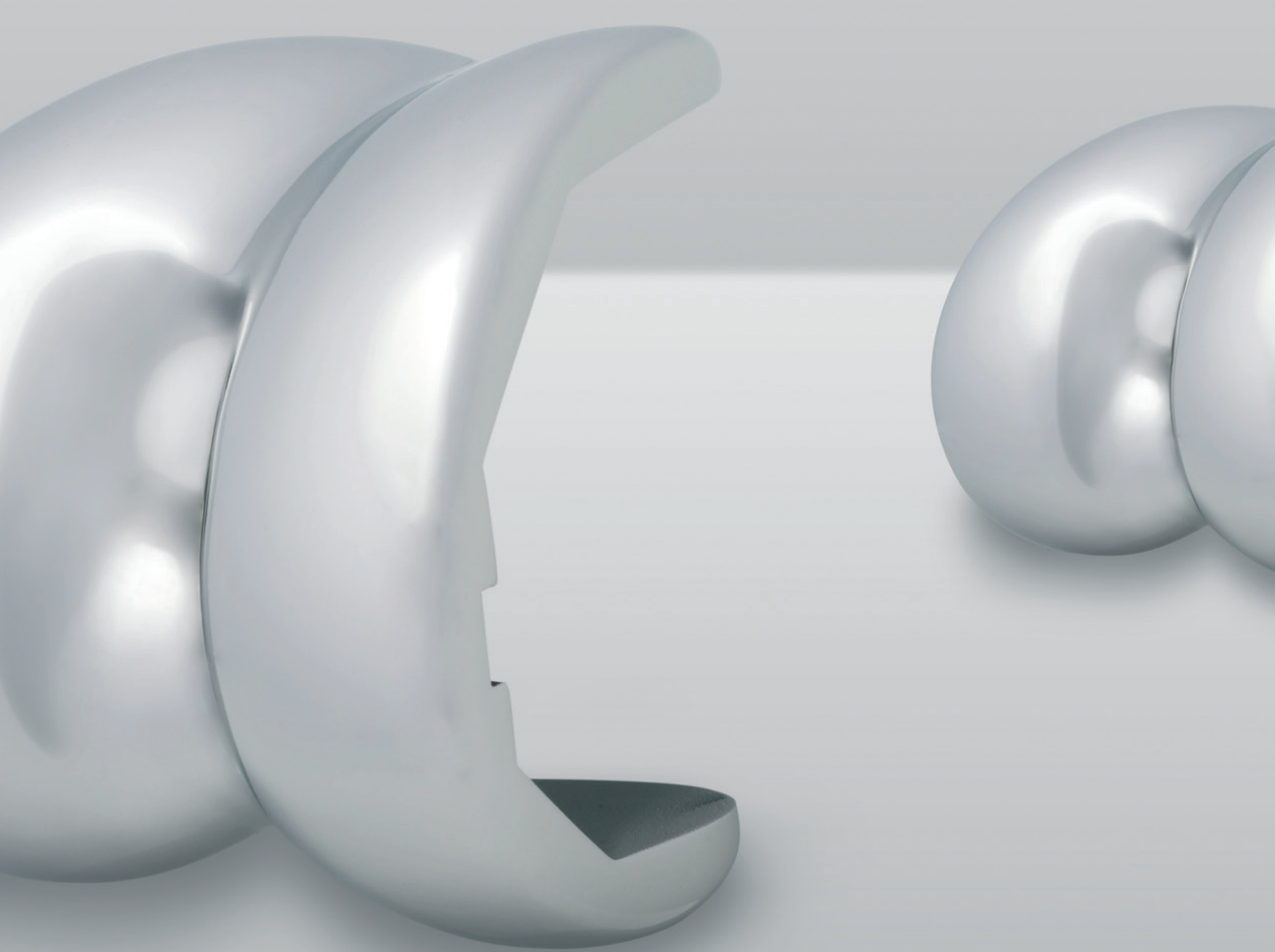
TREKKING®

PRIMARY KNEE SYSTEM



SAMO

Rationale and Surgical Technique

The Trekking® Primary Knee System Rationale

The implant system

Trekking is one of the most advanced systems for total knee arthroplasty available today. All the principal technical and clinical issues have been analysed and solved in the most efficient way, with a lot of new and exciting solutions.
One of the most important features is the flexibility of all the components - primary and revision, mobile and fixed, cruciate retaining, posterior stabilised or ultra-congruent, cemented and uncemented - which can be implanted with the same set of instruments, enabling the surgeon to choose the final components at the very last moment, and even to combine “hybrid” primary and revision components in a single implant for maximum customisation of the surgical treatment.

The Trekking System includes two sets of primary implants (Fig.1): cemented and uncemented, and a revision set.
All metal components, except augments and stems are made of CoCrMo alloy, while all bearings are made of UHMWPE. Augments and stems are made of Ti6Al4V alloy.
Both Fixed and Mobile bearing systems, cemented and uncemented, come in cruciate retaining (CR) and posterior stabilized (PS) options; the revision set includes a semi-constrained fixed bearing, a non constrained, high flex fixed bearing, a single radius-high kinematic condyle, a tibial plate, tibial and femoral stems, augments and offsets.

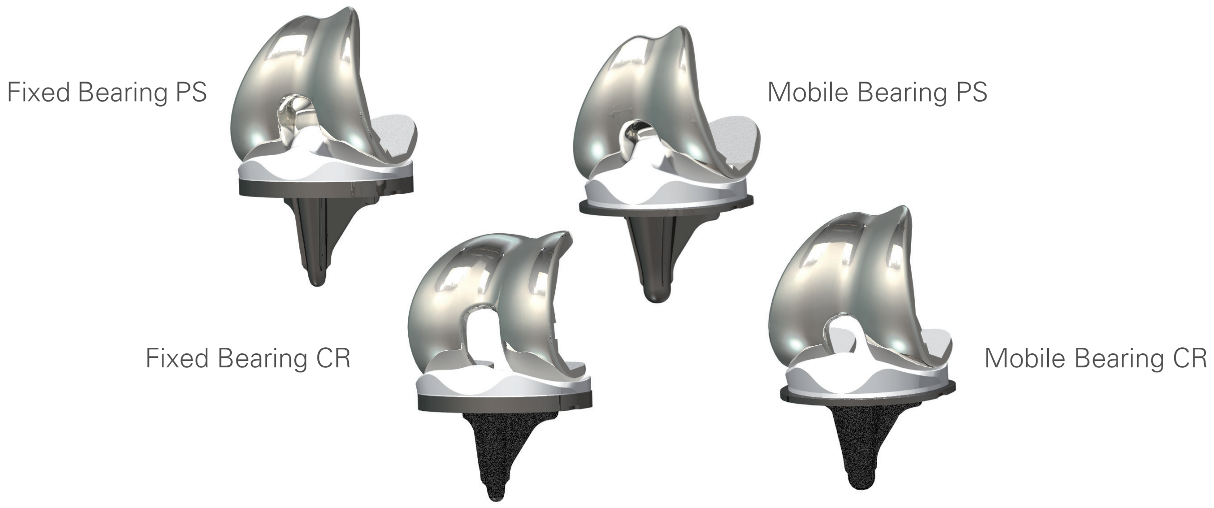


Fig.1 - Trekking Primary System

The press-fit version is available with a coating of pure titanium applied by vacuum plasma spray. The coated surface is perfectly flat and in contact with the bone.

Fixed bearing

The fixed bearing system offers both Cruciate Retaining (CR) and Posterior Stabilized (PS) options. The connection between the insert and the tibial plate is secured by means of a simple metal wire applied to the anterior part of the insert and a bowl-shaped tibial plate with a mirror-polished 'floor'.
The tibial plate is flat, with no additional spines, ripples or screw-holes, in order to minimize backside polyethylene wear.
The tibial plate has a 4° posterior slope and a 6° articular surface slope.

Fig. 2
Fixed Bearing Components

Mobile bearing

The mobile bearing system includes a Posterior Stabilized and an Ultra-Congruent component. Thanks its 1:1 congruency, and to the anterior leap distance ranging from 6.6 (size 1) to 11.4 mm (size 5), the indication of the Ultra-Congruent implant is both for preserving and sacrificing the posterior cruciate ligament without compromising joint stability.

Fig. 3
Mobile Bearing Components

The rotation, based on a central-pivot design, is obtained by a PE peg articulating into the tibial plate keel hole. The insert peg has been designed with sufficient length to prevent dislocation and minimise polyethylene wear.
The tibial plate has a 0° posterior slope and 6° articular surface slope.

Design features

During the last 30 years, knee implant design has had a dramatic evolution.
Huge problems have been overcome in many different fields, including anatomy, biology, mechanics and materials.

Today, implant design has achieved a satisfactory level of standardization.
However, some issues are yet to be completely addressed. The scientific challenge is now open in four main areas: *polyethylene wear, gait kinematics, bone preservation and specific surgical instruments.*

Polyethylene wear

The stress induced by the femoral component on
the polyethylene bearing depends on three main factors:

- Weight of the patient
- Ligament tension
- Loading conditions (including the mechanical characteristics of the implant)

Surface roughness and stresses have a major impact on the wear process.
The best way to reduce stresses on the PE insert and to influence the loading conditions, is to maximize the contact area between the insert and the femoral component. In order to do this it is necessary to design the femoral component and the insert with the same radius, for perfect and complete contact (Figs.4-5).

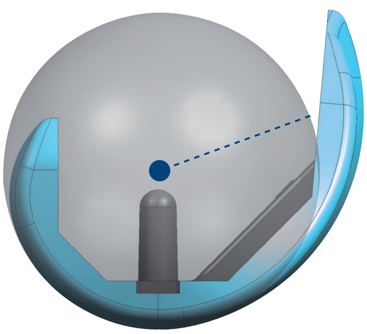


Fig. 4 - Sagittal single gradius

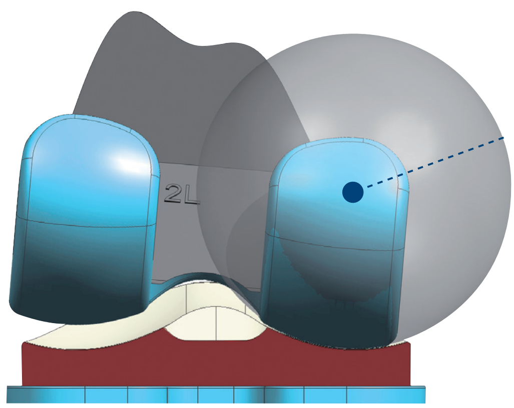


Fig. 5 - Frontal condylar single gradius

The same concept applies to the central spine of the PS liner. In the vast majority of cases, the spine has a squared design, hit at each step by the posterior bar of the femoral component in a very narrow spot. The spine in the Trekking PS insert has a large surface and rounded corners in order to offer maximum and highly conforming contact to the congruent femoral counterpart.

