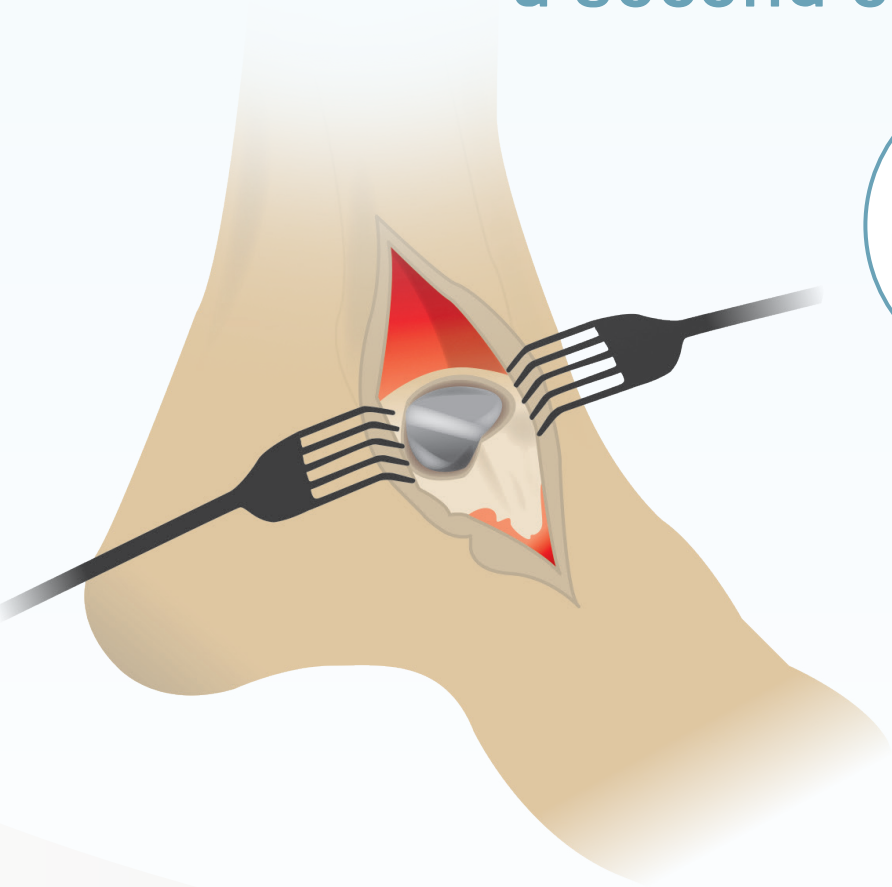
HemiCAP™
Talar Resurfacing

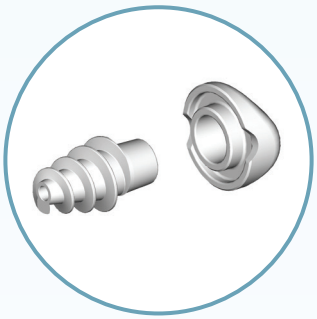
Technique Guide

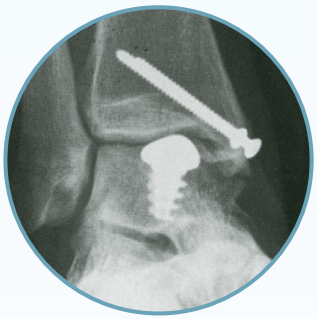
arthrosurface®

Talus HemiCAP

The first choice when you need a second chance.







- ☑ One implant with three surfaces: dome, ridge, and medial wall
- ☑ Inlay components restore congruency and maintain existing biomechanics
- ☑ Implant protects subchondral bone and shares load with surrounding tissue

> "The metallic implantation technique seems to be a **promising treatment** for secondary osteochondral defects.

Ooij B, Kaas L, Reilingh ML, van Dijk CN. Archivio di Ortopedia e Reumatologia. Osteochondral defects of the talus: surgical treatment and rehabilitation. 2010, Volume 121, Number 4, Pages 17-18

Description

The HemiCAP® Contoured Articular Prosthetic incorporates an articular resurfacing component and a cancellous taper post component that mates together via a taper interlock to provide stable and immobile fixation of the implant and stress bearing contact at the bone/prosthetic interface.

