# Surgical Technique

Total Ankle Prothesis

## Salto - Mobile version

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SURGICAL IMPLANTS

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# INTRODUCTION

## 1. PRE-OPERATIVE PLANNING



The preoperative planning for the SALTO prosthesis is carried out using three standard weightbearing radiological views:
Anterior view;
Anterior view with 30° internal rotation to expose the tibial-fibular joint space;
Straight lateral.
**Examination of the healthy side should be used for comparison.**

Complementary imaging may be requested to:
Confirm or reject the indication (CT scan examination for talar necrosis, a relative contraindication for prosthetic replacement);
Discuss the need for an associated procedure (CAT scan of the sub-calcaneum);
Modify the technical details (assess the anterior deviation of the knee with panoramic x-ray).

Special consideration should be given to two types of pre-existing conditions.
• Former malunions responsible for disorientation of the pilon or imbalance of the malleoli, which may require an initial correction.
• Major ligamentous instabilities requiring an examination under stress to plan for specific interventions (release of the retracted side or possible need for an associated ligamentoplasty on the distended side).

### 1. Key planning elements determined from the anterior view:

• Choice of an implant size that does not impinge with the lateral malleolus;
• Determination of the ideal level of the joint space to accommodate any tibial pilon wear phenomena. Comparative images are often necessary to assess the prosthetic joint space (insert- talar dome joint space), which should be located at the theoretical anatomic joint space. The thickness of the tibial resection depends on this determination.

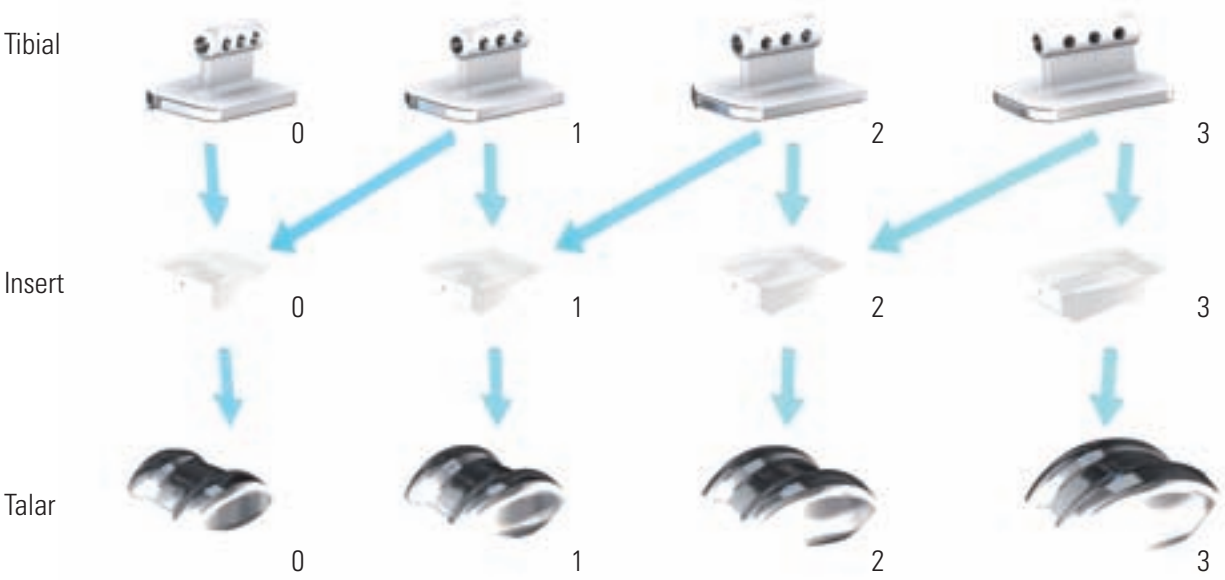
### 2. Key planning elements determined from the lateral view:

• Confirmation of the implant size selected from the anterior view;
• Evaluation of the anterior osteophytic margin and assessment of the amount of bone to be resected to expose the roof of the pilon;
• Evaluation of talar dome morphology, particularly its degree of convexity;
• Evaluation of talar positioning, which can be centered or retroplaced beneath the pilon. The relative positioning of the tibial and talar components should take into account a possible outcentered location with the understanding that the prosthesis adapts to this position and does not correct it. In extreme cases, a pronounced anterior or posterior talar subluxation may preclude implantation of a prosthesis.

## 3. Compatibility rules when choosing implant size

The tibial implant size must be either the same size or one size larger than the talar implant.
The PE size insert must be the same as the talar implant size.

COMPATIBILITY TABLE FOR SALTO IMPLANTS (mobile version)



## 2. THE PRINCIPLE OF INSTRUMENTATION



The instrumentation is designed to obtain perfect reproducibility while adapting to various anatomical conditions, depending on the lesions encountered in the ankle or a particular morphotype.
The broad steps of this operative technique can be summarized as follows.

### 1. Initial tibial preparation

The general tibial cutting line is first determined using a resection guide to align the cut on the tibia and take into account the geometry and orientation of the tibiotalar joint.

### 2. Talar preparation

The talar cuts are then refined to approach the resurfacing step in relation to the initial tibial cut.

### 3. Final adjustments in the tibial implant position

Finally, using trial implants to simulate joint function in the rebuilt joint, the optimal position of the tibial implant can be established. At this stage, tibial preparation is completed.
The Salto instrumentation ensures proper positioning of the tibial implant in relation to the talar implant for a successful arthroplasty.

