FOOT

ANKLE SURGERY

SURGICAL TECHNIQUE

EASY MOVE

Total Ankle Replacement

GROUPE FH ORTHO™

EASY MOVE

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CONCEPT INTRODUCTION

The new Easy Move Total Ankle Replacement with fixed bearing from FH ORTHO is designed to restore the ankle joint while ensuring full respect of ankle anatomy. It conserves bone, minimizes resections thickness and achieves more natural biomechanics of the replaced ankle joint.

The tibial component is anatomically designed. The anterior part is wider than the posterior part. A natural arc-shape to maintain the native anatomy, minimises bone loss in the posterior part of the tibia (Volkmann Triangle) and reproduces the natural biomechanics during movement, ensuring physiological load transfer. The less invasive tibial design anchorage does not destroy the distal tibial cortex with aggressive anchors, such as pegs. The anterior tibial shield increases component stability and guarantees a bi-cortical support.

The talar component is designed with a bicondylar articulating surface. The design is a conical shape, which means the lateral radius of the talar component is wider than internal radius in order to replicate the native talar shape and allows a natural biomechanical movement.

The design guarantees a uniform load transfer from the implant to the prepared talar bone cuts. Both the lateral and medial shoulders of the implant are designed to give the component more stability and make the system more hermetic to possible joint fluid infiltration. This design will minimize complications, such as cyst formation or subsidence around the implant.

Another unique difference of the new Total Ankle Replacement from FH ORTHO is the introduction of a new Tibial/ Talar alignment guide concept, called the "spoon".
Currently, to adjust the various anatomical landmarks in both the tibia and the talus, only external tibial alignment guides are used, which are difficult to position and require many external adjustments.

The "spoon" used with the Easy Move Total Ankle Replacement from FH ORTHO provides a useful improvement which can overcome the drawbacks encountered with conventional surgical devices.

This innovative, patented surgical device simplifies and minimizes the number of adjustment steps, such as translation, rotation, Varus/Valgus, tibial slope and height adjustment, which are both necessary and complex with an external tibial alignment guide, and ensuring correct positioning of both tibia and talus prosthesis components.

Thank you for considering the new Easy Move Total Ankle Replacement. We believe this new design concept and the innovative instrumentation will be the start of a new generation of Total Ankle Replacements and are going to help to improve Total Ankle Arthroplasty.

The FH ORTHO Team

INDICATIONS AND CONTRAINDICATIONS

Indications

The total ankle prosthesis is indicated as a total ankle replacement for primary surgery in patients with ankle joints damaged by severe rheumatoid, post-traumatic or degenerative arthritis.
The components are intended for uncemented use.

Contraindications

- Infection;
- Infection sequelae;
- Systemic infection, fever and/or local inflammation;
- Complete talar necrosis;
- Insufficient bone stock or poor skin coverage around the ankle joint that would render the procedure unjustifiable;
- Persistent cutaneous lesion;
- Significant ligamentous laxity;
- Severe osteoporosis;
- Ankle arthrodesis with malleolar exeresis;
- Neuromuscular or mental disorders which might jeopardise fixation and post-operative care;
- Neurobiological disorders;
- Nonfunctional lower limb muscles;
- Complete loss of collateral ligament of the ankle;
- Charcot arthropathy;
- Distant foci of infection from genitourinary, pulmonary, skin and other sites, dental focus infection which may cause hematogenous spread to the implant site;
- Bone immaturity;
- Known allergy to one of the materials;
- Vascular insufficiency at the ankle joint;
- Inability of the patient to follow the surgeon's recommendations and the physical therapy program;
- Patient pregnancy.

Please NOTE

Main Instrumentation
The main instrumentation consists of 5 sizes standard to the Easy Move Total Ankle Replacement System.
There is also the opportunity to have 2 extra large sizes (6 and 7) of each component (Tibia, Talus and PE-inlay) but available upon request. The list of necessary instruments is found on the instrumentation chapter of this surgical technique.

Special Instrumentation
In the case of severe deformity, there are two dedicated instruments included:
- One for the extension of the Anterior Tibial Axis Alignment Rod;
- One for the posterior cut rotation adjustment.

The use of which is described in the Additional Instrumentation chapter.

X-Ray
The use of X-rays during the surgery is at the discretion of the surgeon on a case-by-case basis. For this type of procedure, continual X-rays are not required, but recommended after insertion of the trial implant for evaluation of the final results.

SURGICAL TECHNIQUE

Figure 1

Patient position

The patient is placed supine with the tibial tuberosity free on the operating table. Raise the affected side, either using a thigh support or by tilting the table, so that the view is directed at an angle of 20° from the lateral side.
Prepare the leg above the knee using a standard draping technique. Exsanguinate the limb by elevation and apply a tourniquet to the thigh. **(Figure 1)**

Surgical approach and soft tissue preparation

Make a 10-15 cm midline anterior incision with the centre over the middle of the talus at the level of the joint and over the extensor hallucis longus. Find and protect the superficial pereonal nerve in the subcutaneous tissue. Incise the superior and inferior extensor retinaculi between the tibialis anterior and the extensor hallucis longus tendons. **(Figure 2)**
Retract the neurovascular bundle laterally. Incise the ankle capsule vertically to expose the distal tibial plafond and talus. Continue the incision through this gap down to the bones of the tibia and talus. Use a retractor outside the medial and lateral malleoli to expose the anterior ankle joint completely.

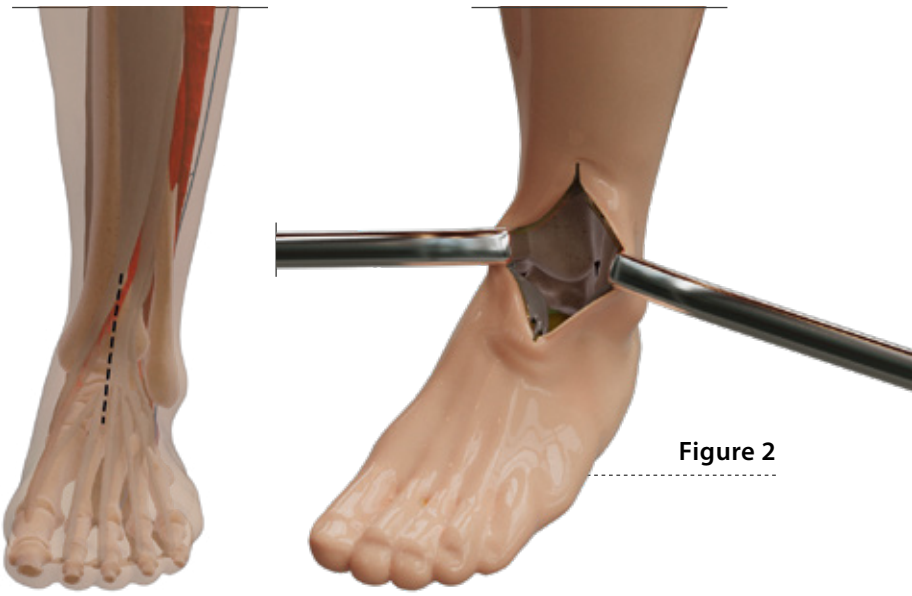


Figure 2

Use a saw or osteotome to remove the anterior lip of the tibia or osteophytes. This should be done parallel to the articular surface and perpendicular to the tibia axis.
Centre the blade on the tibia to avoid medial and lateral malleolar fractures. Resect carefully until the end of the osteotome reaches the plafond of the tibial pilon. **(Figure 3)**

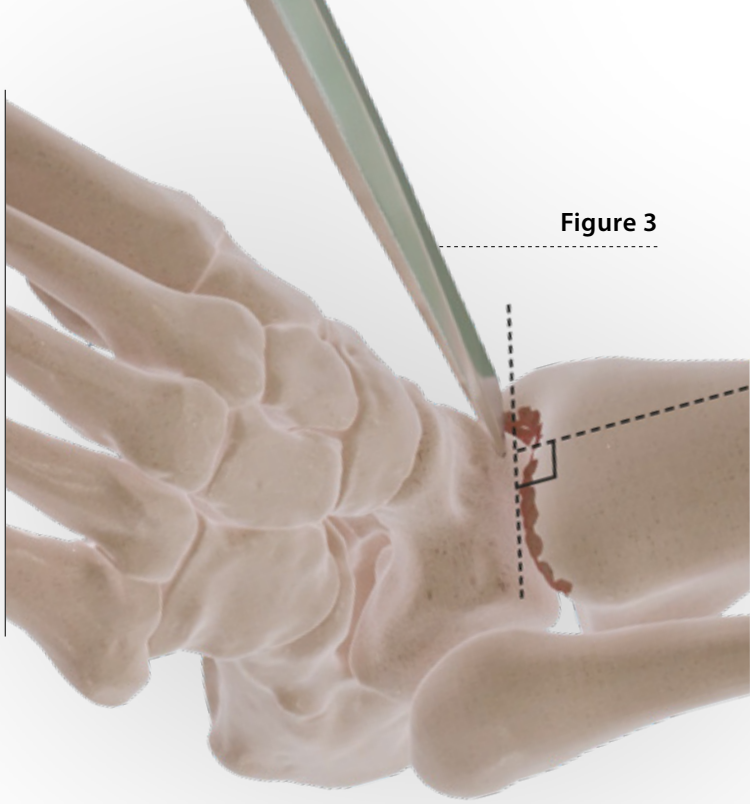


Figure 3

Extra large sizes (6 and 7) are available upon request.

Preselection of tibial implant size

Once the joint is completely exposed and the anterior osteophytes have been removed, take the tibial gauge (available in sizes 1 to 5) and determine tibial size based on the lateral-medial width.
At this step it also recommended to note the distal tibial rotation of the individual patient anatomy. **(Figure 4)**

Figure 4

Instruments used

Talar gauge
Size 1-2 (ref. 271 690) ..... *Tray 1 Position 21*
Size 3-4 (ref. 271 691) ..... *Tray 1 Position 22*
Size 5 (ref. 271 692) ..... *Tray 1 Position 23*

Intra-articular-alignment-system (aka "spoon") assembly and adjustment

Choose the correct "spoon" size based on the preselected tibial size. Assemble the "spoon" as shown in **Figure 5**.

1. Slide the support for tibial axis-aligment into the support for bone fixation.
2. Insert the "spoon" into the support for the tibial axis-alignment.
3. Insert the screw type B (blue) and type A (yellow) through the two mediolateral oblong holes using the screwdriver, without locking. Lock only the screw type B.
4. Insert the two pin sleeves into the holes of the "spoon" and screw into place.

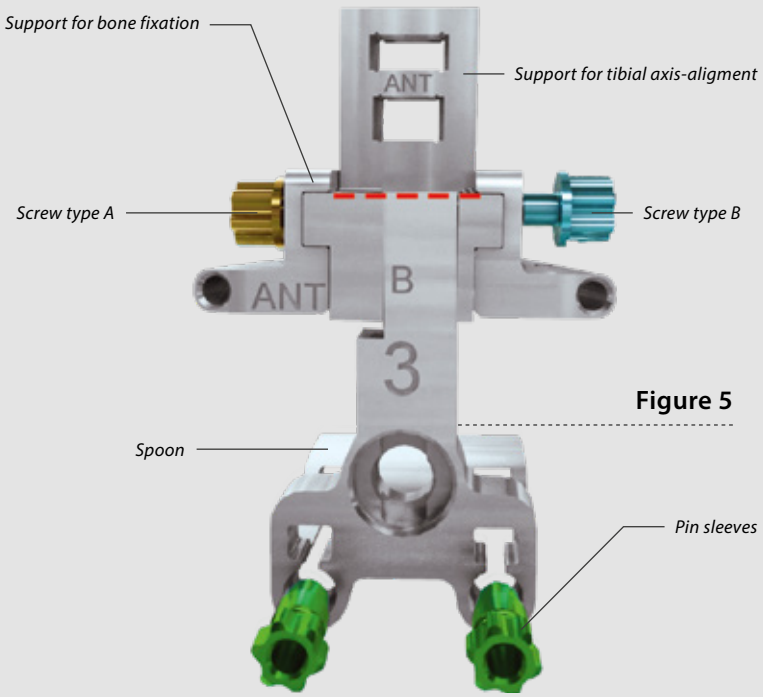
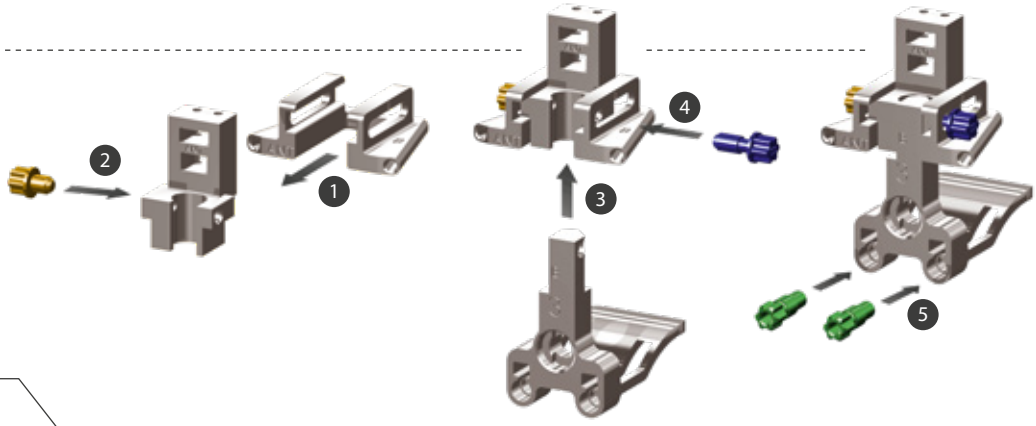


Figure 5

Spoon assembly



Insert the screwable handle axis into the handle. Insert it into the "spoon".

Insert the "spoon" into the ankle joint, making sure that it is well-centered between the mediolateral malleoli.
Lock the screw type A. **(Figure 6)**

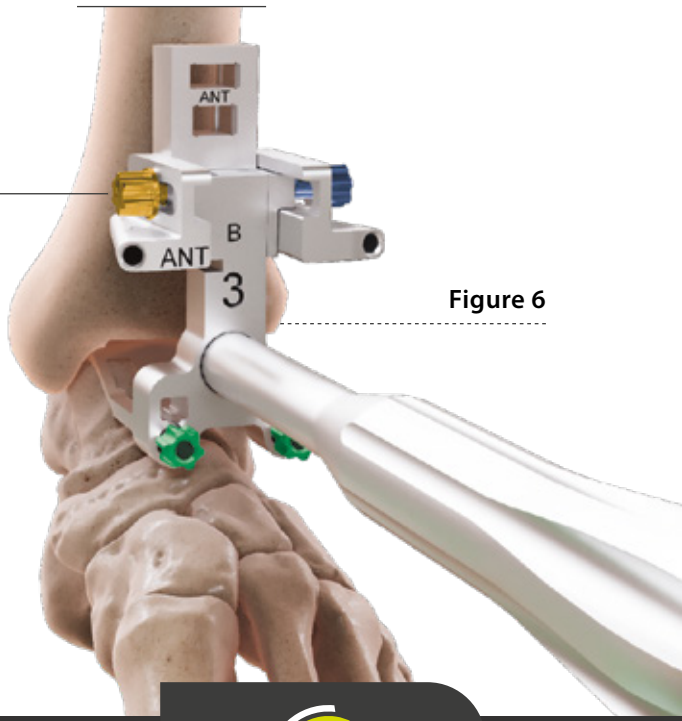


Figure 6

Instruments used

Spoon

Size 1 (ref. 271 696)	*Tray 1 Position 12*
Size 2 (ref. 271 697)	*Tray 1 Position 13*
Size 3 (ref. 271 698)	*Tray 1 Position 14*
Size 4 (ref. 271 699)	*Tray 1 Position 15*
Size 5 (ref. 271 700)	*Tray 1 Position 16*
Support for tibial Axis-Aligment (ref. 271 695)	*Tray 1 Position19*
Support for bone fixation (ref. 271 694)	*Tray 1 Position18*
Screw type A (ref. 271 720)	*Tray 1 Position a*
Screw type B (ref. 271 721)	*Tray 1 Position b*
Screwdriver (ref. 271 722)	*Tray 1 Position 2*
Screwable handle axis (ref. 271 704)	*Tray 1 Position 6*
Handle (ref. 271 703)	*Tray 1 Position 5*

Tibial pilon plafond location

The location of the tibial pilon plafond is set automatically once the "spoon" has been inserted into the ankle joint. **(Figure 7)**

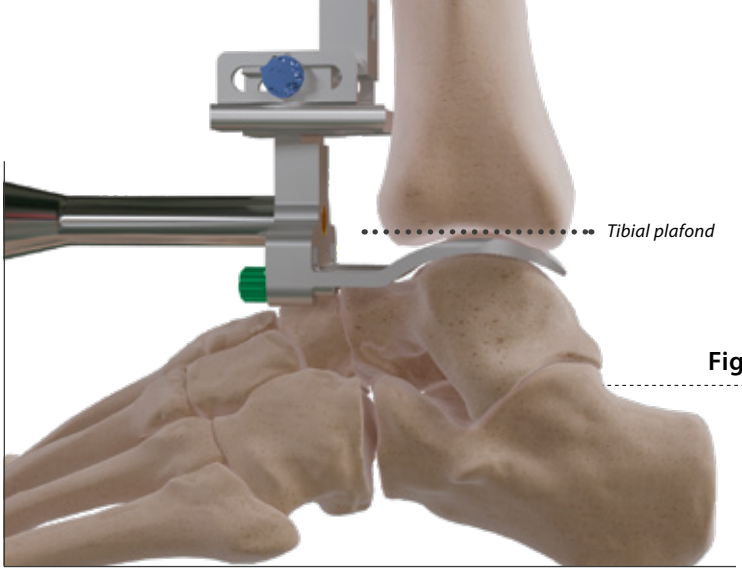


Figure 7

Rotation adjustment

To determine the distal tibial rotation, align the handle of the "spoon" according to the patient's anatomy. **(Figure 8)**
As shown and landmarked in the previous step. **(Tibial gauge - Figure 4)**

Translation adjustment

The mediolateral position is adjusted once the correct size has been chosen and properly aligned (centred) between the medial and lateral malleoli.