Materials

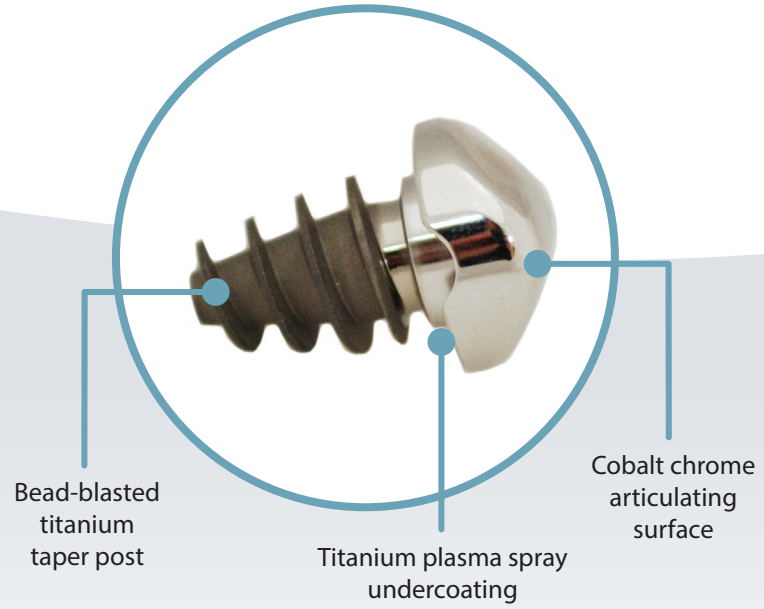
Articular Resurfacing Component:	Cobalt-Chromium-Molybdenum alloy (Co-Cr-Mo)
Surface Coating:	Titanium (CP Ti)
Taper Post:	Titanium Alloy (Ti-6Al-4V)

Indications For Use

Partial resurfacing of the talar dome of the ankle for use in the treatment of patients with localized post-traumatic degenerative disease, necrosis associated with large unstable osteochondral fractures, or osteochondritis dessicans. Soft tissues and other structures contributing to joint stability should be intact or reconstructable. The intended use of the device is part of an interim clinical strategy for patients who have not responded to other treatments and who will likely receive a joint replacement or fusion in the future.

Product

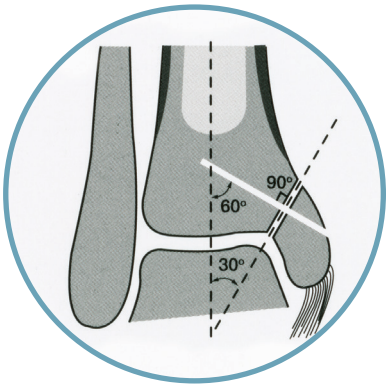
(1) Colbalt Chrome Component
(2) Ti Plasma Spray Undercoating
(3) Titanium Fixation Component
- Morse Taper
- 15mm Diameter
- 10 Different Convexities with Asymmetrical Curvatures

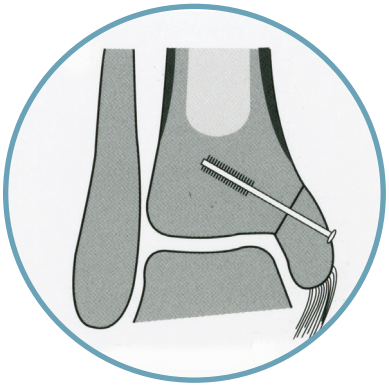


Direction of the Oblique Medial Malleolar Osteotomy for Exposure of the Talus

Professor C. Niek van Dijk, University of Amsterdam

A medial malleolar osteotomy is an established approach for the operative treatment of medial osteochondral defects of the talar dome and fractures of the talar body. Ray and Coughlin in 1947 first described a transverse osteotomy. Different techniques have been described since then, including inverted V, oblique, crescentic, step-cut, and inverted U osteotomy. The oblique osteotomy is an established technique that is used by many surgeons. There are various advantages, including the relatively simple technique, excellent exposure of the talus, preservation of the deltoid ligament, and optimal screw compression. This technique has been shown to provide reproducibly perpendicular access to medial talar lesions treated with osteochondral autograft transfer or metal implants.