## 3. SPECIFIC INDICATIONS FOR ANKLE REPLACEMENT SURGERY

**The Salto prosthesis is designed for tibiotalar and talomalleolar joint replacement, either in first-line or revision surgery for patients whose ankle joint has been damaged by a severe form of rheumatoid arthritis or post-traumatic arthritis or degenerative arthritis.**

**The indications for implanting a Salto prosthesis are limited in overweight patients. The complete list of contraindications is specified below.**
**The absolute contraindications that are currently known are: sepsis, sequelae of infection, systemic infection, fever and/or local inflammation, complete talar necrosis, insufficient bone stock, poor skin cover at the joint, persistent cutaneous lesion, substantial ligament laxity, severe osteoporosis, arthrodesis of the ankle with malleolar excision, neuromuscular or psychological pathologies liable to lead to the failure of the fixation and post-operative care, locoregional neurobiological impairment, absence of muscle function in the lower limb, irreparable loss of collateral ligament of the ankle, Charcot arthropathy, high sedimentation rate not related to rheumatoid arthritis, increased WBC count, genitourinary, pulmonary, cutaneous, dental, or other infections that may lead to hematogenic spread to the operative site, bone immaturity, and pregnancy.**

**The Salto ankle prosthesis is available in two versions: a version with fixed-bearing and a version with mobile-bearing. This document describes the implantation technique for the Salto prosthesis, mobile version.**
**The tibial components and the PE inserts of the two versions cannot be interchanged. The components can only be associated as they were intended to be: a fixed tibial implant must be associated with a fixed PE insert; likewise a mobile tibial implant must be associated with a mobile PE insert.**

## 1. Surgical approach and localization of the roof of the tibial pilon

The ankle is opened with a extensile longitudinal anterior incision. This allows for an anterior release and broad arthrolysis with resection of all the osteophytes (Fig. 1). The top of the dome as well as the angles between the pilon and each of the malleoli can be identified precisely using this incision.
If necessary, release of any malleolar attachments can be carried out similarly.

The most distal anterior aspect of the tibia and osteophytes are removed with the osteotome (provided in the instrumentation), exposing the tibial pilon and providing a precise view of the talar dome (Fig. 2).
Resect until the end of the osteotome reaches the roof of the tibial pilon. The osteotome slid into the joint space determines the 0 position for placement of the tibial guide (see §4 page 8).

(fig. 01)
Anterior approach

(fig. 02)

**Instruments used for this step**

osteotome - Ref : MJU357

## 2. Positioning the tibial guide

The guide should be aligned parallel to the tibia's mechanical axis; this is a determining factor in all the resections performed during the procedure (Fig 3.).

First check that all of the guide's knobs are unscrewed.

Place a 110-mm self-drilling pin at the ATT in the neutral hole (Fig. 4), with the alignment guide parallel to the tibial crest.

(fig. 03)


(fig. 04)

**Instruments used for this step**

- Tibial guide - Ref : MJU333

- Pin length 110 mm - Ref : MDU905

Align the pin guide to position 0 at the resection and set this position with the lateral knob.
If necessary, position the osteotome in the joint space, so that it will be parallel with the distal plane of the tibial guide (Fig. 5). Then position the most distal part of the guide on the osteotome. Translation movement is possible as soon as the central knob is loosened. Tighten the central knob using a screwdriver and remove the osteotome.

Insert a second 110-mm self-drilling pin distally through the guide's medial hole, positioning the alignment guide's axis in the center of the inferior metaphysis (Fig. 6).


(fig. 05)

(fig. 06)

**⚠ The other 75- and 45-mm pins provided in the instrumentation are not self-drilling. In the following steps, preparatory drilling with a Ø 2.9 trephine drill is mandatory before pins can be inserted.**

**Instruments used for this step**

- Screwdriver - Ref : MLN113

- Pin length 110 mm - Ref. : MDU905

## 3. Adjusting the alignment guide

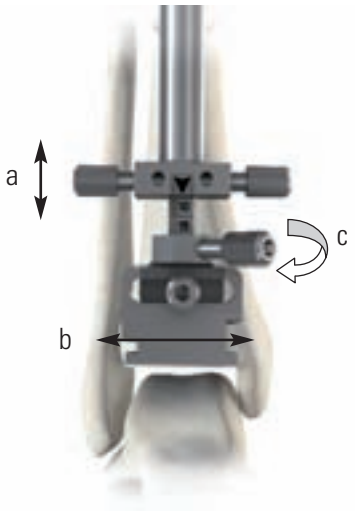
**Frontal plane:** The axis of the tibial resection guide should be made parallel to the tibia's mechanical axis by choosing the proper hole of the proximal pin guide (Fig. 8).

**Sagittal plane:** With both flanges in contact with the tibia, the resection guide is adjusted parallel to the anterior tibial crest (Fig. 9).
At this stage, a genu varum or a genu valgum deformation can be corrected by moving the proximal guide medially or laterally over the pin, making it possible to implant the prosthesis strictly parallel to the tibial axis to compensate for an axis defect, to give greater importance to the horizontality of the tibiotalar joint space. The timing and degree of this compensation should be discussed for each case (possibility of secondary knee surgery, subtalar joint stiffening in a position that compensates the axis).
Once the guide is positioned in the frontal and sagittal planes, the set-up is finalized by tightening the screw of the superior guide and the screw of the medial knob.

(fig. 08) (fig. 09)

## 4. Final adjustment of cutting height, rotation, and lateral position

**Height adjustment:**
The cutting level determined during preoperative planning is transferred to the distal resection guide by translating it (Fig.10).
Warning: When determining the cutting level during surgery, any significant wear or loss of substance on the tibia must be taken into account.
For an unworn tibial pilon, the recommended cut is 7 mm above the tibial pilon roof, which corresponds to adding the thickness of the tibial plate (3 mm) to the lowest thickness of the PE inserts (4 mm).




(fig. 10)
a: height adjustment
b: mediolateral adjustment
c: rotation adjustment

**Transversal and rotational positioning:**
The specific alignment guide used for mediolateral and rotational adjustment of the implant is attached to the principal tibial guide.
Adjustments are made as follows.

Rotational adjustment: Insert a 110-mm pin in each of the malleolar grooves. A third pin slipped into the guide's adjustable arm simulates the medial axis of the tibial implant and therefore should be positioned along the bisector axis of the two malleolar groove pins (Fig. 11).
Once the rotational position has been adjusted, the guide's rotational adjustment knob is tightened.

Mediolateral adjustment: The tibial implant size planned preoperatively is confirmed through a series of lateral and medial holes on the guide.
The different implant sizes available (0, 1, 2, and 3) are on the guide; hence the size is confirmed by inserting two 75-mm pins in the medial and lateral holes and by positioning them at the angles formed by the malleoli (Fig. 12).