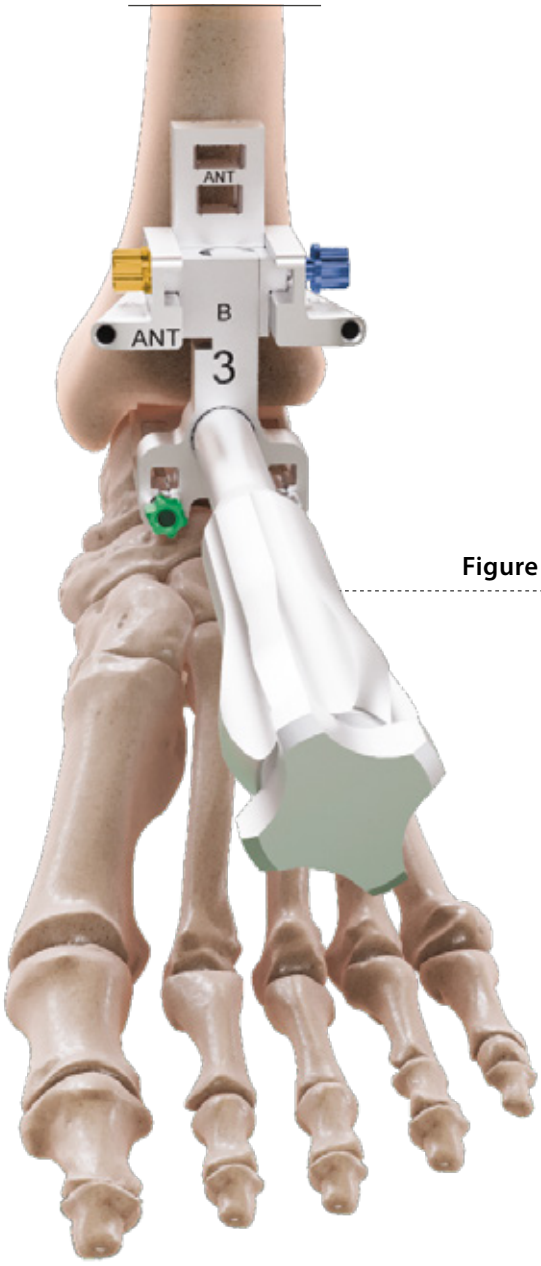


Figure 8

Varus/Valgus correction

Varus/Valgus can be adjusted using a specific anterior tibial axis alignment rod. **(Figure 9)**
Insert the anterior alignment rod into the support and check the frontal plane. The rod should be parallel to the mechanical axis of the tibia. **(Figure 10)**
Varus/Valgus can be caused either by ligament imbalance, talar bone defect or, even frequently by a tibial bone defect!
If the varus or valgus deformation is caused by a ligament deficiency or a tibial bone defect, additional procedures will probably be required.

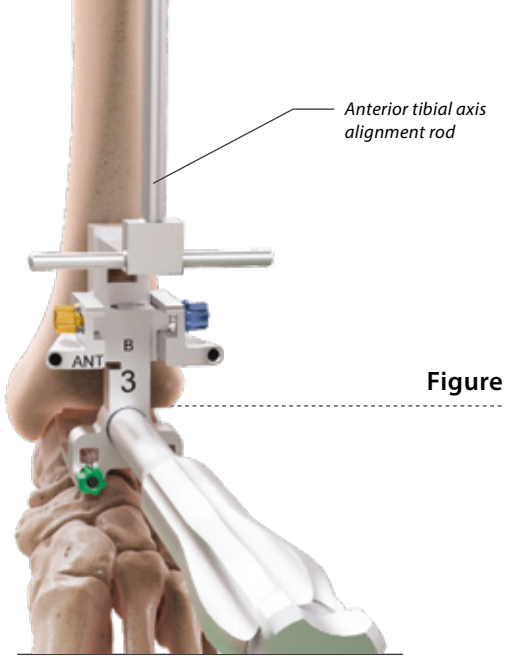


Figure 9

Instruments used

Anterior tibial axis alignment rod (ref. 271 708)..... Tray 1 Position 4

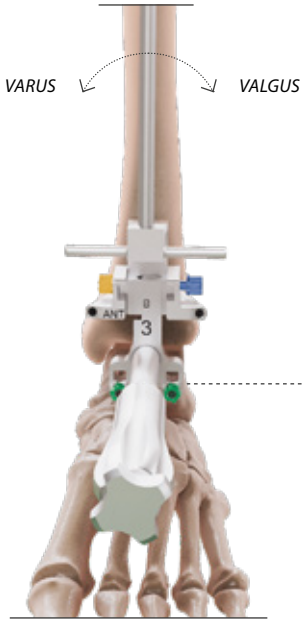


Figure 10

If the varus or valgus deformation is caused by a bone defect, insert the talar bone defect compensation wedges (available in 1, 2 and 3 mm thickness) into the slot provided. **(Figure 11)**

Instruments used

Talar bone defect compensation wedges
1 mm thickness (ref. 271 705)..... Tray 1 Position g
2 mm thickness (ref. 271 706)..... Tray 1 Position h
3 mm thickness (ref. 271 707)..... Tray 1 Position i

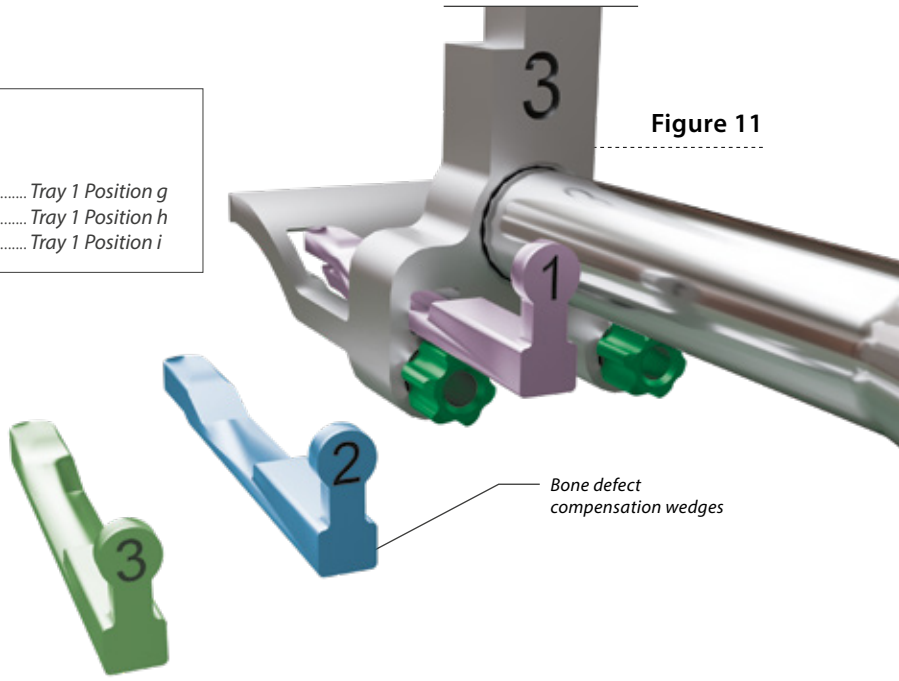


Figure 11

Posterior tibial slope adjustment

When the frontal axis has been properly adjusted, check the tibial slope on the lateral view. To determine the posterior tibial slope, assemble the lateral-tibial-axis-alignment-rod with the specific support for the lateral-tibial-axis-alignment-rod. The rod should be aligned, in the distal part with the center of the fibula, and in the proximal part with the anterior aspect of the fibula head. **(Figure 12)**
Then insert the assembled tool into the support for tibial axis-aligment and check the lateral plane.

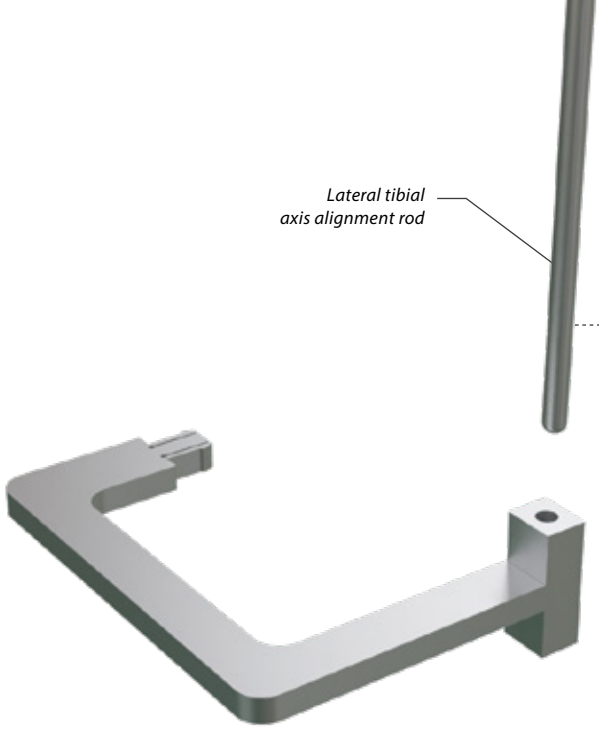


Figure 12

Please NOTE

In order to have a more accurate tibial axis alignment, the anterior tibial axis alignment rod and lateral tibial axis alignment rod can be used at the same time. **(Figure 13)**

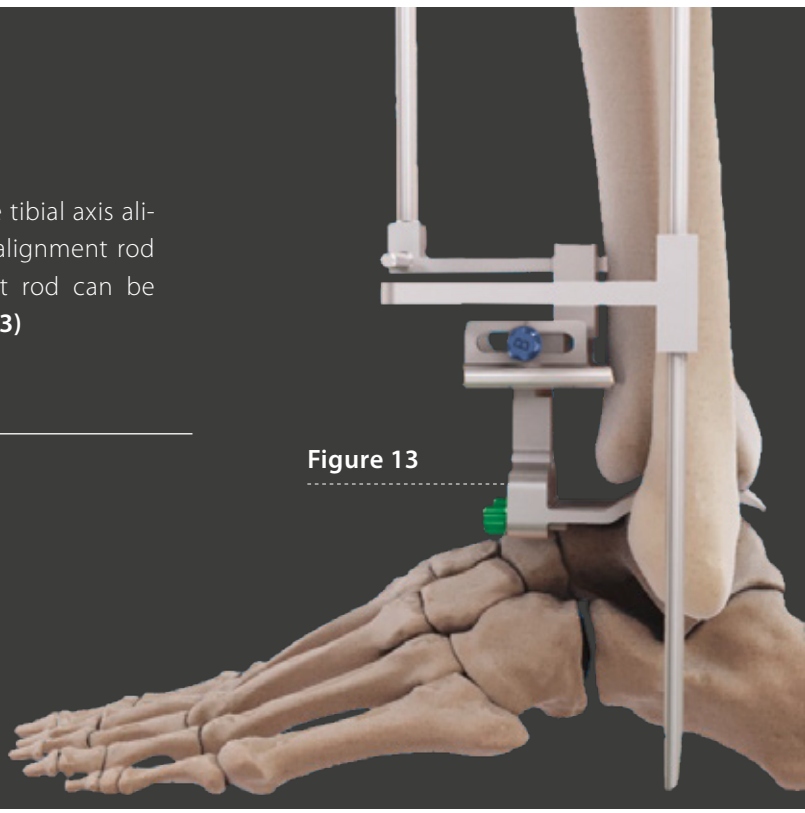


Figure 13

Ankle joint at 90°.

Instruments used

Support for the lateral tibial axis alignment (ref. 271 711) ..... *Tray 1 Position 17*
Lateral-tibial-axis-alignment-rod (ref. 236 620) ..... *Tray 1 Position 1*

When all the initial reference points are properly adjusted, lock the system with 2 pins (L 80 mm), using the hexagonal PIN- motor screwdriver.
Make sure that the drill is stopped at least 10 mm from the edge of the support for bone fixation. **(Figure 14)**

Instruments used

Pin L80 mm (ref. 270 740) ..... *Tray 1 Position d*
Hexagonal PIN-motor screwdriver (ref. 270 529) ..... *Tray 1 Position 3*

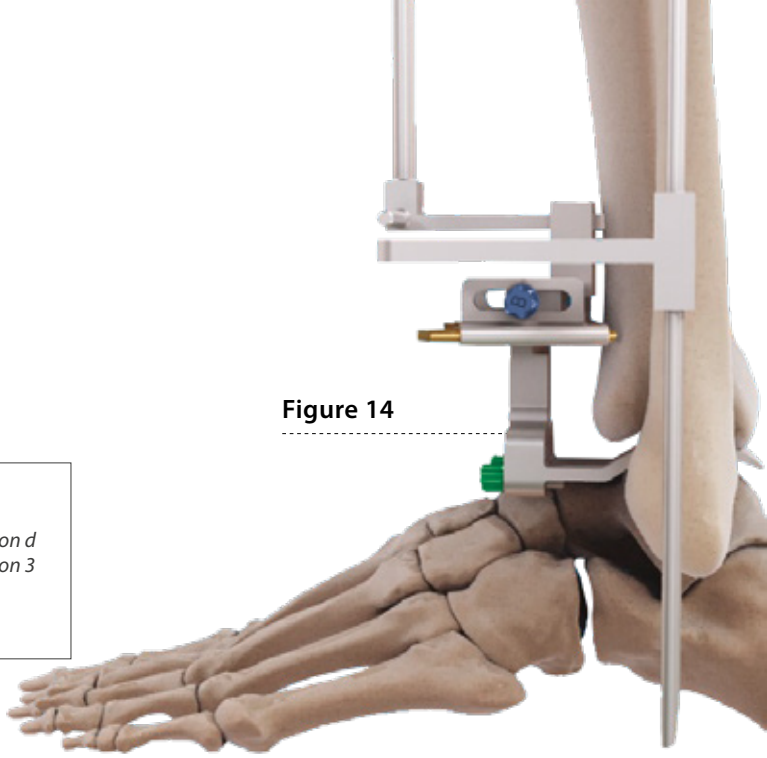


Figure 14

Talar dome cut adjustment

To adjust the correct position of the talar dome cut, put the hindfoot in the 90° position. If necessary, a lateral X-ray image can be taken to ensure correct alignment.
The correct hindfoot position avoids incorrect positioning of the final talar implant in terms of sagittal slope.
Once the talar dome cut has been properly aligned, lock the position by inserting two pins (60 mm) in the talar neck using the hexagonal PIN-motor screwdriver. **(Figure 15)**

Instruments used

Pin L60 mm (ref. 270 607) ..... *Tray 1 Position e*
Hexagonal PIN-motor screwdriver (ref. 270 529) ..... *Tray 1 Position 3*

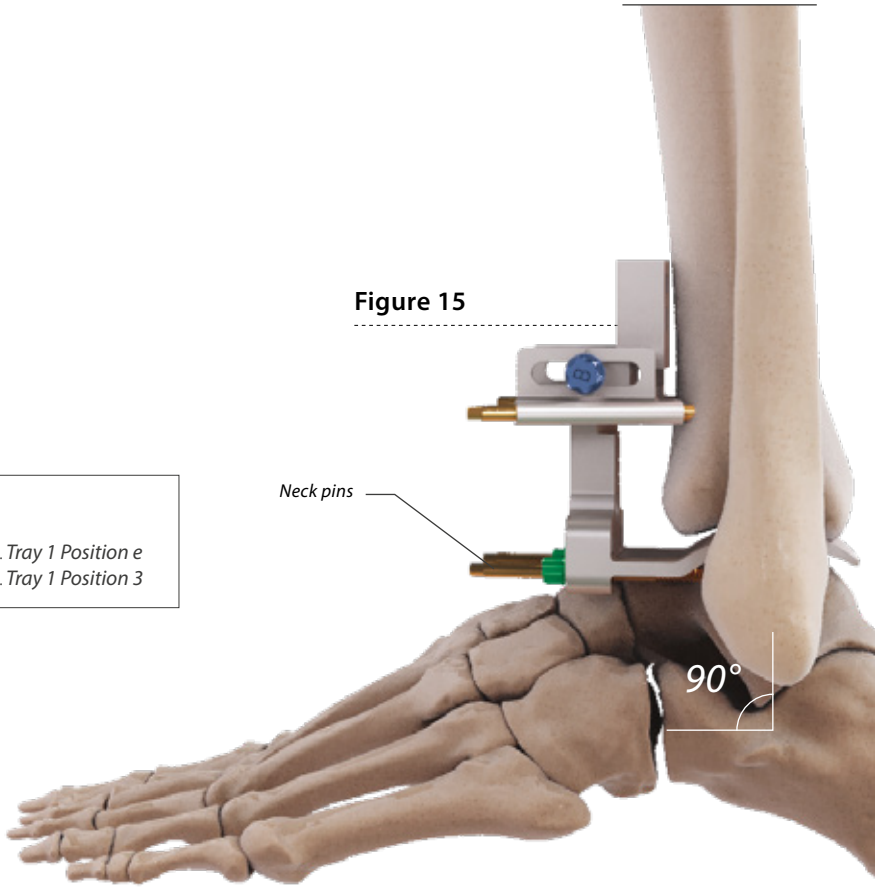


Figure 15

Remove the "spoon"

Once the talar top dome has properly aligned, unlock the two pin sleeves and the two screws (type A and B) using the screwdriver, and remove the "spoon". **(Figures 16a and 16b)**