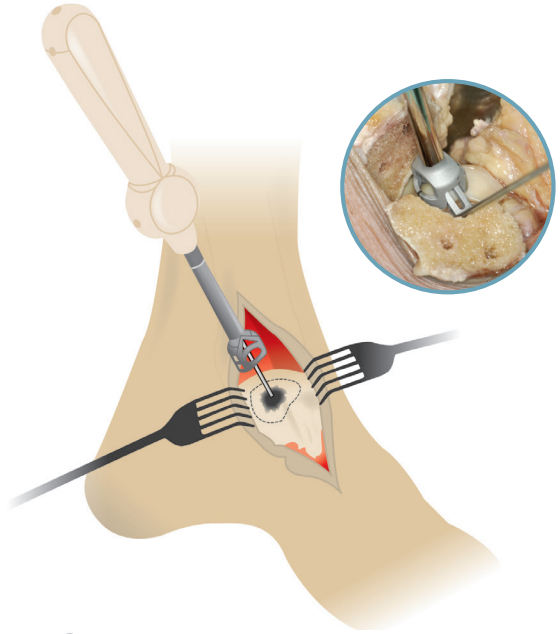
Most surgeons agree that the osteotomy should be aimed at the intersection between the tibial plafond and the articular facet of the medial malleolus. Failure to exit at this point may lead to limited exposure (too medial), or violate the weight-bearing cartilage on the tibial plafond (too lateral). Concerns of the technique include the difficulty of reduction and potential for malunion because apposition may not be colinear with respect to the osteotomy cut. An incongruent joint surface after fixation could possibly lead to secondary osteoarthritis of the ankle joint. In order to obtain a congruent joint surface after fixation, the osteotomy cut is best directed perpendicularly to the articular surface of the tibia.

An osteotomy that is too vertical or too horizontal may result in an incongruent joint surface (i.e., step off) or shortening of the medial malleolus after fixation. Furthermore, the fixation screws should be directed perpendicularly to the osteotomy plane. The longitudinal tibial axis can serve as an intraoperative reference to direct the medial malleolar osteotomy. This axis is commonly used for several orthopedic procedures, including total knee arthroplasty and high tibial osteotomy.

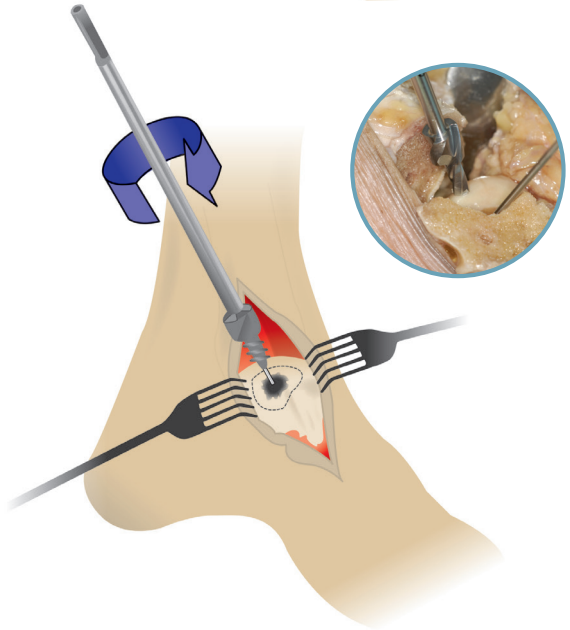
For additional information on the surgical approach please reference article:
Christiaan J. A. van Bergen, Gabriëlle J. M. Tuijthof, Inger N. Sierevelt, C. Niek van Dijk. Direction of the oblique medial malleolar osteotomy for exposure of the talus. Arch Orthop Trauma Surg. December 2010. DOI 10.1007/s00402-010-1227-8.