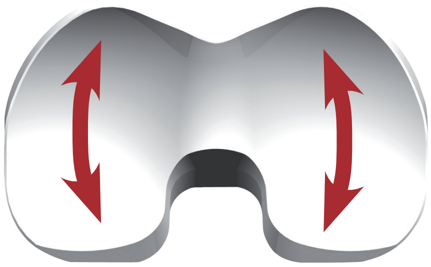


Fig. 6 - Spherical Track

Also the design of the articular surface in the fixed bearing knee has been subject to important improvements: the Spherical Track surface of the Trekking fixed bearing knee (Fig.6) enhances the contact area across the whole flexion and rotation range.
The polyethylene backside wear has been carefully addressed as well.

Fig. 7 - Bowl-shaped metal back

The simple mirror-polished, bowl-shaped metal back (Fig.7) and the connection mechanism with a metal wire engaging the notched edge of the metal back prevents polyethylene debris from spreading into the surrounding tissues.

Kinematics

In the Posterior Stabilized option, the shape of the insert is the most important factor affecting the relative movement of the femur and the tibia.
The geometry of the post in the Trekking PS insert has been studied to guide the movement of the femur throughout the gait cycle, to obtain a consistent and early rollback starting from 40° of flexion, with close-to physiological movement and enhanced ROM. The rollback feature also helps reducing the patellar pressure, which in return has a positive effect on the ROM.

The single radius for each femoral component in the frontal plane enables maximum contact in all the loading condition, even in a critical case of extreme lift-off one condyle is always completely in contact with the liner. This leads to higher stability and knee comfort.

The shape of the troclear groove is a good compromise between stability and patellar loading and optimizes the patellar tracking.

Bone preservation

Minimally Invasive Surgery is currently one of the most discussed techniques. A widely accepted aspects of MIS is the tissue sparing concept, a technique aiming at maximum tissue preservation and minimum damage, regardless of incision length.

The Trekking System has been carefully designed for maximum bone stock respect.
The tibial plate has been totally redesigned using a Finite Element Model, for exact evaluation of stresses and optimisation of thickness, which has been reduced from the usual 5 mm down to 3 mm still preserving safety.

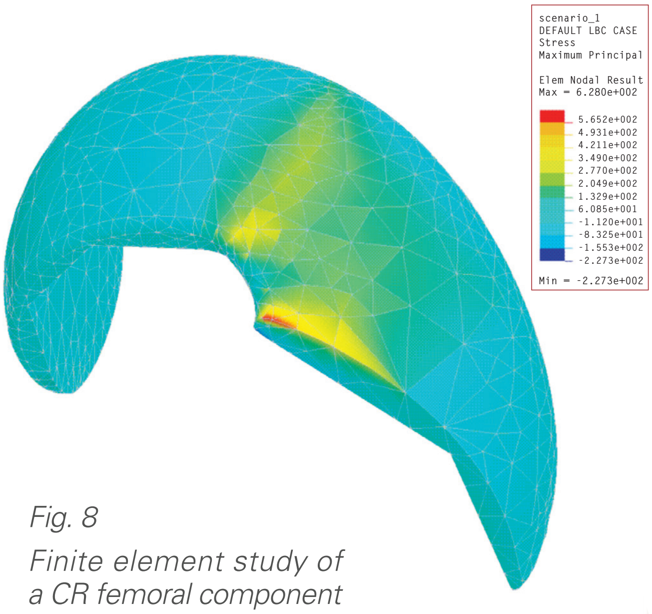
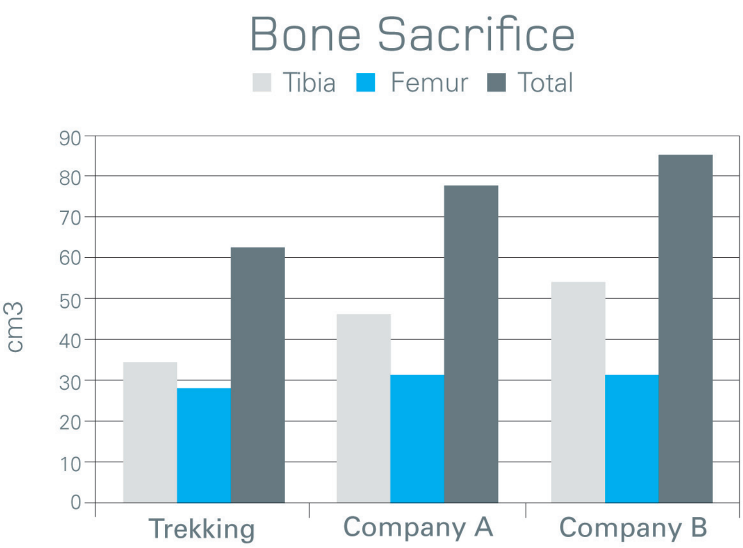


Fig. 8
Finite element study of a CR femoral component

The same process has been used with the femoral component. The FEM computer calculation allowed our designers to keep an optimal mechanical resistance still with a reduced thickness (8 mm) of the femoral component, both distally and posteriorly (Fig.8).
Finally, thanks to the quality of the Ethylene Oxide-sterilised polyethylene, and the attention paid to tribological issues, the minimum Trekking insert thickness has been reduced down to 6 mm, still preserving the poly strength.



Thanks to this careful design, the Tracking System is one of the most bone preserving in the market.
Maximum total bone saving for a size 5 CR model is 20 cm^3 (Fig.9) .

Fig. 9
Total bone sparing with a size 5 Trekking tibia, insert and femur vs two different competitor systems.

Innovative instruments

Unlike implants, the basic principles of TKA instruments have not changed for at least 25 years and concepts and techniques defined for the first systems have remained in use ever since. With the Trekking instrument set, SAMO developed a really new, compact, modular, integrated instrumentation, making the procedure safer, more accurate, faster and simpler.

All the terms above are not casual. Let's analyse them:

- **Integrated:** all the Trekking components (primary and revision) can be implanted by means of the same instrument set, with the addition of only 3 baskets for a complete revision implant.

- **Modular:** the instruments are available in containers that can be either used or left aside, depending on the implant system the surgeons is planning to use. As an example, Fig. shows the solution for a PS, Fixed Bearing implant.

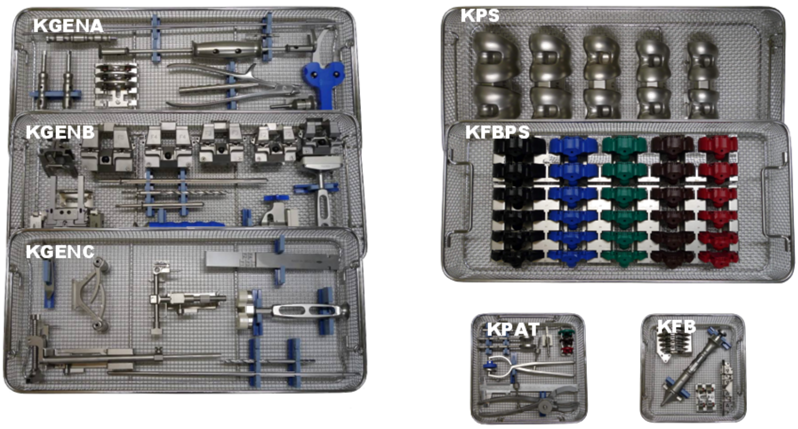


Fig. 10
Instruments set for a Posterior Stabilized Fixed bearing implant with posterior replacement

- **Compact:** only 5 trays, plus two small square baskets, are necessary for one implant.

- **Simple and fast:** the unique *6-Actions Femoral Guide* (Fig.11) allows for time-saving, unique *3-Steps Femoral Cuts (Fig.12).*

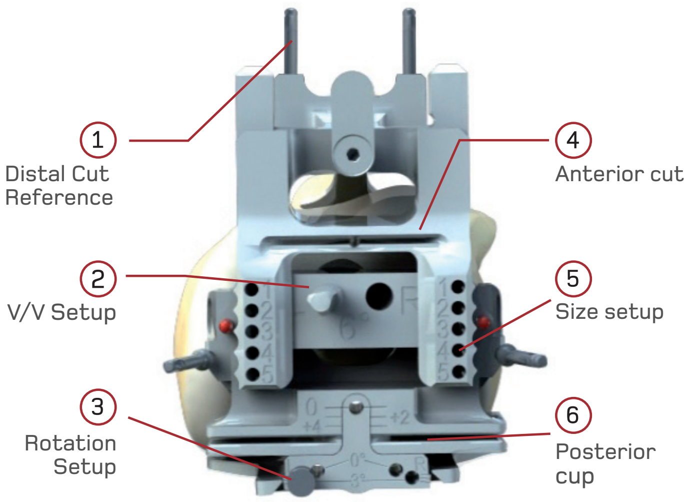
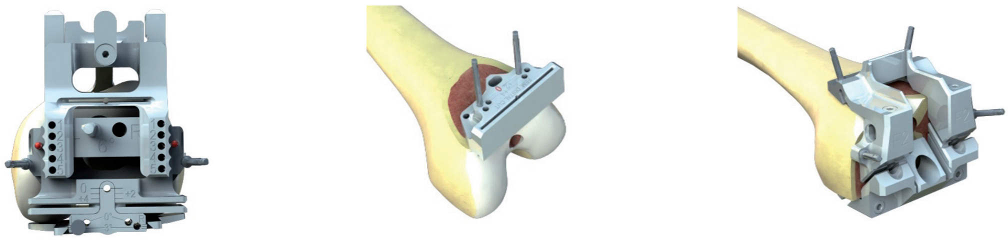


Fig. 11
6-actions femoral guide

The classical bone-cut-sequence of most current instrument sets typically includes 5 steps: 1 – Varus Valgus setup; 2 – Distal cut; 3 – Size setup; 4 – A/P and oblique cuts; 5 – Box or trochlear groove cuts.