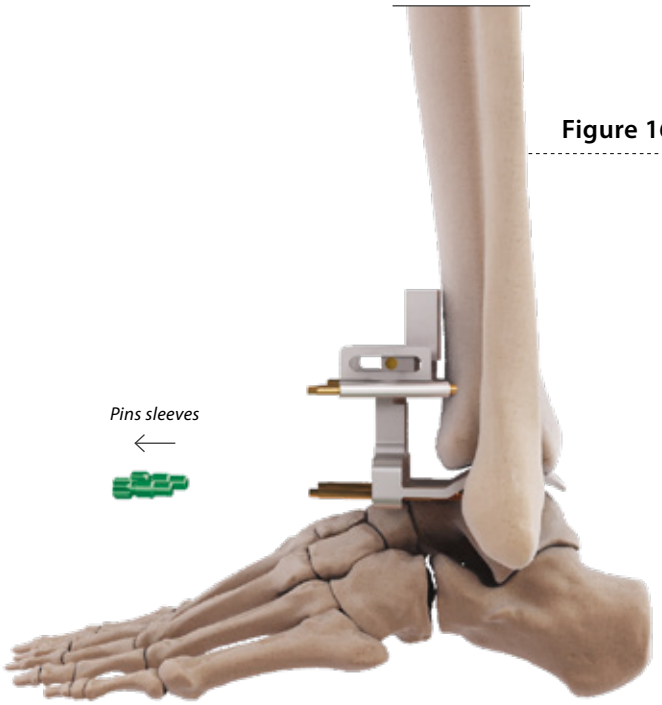


Figure 16a

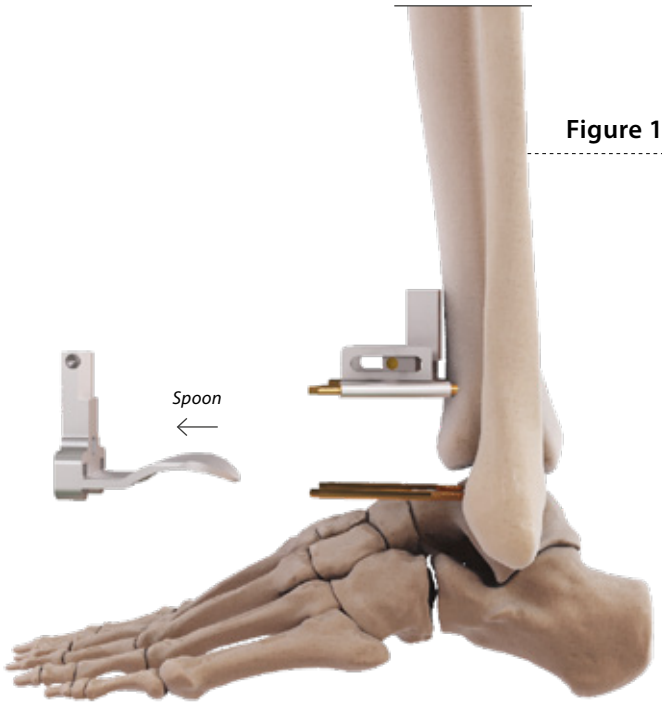


Figure 16b

Once the "spoon" has been removed, keep the two talar neck pins in place. **(Figures 17a and 17b)**

Figure 17a

Figure 17b

Instruments used

Screwdriver (ref. 271 722) ..... *Tray 1 Position 2*

Preparation and performing the talar dome cut

To prepare the talar dome cut, plantar flex the foot and select the appropriate talar dome cutting guide, **(Figure 18)**, which is available in sizes, 1-2 and 3-4-5.

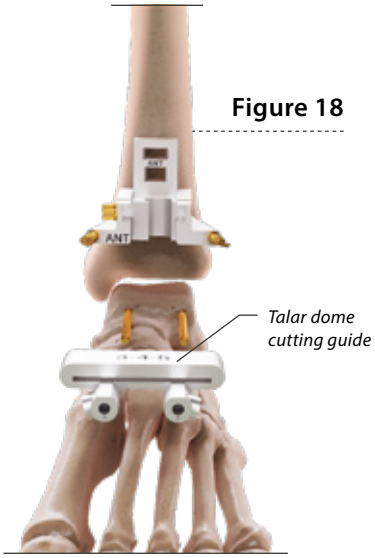


Figure 18

Insert the guide into the two talar neck pins (60 mm) and fix it using the M/L screws. **(Figure 19)**

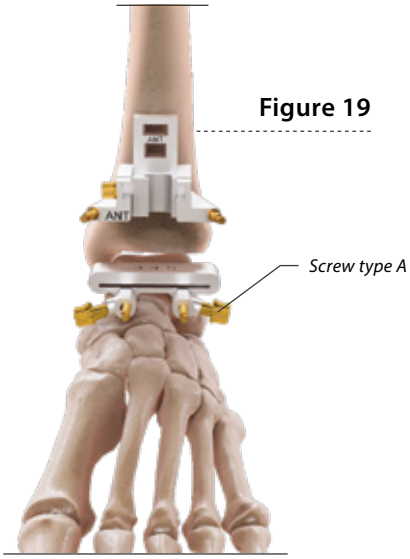


Figure 19

Insert a straight oscillating saw blade into the slots provided and perform the talar dome cut. **(Figure 20)**

Figure 20

The bone thickness of the dome cut is 4 mm, which corresponds exactly to the thickness of the talar dome of the implant. Once the talar dome cut has been made, unlock the two screws (type A) using the screwdriver and remove the talar dome cutting guide, but keep the two talar neck pins in place. **(Figure 21)**

Figure 21

A set of ribbon retractors may be used to protect the mediolateral malleoli from the sweep of the saw blade (now available in the intrument set).

Instruments used

Talar dome cutting guide
Sizes 1, 2 (ref. 271 726) ..... *Tray 2 (insert) Position 10*
Sizes 3, 4, 5 (ref. 271 727) ..... *Tray 2 (insert) Position 11*
Screws type A (ref. 271 720) ..... *Tray 1 Position a*
Screwdriver (ref. 271 722) ..... *Tray 1 Position 2*
Ribbon Retractor 12 x 200 mm, malleable (ref. 170-973-012) ..... *Tray 2 (insert) Position 23*

Talar dome re-cuttting

Once the talar dome cut has been made, it is important to evaluate whether the cut is sufficient. The thickness of the bone-cut should be approximately 4 mm.

This corresponds to the thickness of the metal part of the final talar component, which will cover the talar dome cut, thus restoring the original articulation line.

If the talar dome cut is not sufficient, i.e. much less than 4 mm, then if wished proceed with a talar dome re-cutting using the pin repositioning guide.

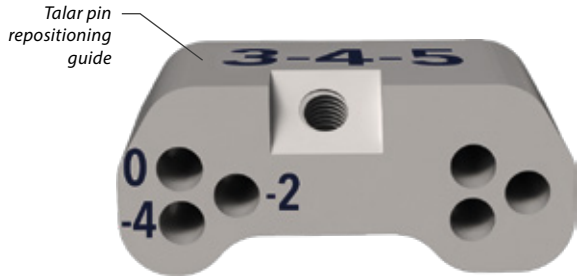


Figure 22

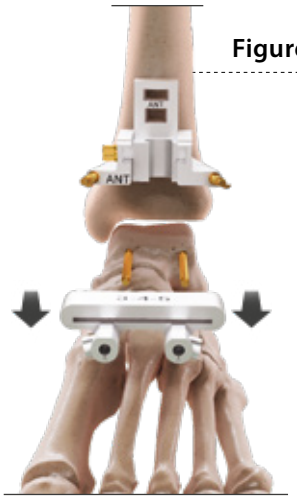
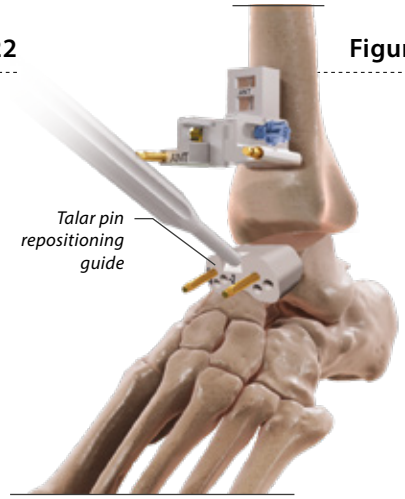


Figure 23



Remove the talar dome cutting guide **(Figure 22)** and place the talar pin repositioning guide using the screwdriver and handle for the anterior talar chamfer holding component into the original talar neck pins at the position marked with 0 (zero). **(Figure 23)**

Once the pin repositioning guide has been inserted inside the initial pin position 0 and the thickness (-2 mm or -4 mm) of the re-cutting has been assessed **(Figure 24)**, insert 2 new pins (60 mm) inside in the 2 holes shown in red (by a re-cutting of -2 mm) or inside in the 2 holes shown in green (by a re-cutting of -4 mm), using the hexagonal PIN-motor screwdriver.

Once the two new pins have been repositioned in the desired position, proceed to remove the two pins positioned in the initial position marked with 0. **(Figure 25)**

Figure 24

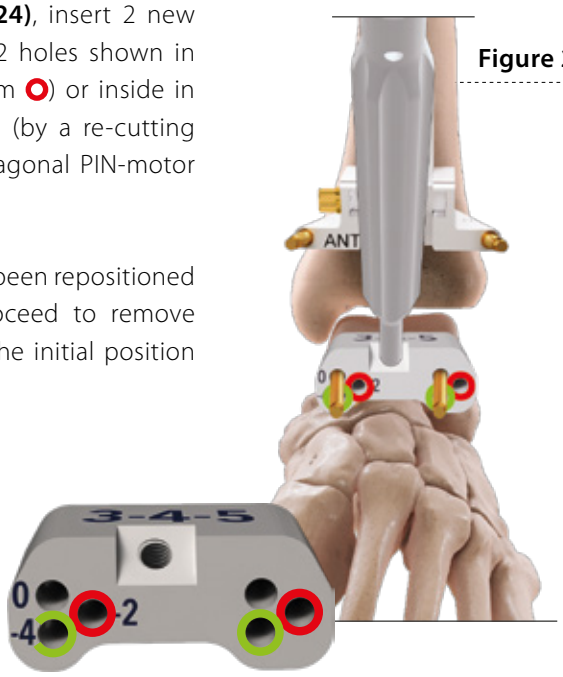
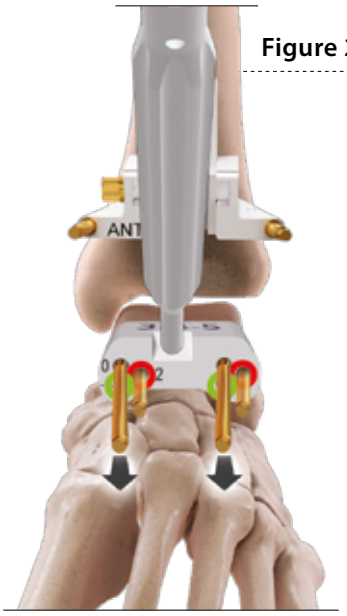
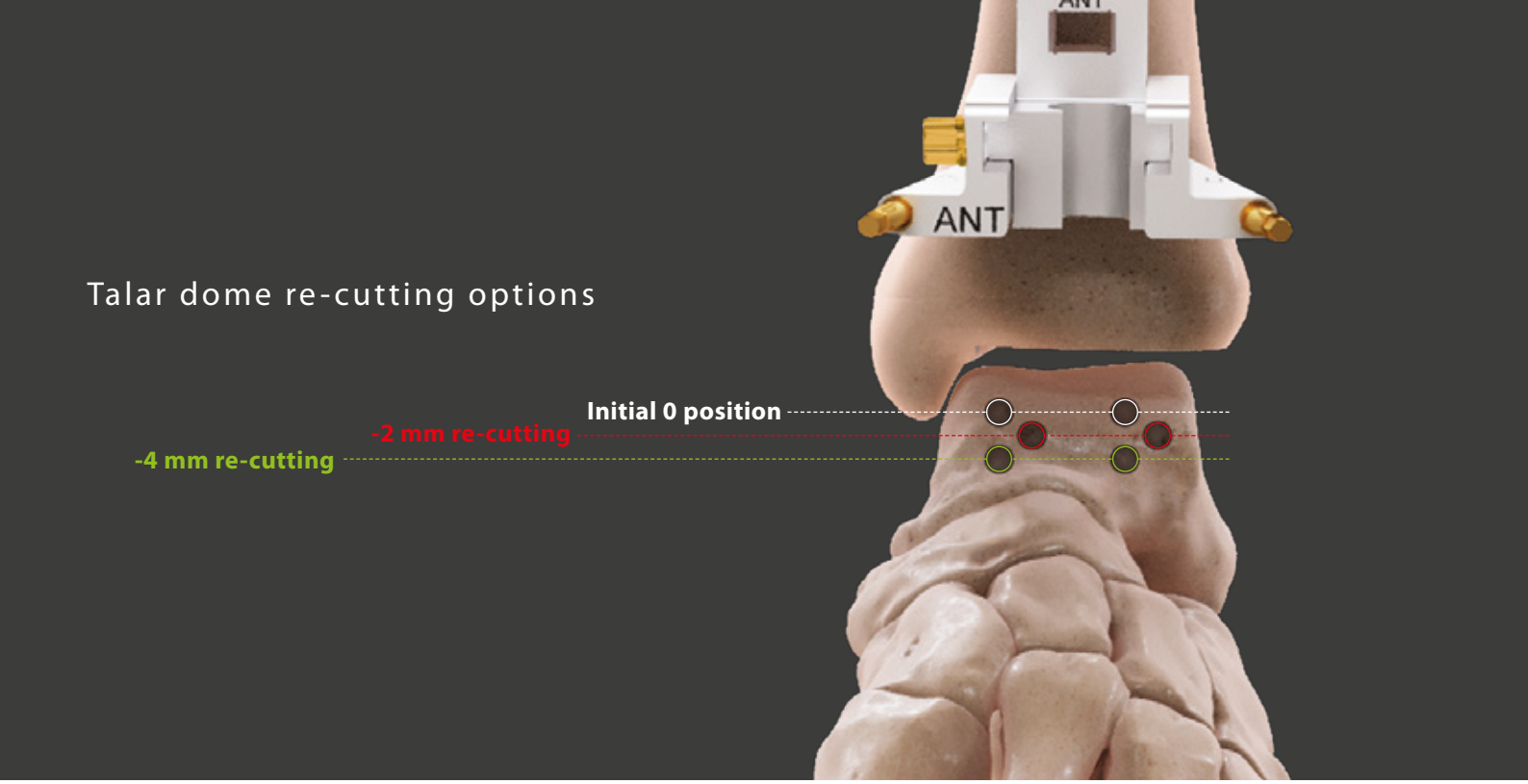


Figure 25



Talar dome re-cutting options



Reinsert the talar dome cutting guide into the two repositioned talar neck pins and fix it using the M/L screws (type A). **(Figure 26)**

Perform the talar dome re-cutting using a straight blade. **(Figure 27)**

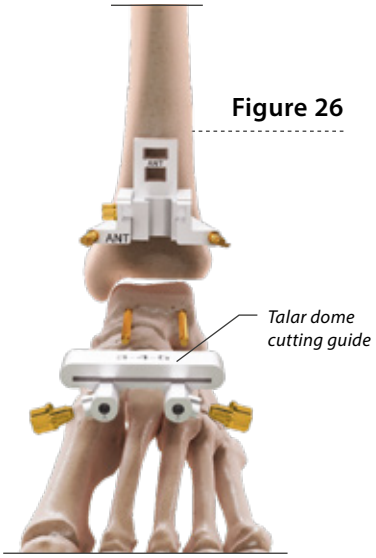


Figure 26

Figure 27

Instruments used

Talar pin repositioning guide
Sizes 1, 2 (ref. 272 275) ..... *Tray 2 (insert) Position 21*
Sizes 3, 4, 5 (ref. 272 276) ..... *Tray 2 (insert) Position 22*
Screwdriver ..... *Tray 1 Position 2*
Hexagonal pin motor screwdriver (ref. 270 529 or GS900-100-000) ..... *Tray 1 Position 3*
Screws type A (ref. 271 720) ..... *Tray 1 Position a*

Preparation and performing the tibial curved cut

Choose the correct size of the tibial cutting guide available in 5 sizes. Slide the tibial cutting guide holding system into the tibial cutting guide.
Using the screw (type B) lock it as shown in **Figure 28 and 29.**

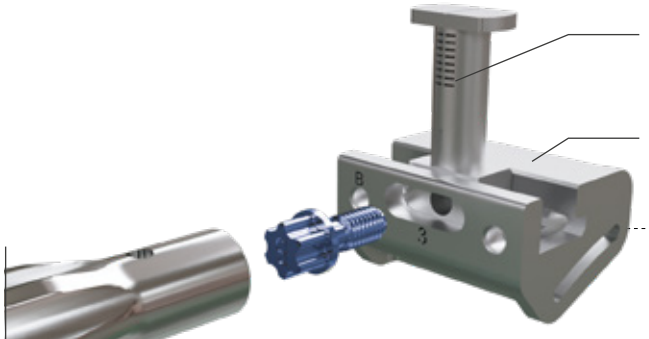


Figure 28

Figure 29

Put the tibial cutting guide holding system into the support for tibial axis-alignment. **(Figure 30)**
Insert a screw type B into the oblong hole of the tibial cutting guide. Stabilize the system with the mediolateral screws type, A and B.
No height adjustment is necessary, as a height of 7 mm from the tibial plafond is already set inside the guide.
If required (according to the case), the height adjustment can be slightly modified using the screw type B.
Verify if the mediolateral position and the rotation of the tibial cutting guide are correct, and if necessary, adjust them using the dedicated screw, as shown below. **(Figure 31)**

Figure 30

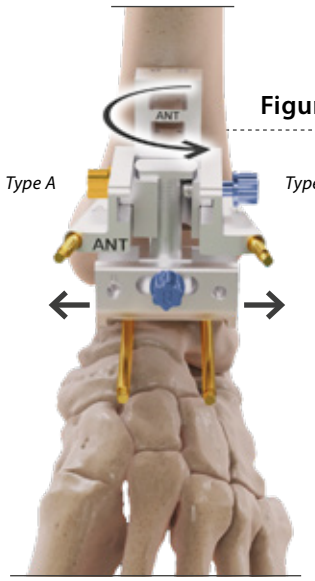


Figure 31

Instruments used

Tibial cutting guide holding system (ref. 271 719) ..... *Tray 1 Position 20*

Tibial cutting guide
Size 1 (ref. 271 712) ..... *Tray 1 Position 7*
Size 2 (ref. 271 713) ..... *Tray 1 Position 8*
Size 3 (ref. 271 714) ..... *Tray 1 Position 9*
Size 4 (ref. 271 715) ..... *Tray 1 Position 10*
Size 5 (ref. 271 716) ..... *Tray 1 Position 11*
Screws type B (ref. 271 721) ..... *Tray 1 Position b*
Screwdriver (ref. 271 722) ..... *Tray 1 Position 2*
Pin L60 (ref. 270 607) ..... *Tray 1 Position e*
Hexagonal PIN-motor screwdriver (ref. 270 529) ..... *Tray 1 Position 3*

In order to protect the mediolateral malleoli from the oscillating saw blade insert the protection pins (60 mm) using the hexagonal PIN-motor screwdriver into the two holes located at the mediolateral of the tibial cutting guide.