Surgical Technique

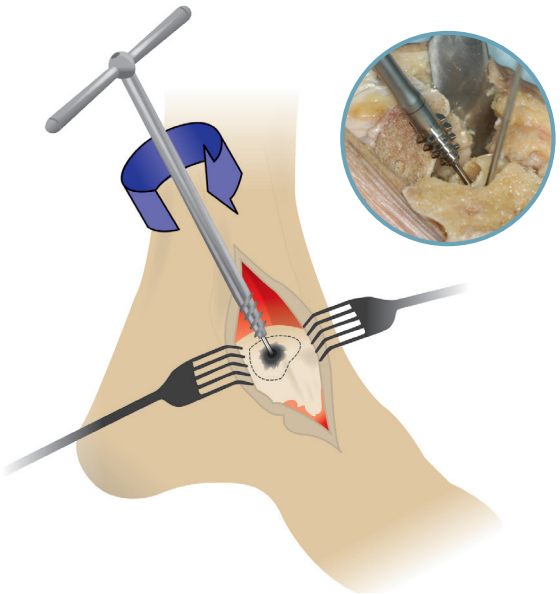
1. Use **Drill Guide** to locate the axis normal to the articular surface and central to the defect. Place **Guide Pin** into a **Cannulated Powered Drill** and secure at the etch marking on the **Guide Pin**. Advance **Guide Pin** into bone, making sure that it is central to the defect. (It is important to verify the **Drill Guide** is seated on the curved surface such that four points of contact are established. A normal axis is necessary for proper implant fit).



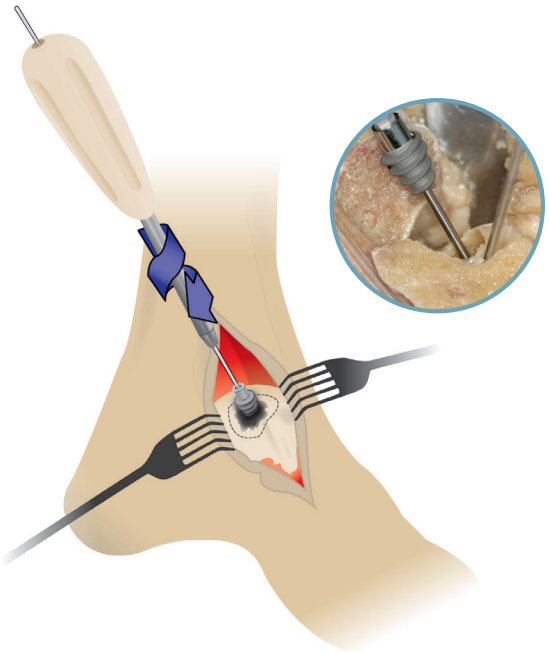
2. Place **Cannulated Drill** over **Guide Pin** and drive until the proximal shoulder of the **Drill** is flush with the articular surface. (Use lavage during drilling to prevent possible tissue damage from heat effects).



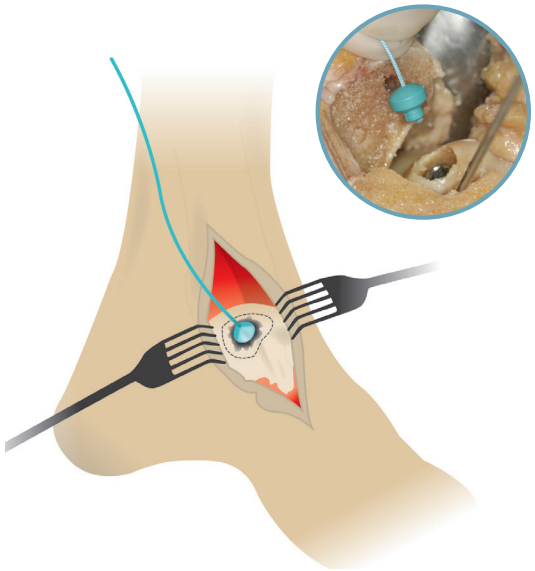
3. Tap hole to etched depth mark on **Tap**.