⚠ **Precaution for use of the guide:**
**Since this guide is not a cutting guide, do not drill through the holes. The pins inserted in the holes are used only to verify that the tibial plate is properly positioned. They are inserted in the holes but not screwed in.**

**Instruments used for this step**

- Tibial alignment jig - Ref : MJU334

- Pins - Ref : MDU907 and MDU905

(fig. 11)
The guide should be aligned on the bisecting line of the angle formed by the lateral and medial gutters.

(fig. 12)

## 5. Preselection of talar implant size

Before proceeding to resecting the tibia and to perfectly match the tibial and talar sizes, the size of the tibial implant selected preoperatively can be confirmed.
Two mediolateral obstruction gauges are included in the instrumentation for the talar implants.
The talar gauge (0, 1, 2, or 3) selected during preoperative planning is placed on the top of the talar dome (Fig. 13). It should have the same width as the talar dome width.

As shown in the implant compatibility table (see p. 2), a talar implant that is one size smaller than the tibial implant can be used.

(fig. 13)

**Instruments used for this step**

- Talar gauge, size 0/1 - Ref : MJU331
- Talar gauge, size 2/3 - Ref : MJU364

## 6. Placing the cutting guide

Depending on the size chosen at the preoperative planning stage and in accordance with the talar implant size selected, tibial resection guide no. 0, 1, 2, or 3 is chosen. This unit is attached to the alignment guide by tightening the knob (Fig. 14).

**Precautions before use:**
**Once all the adjustments have been made and before using the oscillating saw, make sure that all the knobs have been tightened properly with the screwdriver provided in the instrumentation.**

(fig. 14)

**Instruments used for this step**

Tibial resection guide:
Ref : MJU370 : size 0
Ref : MJU371 : size 1
Ref : MJU372 : size 2
Ref : MJU373 : size 3

## 7. Preparation for drilling lateral sides of tibia

Using a trephine drill (Ø 2.9), drill through the two proximal holes. Two 75-mm pins are inserted into these proximal holes to protect the malleoli from the sweep of the saw blade during the horizontal cut (Fig. 15).
Drilling the other distal holes bicortically prepares the vertical cuts.

(fig. 15)

## 8. Tibial cut

The horizontal tibial resection is performed with a saw (Fig.16), extending carefully to the back, as far as the posterior cortex. The resection block is then withdrawn to allow completion of the vertical resections with a chisel, and the pins are extracted with the pin puller included in the instrumentation.
Once the cuts have been made, the epiphysis must be resected, or at least its anterior part, which is easily accessible.
The remaining posterior resection is easily completed after the talar resection. At this stage, the goal is to be able to straighten the foot at a right angle below the tibia.

(fig. 16)

**Instruments used for this step**

- Aesculap saw blade - Ref : MVV073
- Hall saw blade - Ref : MVV083
- AO Muller saw blade - Ref : MVV085
- Stryker saw blade - Ref : MVV087

- Trephine drill Ø 2.9 - Ref : MJU352

- Pin puller - Ref : MJU359

- 75-mm pins - Ref : MDU907

## 9. Preparing the posterior talar cut

The posterior cut of the talus depends on the tibial cut performed earlier. The talar guide is positioned on the tibial alignment guide.
Drilling is performed while maintaining the foot at 90°, with no rotation, varus, or valgus. A hole will be chosen that allows drilling with the trephine drill (Ø 2.9 mm) at the base of the talar neck (Fig.17).

Once drilling has been performed, the talar setting guide is withdrawn, a 75-mm cutting guide pin is inserted in the hole (Fig.18).

(fig. 17)

**Instruments used for this step**

- Talar pin positioner guide - Ref : MJU335

- Trephine drill Ø 2.9 - Ref : MJU352
- 75-mm pins - Ref : MDU907

## 10. Setting the talar resection guide and the talar pins

Two posterior talar dome resection guides are provided, one for size 1, 2, or 3 talar implants and the other for size 0.
To take into account any symmetrical or asymmetrical wear of the talar dome, one or two height-compensating paddles should be assembled on the guide selected.
6 paddles are provided for 1-, 2-, or 3-mm height compensations.

(fig. 18)

The posterior talar dome resection guide with no height-compensating paddles should be used when there is no talar dome wear.
The posterior talar dome resection guide is placed onto the talar pin that has been attached on the neck; then its two prongs, with or without height compensating paddles, are placed on the two edges of the talar dome.
The front knob stabilizes the resection guide position.
(Comment: Before tightening the front knob, the guide can also be stabilized using two joint distractors, each leveraged on the prongs on one side and the tibial cut on the other side. In this case, care should be taken to position the leverage point of these forceps at the upper edges of the talar dome, to prevent the resection guide from tipping.)

Then two to four 75-mm pins are inserted through the guide, drilling with the trephine drill.
The upper part of these pins defines where the talar resection will be made (Fig. 19).
**At this stage, one can verify that the pins are properly positioned using an image intensifier in a sagittal view: The pins should exit posteriorly at the inferior part of the joint surface.**

(fig. 19)

**Instruments used for this step**

- Posterior talar resection guide, size 1/2/3 - Ref : MJU376
- Posterior talar resection guide, size 0 - Ref : MJU375
- Height compensation paddles
  Thickness 1 mm - Ref : MJU381
  Thickness 2 mm - Ref : MJU382
  Thickness 3 mm - Ref : MJU383

- Joint Distractors - Ref : MJU345, MJU346

## 11. Talar resection on pins

With the guide removed, the posterior talar cut is made with the oscillating saw (Fig. 20). To protect the malleoli from the sweep of the saw blade, a set of ribbon retractors are provided in the instrumentation.

To follow the planned resection accurately, the saw should cut flush on the surface of the pins.
The pins are then withdrawn.