The two mediolateral protection pins are also used to stabilize the complete cutting system.

To perform the tibial curved cut, use the dedicated oscillating curved saw blade, which is available in most common cutting systems.

Insert the blade into the slot of the cutting guide, add the chosen size of the trial implant, and draw a landmark on the blade to perform the curved cut. **(Figure 32 and 33)**

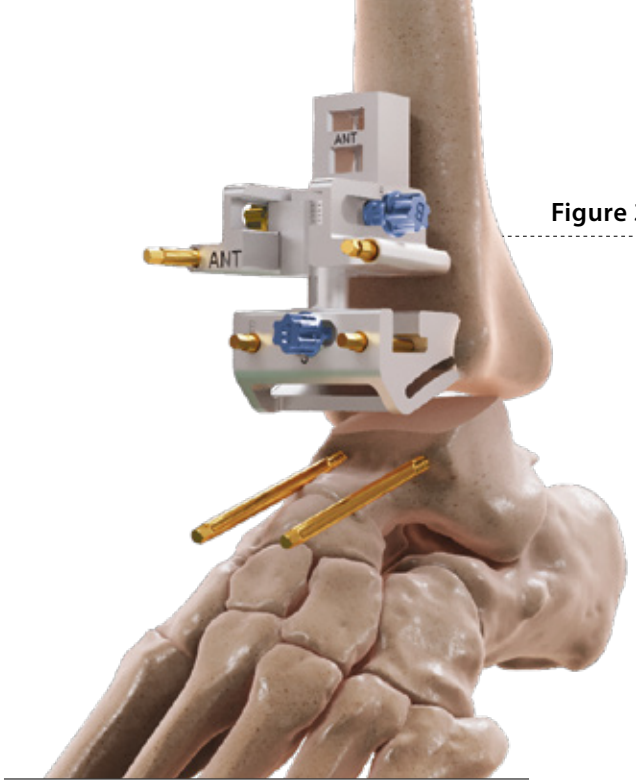


Figure 32

Although the cut is guided and protected, **PLEASE TAKE GREAT CARE WHEN PERFORMING THIS DELICATE CUT. DO IT SLOWLY AND WITH CAUTION, TAKING YOUR TIME FOR THIS VERY IMPORTANT STEP.**
Keep the position of the saw blades stable inside the tibial cutting guide and in constant contact with the upper part of the guide without pushing or forcing to perform the curved cut.

Make sure not to penetrate the posterior capsule avoiding risk to injure the neurovascular bundle.

Scan the QR CODE to see the video

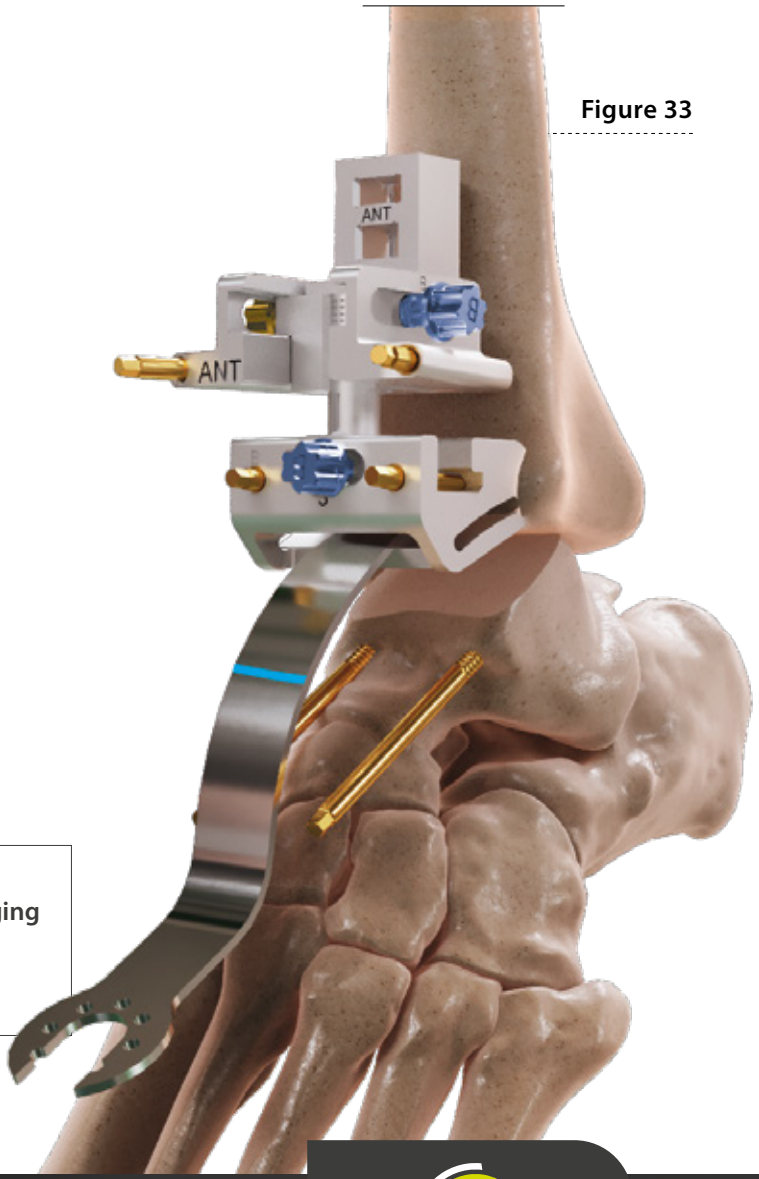


Figure 33

Instruments used:
the common blades system are available in extra packaging

Curved saw blades (Linvatec HALL) ..... *ref. 270 666*
Curved saw blades (Synthes) ..... *ref. 270 667*
Curved saw blades (Stryker) ..... *ref. 270 668*

Removing tibial resection cut

Once the horizontal tibial cut has been made, complete the medio-lateral vertical cuts using first a straight Lambotte osteotome or a small appropriate saw blade. **(Figure 34 and 35)**

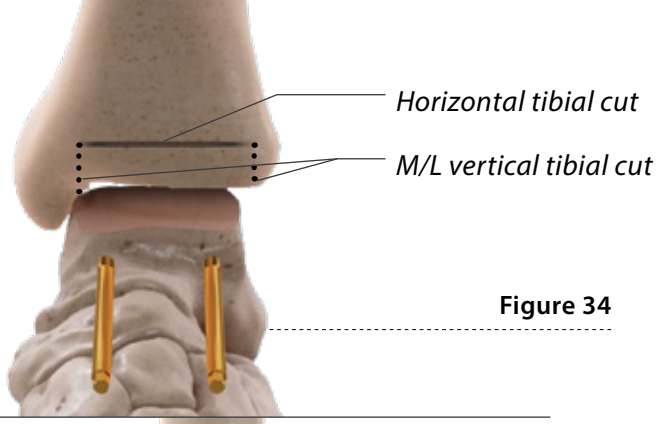


Figure 34

Pay particular attention to the medial malleous, making sure that the medial vertical cut reaches the posterial tibial part.

Figure 35

Once the medial vertical cut is complete, carefully repeat the same procedure for the lateral vertical cut.

Only once you are sure that the vertical cuts have been completed (distal to proximal and anterior to posterior) will it be possible to use the curved osteotomes / L-curved chisels. **(Figure 36)**

Figure 36

To preserve the integrity and quality of the tibial curved cut, use the tibial cut protector/ retractor or the curved osteotome to carefully lift as you very carefully work to release the posterior tibial capsule. **(Figure 37)**

In addition, inside the tray you will find a bone hook and a retractor.
Please use each of these tools with great care, to avoid damage to the tibial curved cut.

Tibial curved cut protector/retractor | *Curved osteotome* | *Bone hook retractor*

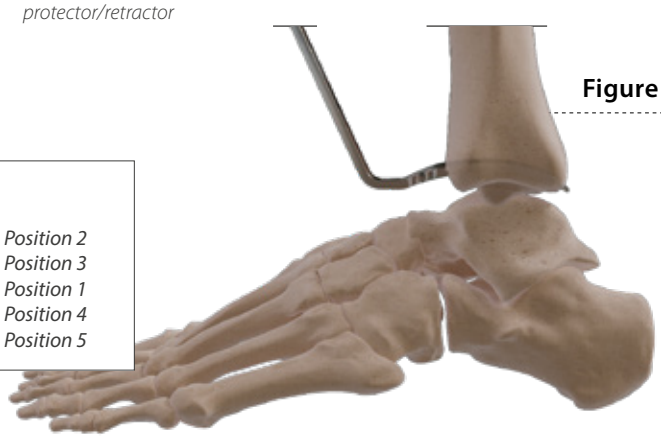


Figure 37

Instruments used

L-Curved chisel right (ref. 270 574)	*Tray 2 (insert) Position 2*
L-Curved chisel left (ref. 270 575)	*Tray 2 (insert) Position 3*
Curved osteotome (ref. 271 723)	*Tray 2 (insert) Position 1*
Bone hook retractor (ref. 271 724)	*Tray 2 (insert) Position 4*
Tibial curved cut protector/retractor (ref. 271 725)	*Tray 2 (insert) Position 5*

Preselection of the tibial sizes

Confirm the size of the tibial component required by hooking the lip of the tibial trial profile behind the posterior surface of the resected distal tibia using the tibial sizer. **(Figure 38)**

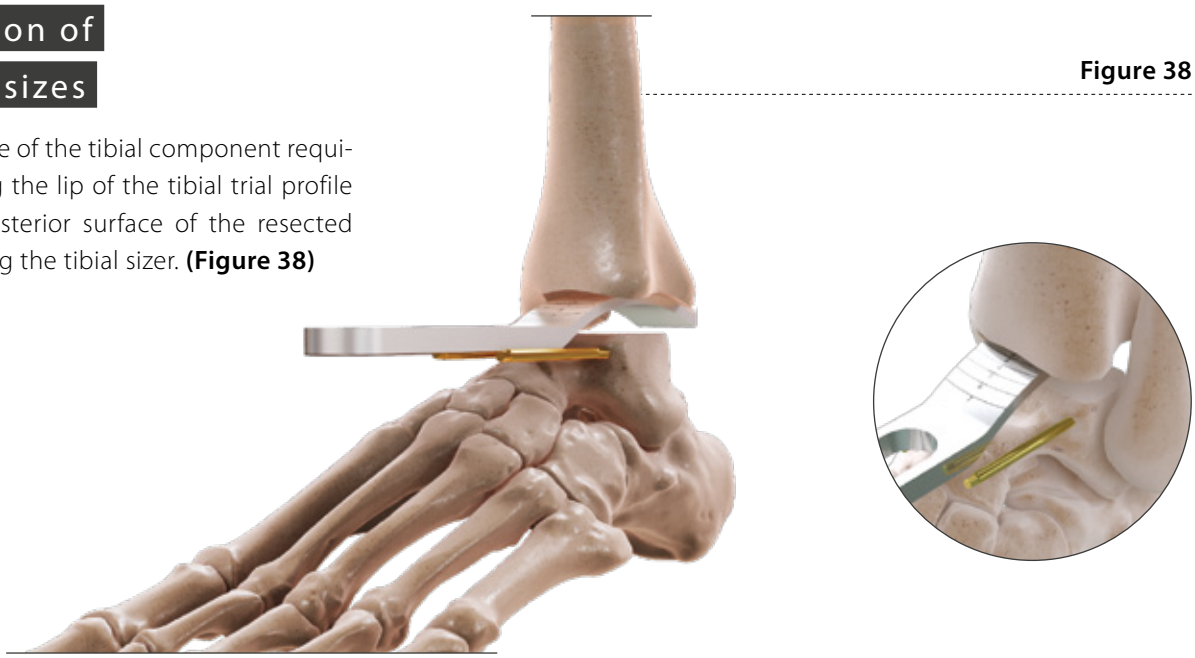


Figure 38

Preselection of the PE-Inlay sizes

Insert the trial spacer (available in three different thicknesses) between the resected distal tibia and the resected talar dome.
The joint thickness trial spacer indicates the resection space required to implant the thinnest bearing insert. **(Figure 39)**
Total resection corresponds to bone loss of 12 mm.

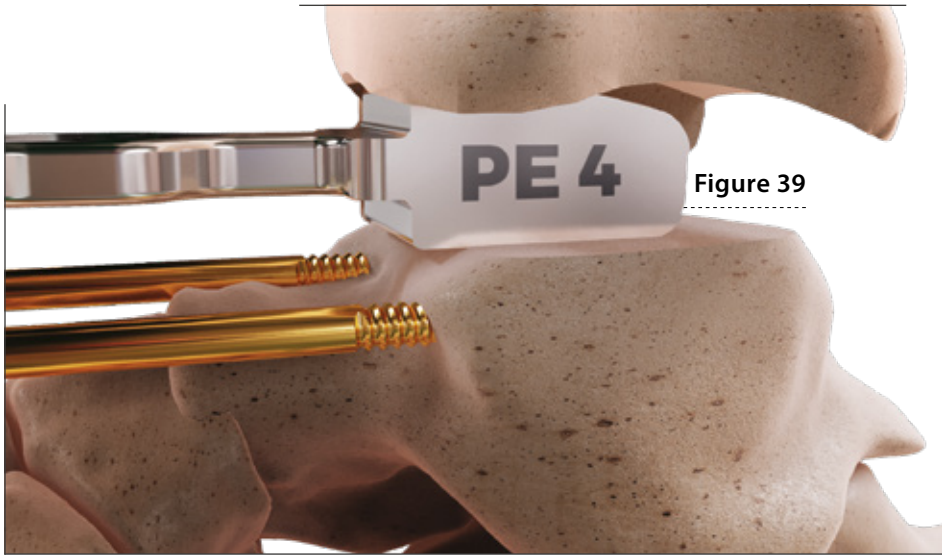


Figure 39

Instruments used

Tibial sizer (ref. 270 601) ..... *Tray 2 (insert) Position 9*

Trial insert spacer
4 mm (ref. 270 603) ..... *Tray 2 (insert) Position 6*
6 mm (ref. 270 604) ..... *Tray 2 (insert) Position 7*
8 mm (ref. 270 605) ..... *Tray 2 (insert) Position 8*

Preparation and performing the posterior talar cut

Select the appropriate posterior talar cutting guide, (available in five sizes). **(Figure 40)**
The posterior talar cutting guide is divided into two parts. The posterior part acts as a gauge, the anterior part acts as the actual cutting guide.

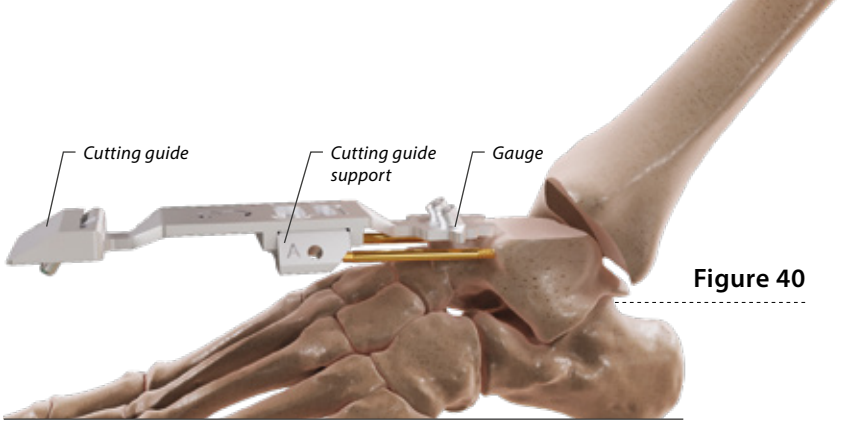


Figure 40

Assembly of the posterior talar cutting guide

Take the posterior cutting guide support (available in two sizes: 1-2 and 3-4-5).
Slide the selected support into the dedicated space located below the posterior cutting guide. Insert the screws type A , without locking as shown. **(Figure 41)**

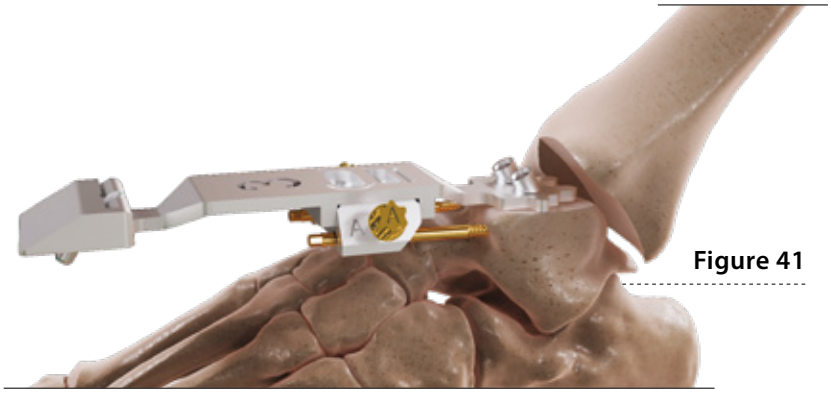


Figure 41

Determine the posterior cutting guide size and the correct position

Once the posterior talar cutting guide and the support has been assembled, plantar flex the foot and slide the guide onto the two talar neck pins, on the cut surface of the talar dome cut. **(Figure 42)**
The outer outline of the gauge corresponds to the correct talar size component as soon as it comes up against the outer edge of the talar bone (red line).