1 *Mechanical axis set-up, external rotation, femoral sizing, distal cut references, A/P cuts*

2 *Distal cut*

3 *Chamfers, trochlear groove/box cuts*

Fig. 12 - 3-Steps Femoral Cuts

- **Accurate:**
  - Fixed, wide femoral stylus with size reference for perfect sizing each time
  - Stable guides - cuts are always precise and accurate allowing easy press-fit implant application.
  - All the anatomical rotational landmarks (Whiteside line, Epycondilar line, posterior condyles) can be considered in order to determine the correct external rotation of the implant.
  - Unique Reference Switch system for automatic anterior or posterior referencing, depending on the surgeon’s preference.

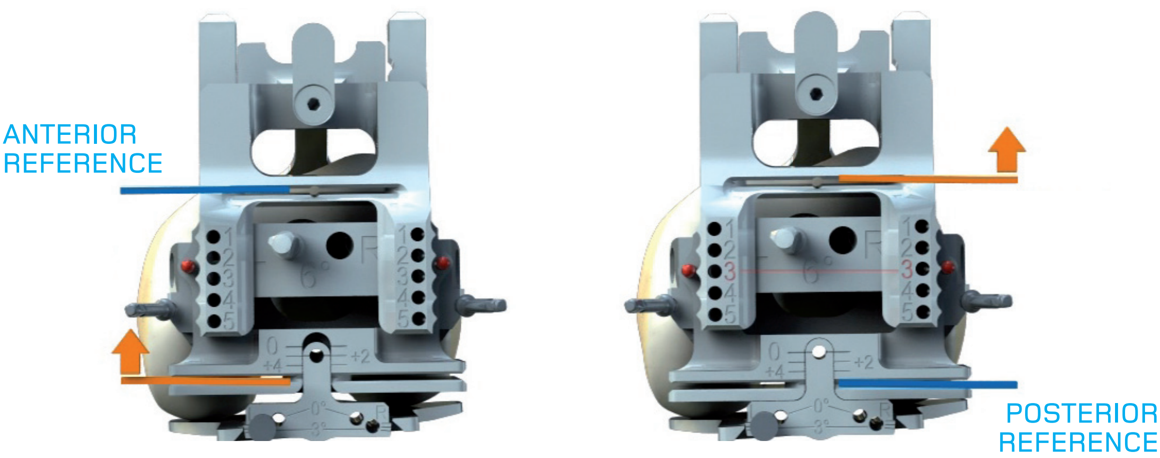


Fig. 13 - Automatic referencing femoral guide

The system automatically switches between anterior and posterior reference adjusting modes, following the femoral size choice of the surgeon (Fig.13). Therefore, for in-between sizes, if the

surgeon chooses the smaller size, the guide behaves as an anterior referencing system (the posterior reference, in such cases, would generate a risk of notching on the anterior cortex), while the guide behaves as a posterior referencing system if the surgeon chooses the larger size (an anterior reference system, reducing the flexion gap, would cause tightness in flexion).
In current systems, either the choice is forced (always larger OR always smaller size every time), or the surgeon must switch instruments in order to change the reference from posterior to anterior or vice-versa.

- **Safe:**
  - *Recutting is allowed with minimal time loss and without affecting cut precision -* Thanks to the particular sequence of the cuts, tissue balance becomes a central step in the technique, and recutting, when needed, it is a simple and fast procedure.
  - *100% notching avoided -* Thanks to the floating anterior cut guide, notching is made impossible. Regardless of how precisely the cutting guide is placed, the cut will always be over the surface of the anterior cortical bone (Fig.14).

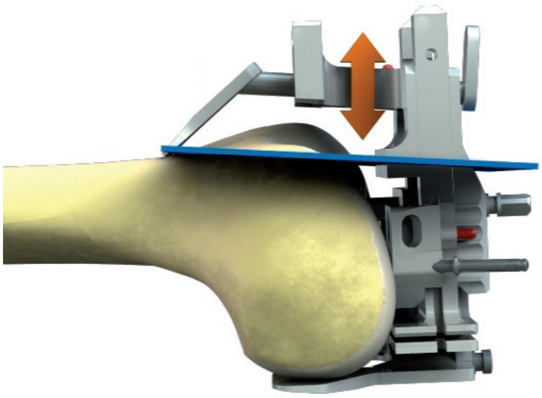


Fig. 14 - 0-notching system

These are only general concepts about **the highly innovative Trekking System Instrument Set.** *Please, read the following chapters to learn more about all the smart solutions introduced by this system.*

The Surgical Technique of the TREKKING® Primary Knee Integrated System

The surgical technique of the TREKKING® Primary Knee System can be described in 3 phases:

1. **Main cuts**
2. **Balance check**
3. **Finishing**

Before chamfering, the surgeon must check the correct articular alignment and the proper tensioning of the ligaments in flexion and extension. When balancing is correct, the femur can be chamfered. The surgeon can then perform the trial reductions to check the actual matching of the femoral and tibial components.
Any correction performed at this stage does not compromise bone-implant fit.

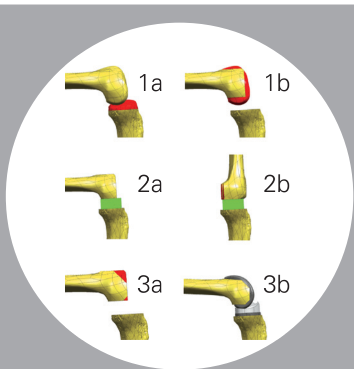
This surgical sequence has been designed to obtain maximum precision and easy solution of any unsatisfactory situations.
While it is possible to start either from the tibia or from the femur, the tibial resection gives the surgeon a good benchmark to perform the femoral cuts, and more room to operate in the femoral part. Leaving the chamfers as the last cuts allows a much more accurate measurement of the articular gap and recutting is easier, if any is needed. The functional augmentation system of the spacer helps the surgeon select the correct thickness of the insert.

At any stage, the surgeon can check articular aligment accuracy with a metal rod inserted in the eyelets available in most instrumentation components.

1. Main cuts

2. Balance check

3. Finishing



Conceptual phases of the TREKKING® Mobile Hollow surgical technique

ADVICE: *The instrument set requires 1.27 mm (1/20”) thick, 13 mm (1/2”) wide and 90 mm (6.5”) long blades. Different blade parameters may hinder cutting operations. In particular, thicker blades are not compliant with the height of the guides, and must be avoided.*

LEGEND:

[.] - reference to a device of the instrument set, see the section at the end of the document

( ) - reference to a detail of the image

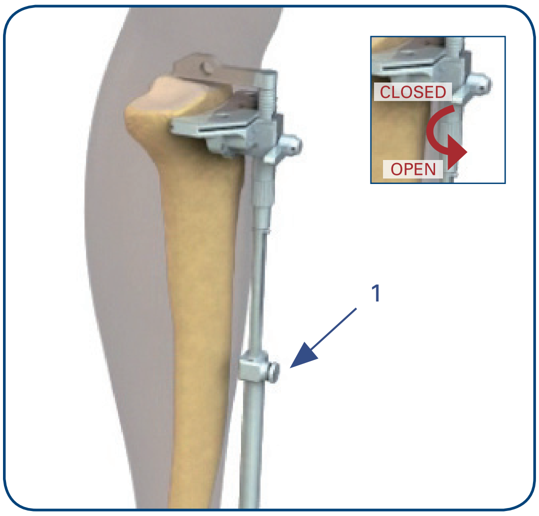
■ - specific Surgical Technique

■ - specific Surgical Technique

■ - general Surgical Technique

Use of the pins		
43. Self-drilling Pin. GS.C0800		Fixation with parallel pins
44. Headed Medium Pin GS.C0600		Sizing
45. Headed Short Pin GS.C0700		Parameters set-up, trial tibial plate fixation
46. Self-drilling Pin w. abutment GS.C0810		Fixation with slanting pins

1. MOBILE BEARING



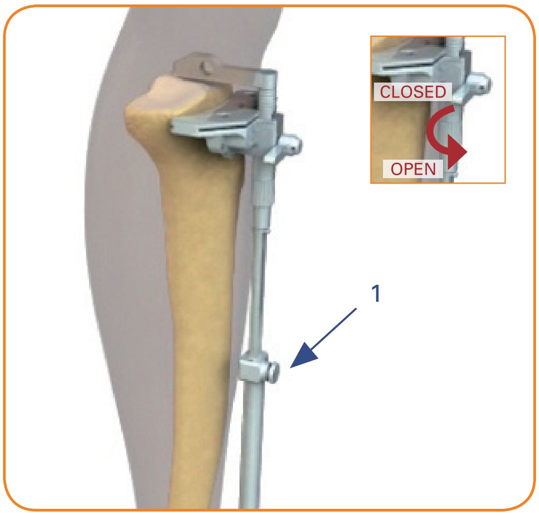
The proposed surgical technique is based on a "tibia first" approach. For a 'femur first' technique, steps 1 to 7 should be read after step 15.

The Tibial System is to be mounted by inserting the Extramedullary Tibial Guide [13.] into the Extramedullary Tibial Guiding Tube [14.] and then lifting the Ankle Clamp [15.] into the guide in the lower part of the Guiding Tube. Place the MBH Tibial Cut Block [11. MBH] in its lodging at the top of the Extramedullary Tibial Guide, lock the Cut Block by pushing the lever and then turn it 90°.