**At this stage, after the talar dome is resected, the posterior portion of the distal tibial resection and the posterior arthrolysis can be completed.**

(fig. 20)

**Instruments used for this step**

- Ribbon retractors - ref : MJU086

## 12. Anterior talar chamfer

This chamfer conditions the anteroposterior positioning of the talar implant beneath the tibial implant.
After removal of the osteophytes from the talar neck, the guide for the anterior chamfer is placed on the posterior talar dome resection, with the inferior roughened surface flush with the talar dome resection.
Before reaming, the guide is positioned in two steps :
- The talar position spacer is inserted in the oblong window (Fig. 21). The foot is maintained at 90° in the neutral position. The anterior cortex of the tibia should be tangent to the calibration line on the spacer (Fig. 22). If the guide is too far anterior, the talar neck must be exposed using the rongeur until the guide is optimally positioned (check the positioning described above).
Ante- or retropositioning of the talar implant would result in poor alignment of the tibial implant, a potential source of premature deterioration.
- To avoid any rotational disorder, align the sides of the instrument with the third metatarsal.

(fig. 21)

(fig. 22)
Foot at 90°

**Instruments used for this step**

- Anterior talar chamfer guide - Ref : MJU336

- Talar position spacer - Ref : MJU337

- Holding clamp - Ref : MJU048

The chamfer guide is then attached using a 45-mm pin, with the pin impacted using a specific pin pusher so that there is not excessive exterior instrumentation while providing sufficient material for the pin puller to grasp.

The guide can be further stabilized using one or two distractive clamps whose ends fit into the guide's indentations.

A reamer is assembled onto the guide and the cut is made using the reamer in two steps by turning the reaming barrel over (Fig. 23): finishing the resection at the medial and lateral margins requires trimming with an osteotome or the gouge forceps.

(fig. 23)

**⚠ PRECAUTIONS BEFORE USE:**
**A DRILLING BARREL MUST BE USED FOR REAMING.**

**Instruments used for this step**

- Reaming guide, R/L side - Ref : MJU339

- Anterior chamfer reamer - Ref : MJU338

- Pin pusher - Ref : MJU365
- Anterior talar chamfer guide - Ref : MJU336
- 45-mm pins - Ref : MJU354

## 13. Positioning the lateral resection guide

The lateral resection guide is available in two versions: right and left (as indicated on the instrument). The removable handle should be screwed onto the guide.
The plug-shaped mediolateral positioning gauge is inserted in the lateral talar resection guide corresponding to the operated side, with the wing inserted along the guide's groove. The guide is set on the anterior and posterior resected surfaces. The guide's wing is positioned on the resulting ridge at the junction between the anterior chamfer and the posterior resection.
The mediolateral position of the resection guide is optimal when the tip of the wing is aligned on the lateral cortex of the talus (Fig. 24).

(fig. 24)

**Instruments used for this step**

- Removable handle - Ref MJU342

- Lateral chamfer guide
  Right side: Ref : MJU341
  Left side: Ref : MJU340

- Positioning gauge (plug-shaped) - Ref : MJU343

- 45-mm pins - Ref : MJU354

## 14. Drilling the talar plug

Proper positioning of the guide on the initial resected talar surfaces conditions the end of the talar phase and the future basis for the talar implant.
Once the lateral talar resection guide is secured to the talus, either with a 45-mm pin or distractive clamps, the talar plug is prepared with a bell saw (fig. 25).

Reaming is complete when the bell saw is advanced to the hard stop.

The guide position is secured with the fixation plug driven completely in (Fig. 26).

To facilitate the lateral resection, the guide's removable handle can be removed at this stage.

The lateral cut on the flat surface is made using the oscillating saw, with the saw blade following the external slope of the guide (Fig. 27). The lateral malleolus can be protected with ribbon retractors.

(fig. 25)

(fig. 26)

(fig. 27)

**Instruments used for this step**

- Bell saw - Ref : MJU344

- Fixation plug - Ref : MJU012

- 45-mm pins - Ref : MJU354
- Joint distractors - Ref : MJU345 and MJU346
- Lateral chamfer guides - Ref : MJU340 and MJU341

## 15. Precautions when using a size 0 for a lateral resection

If the talus size requires using a size 0 (see preselection of talar implant size step), the operative technique requires a specific mediolateral positioning bushing to affix the lateral resection guide. This bushing guides the mediolateral positioning as well as the drilling barrel. This positioning and drilling bushing is inverted depending on the side operated, with the wing on the lateral side.

The resection guide is positioned by aligning the tip of the wing on the lateral cortex of the talus as for sizes 1, 2, and 3.

For a size 0 talar implant, the diameter of the fixation plug is narrower than the standard sizes, and the bell saw is replaced with the talar drill (Fig. 28). The size 0 plug replaces the standard fixation plug.

(fig. 28)

**Warning: the instrumentation includes another, longer drill (Ø 7.9); it is exclusively reserved for drilling the tibial keel. Take care not to confuse the drill bit of the tibial keel with the drill designed for the talar implant.**
**Each instrument is clearly marked with its intended use.**

**Instruments used for this step**

- Mediolateral positioning bushing, size 0 - Ref : MJU377

- Talar drill size 0 - Ref : MJU362

- Fixation plug, size 0 - Ref : MJU082

## 16. Placing the trial talar implant

The trial talar implant corresponding to the operated side and the size that has been chosen beforehand is put in place first.

Available for both right and left sides, properly positioning the trial implant is vital to respecting the patient's anatomy and ensuring long-lasting postoperative results:

- In accordance with the talus anatomy, the talar implant is wider anteriorly than posteriorly.

- The lateral side of the malleolus reproduces the talofibular joint.

Once this has been checked, the trial implant plug is inserted in the blind hole that was made previously with the bell saw for sizes 1, 2, and 3, or with the drill for size 0.