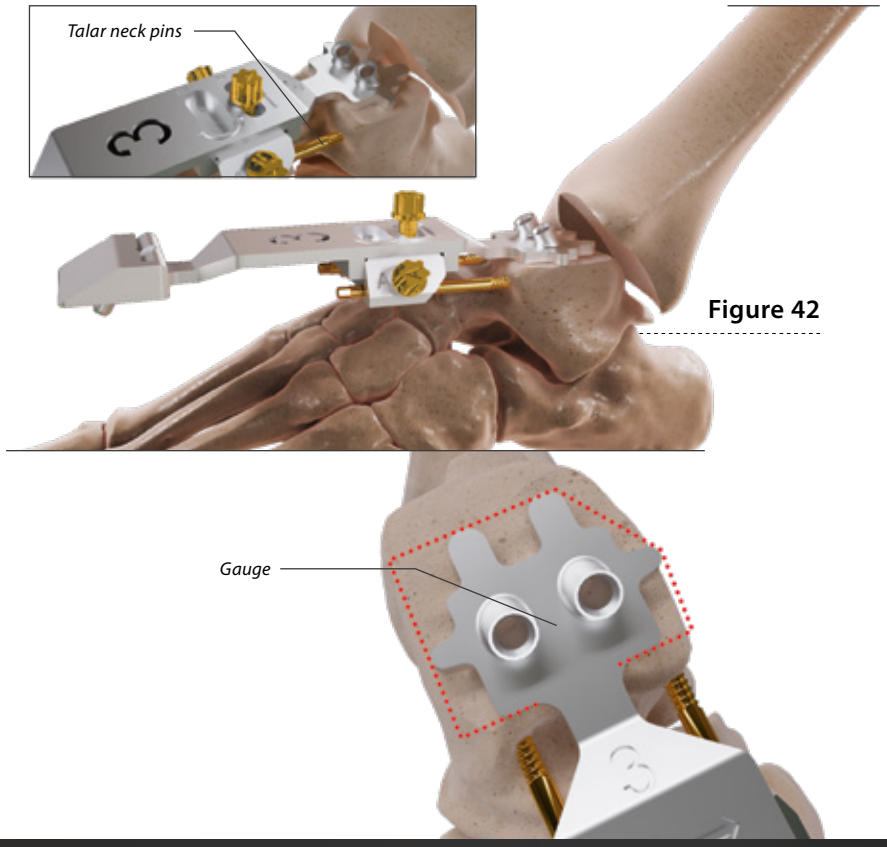


Figure 42

Secure the posterior talar cutting guide with the medial, lateral and central screws (type A) and mark the position inside the two holes with the dedicated D4-drill.
Once the two holes have been marked, unlock the medial and lateral screws and remove the posterior cutting guide from the 2 talar neck pins. Also, remove the two talar neck pins.
(Figures 43 and 44)

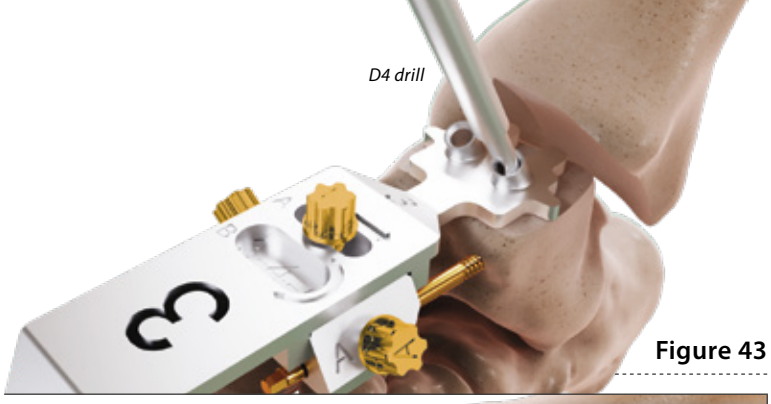


Figure 43

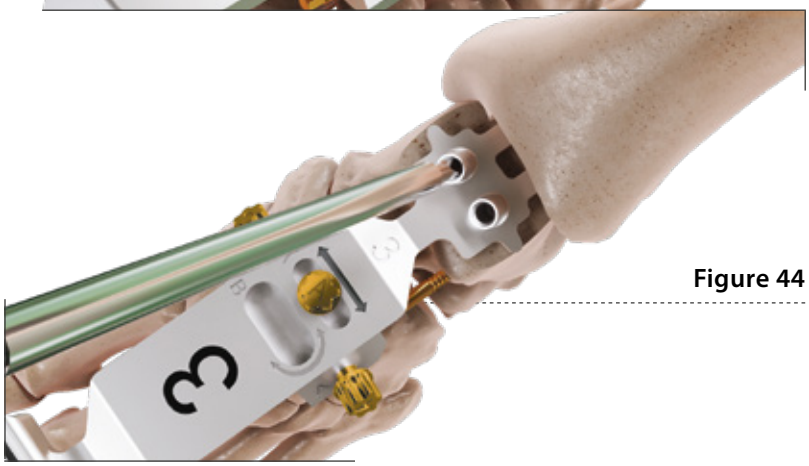


Figure 44

Perform the posterior talar cut

Turn the posterior talar cutting guide 180° and insert the two pegs located on the underside the posterior cutting guide into the two previously-made reference holes.
Fix the guide with one central compression pin L30 mm using the hexagonal PIN-motor screwdriver to stabilize the system.
(Figures 45 and 46)

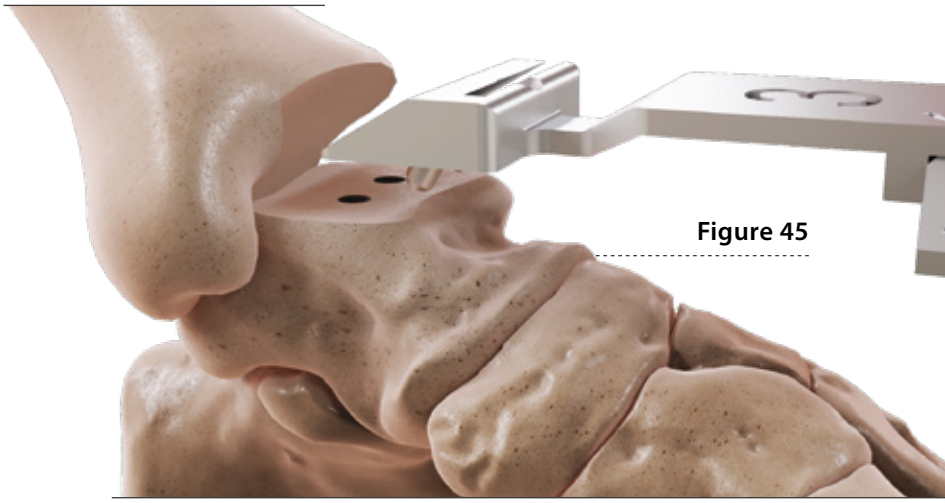


Figure 45

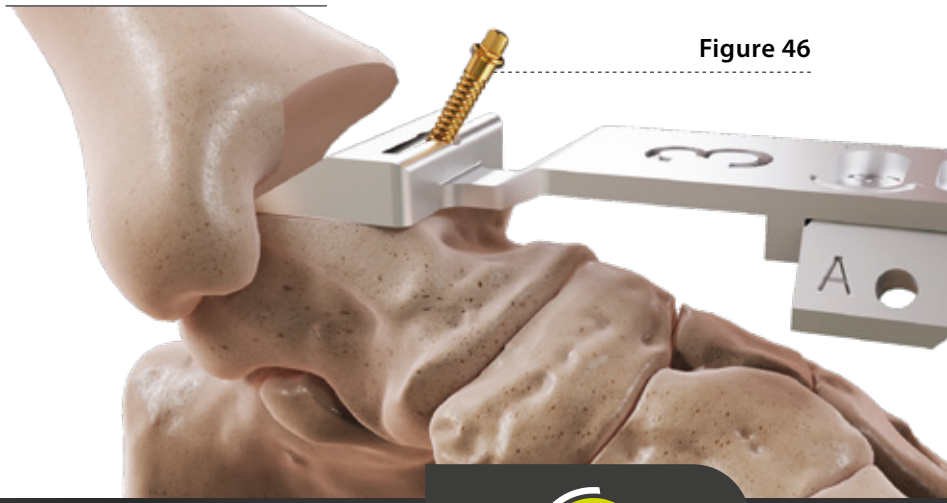


Figure 46

Check that the whole system is stable and, using a straight oscillating saw blade, make the posterior talar cut through the posterior cutting guide. **(Figures 47 and 48)**

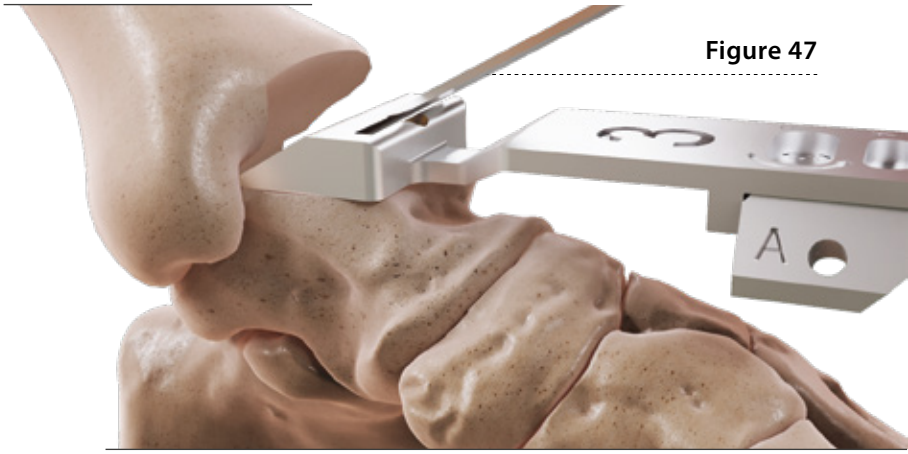


Figure 47

Figure 48

Instruments used

Posterior cutting guide
Size 1 (ref. 271 739).....*Tray 2 (insert) Position 15*
Size 2 (ref. 271 740).....*Tray 2 (insert) Position 16*
Size 3 (ref. 271 741).....*Tray 2 (insert) Position 17*
Size 4 (ref. 271 742).....*Tray 2 (insert) Position 18*
Size 5 (ref. 271 743).....*Tray 2 (insert) Position 19*

Posterior cutting guide support
Size 1-2 (ref. 271 732).....*Tray 2 (insert) Position 13*
Size 3-4-5 (ref. 271 733).....*Tray 2 (insert) Position 14*
D4-drill (ref. 253 257).....*Tray 2 (insert) Position 12*
Pin L30 mm (ref. 271 764).....*Tray 1 Position f*

Preparation and performing the anterior talar chamfer

Once the posterior talar cut has been performed, remove the posterior cutting guide.
Assembly the anterior talar chamfer guide holding component (available in sizes 1-2 and 3-4-5), with the dedicated handle ***(ref. 271 722)***.

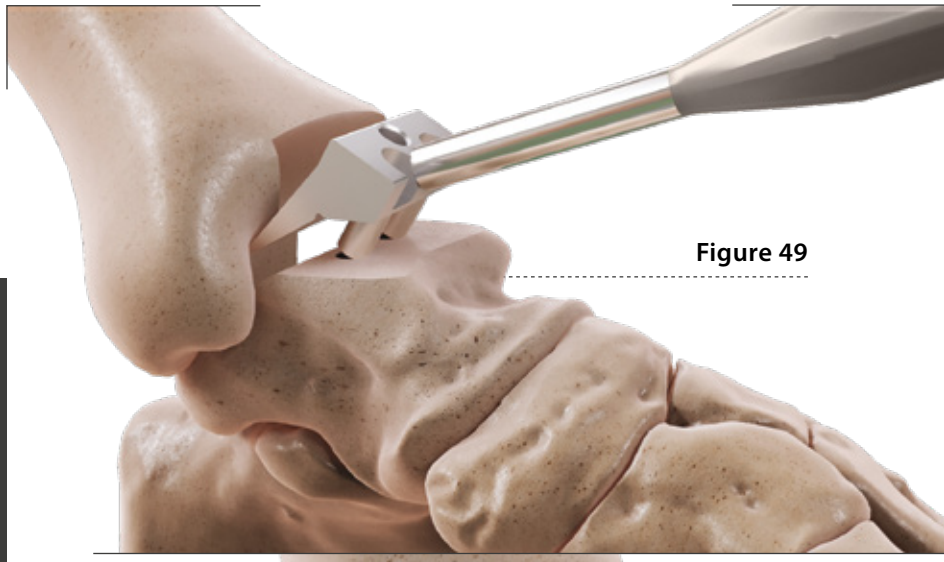


Figure 49

Please NOTE

The universal screwdriver provided ***(Screwdriver - ref. 271 722 - Tray 1 Position 2)*** has a double function. One part acts as a screwdriver, the other part acts as handle for the anterior talar chamfer guide holding component.

Figure 50

Place the holding component on the talar dome cut and the posterior cut, made previously. Introduce the two pegs located on the underside the holding component into the two previously-made reference holes.
(Figure 49)

Drill two compression pins, through the two pegs using the hexagonal PIN-motor Screwdriver (L30 mm). **(Figures 50 and 51)**
Then remove the Handle.

Figure 51

Instruments used

Anterior Talar chamfer guide holding component

Size 1 (ref. 271 747)	*Tray 2 Position 1*
Size 2 (ref. 271 748)	*Tray 2 Position 2*
Size 3 (ref. 271 749)	*Tray 2 Position 3*
Size 4 (ref. 271 750)	*Tray 2 Position 5*
Size 5 (ref. 271 751)	*Tray 2 Position 5*
Handle for the anterior talar chamfer guide holding component (ref. 271 722)	*Tray 1 Position 2*
Pin L30 mm (ref. 271 764)	*Tray 1 Position f*

Once the anterior chamfer guide holding component has been placed and completely stabilized, place the anterior chamfer guide (available in sizes 1-2 and 3-4-5), onto the holding component and lock with the central screw (type B).

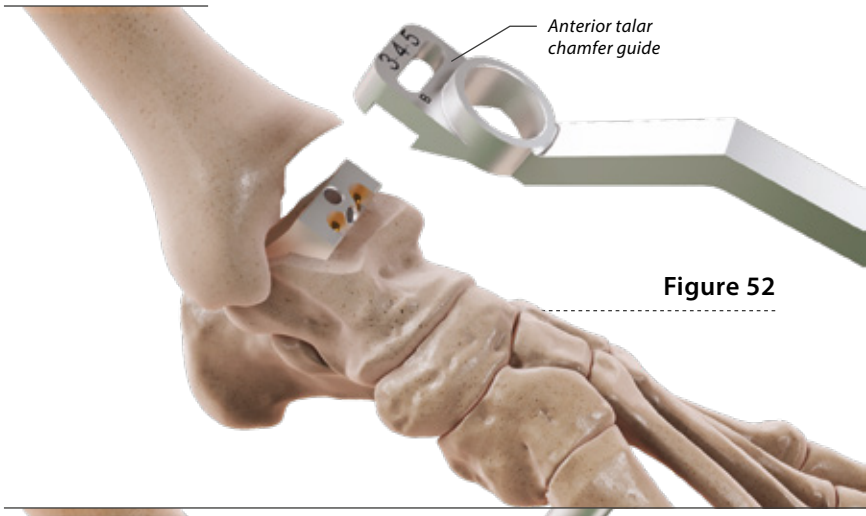


Figure 52

Use the appropriate anterior talar chamfer reamer (available in sizes 1-2 and 3-4-5), and proceed with the anterior chamfer through the hole.

To ensure bone cuts are the right depth, make sure the shoulder of the reamer is flush against the guide for each reaming step.
To perform the finishing cuts for the anterior talar chamfer, unlock the central screw and, by sliding the anterior chamfer guide inside the holding component, place the anterior chamfer guide in the new position.
Use the reamer and perform the cut. Repeat the procedure on both sides. **(Figures 52 and 53)**

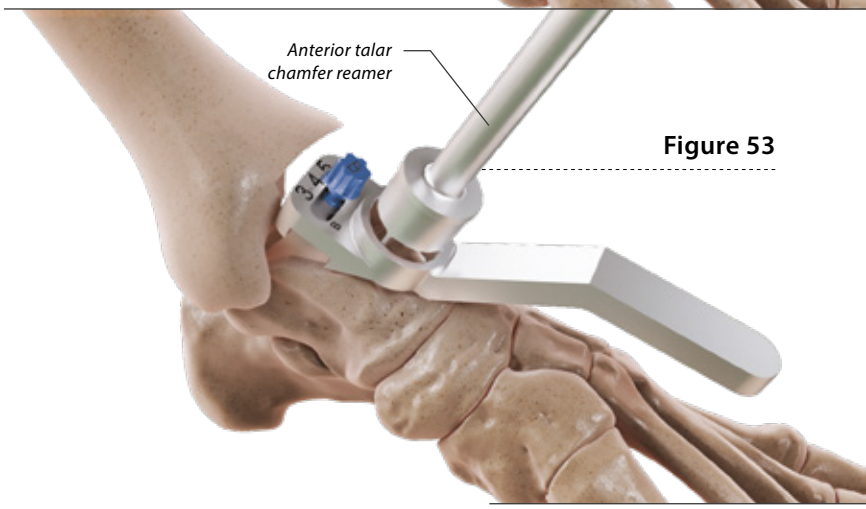


Figure 53

Check the quality of the chamfer and if necessary repeat the procedure.