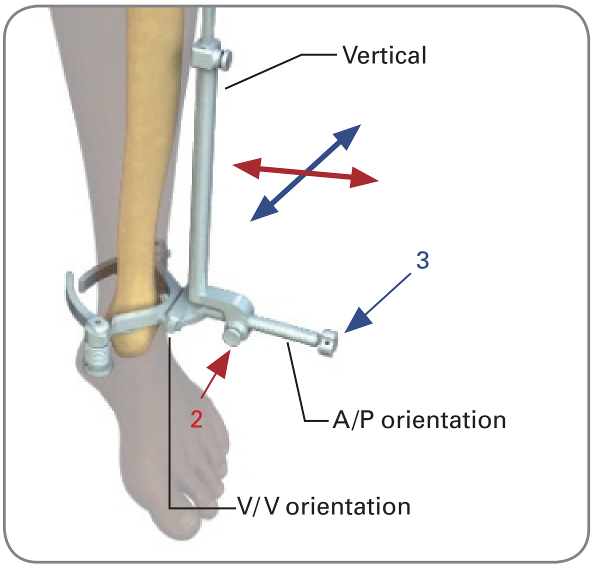
1. FIXED BEARING

The proposed surgical technique is based on a "tibia first" approach. For a 'femur first' technique, steps 1 to 7 should be read after step 15.

The Tibial System is to be mounted by inserting the Extramedullary Tibial Guide [13.] into the Extramedullary Tibial Guiding Tube [14.] and then lifting the Ankle Clamp [15.] into the guide in the lower part of the Guiding Tube. Place the FB Tibial Cut Block [11. FB] in its lodging at the top of the Extramedullary Tibial Guide, lock the Cut Block by pushing the lever and then turn it 90°.



2.



Comfortable push-buttons (1,2) and a knob (3) allow the orientation of the cut in the proximal-distal, medio-lateral and Antero-Posterior (A/P) planes.

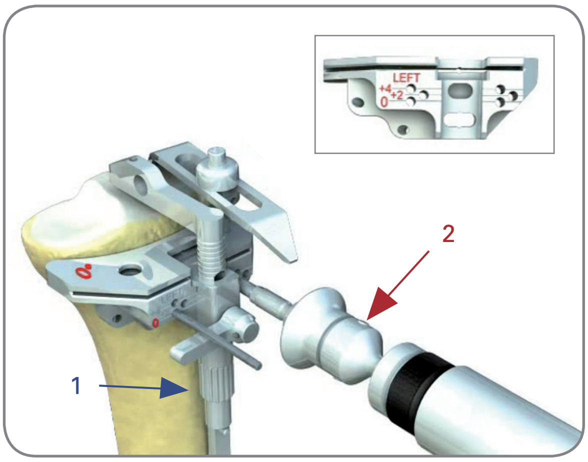
For better stability, a short headed pin may be inserted into the hole placed in the upper part of the fixation arm (2 in step 3).

Regardless of whether you are using a mobile or fixed bearing implant, guide alignment with the tibia must be parallel. The different slope of the cut (0° for the mobile bearing implant and 4° for the fixed bearing implant) is given by the different cutting block.

NOTE: *Each sign marked on the A/P orientation guide counts as a 0.5° of slope of the tibial cutting block; the same applies to V/V inclination, i.e. by moving the vertical bar one space in A/P or V/V direction, the A/P or V/V inclination of the tibial cutting block changes by ±0.5°.*

3.

The proper height of the tibial cut is set by means of the two-tips Tibial Stylus [12.], which has to be placed on the inferior point of the healthiest part of the tibial plate. One tip is marked as "Slot" and must be used if the surgeon intends to cut using the slot of the cutting block as a guide; the other one is marked as "Top", and must be used if the cut is performed leaning the blade onto the flat top of the guide.
In both cases, the cut performed is 9 mm, i.e. the total thickness of the minimum tibial implant (insert + metal back). A threaded knob (1) may be used to lower or raise the cut.
When the Tibial Cutting Block is in the correct position, pins must be placed in the "zero" holes. The "+2" and "+4" holes are for recutting only.
The universal Drill Adapter (2) [32.] may be used.
The setup of the tibial structure can be checked by means of the Resection Tester [26.].



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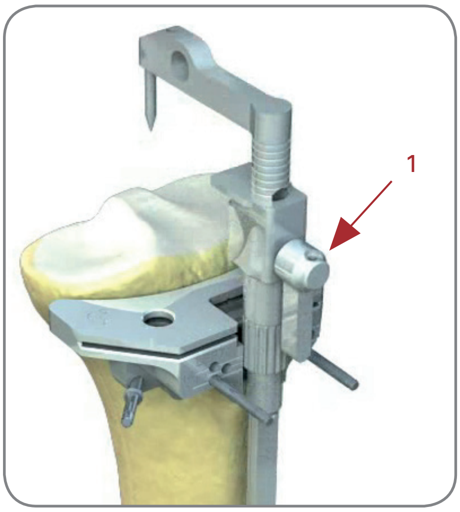


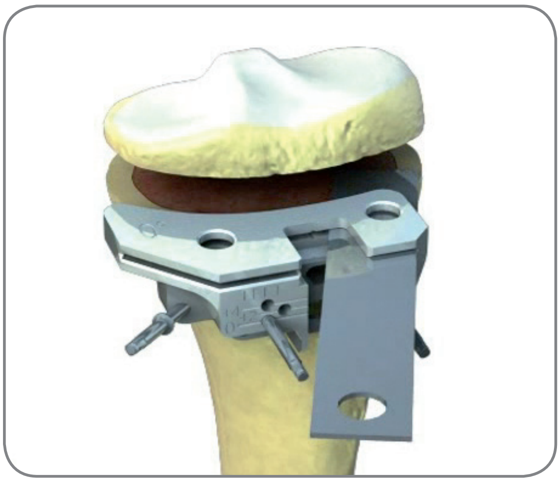
The Tibial Cutting Block can be completely freed just by turning the locking lever (1) placed in front of the block and by using the "fork tip" of the Extractor [39.].
For good block stability, it is advisable to spike the cutting block with three pins as shown in steps 5 and 6.

ADVICE: *Leave the pins in place after removing the block, as a reference for possible recutting.*

5.

Before cutting, the alignment with the tibial axis can be checked by inserting the checking rod [22.;23.] into the hole of the modular handle [31.], previously fixed on the Tibial Cutting Block [11.].

6.

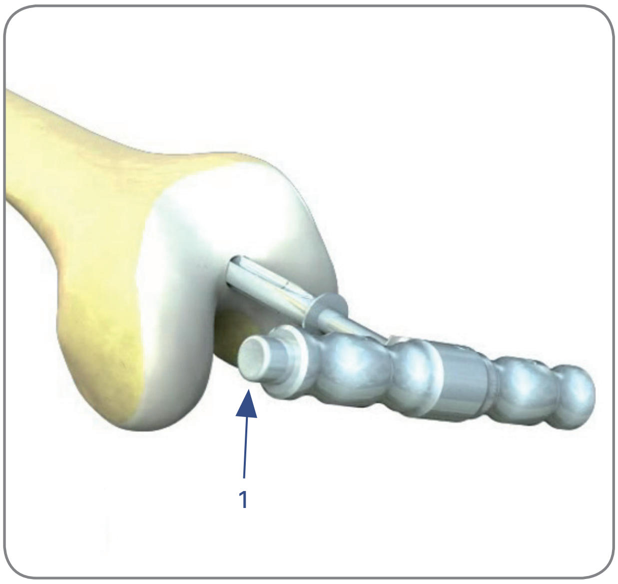


As previously stated, the cut can be made either using the slot guide or the top plane as reference, depending on the choice made in step 3.

Remove the cutting guide leaving the parallel pins in place.

7.

After distal femur drilling has been performed, the Femoral Intramedullary Rod [2.], provided with a modular handle [21.] is placed through the hole. Make sure the Rod is fully inserted. The handle can be placed and removed with a push-button (1).



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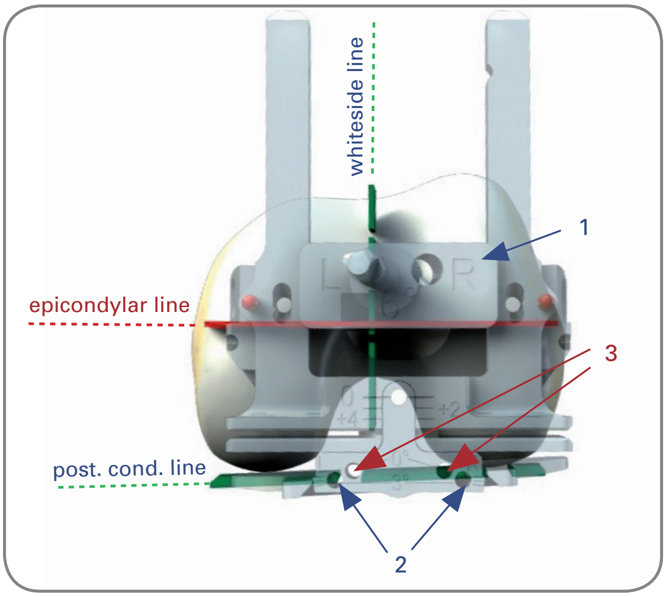


Before placing the Orientation Jig [4.b.], choose the proper varus-valgus and interanal-external rotation angle.

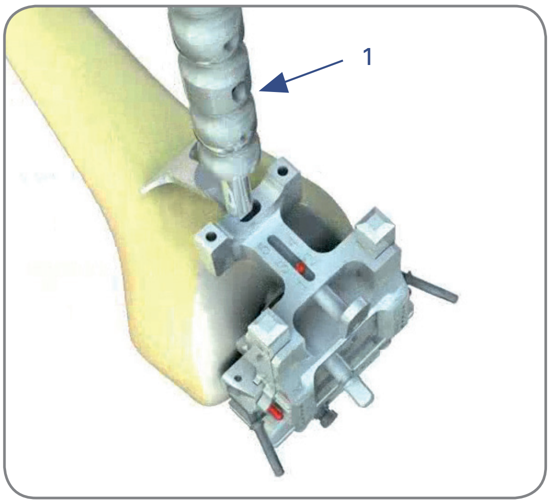
The varus-valgus angle is set using the Varus-valgus Block (1) [5.], while the rotation is set either by introducing a short headed pin [45.] in the 0° (2) or 3° (3) hole or by aiming at the Whiteside line through the vertical bars or by aligning the guide with the intra-epycondilar axis.