The trial implant is impacted with the talar component impactor (Fig. 29)

(fig. 29)

**Instruments used for this step**

Talar component impactor - Ref : MJU351

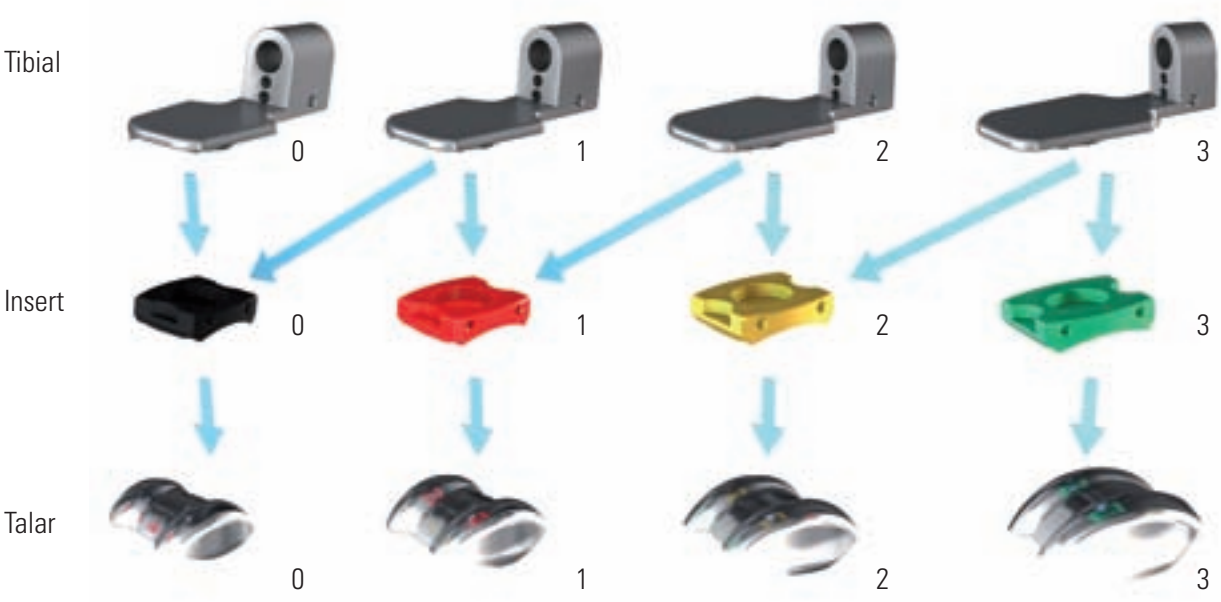
## 17. Dynamic test and drilling of tibial plug

The plastic trial insert is selected depending on:

- Size, which must be identical to the size of the talar implant. A color code is used to simplify this step (see compatibility table).
- Thickness: five different thicknesses from 4 to 8 mm.

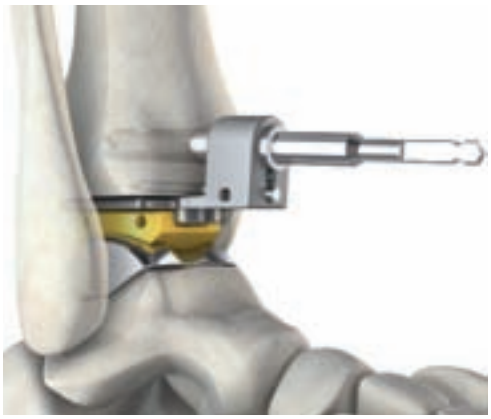
The trial tibial base is selected in accordance with the operated side and the size planned for the tibial base.
The trial insert is clipped on the trial tibial base forming a monoblock. A ROM test automatically checks that the trial insert is properly aligned on the tibial phantom.

COMPATIBILITY TABLE



The tibial base is then inserted between the trial talar implant and the tibia.
A dynamic flexion/extension test is performed on the foot to check the joint's kinematics. The tibial trial will naturally find its optimal position in the frontal and sagittal planes as well as in the rotational plane (Fig. 30).
At this stage, one must check that the engraved line on the superior surface of the tibial trial (the side in contact with the tibial cut) is aligned with the anterior cortex of the tibia.
If this line simulating the final anterior extremity of the tibial implant is too far anterior, the alignment must be forced when drilling the tibial plug. On the other hand, if the line is located posterior to the anterior cortex of the tibia, the final tibial implant should be positioned in the same way.
AT THIS POINT, IT IS ESSENTIAL TO VERIFY THAT THE TRIAL TIBIAL IMPLANT BASE IS PERFECTLY PLACED ON THE RESECTED TIBIA.
Preparation of the tibial implant keel begins using the trephine drill (Ø 2.9). The two inferior holes are drilled, then the trial tibial base is held by a 45-mm pin in the distal hole (Fig. 31). This operation will prepare for the tibial keel. The tibial plug is placed using a drill bit (Ø 7.9), guided into the trial's upper hole.
Drilling through the tibial base guide gives a 4° angle from the tibial base plate, aiming for a press-fit of the final implant between the keel and the distal cut during impaction.

(fig. 30)



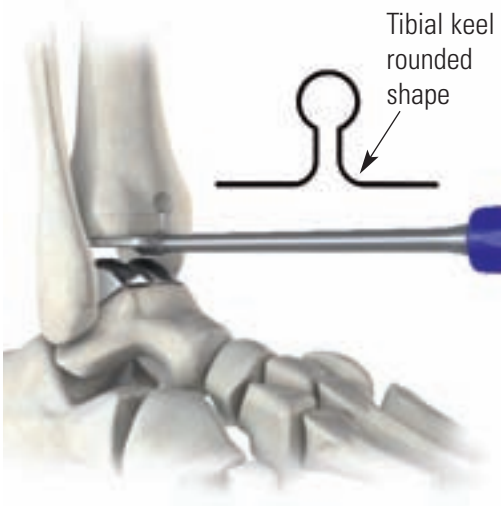
(fig. 31)

**Instruments used for this step**

- Trial tibial implant: R - Ref : MJU420 to 423
- Trial tibial implant: L - Ref : MJU430 to 433
- Tibial keel drill bit (Ø 7.9) - Ref : MJU353

## 18. Finishing touches on the tibial keel

Once the plug has been place, the trial insert monoblock is removed.
The tibial holes are rejoined using a small osteotome; then the thickness and depth of the engraved line are checked with the graduated osteotome.
The distal part of the anterior groove of the tibia is beveled using the rasp, so that the tibial implant lies flush on the resection (Fig. 32).
With the different tibial implant sizes (0, 1, 2 , and 3) marked on the upper surface of the rasp, the trimming done in this manner perfectly matches the length of the implant selected.
The trial talar implant is then withdrawn.