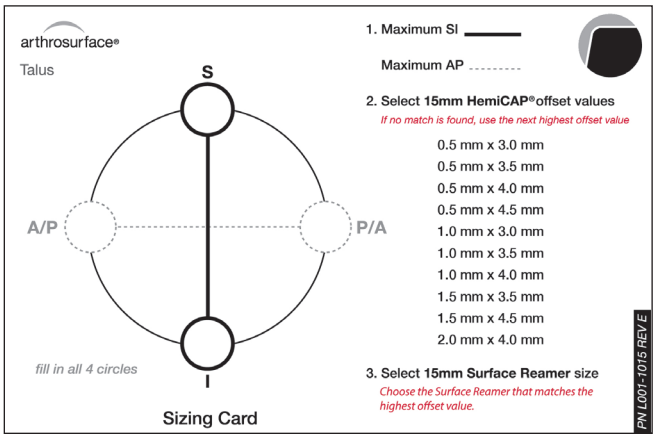
4. Before inserting the **Taper Post**, thoroughly cleanse the pilot hole of any debris and then inject the cement in a retrograde fashion from the end of the hole upwards. Then place the **Driver** into the **Taper Post** and advance the **Taper Post** until the line on the **Driver** is flush with the cartilage surface.

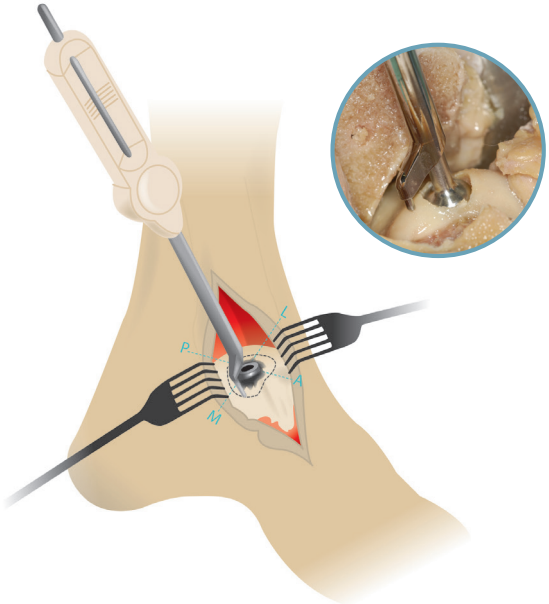


5. Clean taper in **Taper Post** with **Taper Cleaner**. Place **Trial Cap** into **Taper Post** to confirm correct depth of **Taper Post**. The height of the **Trial Cap** must be flush or slightly below the existing articular cartilage surface to avoid the **Articular Component** from being placed proud or above the surface of the defect. Adjust depth if needed using the **Driver** to rotate the **Taper Post** (rotate clockwise to advance and counterclockwise to retract). Remove **Trial Cap**.

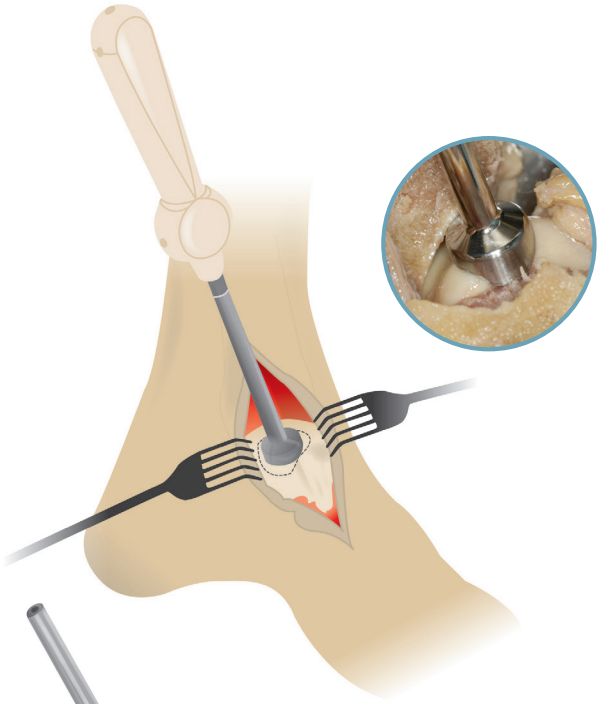


6. Place **Centering Shaft** into taper of **Taper Post**. Place **Contact Probe** over **Centering Shaft** and rotate around **Centering Shaft**. Read **Contact Probe** to obtain offsets at the 4 indexing points and mark each of the identified offsets on the appropriate **Sizing Card**. Select appropriate **Surface Reamer** using **Sizing Card**.

