut Spacer	1
K10	9066.47.600	Trial Rt - Lt Short Femoral Module	1
K10	9066.47.605	Trial Rt+3 Lt-3 Short Femoral Module	1
K10	9066.47.610	Trial Rt-3 Lt+3 Short Femoral Module	1
I10	9066.47.510	Femoral Guide #1	1
I10	9066.47.520	Femoral Guide #2	1
I10	9066.47.530	Femoral Guide #3	1
I10	9066.47.540	Femoral Guide #4	1
I10	9066.47.550	Femoral Guide #5	1
L10	9066.49.900	Femoral Module Stems Coupling Base	1
M10	9066.49.910	Tibial Module Stems Coupling Base	1
	9066.49.950	Sterilizable Box	1

9066.55.000 CCK-H Base Set n. 1

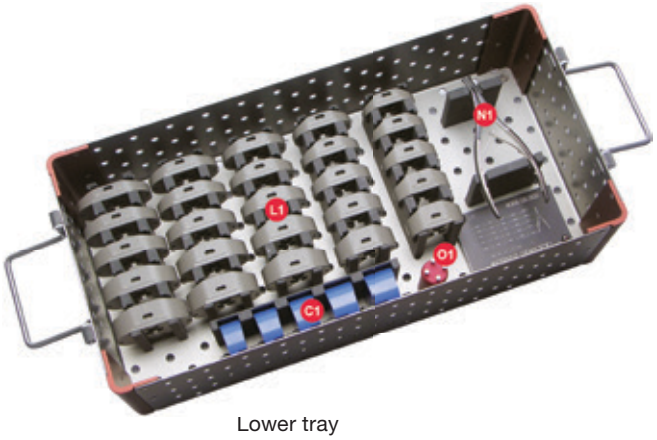
Ref.	CODE	DESCRIPTION	Qty.
A1	9066.15.092	Dia.3x60mm Fiches	4
A1	9066.15.095	Dia.3x80mm Fiches	4
B1	9066.15.235	Fiches beater	1
D1	9066.22.010	Pin Driver	1
E1	9066.22.060	Screwed Pin with Head Dia.3x60mm	4
E1	9066.22.080	Screwed Pin with Head Dia.3x80mm	4
F1	9066.22.160	pre-drill Dia. 3mm	1
G1	9066.22.170	Zimmer Rapid Connector	1
H1	9066.22.180	Tibial Nail Exctractor Plier	1
I1	9066.22.260	Pin with Head dia.3x60mm	4
I1	9066.22.280	Pin with Head dia.3x80mm	4
J1	9066.24.060	Screwed Pin Without Head Dia. 3x60	4
J1	9066.24.080	Screwed Pin Without Head Dia. 3x80	4
K1	9066.30.160	Liners Impactor	1
M1	9066.35.600	Handle for Trial Tibial Plate	1