(fig. 32)

**Instruments used for this step**

- Tibial keel graduated osteotome - Ref : MJU387

- Rasp - Ref : MJU350

- Osteotome - Ref : MJU357

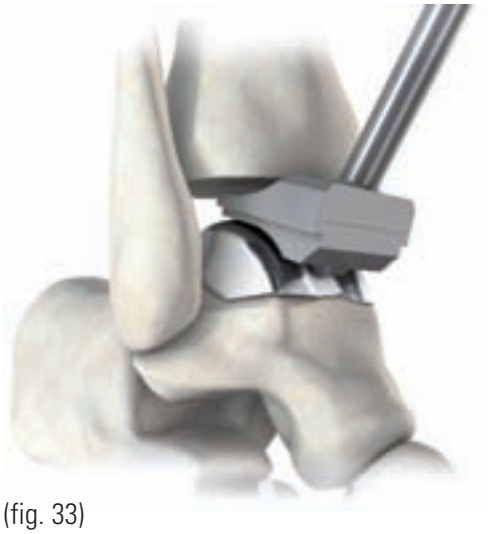
## 19. Placing final implants

**Recommendation: the final implants should be positioned identically to the trial implants. The tibial and talar implants should not be cemented.**

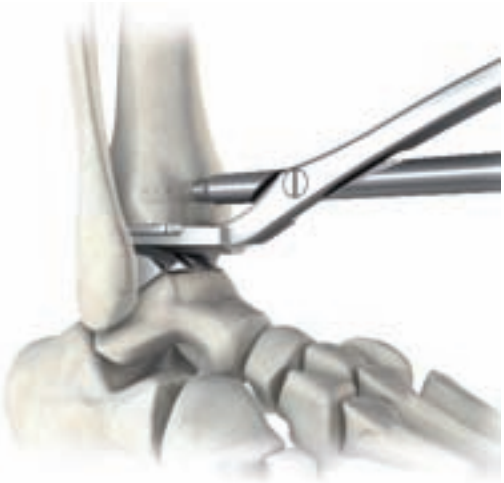
The talar implant is placed first, following the same procedure as described during the placement of the trial talar implant. It is impacted with the talar component impactor (Fig. 33).
The size and side selected during the implant trials must be retained.

The tibial implant mounted on the impactor selected for this purpose is grasped in the clamp between the metallic plug and the plastic base. To be sure that the implant is not inverted, the edge of the base should be positioned on the side of the internal malleolus with the rounded side of the implant facing anteriorly. During tibial implant impaction, maintain good contact between the upper side of the implant and the tibial resection to prevent any risk of a posterior gap between the tibial cut and the implant (Fig. 34).

The mobile pad is inserted between the two metal components, with the information on the side, size, and thickness facing the operator. Shaped using the osteotomes provided in the instrumentation, a bone graft is applied to it using a graft remover in the tibial window (Fig. 35).



(fig. 33)



(fig. 34)

(fig. 35)

**Instruments used for this step**

- Tibial component impactor - Ref : MJU360

- Talar component impactor - Ref : MJU351
- Osteotomes - Ref : MJU356 and MJU357

## 20. Revising or removing implants

To precut the bone around the tibial plug, use the osteotomes provided for this purpose in the instrumentation.
Pull out the mobile insert.
Hook the extractor provided for this purpose to the tibial implant.
Insert the point of the extractor in the implant keel. The flat surface of the extractor should be in contact with the flat surface of the tibial base. Screw the slap hammer on the tibial extractor.
Push and pull vigorously with the slap hammer until the implant is fully removed.
The talar implant is separated from the talus with the osteotome.

**Instruments used for this step**

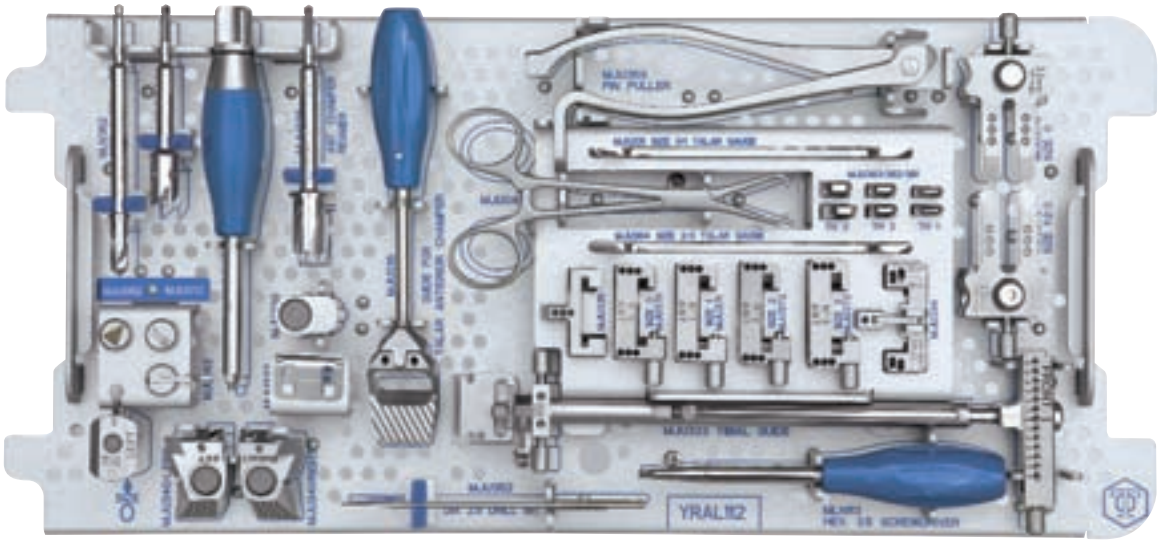
- Tibial component extractor - Ref : MJU368