Instruments used

Anterior talar chamfer guide
Sizes 1-2 (ref. 271 754) ..... *Tray 2 Position 6*
Sizes 3-4-5 (ref. 271 755) ..... *Tray 2 Position 7*

Anterior talar chamfer reamer
Sizes 1-2 (ref. 270 564) ..... *Tray 2 Position 8*
Sizes 3-4-5 (ref. 270 565) ..... *Tray 2 Position 9*
Screw type B (ref. 271 721) ..... *Tray 1 Position b*

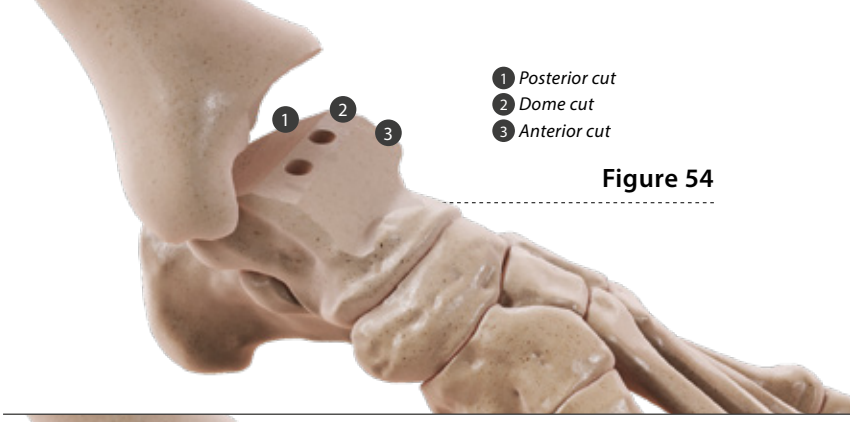
Preparation and performing the medial/lateral talar cut

Once the anterior talar chamfer has been performed, remove all the blocks and pins.

Place the medial/lateral talar cutting guide, (available in 5 sizes), onto the anterior/posterior and dome cuts.

Introduce the two pegs located on the underside of the medial/lateral talar cutting guide into the two -previously made reference holes.

Lock the guide with a central compression pin (L30 mm), using the hexagonal PIN-motor screwdriver. **(Figures 54 and 55)**



1 *Posterior cut*
2 *Dome cut*
3 *Anterior cut*

Figure 54

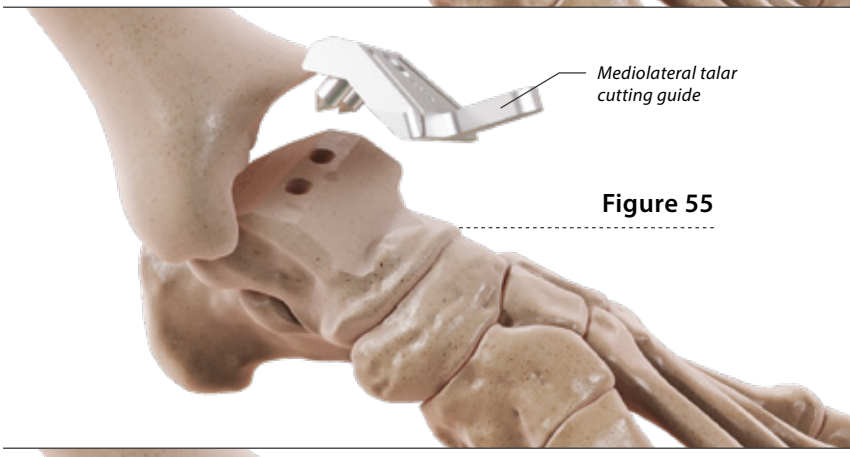


Figure 55

Medial/lateral talar cut

With an oscillating straight saw, make the medial/lateral talar cut through the dedicated slot of the guide.

Once the medial/lateral cut has been performed, remove the pin and the guide. Check the quality of the cuts. **(Figure 56, 57 and 58)**

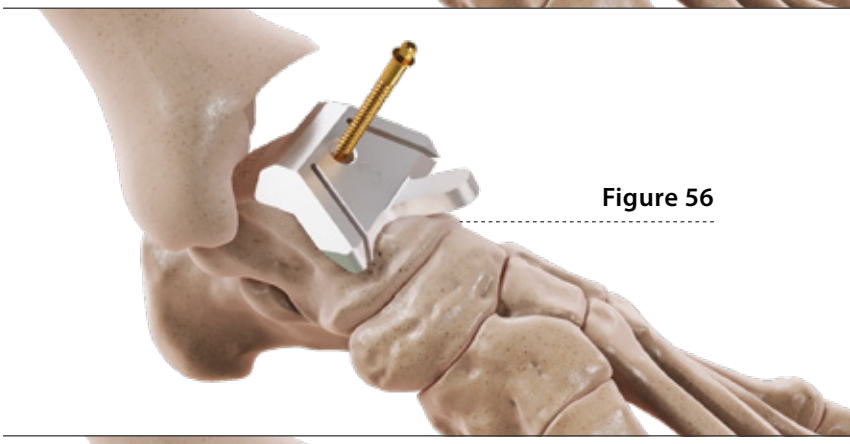


Figure 56

Figure 57

Figure 58

Instruments used

Medial/lateral talar cutting guide

Size 1 (ref. 271 757)	*Tray 2 Position 10*
Size 2 (ref. 271 758)	*Tray 2 Position 11*
Size 3 (ref. 271 759)	*Tray 2 Position 12*
Size 4 (ref. 271 760)	*Tray 2 Position 13*
Size 5 (ref. 271 761)	*Tray 2 Position 14*
Compression pin 30 mm (ref. 271 764)	*Tray 1 Position f*

Easy Move implants sizes

There are 5 sizes of each Easy Move implant.

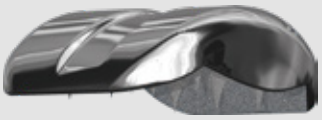
Tibial implant

5 SIZES
same implant for both
right and left

PE-Inlay implant

5 SIZES
for left

5 SIZES
for right



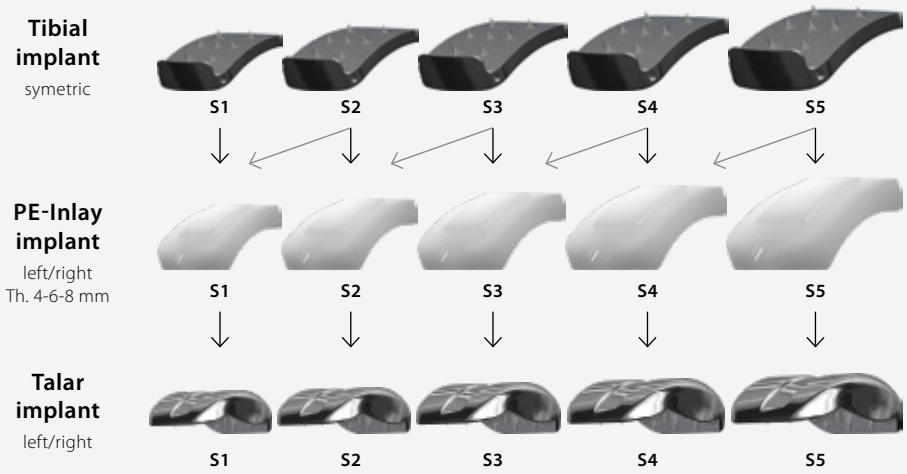
Talar implant

5 SIZES
for left

5 SIZES
for right

Implants compatibility

- The **talar implant** must be the same size or smaller than the tibial implant.
- The **PE-Inlay** matches the talar implant and must be the same size.
- The **tibial implant** however can be larger than the talar implant in each sizes as all the PE-Inlay can be connected to each tibial implant.



Trial implant

There are 5 sizes of each trial implant (tibia, PE-Inlay and talus) and 3 PE-Inlay thicknesses (4 mm, 6 mm, and 8 mm).
The talar trial implant is placed first. Select the appropriate size and insert it freehand. Once the talar trial implants are in place, ensure that the implant is correctly centered on the cut surface and properly seated in the posterior position. **(Figure 59)**

Figure 59

Select the appropriate sizes of the tibial and PE-Inlay trial implant . The trial PE-Inlay is clipped to the tibial trial base, forming a mono-block. **(Figure 60)**

Slide the assembled monoblock (trial PE-inlay + trial tibial implant) over the talar implant.
(Figure 61)

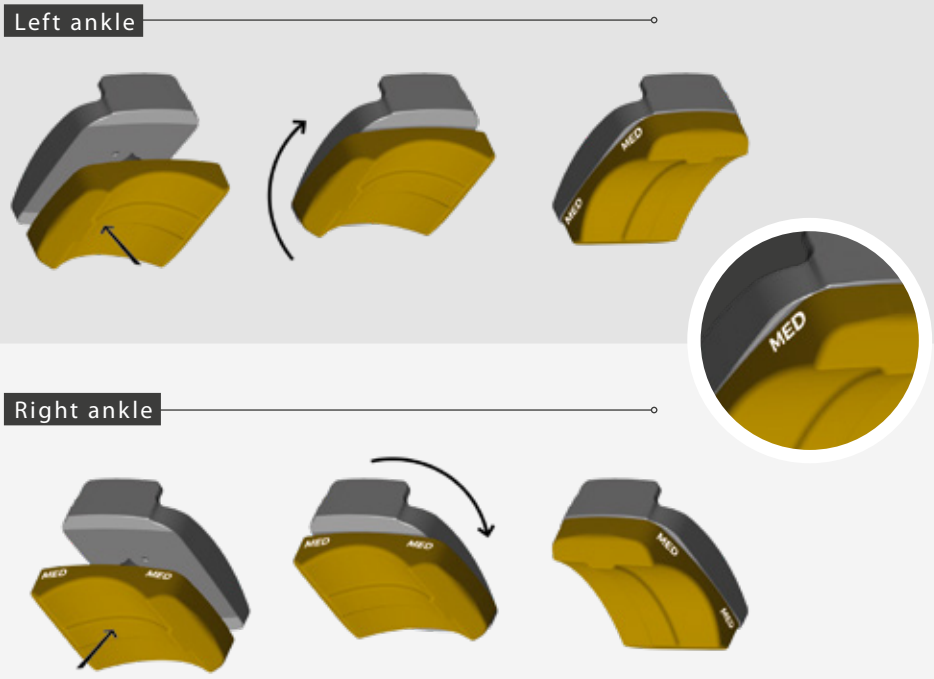


Figure 60

Figure 61

Once the trial implants are in place, a dynamic flexion/extension test should be performed. Check joint kinematics and verify the alignment of the trial implants. Use a cautery and mark the tibial position.
Check that the correct PE-Inlay thickness has been chosen and test ligament tensioning.
If necessary, use an x-ray to check that the implants are properly seated and perfectly placed. **(Figures 61 and 62)**

Trial components

Talar trial implant Right sizes 1-5	*Tray 2 Position 23 to 27*
Talar trial implant Left sizes 1-5	*Tray 2 Position 18 to 22*
PE-Inlay trial implant sizes 1-5 (available in 4, 6, 8 mm)	*Tray 2 Position 28 to 42*
Tibial trial implant Sizes 1-5	*Tray 2 Position 43 to 47*

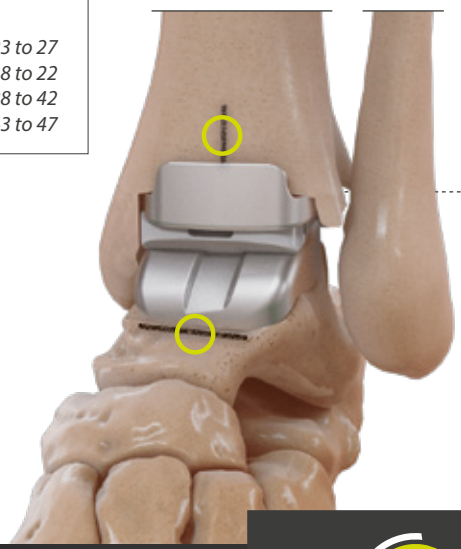


Figure 62

Placing final implants

The contact surfaces between the implant and the bone must be clean and free of any tissue or bone debris that might hinder their positioning.

Please NOTE

Before placing the final talar implant, it is recommended to close the two existing holes on the upper part of the talar dome with bone graft, using a bone impactor. **(Figure 63)**

Talar implant

The talar implant is to be placed first, following the same procedure as described for the placement of the trial implant or using the dedicated clamp or mosquito clamp (see the chapter ***Tips to know & additional information***).

Impact the talar implant using the talar impactor. This may require plantar flexion of the foot. Ensure that the talar implant is correctly centered on the cut surface and properly seated in the posterior position. **(Figures 64 and 65)**

Tibial implant

Insert the tibial implant freehand and make sure that the tibial implant is well aligned with the mark made previously with the cautery.

Apply slight pressure to insert the first part of the tibial spikes into the bone to ensure initial stability.

Use the tibial impactor and impact the tibia very carefully (see the chapter ***Tips to know & additional information***).

Ensure that the tibial implant is seated firmly on the resected distal surface. **(Figures 66 and 67)**

Figure 63

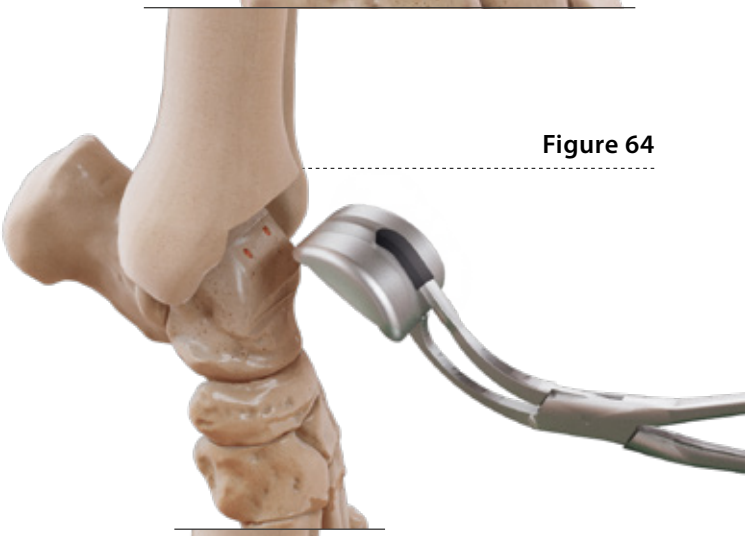


Figure 64

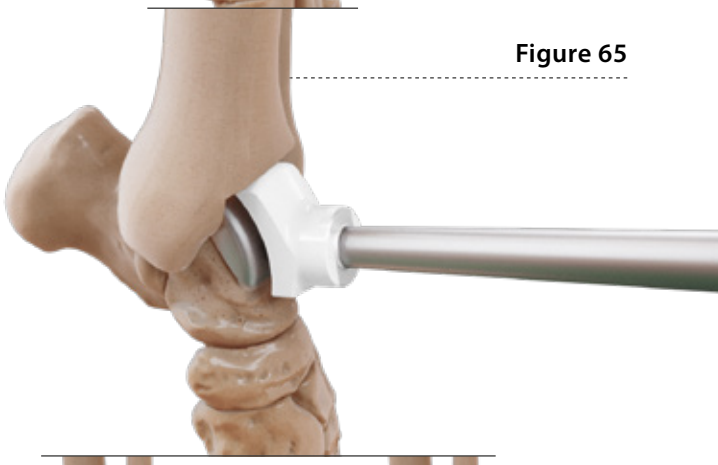


Figure 65

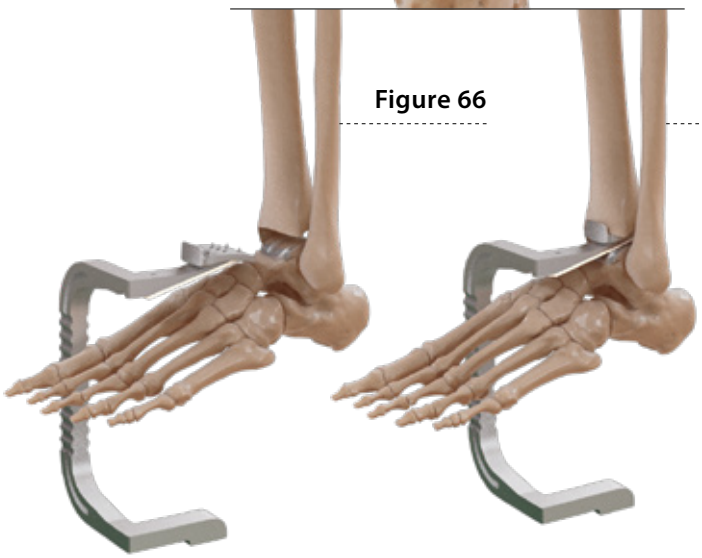


Figure 66

Figure 67

PE-Inlay

The PE-Inlay must be snapped into the tibial implant once the latter has been positioned inside the joint.

Slide the PE-Inlay over the talar implant until it stops at the rear part of the tibial clip.

Then, using the impactor, carefully push the PE-Inlay in order to snap the PE-Inlay into the tibial component.