Upper tray

REVISION KNEE SYSTEM SURGICAL TECHNIQUE

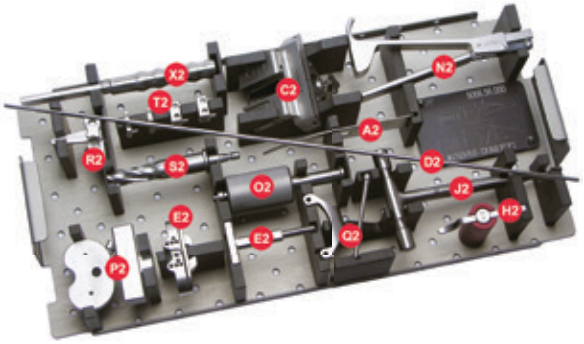
Instrument set



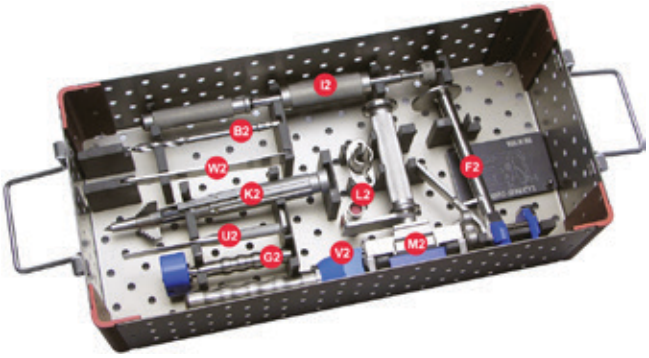
Lower tray

Ref.	CODE	DESCRIPTION	Qty.
C1	9066.20.710	h 10mm Trial Ligament Tension Thickness	1
C1	9066.20.720	h 12mm Trial Ligament Tension Thickness	1
C1	9066.20.730	h 14mm Trial Ligament Tension Thickness	1
C1	9066.20.740	h 17mm Trial Ligament Tension Thickness	1
C1	9066.20.750	h 20mm Trial Ligament Tension Thickness	1
L1	9066.35.110	CR- PS Trial Liner – #1 / 10mm	1
L1	9066.35.112	CR- PS Trial Liner – #1 / 12mm	1
L1	9066.35.114	CR- PS Trial Liner – #1 / 14mm	1
L1	9066.35.117	CR- PS Trial Liner – #1 / 17mm	1
L1	9066.35.120	CR- PS Trial Liner – #1 / 20mm	1
L1	9066.35.210	CR- PS Trial Liner – #2 / 10mm	1
L1	9066.35.212	CR- PS Trial Liner – #2 / 12mm	1
L1	9066.35.214	CR- PS Trial Liner – #2 / 14mm	1
L1	9066.35.217	CR- PS Trial Liner – #2 / 17mm	1
L1	9066.35.220	CR- PS Trial Liner – #2 / 20mm	1
L1	9066.35.310	CR- PS Trial Liner – #3 / 10mm	1
L1	9066.35.312	CR- PS Trial Liner – #3 / 12mm	1
L1	9066.35.314	CR- PS Trial Liner – #3 / 14mm	1
L1	9066.35.317	CR- PS Trial Liner – #3 / 17mm	1
L1	9066.35.320	CR- PS Trial Liner – #3 / 20mm	1
L1	9066.35.410	CR- PS Trial Liner – #4 / 10mm	1
L1	9066.35.412	CR- PS Trial Liner – #4 / 12mm	1
L1	9066.35.414	CR- PS Trial Liner – #4 / 14mm	1
L1	9066.35.417	CR- PS Trial Liner – #4 / 17mm	1
L1	9066.35.420	CR- PS Trial Liner – #4 / 20mm	1
L1	9066.35.510	CR- PS Trial Liner – #5 / 10mm	1
L1	9066.35.512	CR- PS Trial Liner – #5 / 12mm	1
L1	9066.35.514	CR- PS Trial Liner – #5 / 14mm	1
L1	9066.35.517	CR- PS Trial Liner – #5 / 17mm	1
L1	9066.35.520	CR- PS Trial Liner – #5 / 20mm	1
N1	9066.35.610	Plier for Trial Tibial Liner extractor	1
O1	9069.10.275	Pin for Trial Tibial Plates	4
	9066.55.950	Sterilizable Box	1