- Slap hammer - Ref : MJU358

- Tibial plug revision osteotome - Ref : MJU356

- Osteotome - Ref : MJU357

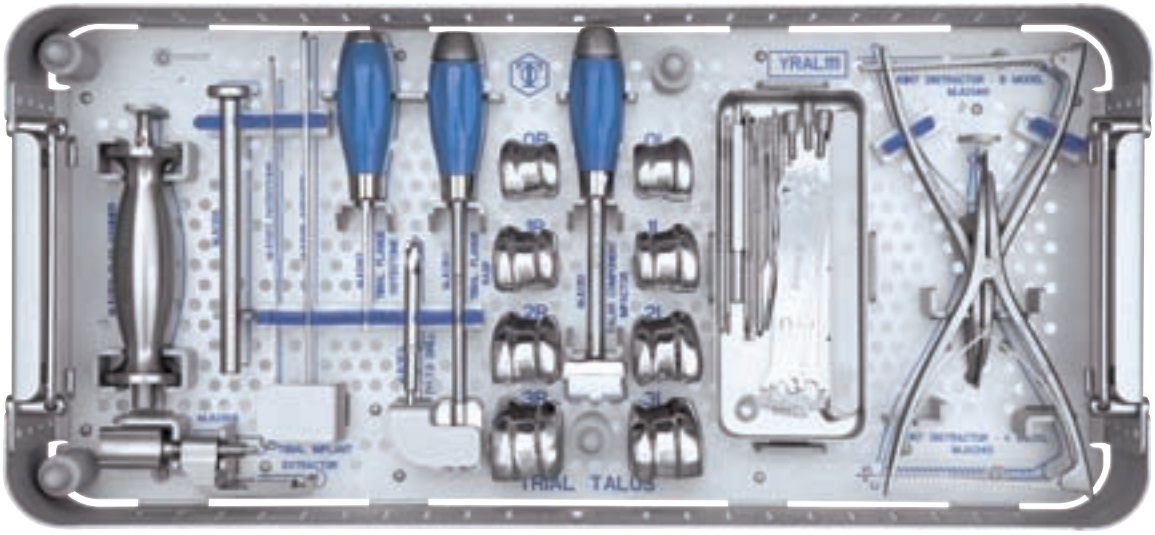
## INSTRUMENTATION CASE Ref YKAL11 – Top tray, Ref: YRAL112




| Item | Ref | Quantity |
|---|---|---|
| Tibial guide | MJU333 | 1 |
| Tibial alignment jig | MJU334 | 1 |
| Tibial resection guide, size 0 | MJU370 | 1 |
| Tibial resection guide, size 1 | MJU371 | 1 |
| Tibial resection guide, size 2 | MJU372 | 1 |
| Tibial resection guide, size 3 | MJU373 | 1 |
| Talar pin positioner guide | MJU335 | 1 |
| Talar gauge, size 0/1 | MJU331 | 1 |
| Talar gauge, size 2/3 | MJU364 | 1 |
| Posterior talar resection guide, size 0 | MJU375 | 1 |
| Posterior talar resection guide, size1/2/3 | MJU376 | 1 |
| Paddle, thickness 1 mm | MJU381 | 2 |
| Paddle, thickness 2 mm | MJU382 | 2 |
| Paddle, thickness 3 mm | MJU383 | 2 |
| Anterior talar chamfer guide | MJU336 | 1 |
| Talar position spacer | MJU337 | 1 |
| Anterior chamfer reamer | MJU338 | 1 |
| Anterior chamfer reaming guide | MJU339 | 1 |
| Left lateral chamfer guide | MJU340 | 1 |
| Right lateral chamfer guide | MJU341 | 1 |
| Removable handle | MJU342 | 1 |
| Positioning gauge (plug shaped) | MJU343 | 1 |
| Bell saw | MJU344 | 1 |
| Fixation plug | MJU012 | 1 |
| Mediolateral positioning bushing, size 0 | MJU377 | 1 |
| Talar drill bit, Ø7.9 mm, size 0 | MJU362 | 1 |
| Fixation plug, size 0 | MJU082 | 1 |
| Pin puller | MJU359 | 1 |
| Trephine drill Ø2.9 mm | MJU352 | 1 |
| Hading clamp | MJU048 | 1 |