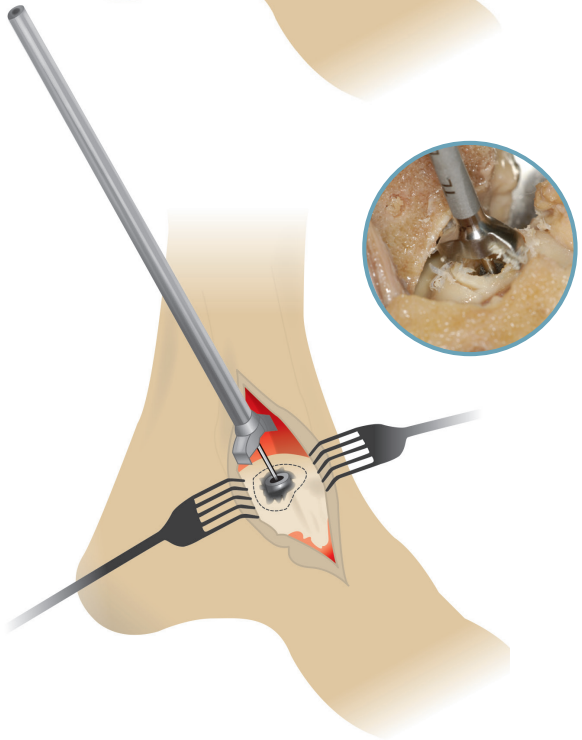




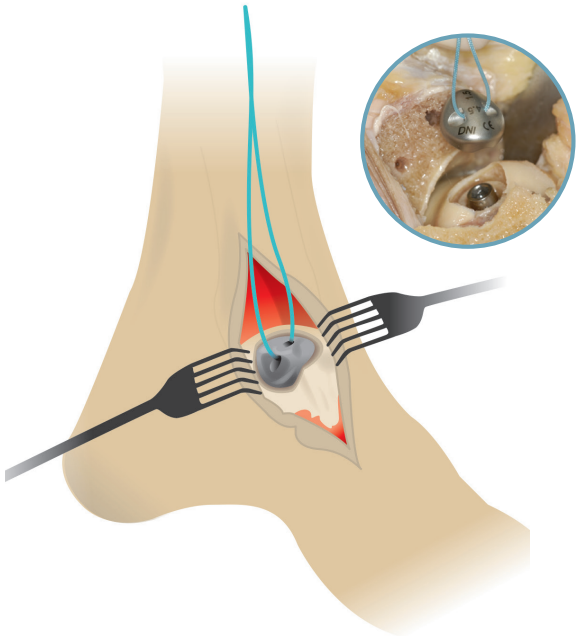
7. Remove **Centering Shaft** and replace with **Guide Pin**. Advance **Circle Cutter** onto the articular surface by twisting the **Circle Cutter** back and forth avoiding any bending of the **Guide Pin**.



8. Choose the appropriate **Surface Reamer** based on the offsets. Confirm selection by matching the color code on the **Articular Component** package with the colored band on the **Surface Reamer shaft**. Drive **Surface Reamer** over **Guide Pin** until it contacts the top surface on **Taper Post**. (Use lavage during drilling to prevent possible tissue damage from heat effects). Make sure not to bend the **Guide Pin** during drilling as it may result in **Articular Component** malalignment.