9066.56.000 CCK-H Base Set n. 2



Upper tray



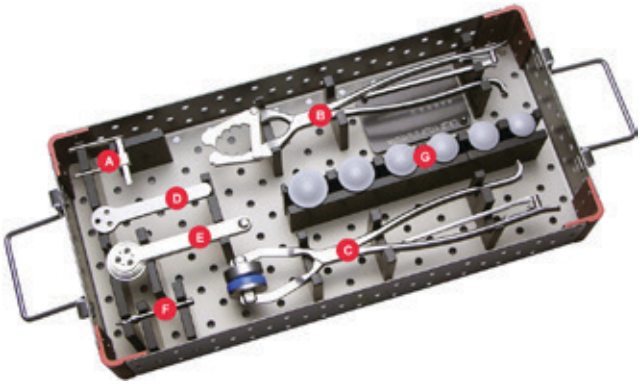
Lower tray

Ref.	CODE	DESCRIPTION	Qty.
A2	9066.12.010	Sickle	1
B2	9066.12.030	Starting Reamer	1
C2	9066.15.050	Distal Resection Guide	1
D2	9066.15.090	Alignment Rod	1
E2	9066.22.120	Tibial Cutting Guide	1
F2	9066.25.100	Multifunction Impactor-Extractor	1
G2	9066.25.110	Tibial Impactor	1
H2	9066.25.160	0mm Tibial Depth Resection Gauge	1
I2	9066.25.190	Multifunction Extractor	1
J2	9066.30.020	Awl	1
K2	9066.30.100	Tibial Winged Broach	1
L2	9066.30.110	Guide for Winged Broach/ Reamer	1
M2	9066.30.120	Femoral Extractor/Positioner	1
N2	9066.35.620	Fiches Exctractor Plier	1
O2	9066.35.621	Inertial Beater	1
P2	9066.47.055	Augment Tibial Resection Guide	1
Q2	9066.47.064	Joint line guide for femoral distal mask	1
R2	9066.47.065	Joint line guide for femoral box mask	1
S2	9066.47.225	Tibial Reamer	1
T2	9066.47.650	Trial Distal Augment - H 5mm	2
T2	9066.47.655	Trial Distal Augment - H 10mm	2
U2	9066.50.130	Osteotome #0	1
V2	9069.10.220	Femoral Impactor	1
W2	9069.50.040	Tibial Liner Extractor	1
X2	9095.10.337	Flat Rasp	1
	9066.56.950	Sterilizable Box	1

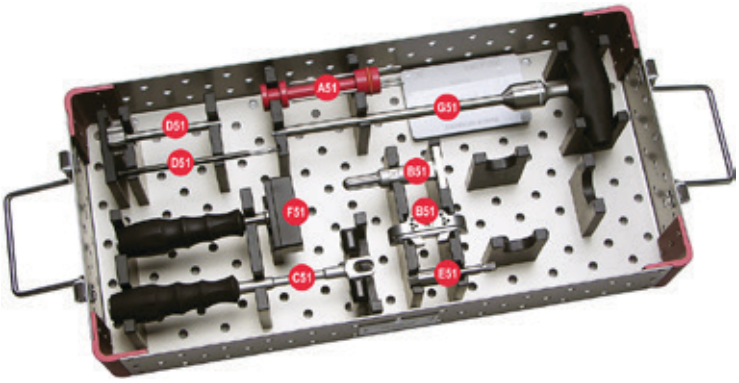
Instrument set

9066.41.000 Patellar Set n. 7

Ref.	CODE	DESCRIPTION	Qty.
A7	9066.40.050	Patellar Gauge	1
B7	9066.40.010	Patellar Pliers	1
C7	9066.40.020	Patellar Vice	1
D7	9066.40.025	Patellar Drilling Guide	1
E7	9066.40.070	Patellar Mask	1
F7	9066.40.060	Patellar Drill	1
G7	9066.40.128	Trial Patellar Dome - Dia. 28mm h 8mm	1
G7	9066.40.132	Trial Patellar Dome - Dia. 32mm h 8mm	1
G7	9066.40.032	Trial Patellar Dome - Dia. 32mm h 10mm	1
G7	9066.40.035	Trial Patellar Dome - Dia. 35mm h 10mm	1
G7	9066.40.038	Trial Patellar Dome - Dia. 38mm h 10mm	1
G7	9066.40.041	Trial Patellar Dome - Dia. 41mm h 10mm	1
	9066.41.950	Sterilizable Box	1



9066.51.000 CCK-H System Additional Set - Multigen Plus



Ref.	CODE	DESCRIPTION	Qty.
A51	9066.15.105	Pin Dia. 3.5x105mm	3
B51	9066.48.055	IM Tibial Cutting Guide	1
C51	9066.48.200	Femoral Counter Torque	1
D51	9066.48.205	Tibial Pin Positioner	1
E51	9066.48.210	Tibial Pin Positioner Adapter	1
F51	9066.48.220	Femoral Box Gauge	1
G51	9095.10.226	Dynamometric Screwdriver 3.5mm 5Nm	1
	9066.51.950	Instrument Tray	1