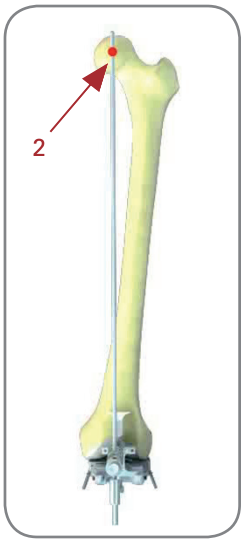
In all cases, let the Varus-valgus Block slide through the guides, until both posterior prongs touch the condyles.

9.

By means of the checking rod inserted into the hole of the modular handle [31.], (1), it is possible to check the conformity between varus-valgus block and individual patient's anatomy.

If the varus-valgus angle is placed correctly, the checking rod will ideally cross the femoral rotation centre (2).





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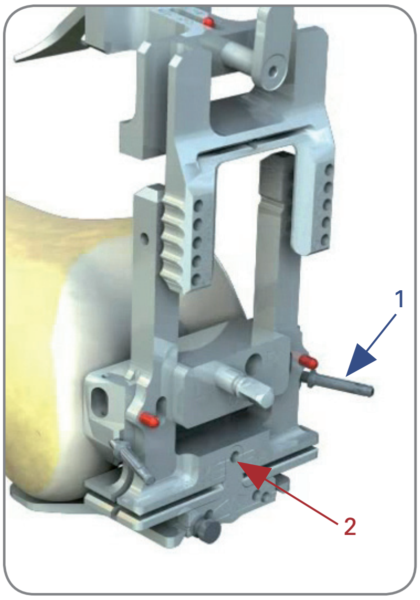
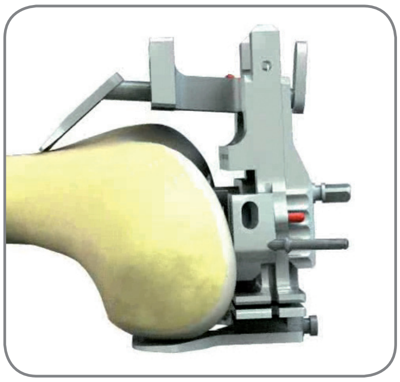


Fix the orientation jig by means of [46.] pins (1). Once the jig has been properly placed and fixed, let the Size Jig [4.a.] slide into the Orientation Jig, until the stylus touches the anterior part of the femur.

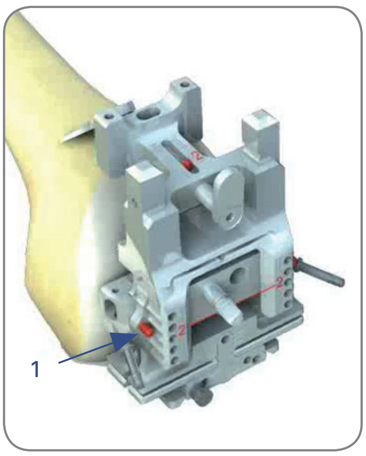
Observing the image below, note that both the anterior stylus and the posterior prongs are touching the bone. Set the stylus at default temporary size '3' on the scale on the upper surface of the guide (step 11, left).

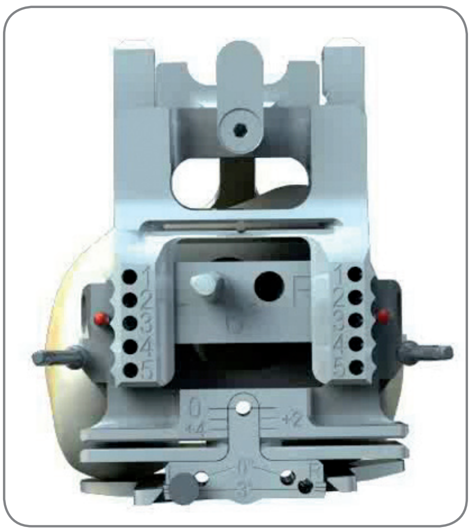
ADVICE: *Until step 12, make sure that the graduated scale (2) is set at zero by placing a pin on the hole (2), which is removed before inserting the pin into the size hole, as indicated in step 12.*



11.

Read the size at the level of the red pins (1), flush with the centre of the holes. Often the measurement does not match with a precise size. In these cases, it is advisable to prefer the larger size only when the pointer is very close (⅔ or more) to the upper size. Set the chosen size on the stylus size scale (below).





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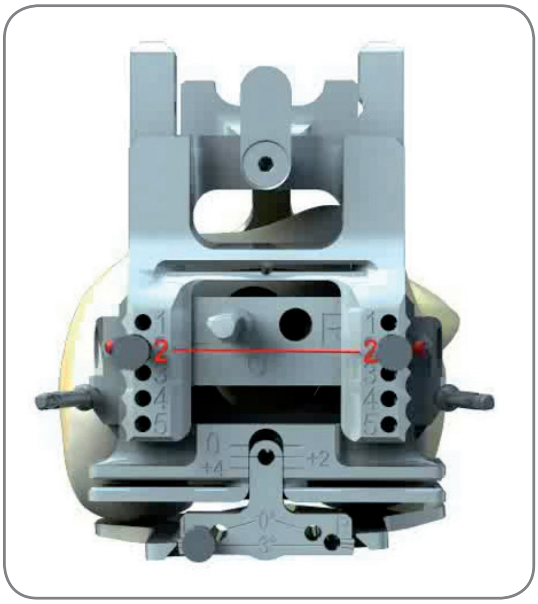


IMPORTANT NOTE: If the smaller size has been chosen, remove the optional pin in central hole now.

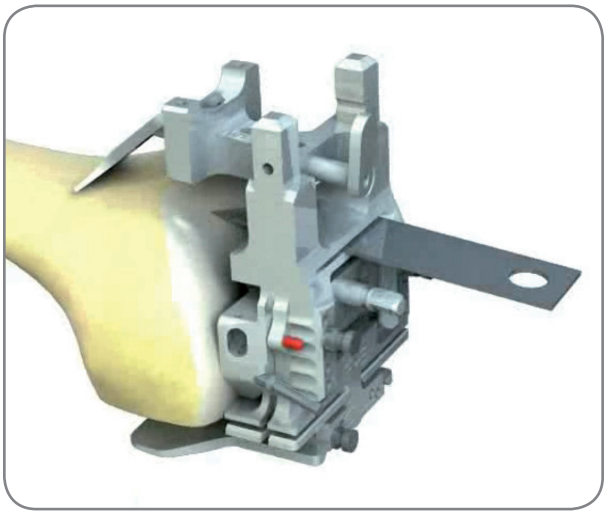
Introduce two headed pins into the hole corresponding to the chosen size. The device will automatically slide, setting the cutting slots to the chosen size.

ADVICE: *In order for the device to reach the best position, the pins must NOT be hammered, but pushed by hand instead, vibrating it a bit in the vertical direction to facilitate the sliding of the mechanisms. As the system has slid into the correct position, and the pins have reached the femoral bone, use a hammer to fix the pins to the bone.*

If the smaller size is chosen, the graduated scale (1) will indicate +2 or +4; these numbers can be used in the distal cut (step 15).

13.

Make the anterior and posterior cuts through the corresponding slots. The stylus always indicates the proximal border of the anterior cut.



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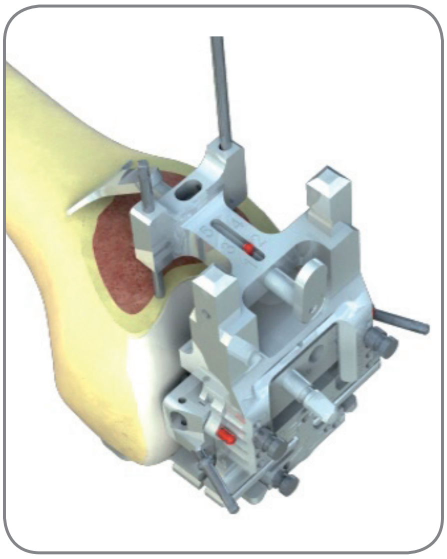


Insert two headless pins into the anterior holes, then remove all devices, leaving the 2 anterior pins in place. To remove the devices, remove all the Headed Pins, then lift and remove the Size Jig [4a.], then extract the Orientation Jig [4b.] and the Intramedullary Rod.

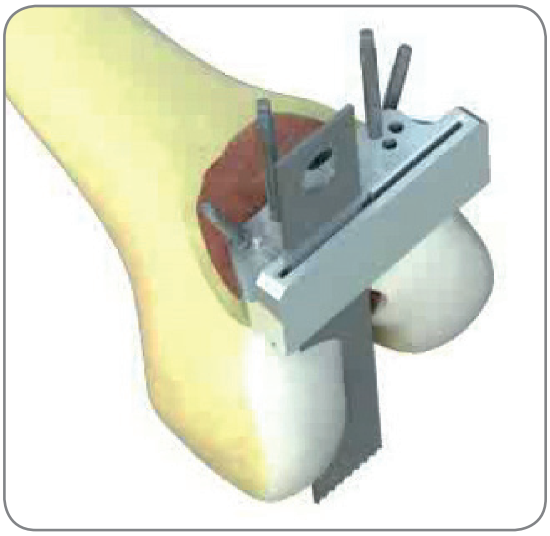
ADVICE: *Do not pull the pins further after motor drilling (see picture here aside, and picture at step 15).*

15.

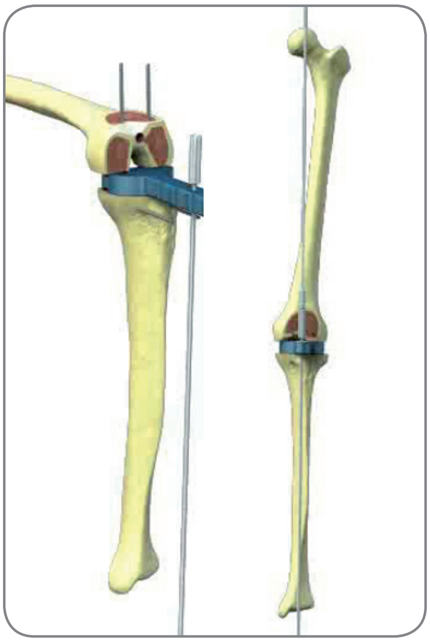
The Distal Femoral Cutting Block [7.] presents 3 couples of holes, marked as 0, +2, +4. In order to balance ligament tension in flection and extension, it is possible to use the cut depth following the number indicated in the lower graduated scale (1) in step 12.