Check visually and manually that the PE-Inlay insert is stable and clipped to the tibial component. **(Figure 68)**

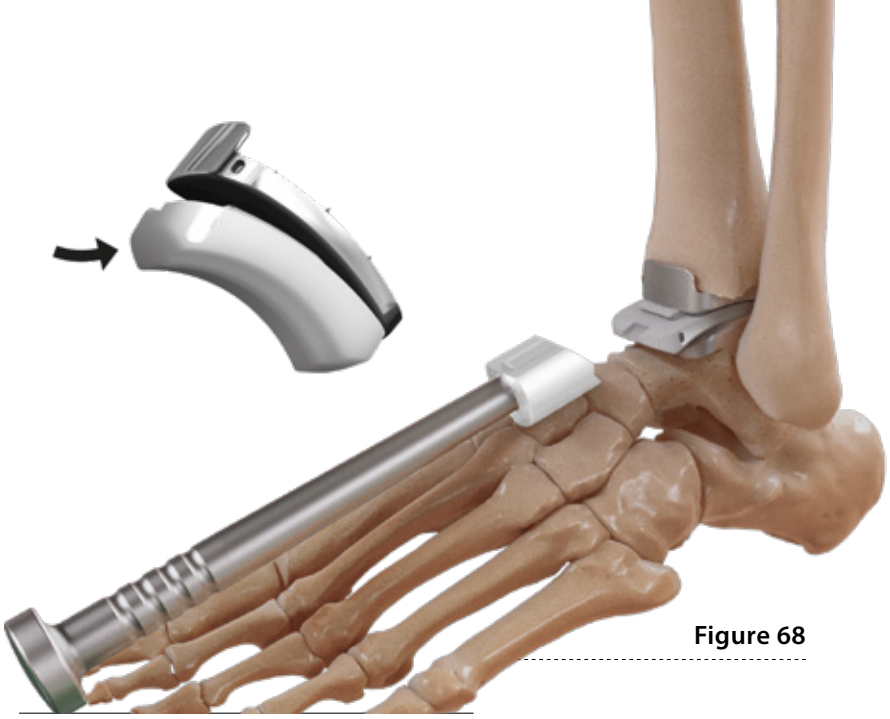


Figure 68

Instruments used

Talar impactor (ref. 271 779) ..... *Tray 2 Position 16*
PE-Inlay impactor (ref. 270 585) ..... *Tray 2 Position 17*
Tibial impactor (ref. 271 780) ..... *Tray 2 Position 15*
Talar positioning clamp (ref. 270 738) ..... *Tray 2 (insert) Position 27*

Final result

Close the wound in layers.

Post-op treatment

The post-operative treatment described below is only a recommendation.

The final post-OP treatment decision is at the doctor´s descretion, according to the specific situation, which varies from patient to patient.

6-Week post-op period: Conservative

2 weeks
of wound healing,
NO movements, 30 kg load,
in a cast or boot

4 weeks
pain-adapted full load,
but NO movement,
in a cast or boot

6-Week post-op period: Less conservative

2 weeks
of wound healing,
NO movements,
pain adapted load,
in a cast or boots

2 weeks
in the boot,
pain-adapted full load,
but NO movement

2 weeks
in the boot, pain-adapted
full load and progressive
movements

IMPLANTS

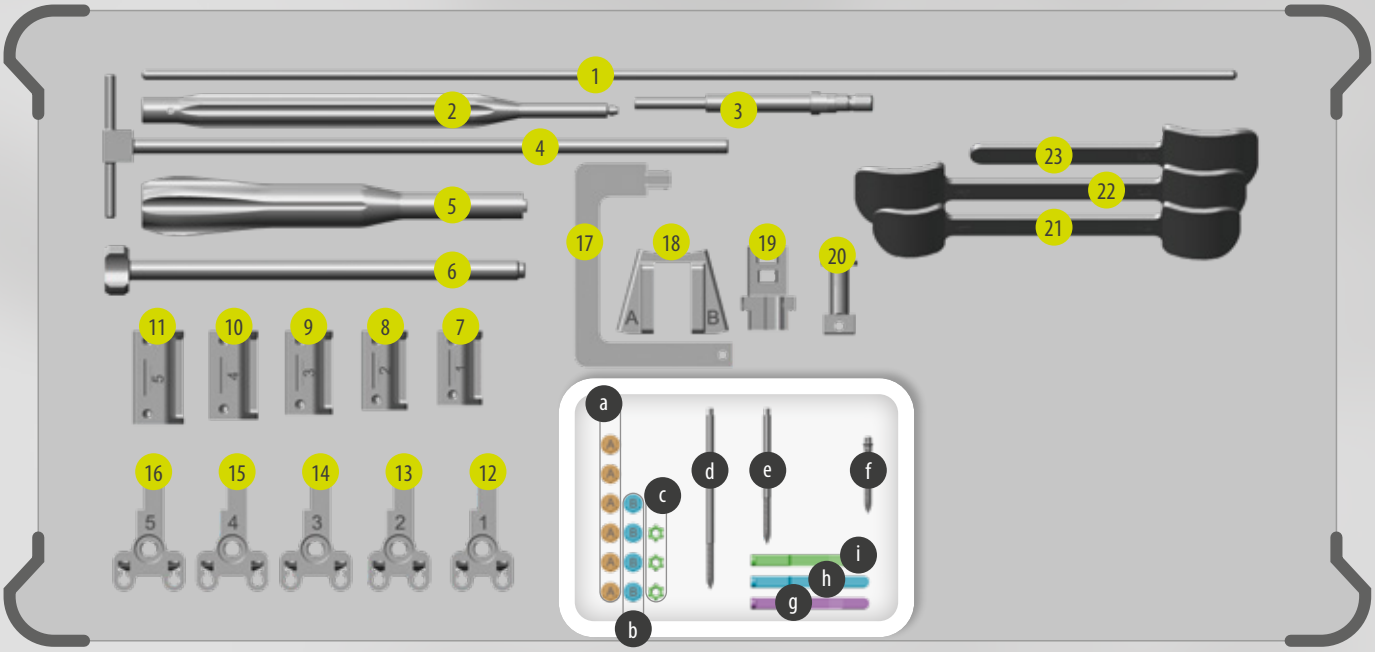
PE-INLAY (UHMWPE)		
SIZE	REF. LEFT	REF. RIGHT
S1 (4 mm)	269 797	269 832
S1 (6 mm)	269 799	269 834
S1 (8 mm)	269 801	269 836
S2 (4 mm)	269 802	269 837
S2 (6 mm)	269 804	269 839
S2 (8 mm)	269 806	269 841
S3 (4 mm)	269 807	269 842
S3 (6 mm)	269 809	269 844
S3 (8 mm)	269 811	269 846
S4 (4 mm)	269 812	269 847
S4 (6 mm)	269 814	269 849
S4 (8 mm)	269 816	269 851
S5 (4 mm)	269 817	269 852
S5 (6 mm)	269 819	269 854
S5 (8 mm)	269 821	269 856

TIBIA COMPONENT (Ti6Al4V)	
SIZE	REF.
Tibia S1	269 776
Tibia S2	269 777
Tibia S3	269 778
Tibia S4	269 779
Tibia S5	269 780

TALAR COMPONENT (CrCo)		
SIZE	REF. LEFT	REF. RIGHT
Talus S1	269 783	269 790
Talus S2	269 784	269 791
Talus S3	269 785	269 792
Talus S4	269 786	269 793
Talus S5	269 787	269 794

INSTRUMENTATION

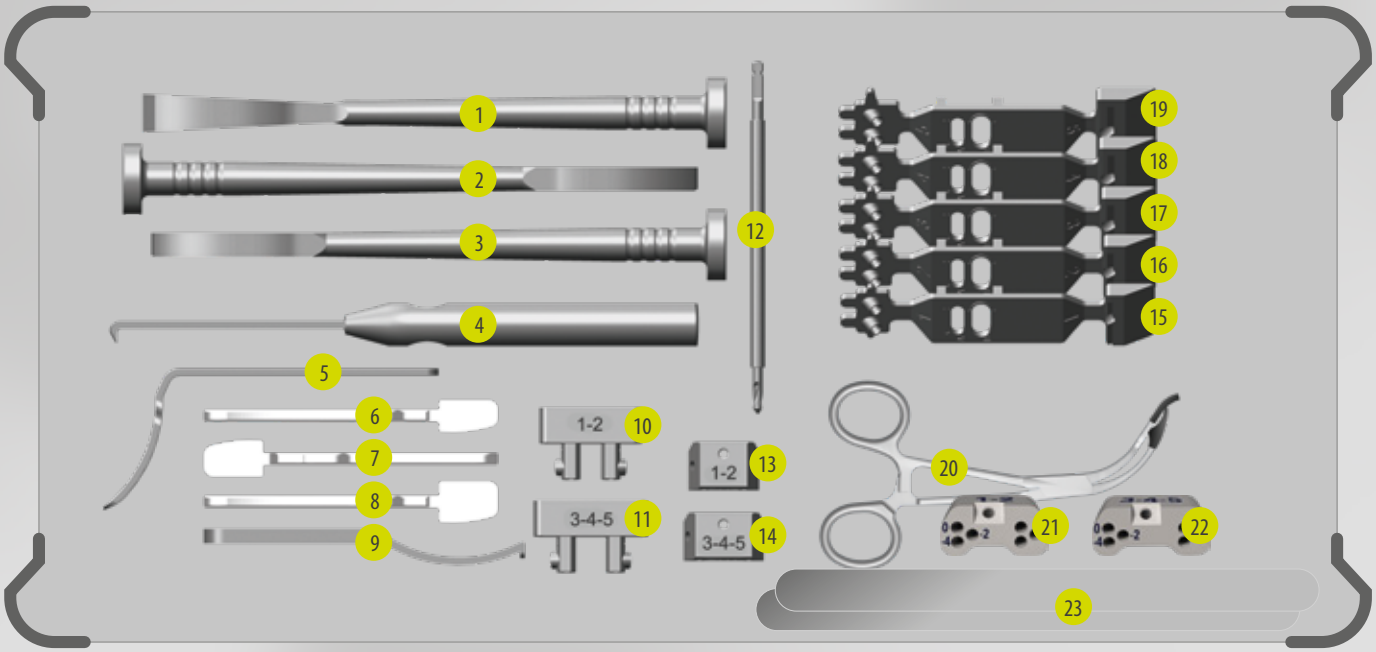
Tray 1



1. Lateral tibial axis alignment rod ..... ref. 236 620
2. Screwdriver and handle for the anterior talar chamfer holding component ..... ref. 271 722
3. Hexagonal pin motor screwdriver ..... ref. 270 529 or GS900-100-000
4. Anterior tibial axis alignment rod ..... ref. 271 708
5. Removable handle ..... ref. 271 703
6. Screwable handle axis ..... ref. 271 704
7. Tibial cutting guide S1 ..... ref. 271 712
8. Tibial cutting guide S2 ..... ref. 271 713
9. Tibial cutting guide S3 ..... ref. 271 714
10. Tibial cutting guide S4 ..... ref. 271 715
11. Tibial cutting guide S5 ..... ref. 271 716
12. Ankle intra-articular-alignment system S1 ..... ref. 271 696
13. Ankle intra-articular-alignment system S2 ..... ref. 271 697
14. Ankle intra-articular-alignment system S3 ..... ref. 271 698
15. Ankle intra-articular-alignment system S4 ..... ref. 271 699
16. Ankle intra-articular-alignment system S5 ..... ref. 271 700
17. Support for the lateral tibial axis alignment ..... ref. 271 711
18. Support for bone fixation ..... ref. 271 694
19. Support for tibial axis-alignment rod ..... ref. 271 695
20. Tibial cutting guide holding system ..... ref. 271 719
21. Intra-articular-tibial gauge S1-S2 ..... ref. 271 690
22. Intra-articular-tibial gauge S3-S4 ..... ref. 271 691
23. Intra-articular-tibial gauge S5 ..... ref. 271 692

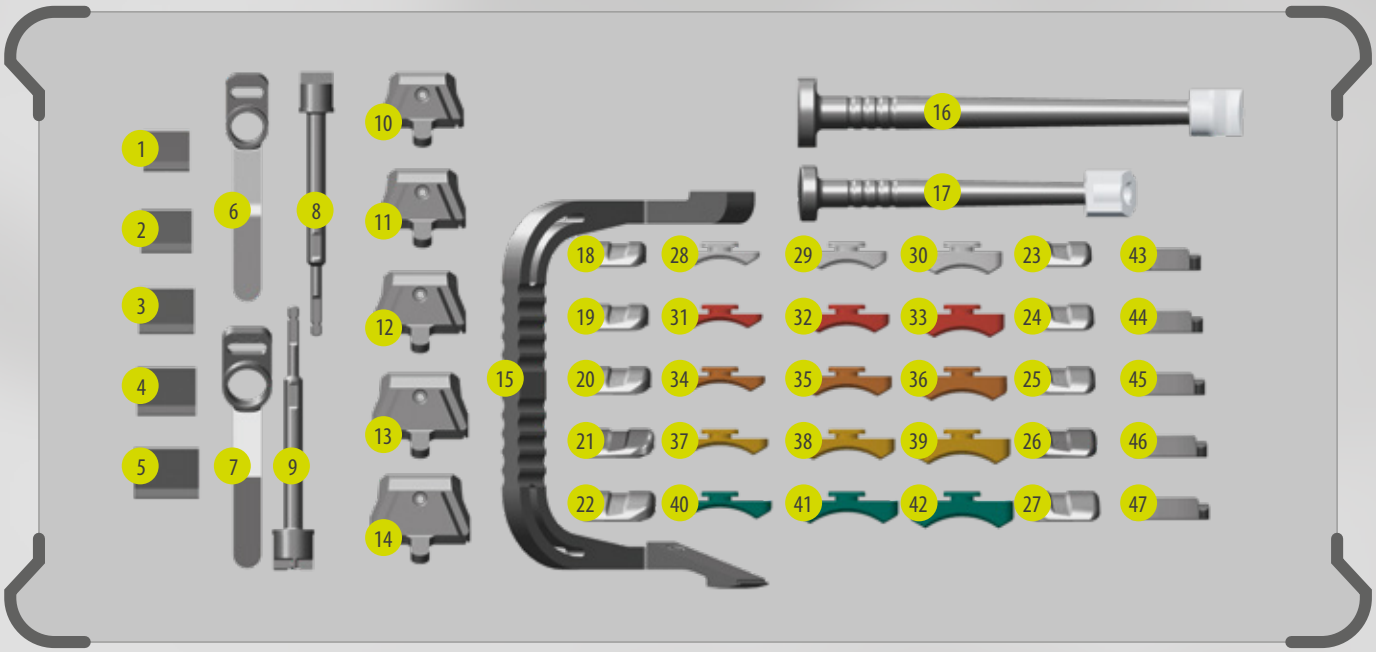
a. Screw type A (x6) ..... ref. 271 720
b. Screw type B (x4) ..... ref. 271 721
c. Pins sleeves (x3) ..... ref. 271 789
d. Pin L80 (x4) ..... ref. 270 740
e. Pin L60 (x4) ..... ref. 270 607
f. Compression pin L30 (x4) ..... ref. 271 764 or GS901-033-032
g. Talar bone defect compensation wedges 1 mm thickness ..... ref. 271 705
h. Talar bone defect compensation wedges 2 mm thickness ..... ref. 271 706
i. Talar bone defect compensation wedges 3 mm thickness ..... ref. 271 707

Tray 2 - insert



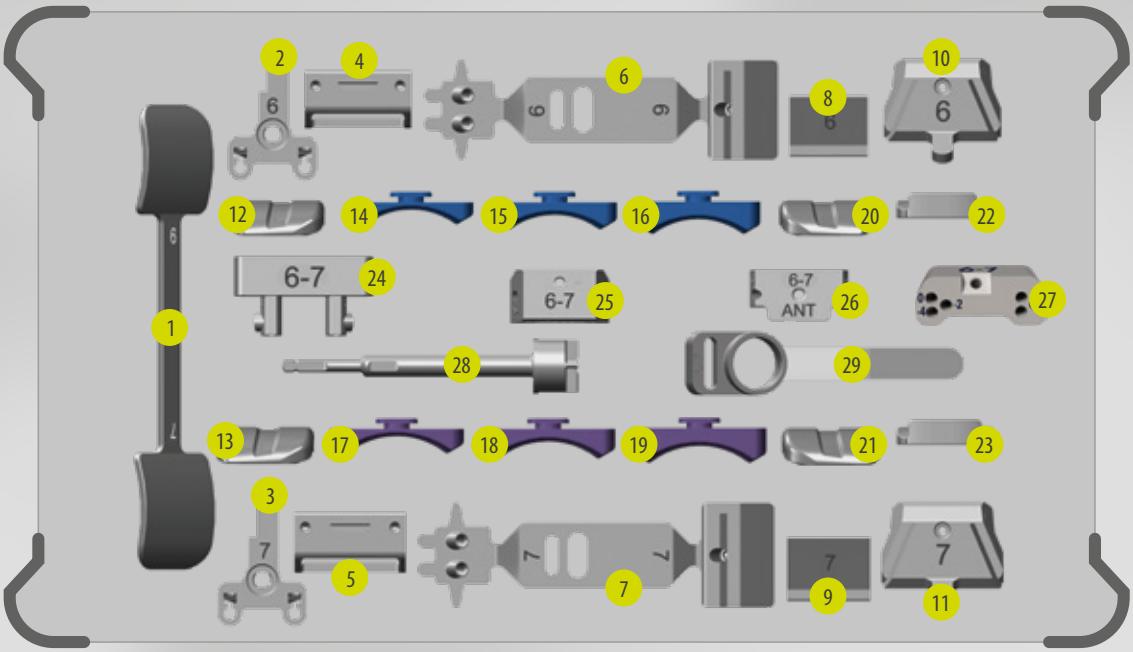
1.	Curved osteotome	ref. 271 723
2.	L-curved chisel right V2	ref. 270 574
3.	L-curved chisel left V2	ref. 270 575
4.	Bone hook retractor	ref. 271 724
5.	Tibial curved cut protection/retractor	ref. 271 725
6.	Spacer PE-inlay 4 mm	ref. 270 603
7.	Spacer PE-inlay 6 mm	ref. 270 604
8.	Spacer PE-inlay 8 mm	ref. 270 605
9.	Tibia size gauge	ref. 270 601
10.	Talar dome cutting guide S1-S2	ref. 271 726
11.	Talar dome cutting guide S3-S4-S5	ref. 271 727
12.	Drill D4	ref. 253 257
13.	Posterior cutting guide support: fix-adjustment S1-S2	ref. 271 732
14.	Posterior cutting guide support: fix-adjustment S3-S4-S5	ref. 271 733
15.	Posterior talar cutting guide S1	ref. 271 739
16.	Posterior talar cutting guide S2	ref. 271 740
17.	Posterior talar cutting guide S3	ref. 271 741
18.	Posterior talar cutting guide S4	ref. 271 742
19.	Posterior talar cutting guide S5	ref. 271 743
20.	Talar positioning clamp	ref. 270 738
21.	Talar pin repositioning guide S1-2	ref. 272 275
22.	Talar pin repositioning guide S3-4-5	ref. 272 276
23.	Ribbon Retractor 12 x 200 mm, malleable	ref. 170-973-012