9095.11.751 Torque wrench

Ref.	CODE	DESCRIPTION	Qty.
	9095.11.751	Torque wrench	1

NOTE. *Space is forseen in the Instrument Tray 9066.51.950.*

REVISION KNEE SYSTEM SURGICAL TECHNIQUE

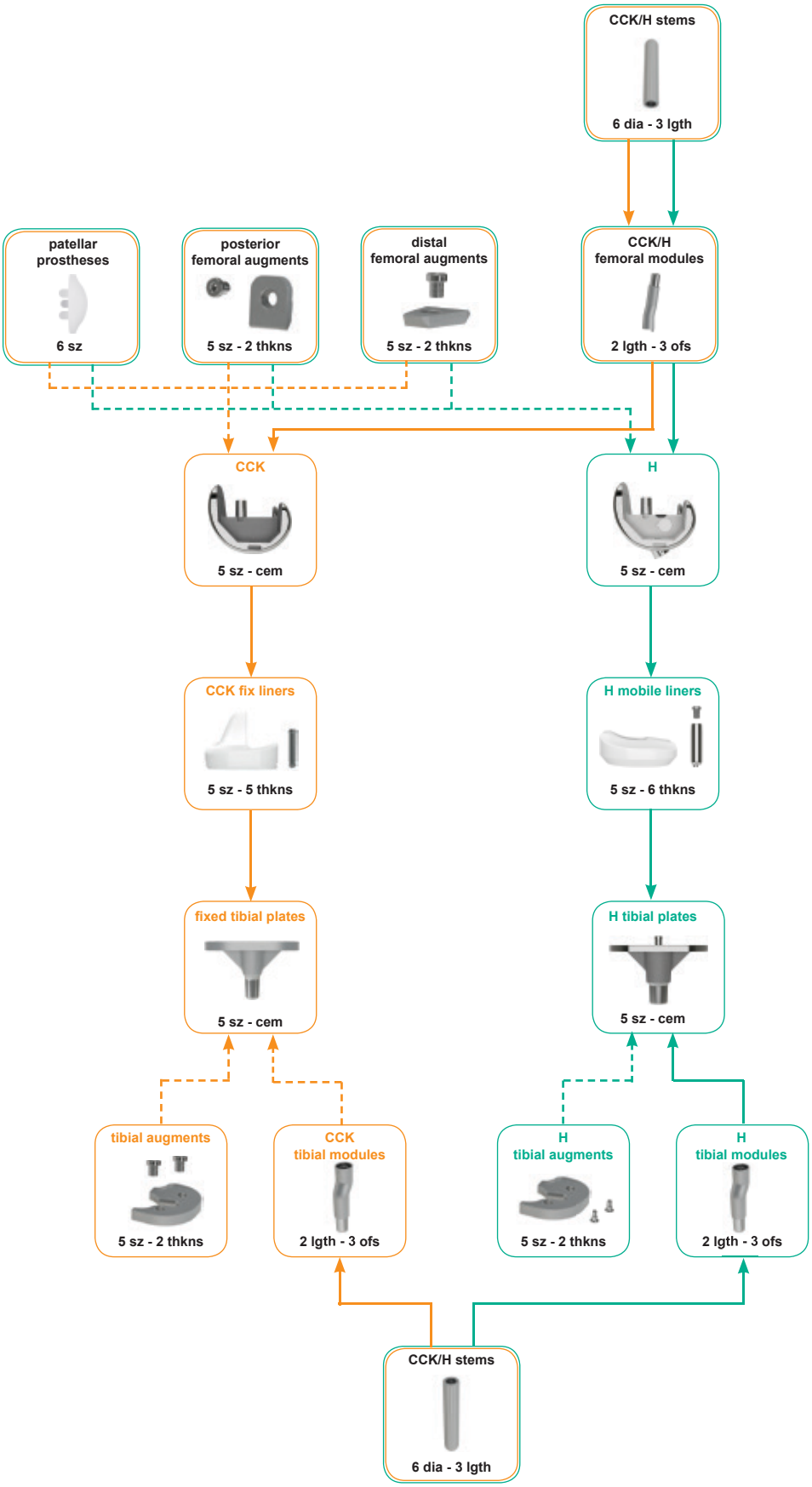
Instruments needed for Hinge only

Instruments for Hinge only (part of the basic CCK sets)

Ref.	CODE	DESCRIPTION	Qty.
F47	9066.47.095	H Winged Broach Guide	1
E9	9066.48.050	Im Cutting Guide H	1
J9	9066.48.110	H Trial Tibial Plate #1	1
J9	9066.48.120	H Trial Tibial Plate #2	1
J9	9066.48.130	H Trial Tibial Plate #3	1
J9	9066.48.140	H Trial Tibial Plate #4	1
J9	9066.48.150	H Trial Tibial Plate #5	1
K9	9066.48.180	H Tibial Keel	1

NOTE. *These instruments, together with the set 9066.51.000 CCK- H System Additional set and the torque wrench 9095.11.751 , are not needed for CCK procedures.*

Product combinations



CCK
H
optional CCK
optional H

cem = cemented
dia = diameter
lgth = length
ofs = offset
sz = size
thkns = thickness