ADVICE: *The procedure described above is optional.In any case, the final evaluation of the cut depth must be made by the surgeon, following the actual anatomy of the patient.*

Cut the distal condyles by using the slot and by shielding the tibia with the Hohmann retractor [48.], then remove the Distal Cut Block, leaving the parallel pins in place.



16.



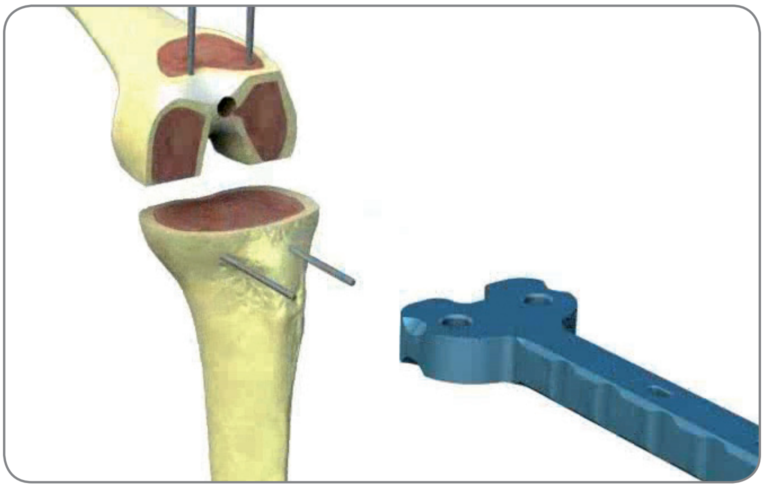
At this stage, it is very convenient to perform the balance checks by means of the appropriate spacer [24.], in order to check the femoral and tibial component matching.
It is important to do it before chamfering, to obtain a more precise measurement and a much easier recutting, if required.

A very easy recutting is enabled by the presence of the pins in the original position (steps 6; 15).

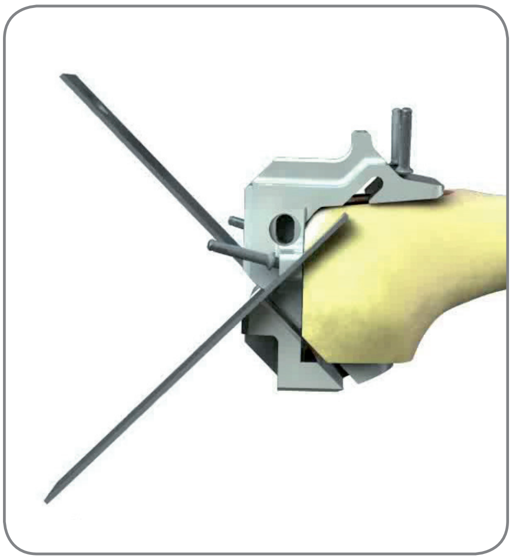
Screwing the Male Control Rod [23.] onto the Female Control Rod [22.], check the anatomical axis alignment.

17.

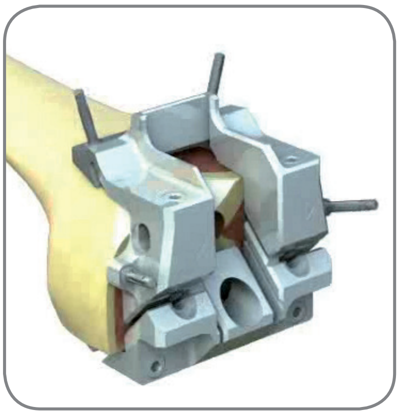
Spacer Augmentations [31.] are marked with thickness size (thickness reference number) of the corresponding insert.
Read the thickness reference number on the used augmentation (+2, +4, +7), so as to be aware of the insert dimension. If the tension of the collateral ligaments is satisfactory without using any augmentation, then use the +0 insert.



18.



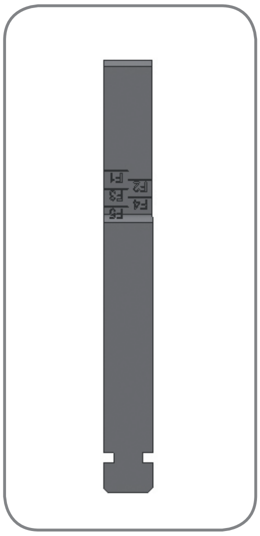
Except for the pin slots, the Femoral Chamfering Jig [17.] has the same lateral dimension as the Femoral Component. This helps properly place the jig, and have a preview of the implant final setup.

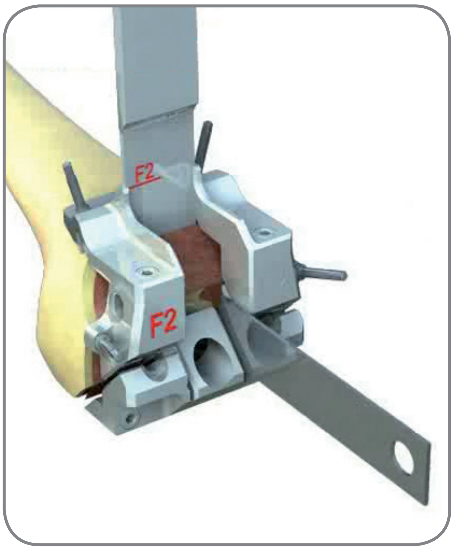


Make the oblique anterior and posterior cuts using the appropriate guides.

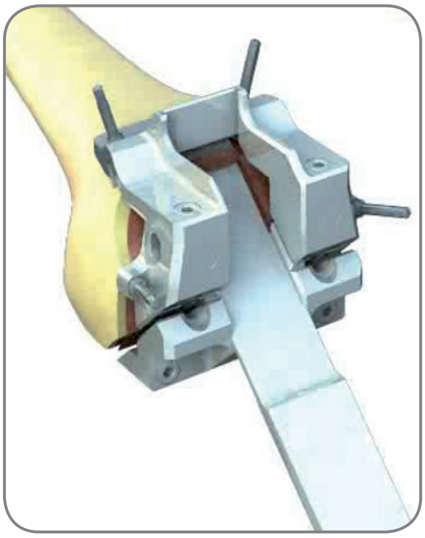
19. POSTERIOR STABILIZED

In PS implants, after step 18, make the proximal box cut (1) using the osteotome [36.]; then complete the box by leaning the sawblade onto the two lateral and medial planes (2), using the osteotome as a shield. Then remove the osteotome and then remove the jig. Then perform the cut shown in step 20. Do not drill the holes for the pins, which are not included in the PS implant.





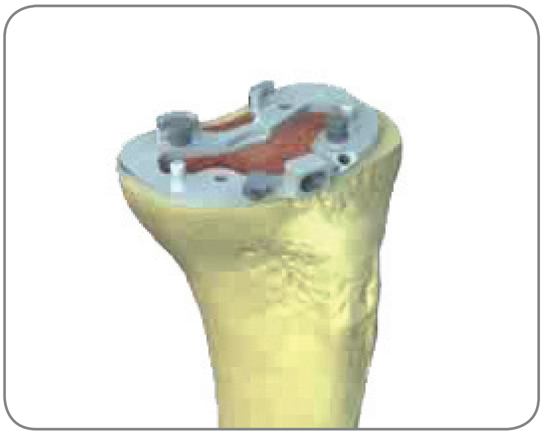
20.



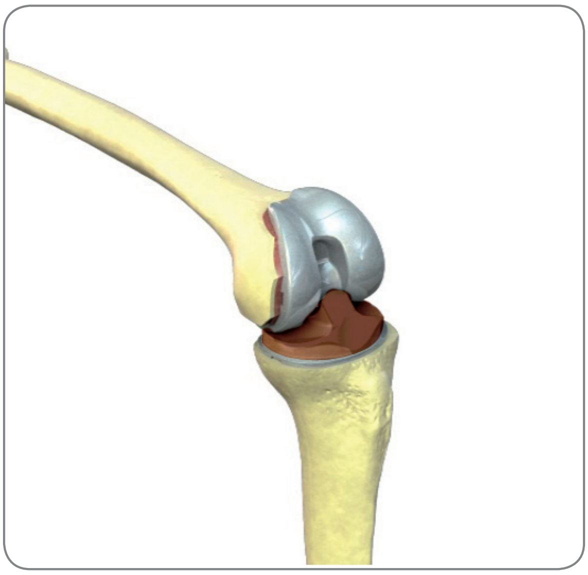
For both CR and PS implant, make the central oblique cut leaning the blade on the oblique plane, or using the osteotome [36.] through the appropriate guide, as showed in the step below. In CR implants, drill the holes for the pin (drill [6.]) and remove the Jig.

21.

Put a Trial Tibial Tray [28.] in place after engaging the modular handle [31.]. Change the tray size until you find the right one for the tibial component. Spike it with at least four headed pins.



22.

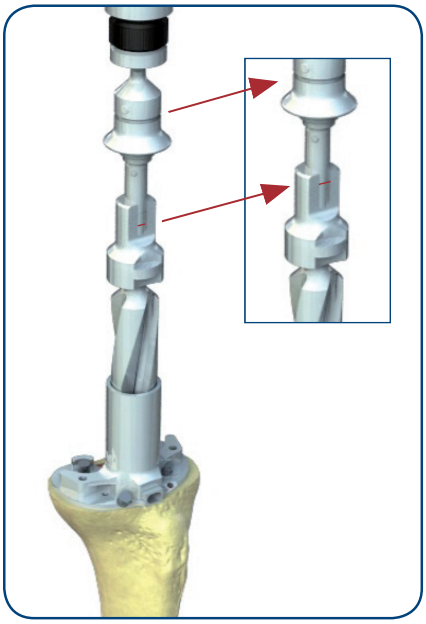


Put the Trial-Insert Adapter [8.] into its slot on the Trial Tibial Tray. Follow the indications on thickness (step 17) and choose the appropriate trial insert [51.; 52.; 53.; 54.] taking into account that, with the Mobile Hollow design, the insert must match the size of the femoral component exactly, while the tibial component can be ±1 size.