## INSTRUMENTATION CASE Ref YKAL11 – Bottom tray, Ref: YRAL111

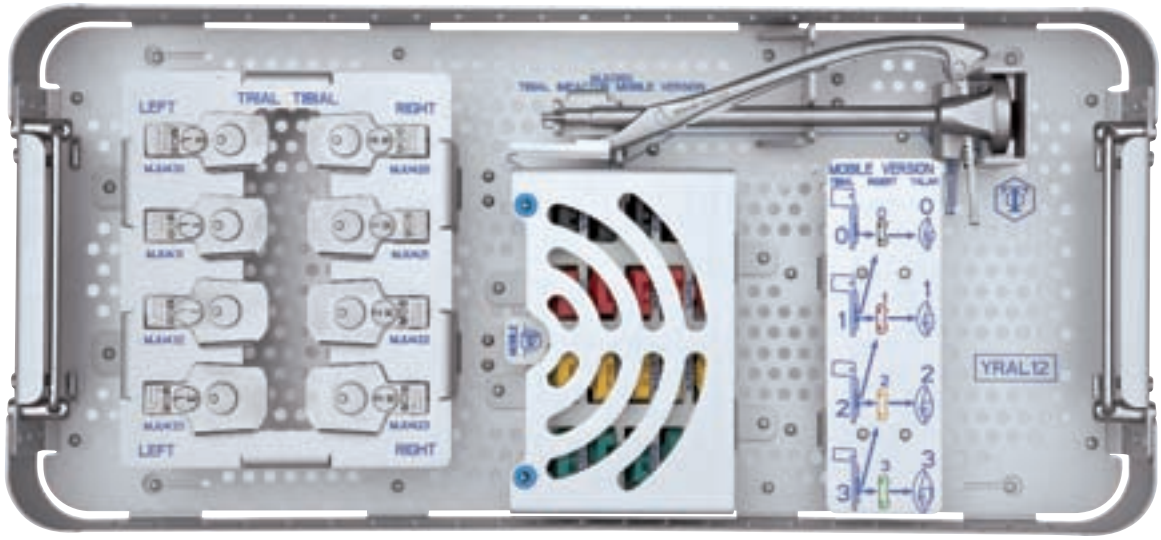





| Item | Ref | Quantity |
|---|---|---|
| Joint distractor, model A | MJU345 | 1 |
| Joint distractor, model B | MJU346 | 1 |
| Tibial keel graduated osteotome | MJU387 | 1 |
| Rasp | MJU350 | 1 |
| Talar component impactor | MJU351 | 1 |
| Screwdriver | MLN113 | 1 |
| Curette | MJU085 | 1 |
| Ribbon retractors | MJU086 | 2 |
| Tibial keel drill bit, Ø7.9 mm | MJU353 | 1 |
| Tibial plug revision osteotome | MJU356 | 1 |
| Osteotome | MJU357 | 1 |
| Tibial component extractor | MJU368 | 1 |
| Slap hammer | MJU358 | 2 |
| Right talar phantom, size 0 | MJU100 | 2 |
| Right talar phantom, size 1 | MJU101 | 1 |
| Right talar phantom, size 2 | MJU102 | 1 |
| Right talar phantom, size 3 | MJU103 | 1 |
| Left talar phantom, size 0 | MJU110 | 1 |
| Left talar phantom, size 1 | MJU111 | 1 |
| Left talar phantom, size 2 | MJU112 | 1 |
| Left talar phantom, size 3 | MJU113 | 1 |
| **Instrument case** | | 1 |
| Screw M5 | MJU073 | 5 |
| Pin, 45 mm | MJU354 | 2 |
| Pin, 75 mm | MDU907 | 5 |
| Pin, 110 mm | MDU905 | 5 |
| Pin pusher | MJU365 | 1 |
| Aesculap saw blade | MVV073 | 1 |
| Hall saw blade | MVV083 | 1 |
| AO Muller saw blade | MVV085 | 1 |
| Stryker saw blade | MVV087 | 1 |

# INSTRUMENTS

## REMOVABLE CASE Ref : YKAL12 – Tray ref: YRAL12




| Item | Ref | Quantity |
|---|---|---|
| Tibial component impactor | MJU360 | 1 |
| Right trial tibial implant, size 0 | MJU420 | 1 |
| Right trial tibial implant, size 1 | MJU421 | 1 |
| Right trial tibial implant, size 2 | MJU422 | 1 |
| Right trial tibial implant, size 3 | MJU423 | 1 |
| Left trial tibial implant, size 0 | MJU430 | 1 |
| Left trial tibial implant, size 1 | MJU431 | 1 |
| Left trial tibial implant, size 2 | MJU432 | 1 |
| Left trial tibial implant, size 3 | MJU433 | 1 |
| Trial insert, size 0, thickness 4 mm | MJU504 | 1 |
| Trial insert, size 0, thickness 5 mm | MJU505 | 1 |
| Trial insert, size 0, thickness 6 mm | MJU506 | 1 |
| Trial insert, size 0, thickness 7 mm | MJU507 | 1 |
| Trial insert, size 0, thickness 8 mm | MJU508 | 1 |
| Trial insert, size 1, thickness 4 mm | MJU514 | 1 |
| Trial insert, size 1, thickness 5 mm | MJU515 | 1 |
| Trial insert, size 1, thickness 6 mm | MJU516 | 1 |
| Trial insert, size 1, thickness 7 mm | MJU517 | 1 |
| Trial insert, size 1, thickness 8 mm | MJU518 | 1 |
| Trial insert, size 2, thickness 4 mm | MJU524 | 1 |
| Trial insert, size 2, thickness 5 mm | MJU525 | 1 |
| Trial insert, size 2, thickness 6 mm | MJU526 | 1 |
| Trial insert, size 2, thickness 7 mm | MJU527 | 1 |
| Trial insert, size 2, thickness 8 mm | MJU528 | 1 |
| Trial insert, size 3, thickness 4 mm | MJU534 | 1 |
| Trial insert, size 3, thickness 5 mm | MJU535 | 1 |
| Trial insert, size 3, thickness 6 mm | MJU536 | 1 |
| Trial insert, size 3, thickness 7 mm | MJU537 | 1 |
| Trial insert, size 3, thickness 8 mm | MJU538 | 1 |

# NOTES

# IMPLANTS

## TIBIAL COMPONENTS - CoCr

| | Left | Right |
|---|---|---|
| Size 0 | LJU 130 | LJU 120 |
| Size 1 | LJU 131 | LJU 121 |
| Size 2 | LJU 132 | LJU 122 |
| Size 3 | LJU 133 | LJU 123 |

## TALAR IMPLANTS - CoCr

| | Left | Right |
|---|---|---|
| Size 0 | LJU 110 | LJU 100 |
| Size 1 | LJU 111 | LJU 101 |
| Size 2 | LJU 112 | LJU 102 |
| Size 3 | LJU 113 | LJU 103 |

## MOBILE INSERTS - UHMWPE

| | Thickness | Ref. |
|---|---|---|
| Size 0 | 4 mm | LJU 008 |
| | 5 mm | LJU 009 |
| | 6 mm | LJU 010 |
| | 7 mm | LJU 011 |
| | 8 mm | LJU 012 |
| Size 1 | 4 mm | LJU 014 |
| | 5 mm | LJU 015 |
| | 6 mm | LJU 016 |
| | 7 mm | LJU 017 |
| | 8 mm | LJU 018 |
| Size 2 | 4 mm | LJU 024 |
| | 5 mm | LJU 025 |
| | 6 mm | LJU 026 |
| | 7 mm | LJU 027 |
| | 8 mm | LJU 028 |
| Size 3 | 4 mm | LJU 034 |
| | 5 mm | LJU 035 |
| | 6 mm | LJU 036 |
| | 7 mm | LJU 037 |
| | 8 mm | LJU 038 |

TORNIER
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