REVISION KNEE SYSTEM SURGICAL TECHNIQUE

Product codes

CCK - CEMENTED FEMORAL COMPONENTS

CoCrMo

Size	REF
#1	6615.09.010
#2	6615.09.020
#3	6615.09.030
#4	6615.09.040
#5	6615.09.050

H - CEMENTED FEMORAL COMPONENTS

CoCrMo+ CFR Peek

Size	REF
#1	6616.09.010
#2	6616.09.020
#3	6616.09.030
#4	6616.09.040
#5	6616.09.050

CEMENTED FIXED TIBIAL PLATES

Ti6Al4V

Size	REF
#1	6624.15.110
#2	6624.15.120
#3	6624.15.130
#4	6624.15.140
#5	6624.15.150

H - CEMENTED TIBIAL PLATES

CoCrMo+ CFR Peek

Size	REF
#1	6620.09.110
#2	6620.09.120
#3	6620.09.130
#4	6620.09.140
#5	6620.09.150

Product codes

CCK - TIBIAL LINERS WITH LOCKING SCREW

UHMWPE + Ti6Al4V

FOR FIXED TIBIAL PLATE #1

Size	REF	THICKNESS
#1	6645.50.110	10 mm
#1	6645.50.112	12 mm
#1	6645.50.114	14 mm
#1	6645.50.117	17 mm
#1	6645.50.120	20 mm

FOR FIXED TIBIAL PLATE #2

Size	REF	THICKNESS
#2	6645.50.210	10 mm
#2	6645.50.212	12 mm
#2	6645.50.214	14 mm
#2	6645.50.217	17 mm
#2	6645.50.220	20 mm

FOR FIXED TIBIAL PLATE #3

Size	REF	THICKNESS
#3	6645.50.310	10 mm
#3	6645.50.312	12 mm
#3	6645.50.314	14 mm
#3	6645.50.317	17 mm
#3	6645.50.320	20 mm

FOR FIXED TIBIAL PLATE #4

Size	REF	THICKNESS
#4	6645.50.410	10 mm
#4	6645.50.412	12 mm
#4	6645.50.414	14 mm
#4	6645.50.417	17 mm
#4	6645.50.420	20 mm

FOR FIXED TIBIAL PLATE #5

Size	REF	THICKNESS
#5	6645.50.510	10 mm
#5	6645.50.512	12 mm
#5	6645.50.514	14 mm
#5	6645.50.517	17 mm
#5	6645.50.520	20 mm

REVISION KNEE SYSTEM SURGICAL TECHNIQUE

Product codes

H - TIBIAL LINERS WITH HINGE

UHMWPE + CoCrMo + Ti6Al4V

FOR H FEMORAL COMPONENT #1

Size	REF	THICKNESS
#1	6660.50.110	10 mm
#1	6660.50.112	12 mm
#1	6660.50.114	14 mm
#1	6660.50.117	17 mm
#1	6660.50.120	20 mm
#1	6660.50.124	24 mm

FOR H FEMORAL COMPONENT #2

Size	REF	THICKNESS
#2	6660.50.210	10 mm
#2	6660.50.212	12 mm
#2	6660.50.214	14 mm
#2	6660.50.217	17 mm
#2	6660.50.220	20 mm
#2	6660.50.224	24 mm

FOR H FEMORAL COMPONENT #3

Size	REF	THICKNESS
#3	6660.50.310	10 mm
#3	6660.50.312	12 mm
#3	6660.50.314	14 mm
#3	6660.50.317	17 mm
#3	6660.50.320	20 mm
#3	6660.50.324	24 mm

FOR H FEMORAL COMPONENT #4

Size	REF	THICKNESS
#4	6660.50.410	10 mm
#4	6660.50.412	12 mm
#4	6660.50.414	14 mm
#4	6660.50.417	17 mm
#4	6660.50.420	20 mm
#4	6660.50.424	24 mm

FOR H FEMORAL COMPONENT #5

Size	REF	THICKNESS
#5	6660.50.510	10 mm
#5	6660.50.512	12 mm
#5	6660.50.514	14 mm
#5	6660.50.517	17 mm
#5	6660.50.520	20 mm
#5	6660.50.524	24 mm

Product codes

CCK/H - FEMORAL MODULES

Ti6Al4V

REF	LENGTH	OFFSET
6647.15.410	SHORT	R-L Straight
6647.15.420	SHORT	R +3mm - L -3mm
6647.15.430	SHORT	R -3mm - L +3mm
6647.15.440	LONG	R-L Straight
6647.15.450	LONG	R +3mm - L -3mm
6647.15.460	LONG	R -3mm - L +3mm