Place the chosen trial insert on top of the trial tibial plate. However, in case of FB, the insert must match the size of the tibial component exactly, while the femoral component can be ±1 size.

Place the Trial Femoral Component [40.; 49.] and perform flexion and extension trial reduction to check the fit of the whole implant.

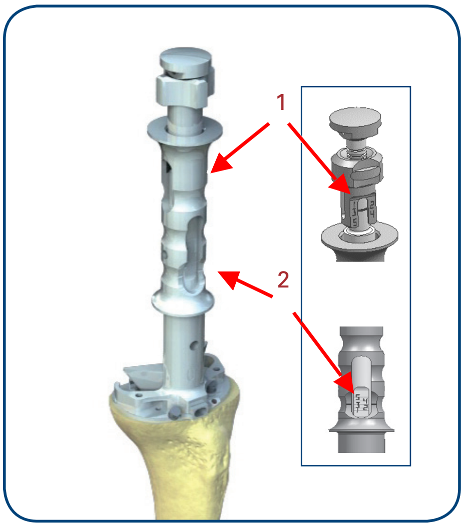
23. MOBILE BEARING



Remove all the trial components, except for the Trial Tibial Tray. In order to extract the Trial Femoral Component, insert the flat tip of the Extractor [39.] into the tracks placed on either side of the trochlear groove of the trial component.

Place the MBH Tibial Drill Guide [19.] into its slot on the Trial Tibial Tray. Set the drill height in the MBH Tibial Drill [29.] at the size chosen in step 23. Use the Drill Guide to drill the hole.

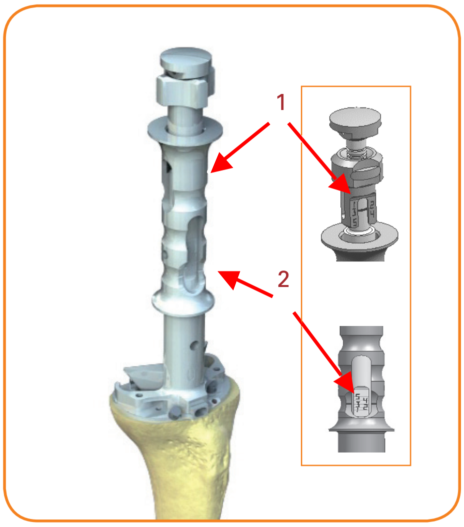
24. MOBILE BEARING



Remove all the trial components, except for the Trial Tibial Tray. Place the Arrow Broach (0°) [20.] into its slot on the Trial Tibial Tray. Set the Tibial Plate size on the upper graduate scale (1); Hammer in and then check full penetration of the broach using the lower graduate scale (2).

24. FIXED BEARING

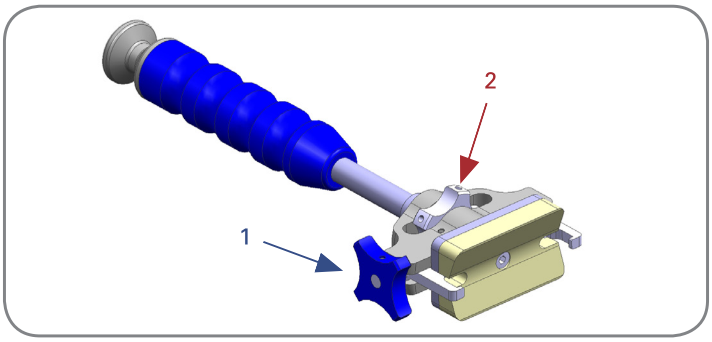
Remove all the trial components, except for the Trial Tibial Tray. Place the Arrow Broach (4°) [20.] into its slot on the Trial Tibial Tray. Set the Tibial Plate size on the upper graduate scale (1); Hammer in and then check full penetration of the broach using the lower graduate scale (2).



25.

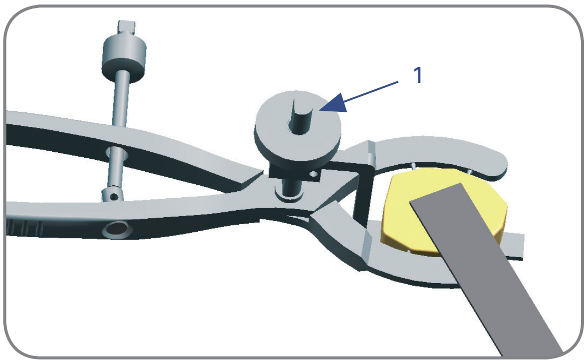
Remove the Tapered Adapter, fix the final Femoral Component on the Positioner [41.] and hammer in the component, then reduce the joint.

ADVICE: *After engaging the component by turning the lateral screw (1), push the plastic piston against the component by turning the central knob (2).*

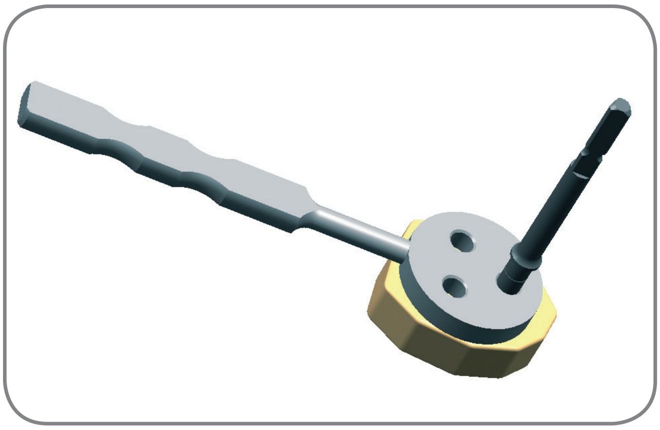


26.

When the Patellar Component is to be implanted, the first step is measuring the thickness of the patella. Subtract 9 mm (the thickness of the patellar component) from the measured value, then set the resulting value on the graduated scale carved on the hinge pole (1) of patellar resection pliers [35.].
Grasp the patella using the Patellar Pliers and lean it on the stylus. Pay attention to patellar resection slope.
Cut the posterior part of the patella.



27.

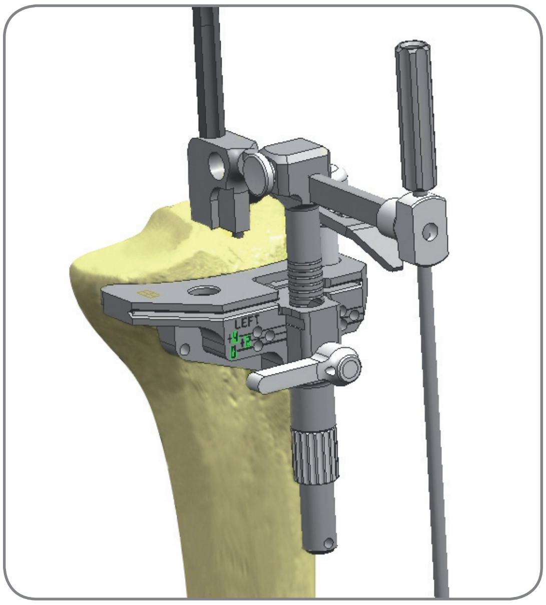


Among available patellar components, choose the one that best fits the resection.
Holding the component by the side, make three holes with the Patellar Pin Drill.
Trial patellar components are available in the instrument set.
During the cementing process, the Patellar Cementing Pliers [37.] can be used to keep the patellar component pressed onto the bone.

Intramedullary alignment

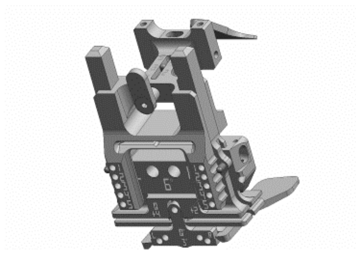
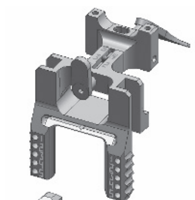
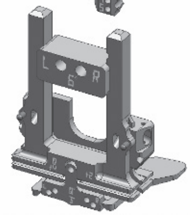
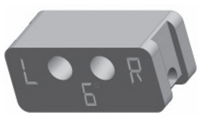
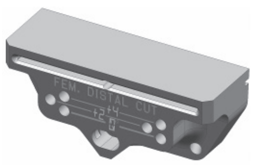
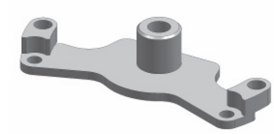
The figure to the right shows the intramedullary system with the Checking Rod [22.] mounted.
Open the path for the intramedullary tibial rod using the tibial twisted drill [9.].
Insert the intramedullary tibial rod [10.] and mount the intramedullary tibial guide (1) [27.].
Both in the extra and intramedullary technique, it is advisable to insert the slanting pin after removing the tibial guide, in order to find the right distance from the block to the tibia.