Tray 2



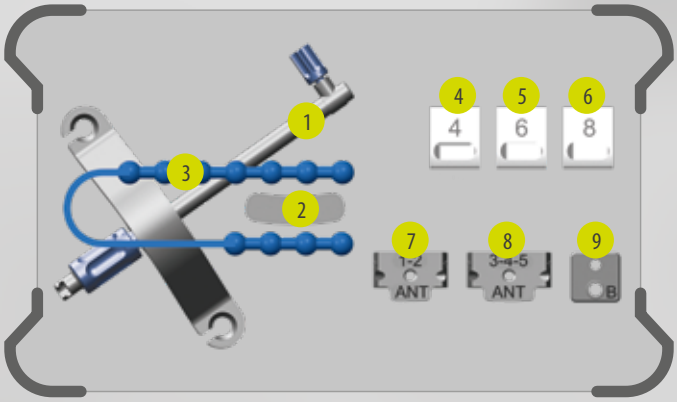
1. Anterior talar chamfer guide holding component S1 ..... ref. 271 747
2. Anterior talar chamfer guide holding component S2 ..... ref. 271 748
3. Anterior talar chamfer guide holding component S3 ..... ref. 271 749
4. Anterior talar chamfer guide holding component S4 ..... ref. 271 750
5. Anterior talar chamfer guide holding component S5 ..... ref. 271 751
6. Anterior talar chamfer guide S1-S2 ..... ref. 271 754
7. Anterior talar chamfer guide S3-S4-S5 ..... ref. 271 755
8. Anterior talar chamfer reamer S1-S2 ..... ref. 270 564
9. Anterior talar chamfer reamer S3-S4-S5 ..... ref. 270 565
10. M/L talar cutting guide S1 ..... ref. 271 757
11. M/L talar cutting guide S2 ..... ref. 271 758
12. M/L talar cutting guide S3 ..... ref. 271 759
13. M/L talar cutting guide S4 ..... ref. 271 760
14. M/L talar cutting guide S5 ..... ref. 271 761
15. Tibial impactor ..... ref. 271 780
16. Talar impactor ..... ref. 271 779
17. PE-inlay impactor ..... ref. 270 585
18. Talar trial implant left S1 ..... ref. 270 608
19. Talar trial implant left S2 ..... ref. 270 609
20. Talar trial implant left S3 ..... ref. 270 610
21. Talar trial implant left S4 ..... ref. 270 611
22. Talar trial implant left S5 ..... ref. 270 612
23. Talar trial implant right S1 ..... ref. 270 615
24. Talar trial implant right S2 ..... ref. 270 616
25. Talar trial implant right S3 ..... ref. 270 617
26. Talar trial implant right S4 ..... ref. 270 618
27. Talar trial implant right S5 ..... ref. 270 619
28. PE-inlay trial implant S1 Th4 ..... ref. 270 629
29. PE-inlay trial implant S1 Th6 ..... ref. 270 631
30. PE-inlay trial implant S1 Th8 ..... ref. 270 633
31. PE-inlay trial implant S2 Th4 ..... ref. 270 634
32. PE-inlay trial implant S2 Th6 ..... ref. 270 636
33. PE-inlay trial implant S2 Th8 ..... ref. 270 638
34. PE-inlay trial implant S3 Th4 ..... ref. 270 639
35. PE-inlay trial implant S3 Th6 ..... ref. 270 641
36. PE-inlay trial implant S3 Th8 ..... ref. 270 643
37. PE-inlay trial implant S4 Th4 ..... ref. 270 644
38. PE-inlay trial implant S4 Th6 ..... ref. 270 646
39. PE-inlay trial implant S4 Th8 ..... ref. 270 648
40. PE-inlay trial implant S5 Th4 ..... ref. 270 649
41. PE-inlay trial implant S5 Th6 ..... ref. 270 651
42. PE-inlay trial implant S5 Th8 ..... ref. 270 653
43. Tibia trial implant S1 ..... ref. 270 622
44. Tibia trial implant S2 ..... ref. 270 623
45. Tibia trial implant S3 ..... ref. 270 624
46. Tibia trial implant S4 ..... ref. 270 625
47. Tibia trial implant S5 ..... ref. 270 626

Tray 3 (on request)



1. Intra-articular-tibial gauge S6-S7 ..... ref. 271 693
2. Ankle intra-articular-alignment system S6 ..... ref. 271 701
3. Ankle intra-articular-alignment system S7 ..... ref. 271 702
4. Tibial cutting guide S6 ..... ref. 271 717
5. Tibial cutting guide S7 ..... ref. 271 718
6. Posterior talar cutting guide S6 ..... ref. 271 744
7. Posterior talar cutting guide S7 ..... ref. 271 745
8. Anterior talar chamfer guide holding system component S6 ..... ref. 271 752
9. Anterior talar chamfer guide holding system component S7 ..... ref. 271 753
10. M/L talar cutting guide S6 ..... ref. 271 762
11. M/L talar cutting guide S7 ..... ref. 271 763
12. Talar trial implant left S6 ..... ref. 270 613
13. Talar trial implant left S7 ..... ref. 270 614
14. PE-inlay trial implant S6 - 4 mm ..... ref. 270 654
15. PE-inlay trial implant S6 - 6 mm ..... ref. 270 656
16. PE-inlay trial implant S6 - 8 mm ..... ref. 270 658
17. PE-inlay trial implant S7 - 4 mm ..... ref. 270 659
18. PE-inlay trial implant S7 - 6 mm ..... ref. 270 661
19. PE-inlay trial implant S7 - 8 mm ..... ref. 270 663
20. Talar trial implant right S6 ..... ref. 270 620
21. Talar trial implant right S7 ..... ref. 270 621
22. Tibia trial implant S6 ..... ref. 270 627
23. Tibial trial implant S7 ..... ref. 270 628
24. Talar dome cutting guide S6-S7 ..... ref. 271 728
25. Posterior cutting guide support: fix adjustment S6-S7 ..... ref. 271 734
26. Support for posterior cutting guide rotation adjustment S6-S7 ..... ref. 271 737
27. Talar pin repositioning guide S6-S7 ..... ref. 272 277
28. Anterior talar chamfer reamer S6-S7 ..... ref. 270 566
29. Anterior talar chamfer guide S6-S7 ..... ref. 271 756

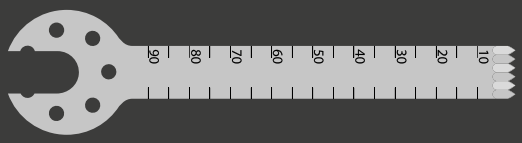
Special instrumentation (on request)



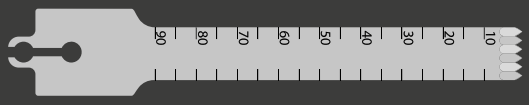
1. Rod extension for anterior tibial axis alignment ..... ref. 271 709
2. Pin fixation guide for anterior tibial axis alignment system ..... ref. 271 710
3. Malleolus strap ..... ref. 236 646
4. PE-inlay spacer for rotation adjustment: 4 mm ..... ref. 271 729
5. PE-inlay spacer for rotation adjustment: 6 mm ..... ref. 271 730
6. PE-inlay spacer for rotation adjustment: 8 mm ..... ref. 271 731
7. Support for posterior cutting guide rotation adjustment S1-S2 ..... ref. 271 735
8. Support for posterior cutting guide rotation adjustment S3-S4-S5 ..... ref. 271 736
9. Component for posterior cutting guide rotation adjustment ..... ref. 271 738

Blades

STERILE (STRAIGHT)



Synthes blade (L. 90 x W. 13 x Th. 1,27 max).....ref. 271 653

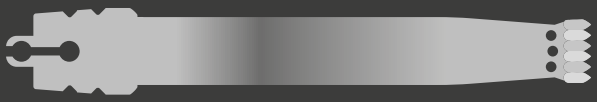


Stryker System 6 narrow blade blade (L. 90 x W. 13 x Th. 1,27 max).... ref. 269 715

NON-STERILE (CURVED)

Linvatec Hall stainless steel curved blade .....ref. 270 666

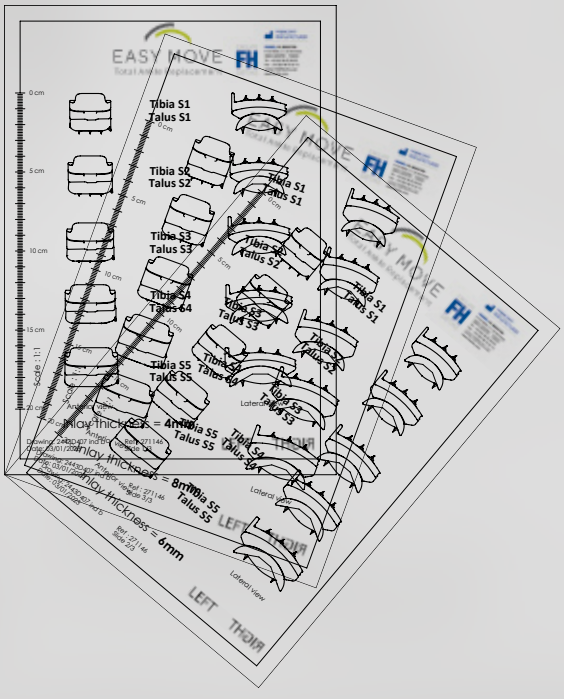
Synthes stainless steel curved blade.....ref. 270 667



Stryker stainless steel curved blade.....ref. 270 668

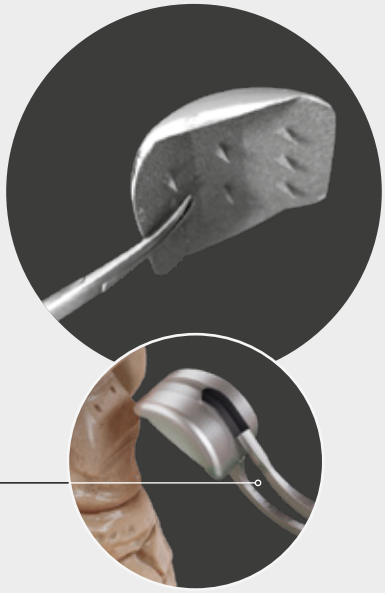
Radiological templates

Radiological templates in scale 1/1 are available
in sizes 1 to 5 (inlay thickness 4, 6 and 8 mm) : **ref. 271 146**

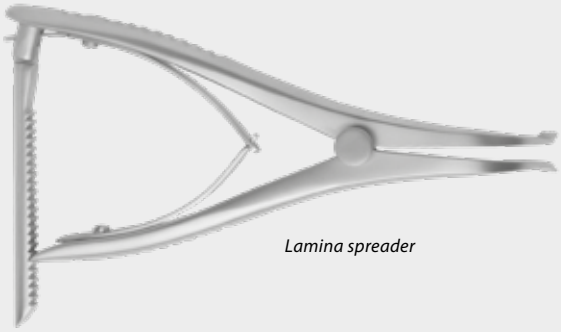


TIPS TO KNOW & ADDITIONAL INFORMATION

Additional tools



Mosquito clamp for the positioning of the final talar implant - as an alternative to the already available dedicated talar positioning clamp ***ref. 270 738***

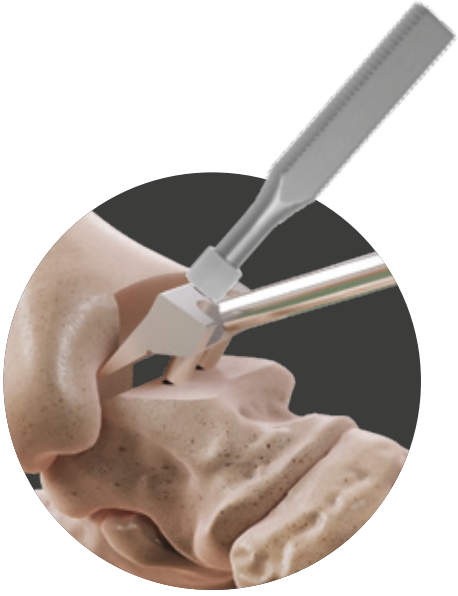


Lamina spreader

Bone impactor

Bone impactor

For a correct positioning of the talar cutting guides (shown below), use a **bone impactor**.



Placing the tibial final implant

1 Insert the tibial implant only halfway, using the tibial impactor.

2 Press the tibial implant against the tibial cut.

3 Impact the implant as shown in the picture using a hammer.

4 Once the tibia shield is well aligned with the anterior tibial aspect, finalize the impaction.

SPECIAL INSTRUMENTATION

Rod extension for the anterior tibial axis alignment

In case of severe tibial deformity, a rod extension for the tibial axis alignment is available in the instruments tray.
The system can be stabilized by introducing a pin into the Tuberositas Tibiae using the dedicated pins fixation guide.
If it is not necessary to secure the system with a pin, use the supplied melleolus strap. **(Figure 69)**

Additional instruments used for rod extension of the anterior tibial axis alignment

Rod extension for the tibial axis alignment (ref. 271 709)..... *Special instrumentation Position 1*
Pins fixation guide for the tibial axis alignment (ref. 271 710)..... *Special instrumentation Position 2*
Malleolus strap (ref. 236 646)..... *Special instrumentation Position 3*
Pin L80 mm (ref. 270 740)..... *Tray 1 Position d*

Figure 69

Posterior talar cutting guide rotation adjustment

Before performing the posterior talar cut, check the axis alignment between the tibial cut and the anatomic talar position.
In case of evident mal-alignment between both, it will be possible to correct the rotation of the posterior talar cutting guide using a dedicated instrument (component for the posterior cutting guide rotation adjustment).
Assemble the posterior cutting guide using the follow special instruments, as shown in **Figure 70**.

- **Support** for posterior cutting guide rotation adjustment (available in sizes 1-2 and in sizes 3-4-5)
- **Component** for posterior cutting guide rotation adjustment
- **PE-Inlay Spacer** for posterior cutting guide rotation adjustment (available in 4-6-8 mm)

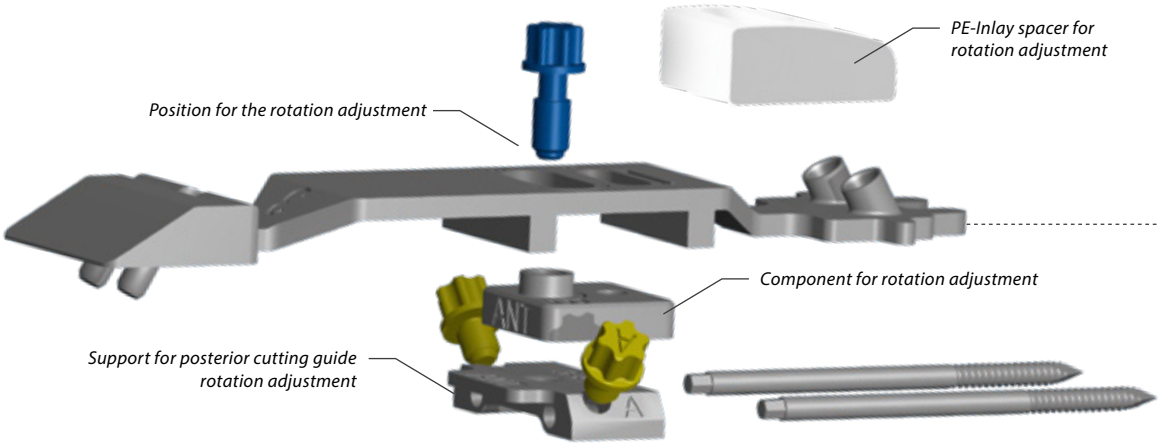


Figure 70

Once the posterior talar cutting guide (in the rotation adjustment version) has been assembled, lock the system with the screw (type B), using the dedicated screwdriver.
Plantar flex the foot, and slide the **support** onto the two talar neck pins on the cut surface of the talar dome cut.
Adjust the anteroposterior and mediolateral position of the posterior cutting guide gauge, and lock the system with the medial/lateral screws (type A).
Put the **PE-Inlay spacer** on the gauge and then insert it into the ankle joint.
Put the foot in a 90° neutral position.
Check the rotation between the tibial curved cut and the talar anatomic position.
In case of mal-alignment, unlock the screw (Type B), adjust the guide to the correct rotation position and lock the screw again.
Once all adjustments have been made, proceed with the „posterior talar cut" as explained in the dedicated chapter.

Additional instruments used for the posterior talar cutting guide

Support for posterior cutting guide rotation adjustment
Sizes 1-2 (ref. 271 735) ..... *Special instrumentation Position 7*
Sizes 3-4-5 (ref. 271 736) ..... *Special instrumentation Position 8*
Component for posterior cutting guide rotation adjustment (ref. 271 738) ..... *Special instrumentation Position 9*

Posterior cutting guide PE-Inlay spacer for rotation adjustment
4 mm (ref. 271 729) ..... *Special instrumentation Position 4*
6 mm (ref. 271 730) ..... *Special instrumentation Position 5*
8 mm (ref. 271 731) ..... *Special instrumentation Position 6*
Screw type A (ref. 271 720) ..... *Tray 1 Position a*
Screw type B (ref. 271 721) ..... *Tray 1 Position b*

NOTES

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