CCK - TIBIAL MODULE

Ti6Al4V

REF	LENGTH	OFFSET
6647.15.310	SHORT	Straight
6647.15.320	SHORT	+3 mm
6647.15.330	SHORT	+6 mm
6647.15.340	LONG	Straight
6647.15.350	LONG	+3 mm
6647.15.360	LONG	+6 mm

H - TIBIAL MODULE

Ti6Al4V

REF	LENGTH	OFFSET
6648.15.310	SHORT	Straight
6648.15.320	SHORT	+3 mm
6648.15.330	SHORT	+6 mm
6648.15.340	LONG	Straight
6648.15.350	LONG	+3 mm
6648.15.360	LONG	+6 mm

CCK/H - STEM

Ti6Al4V

REF	DIAMETER	LENGTH
6647.15.140	14 mm	60 mm
6647.15.160	16 mm	60 mm
6647.15.180	18 mm	85 mm
6647.15.200	20 mm	85 mm
6647.15.220	22 mm	110 mm
6647.15.240	24 mm	110 mm

REVISION KNEE SYSTEM SURGICAL TECHNIQUE

Product codes

PATELLAR PROSTHESES

UHMWPE

REF	DIAMETER	THICKNESS
■ 6695.50.103	28 mm	8 mm
■ 6695.50.105	32 mm	8 mm
■ 6695.50.005	32 mm	10 mm
■ 6695.50.010	35 mm	10 mm
■ 6695.50.020	38 mm	10 mm
■ 6695.50.030	41 mm	10 mm

■ upon request

TIBIAL AUGMENTS

Ti6Al4V

Size	REF	THICKNESS
FOR FIXED TIBIAL PLATE #1		
#1	6625.15.010	7 mm
#1	6625.15.020	12 mm
FOR FIXED TIBIAL PLATE #2		
#2	6626.15.010	7 mm
#2	6626.15.020	12 mm
FOR FIXED TIBIAL PLATE #3		
#3	6628.15.010	7 mm
#3	6628.15.020	12 mm
FOR FIXED TIBIAL PLATE #4		
#4	6630.15.010	7 mm
#4	6630.15.020	12 mm
FOR FIXED TIBIAL PLATE #5		
#5	6632.15.010	7 mm
#5	6632.15.020	12 mm

Product codes

H - TIBIAL AUGMENTS

Ti6Al4V

FOR H TIBIAL PLATE #1		
Size	REF	THICKNESS
#1	6621.15.107	7 mm
#1	6621.15.112	12 mm
FOR H TIBIAL PLATE #2		
Size	REF	THICKNESS
#2	6621.15.207	7 mm
#2	6621.15.212	12 mm
FOR H TIBIAL PLATE #3		
Size	REF	THICKNESS
#3	6621.15.307	7 mm
#3	6621.15.312	12 mm
FOR H TIBIAL PLATE #4		
Size	REF	THICKNESS
#4	6621.15.407	7 mm
#4	6621.15.412	12 mm
FOR H TIBIAL PLATE #5		
Size	REF	THICKNESS
#5	6621.15.507	7 mm
#5	6621.15.512	12 mm

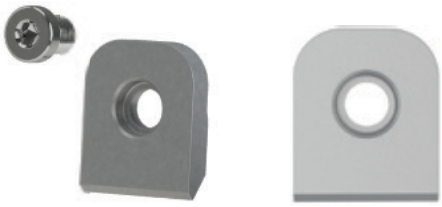
Product codes

DISTAL FEMORAL AUGMENTS

Ti6Al4V

FOR FEMORAL COMPONENT #1		
Size	REF	THICKNESS
#1	6671.15.105	5 mm
FOR FEMORAL COMPONENT #2		
Size	REF	THICKNESS
#2	6671.15.205	5 mm
FOR FEMORAL COMPONENT #3		
Size	REF	THICKNESS
#3	6671.15.305	5 mm
#3	6671.15.310	10 mm
FOR FEMORAL COMPONENT #4		
Size	REF	THICKNESS
#4	6671.15.405	5 mm
#4	6671.15.410	10 mm
FOR FEMORAL COMPONENT #5		
Size	REF	THICKNESS
#5	6671.15.505	5 mm
#5	6671.15.510	10 mm