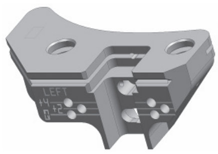
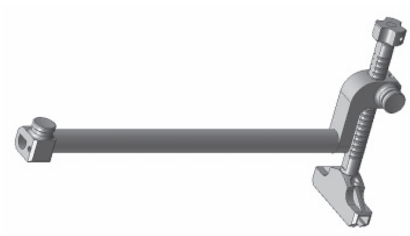
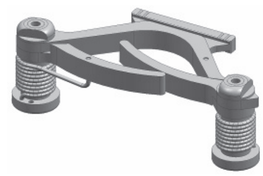
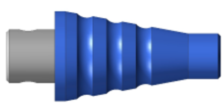
ADVICE: *Don't use the intramedullary guide with heavily curved tibias.*

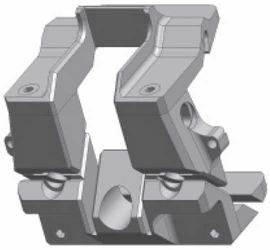
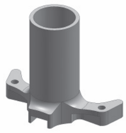
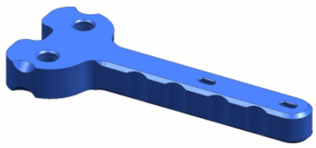
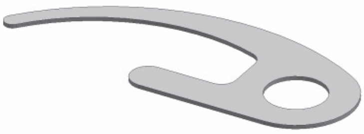
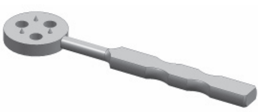


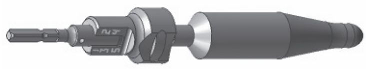
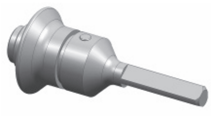
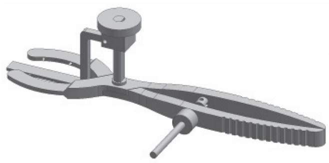
Trekking® Instrument Set

Images are not full scale; not all the parts are represented.

1. Femoral Twisted Drill GS.F0100		
2. Femoral Intramedullary Rod		L100 mm GS.F0200
		L240 mm GS.F02002
3. Femoral Alignement System GS.F0300		
4. Size Jig (4.a), Orientation Jig (4.b)	 4.a  4.b	
5. Varus-valgus Block		Angle 4° GS.F0304
		Angle 6° GS.F0306
		Angle 8° GS.F0308
6. Twisted Drill for femoral pins GS.F1400		
7. Distal Femoral Cutting Block GS.S2000		
8. MBHTrial-Insert Adapter GS.T1500		

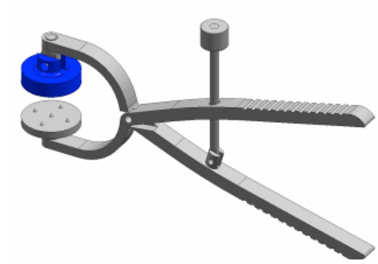
9. Tibial Twisted Drill GS.T0100			
10. Tibial Intramedullary Rod GS.T0200			
11. Tibial Cutting Block		MBH (0°)	RIGHT GS.T9000
			LEFT GS.T8000
		FB (4°)	RIGHT GS.T8100
			LEFT GS.T9200
12. Tibial Stylus GS.T0400			
13. Extramedullary Tibial Guide GS.T0700			
14. Extramedullary Tibial Guiding Tube GS.T0300			
15. Ankle Clamp GS.T0600			
16. Tapered Adapter GS.T0600			

17. Femoral Chamfering Jig		Size 1 GS.F1200 Size 2 GS.F1100 Size 3 GS.F1000 Size 4 GS.F0900 Size 5 GS.F0800
18. Femoral Impactor GS.F1500		
19. MBH Tibial Drill Guide GS.T2600		
20. Arrow Broach		MBH (0°) GS.F7300 FB (4°) GS.T7400
21. Endomedullary Rod Handle GS.C0100		
22. Female Checking Rod GS.C0400		
23. Male Checking Rod GS.C0404		
24. Spacer GS.T9700		
25. Resection Tester GS.C0300		
26. Patellar Jig		GS.P1100 GS.P1200 GS.P1300

27. Intramedullary Tibial Guide GS.T0500				
28. Trial Tibial Tray		MBH	Size 1	GS.T1000
		MBH	Size 2	GS.T1100
		MBH	Size 3	GS.T1200
		MBH	Size 4	GS.T1300
		MBH	Size 5	GS.T1400
		FB	Size 1	GS.T1001
		FB	Size 2	GS.T1101
		FB	Size 3	GS.T1201
		FB	Size 4	GS.T1301
		FB	Size 5	GS.T1401
29. MBH Tibial Drill GS.T2700				
30. Tibial Impactor GS.T3100				
31. Fast Handle GS.C0200				
32. Drill Adapter GS.T3000				
33. Spacer Augmentations		+2	GS.T9300	
		+4	GS.T9400	
		+7	GS.T9500	
		+10 (FB)	GS.T9640	
		+13 (FB)	GS.T9680	
34. Patellar Pin Drill GS.P0300				
35. Patellar Resection Pliers GS.F1700				

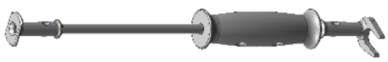
36.
Osteotome
GS.F2100

37.
Patellar
Cementation Pliers
GS.1600

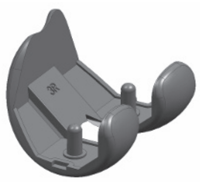


38.
Pin Impactor
GS.C0500

39.
Extractor
GS.C1000

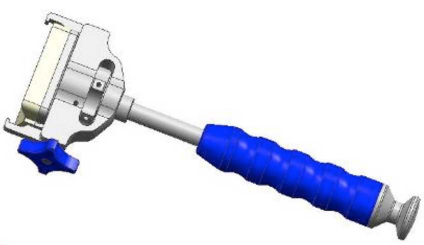


40.
CR Trial Femoral
Comp. R/L



DX	Size 1	GS.F3000
	Size 2	GS.F3010
	Size 3	GS.F3020
	Size 4	GS.F3030
	Size 5	GS.F3040
SX	Size 1	GS.F3050
	Size 2	GS.F3060
	Size 3	GS.F3070
	Size 4	GS.F3080
	Size 5	GS.F3090

41.
Femoral
Component
Positioner
GS.0300



42.
Self-drilling pin
Driver
GS.C0900

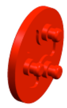
43.
Self-drilling Pin.
GS.C0800

44.
Headed Medium
Pin
GS.C0600

45.
Headed Short Pin
GS.C0700

46.
Self-drilling Pin
w. abutment
GS.C0810

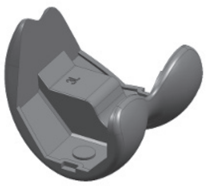
47.
Trial Patellar
Component



Size 1	GS.P0800
Size 2	GS.P0900
Size 3	GS.P1000

48.
Hohmann's Lever
GS.C1620

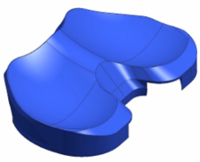
49.
PS Trial Femoral
Comp. R/L



DX	Size 1	GS.F3100
	Size 2	GS.F3110
	Size 3	GS.F3120
	Size 4	GS.F3130
	Size 5	GS.F3140
SX	Size 1	GS.F3150
	Size 2	GS.F3160
	Size 3	GS.F3170
	Size 4	GS.F3180
	Size 5	GS.F3190

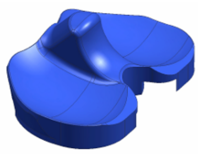
50.
Extraction Forceps
GS.1506

51.
CR Trial Insert MBH



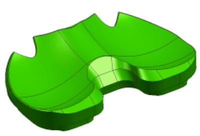
Taglia 1	0	GS.T3200
	+2	GS.T3300
	+4	GS.T3400
	+7	GS.T3500
Taglia 2	0	GS.T3600
	+2	GS.T3700
	+4	GS.T3800
	+7	GS.T3900
Taglia 3	0	GS.T4000
	+2	GS.T4100
	+4	GS.T4200
	+7	GS.T4300
Taglia 4	0	GS.T4400
	+2	GS.T4500
	+4	GS.T4600
	+7	GS.T4700
Taglia 5	0	GS.T4800
	+2	GS.T4900
	+4	GS.T5000
	+7	GS.T5100

53.
PS Trial Insert MBH



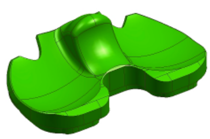
Taglia 1	0	GS.T5200
	+2	GS.T5300
	+4	GS.T5400
	+7	GS.T5500
Taglia 2	0	GS.T5600
	+2	GS.T5700
	+4	GS.T5800
	+7	GS.T5900
Taglia 3	0	GS.T6000
	+2	GS.T6100
	+4	GS.T6200
	+7	GS.T6300
Taglia 4	0	GS.T6400
	+2	GS.T6500
	+4	GS.T6600
	+7	GS.T6700
Taglia 5	0	GS.T6800
	+2	GS.T6900
	+4	GS.T7000
	+7	GS.T7100

52.
CR Trial Insert FB



Taglia 1	0	GS.T10000
	+2	GS.T10010
	+4	GS.T10020
	+7	GS.T10030
	+10	GS.T10040
	+13	GS.T10050
Taglia 2	0	GS.T10060
	+2	GS.T10070
	+4	GS.T10080
	+7	GS.T10090
	+10	GS.T10100
	+13	GS.T10110
Taglia 3	0	GS.T10120
	+2	GS.T10130
	+4	GS.T10140
	+7	GS.T10150
	+10	GS.T10160
	+13	GS.T10170
Taglia 4	0	GS.T10180
	+2	GS.T10190
	+4	GS.T10200
	+7	GS.T10210
	+10	GS.T10220
	+13	GS.T10230
Taglia 5	0	GS.T10240
	+2	GS.T10250
	+4	GS.T10260
	+7	GS.T10270
	+10	GS.T10280
	+13	GS.T10290

54.
PS Trial Insert FB



Taglia 1	0	GS.T10300
	+2	GS.T10310
	+4	GS.T10320
	+7	GS.T10330
	+10	GS.T10340
	+13	GS.T10350
Taglia 2	0	GS.T10360
	+2	GS.T10370
	+4	GS.T10380
	+7	GS.T10390
	+10	GS.T10400
	+13	GS.T10410
Taglia 3	0	GS.T10420
	+2	GS.T10430
	+4	GS.T10440
	+7	GS.T10450
	+10	GS.T10460
	+13	GS.T10470
Taglia 4	0	GS.T10480
	+2	GS.T10490
	+4	GS.T10500
	+7	GS.T10510
	+10	GS.T10520
	+13	GS.T10530
Taglia 5	0	GS.T10540
	+2	GS.T10550
	+4	GS.T10560
	+7	GS.T10570
	+10	GS.T10580
	+13	GS.T10590

Proper surgical procedures and techniques are the responsibility of the medical professional. The guidelines are furnished for informational purposes only.