Product codes



POSTERIOR FEMORAL AUGMENTS

Ti6Al4V

FOR FEMORAL COMPONENT #1		
Size	REF	THICKNESS
#1	6672.15.105	5 mm
FOR FEMORAL COMPONENT #2		
Size	REF	THICKNESS
#2	6672.15.205	5 mm
FOR FEMORAL COMPONENT #3		
Size	REF	THICKNESS
#3	6672.15.305	5 mm
#3	6672.15.310	10 mm
FOR FEMORAL COMPONENT #4		
Size	REF	THICKNESS
#4	6672.15.405	5 mm
#4	6672.15.410	10 mm
FOR FEMORAL COMPONENT #5		
Size	REF	THICANESS
#5	6672.15.505	5 mm
#5	6672.15.510	10 mm

REVISION KNEE SYSTEM SURGICAL TECHNIQUE

Tables summary

Here following are listed some useful tables to be checked before opening the definitive implants, such as the femoral or tibial modules:

FEMORAL OR TIBIAL MODULE LENGHT

REAMER REFERENCE	TRIAL MODULE	DEFINITIVE MODULE
S Reference	S Module	S Module
L Reference	S Module + L Extension	L Module

TIBIAL OFFSET

COMPASS	TIBIAL TRIAL MODULE	TIBIAL DEFINITIVE MODULE
0	Straight Module	Straight Module
+3	+3 Module	+3 Module
+6	+6 Module	+6 Module

FEMORAL OFFSET

ALIGNER	FEMORAL TRIAL MODULE	FEMORAL DEFINITIVE MODULE
R-L	R/L Module	R/L Module
R+3 or L-3	R+3/L-3 Module	R+3/L-3 Module
R-3 or L+3	R-3/L+3 Module	R-3/L+3 Module

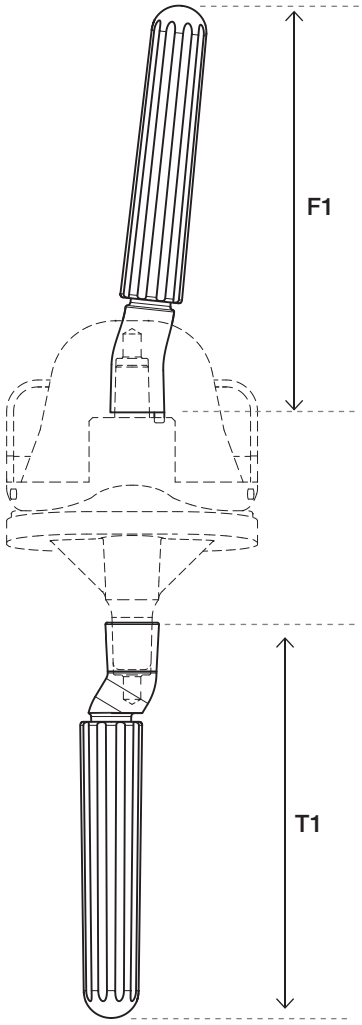
Tables summary

Here following are listed the total lengths of the CCK/H stems assembled with femoral or with tibial modules:

CCK/H STEMS AND FEMORAL MODULES ASSEMBLY LENGTH

	F1	
CCK/H PRESS FIT STEM DIAMETERS	STEM + SHORT FEMORAL MODULE*	STEM + LONG FEMORAL MODULE*
Dia. 14 mm	91 mm	116 mm
Dia. 16 mm	91 mm	116 mm
Dia. 18 mm	116 mm	141 mm
Dia. 20 mm	116 mm	141 mm
Dia. 22 mm	141 mm	166 mm
Dia. 24 mm	141 mm	166 mm

* for the femoral component 18,5 mm must be added to obtain the total length from the femoral distal resection to the end of the stem.



CCK/H STEMS AND TIBIAL MODULES ASSEMBLY LENGTH

	T1	
CCK/H PRESS FIT STEM DIAMETERS	STEM + SHORT TIBIAL MODULE**	STEM + LONG TIBIAL MODULE**
Dia. 14 mm	87 mm	112 mm
Dia. 16 mm	87 mm	112 mm
Dia. 18 mm	112 mm	137 mm
Dia. 20 mm	112 mm	137 mm
Dia. 22 mm	137 mm	162 mm
Dia. 24 mm	137 mm	162 mm

** for the tibial component 22 mm must be added to obtain the total length from the tibial resection to the end of the stem.

*** for the individual lenghts of the modules, please refere to page 87.

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