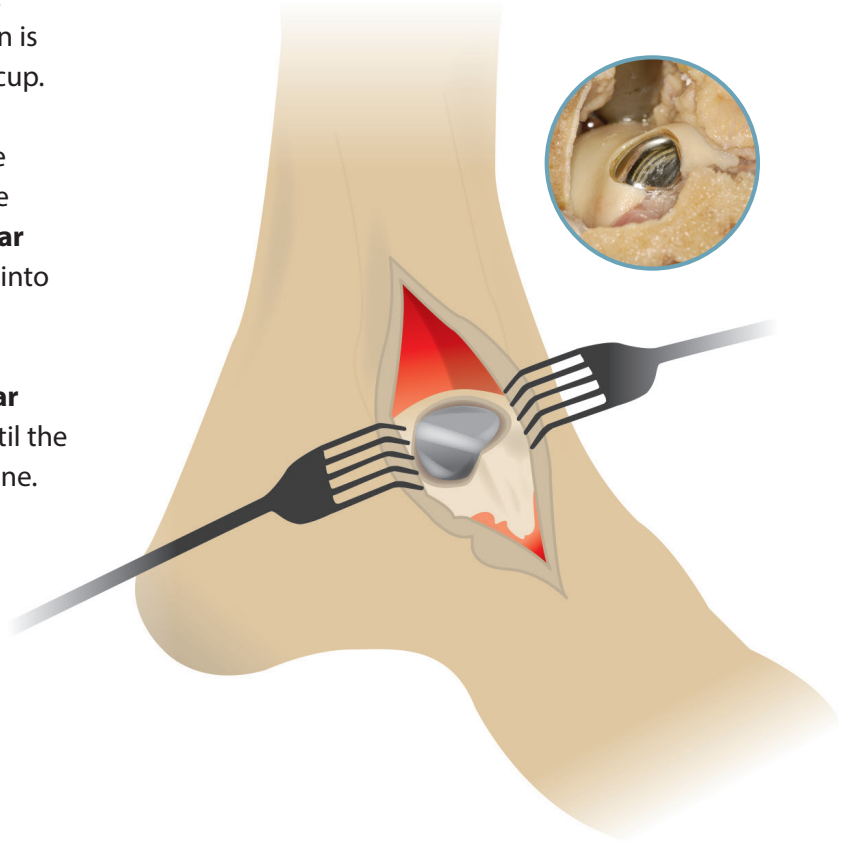
9. Clean taper in **Taper Post** with **Taper Cleaner**. Place the **Sizing Trial** into the defect that matches the offset profile of the chosen **HemiCAP® Articular Component**. Confirm the fit of the **Sizing Trial** so that it is congruent with the edge of the surrounding articular surface or slightly recessed. If the **Sizing Trial** is proud at the edge of the articular cartilage, ream with the next appropriate sized reamer and use matching **Sizing Trial**. **Sizing Trials** must match **Surface Reamer's** offset size.



10. Before placing the **Articular Component** on the **Implant Holder** make sure that sufficient suction is present to hold the device on the distal suction cup. Align the **Articular Component** on the **Implant Holder**. Orient the etch marks on the back of the **Articular Component** with the etch mark on the handle of the **Implant Holder**. Align the **Articular Component** with the appropriate offsets. Insert into taper of **Taper Post**.

11. Use a slight tap on the **Impactor** to seat **Articular Component**. Progressively tap the **Impactor** until the **Articular Component** is firmly seated on the bone.

12. Final seated component.



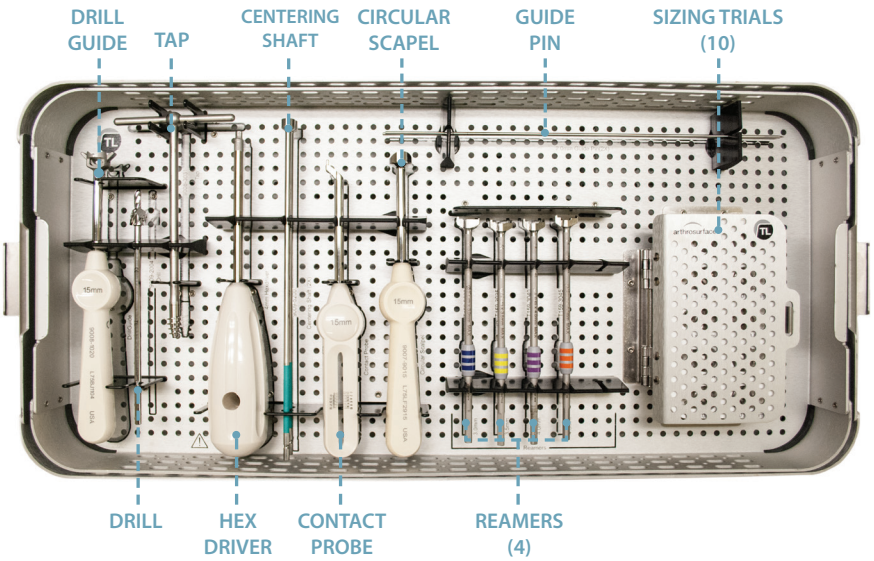
Catalog Numbers

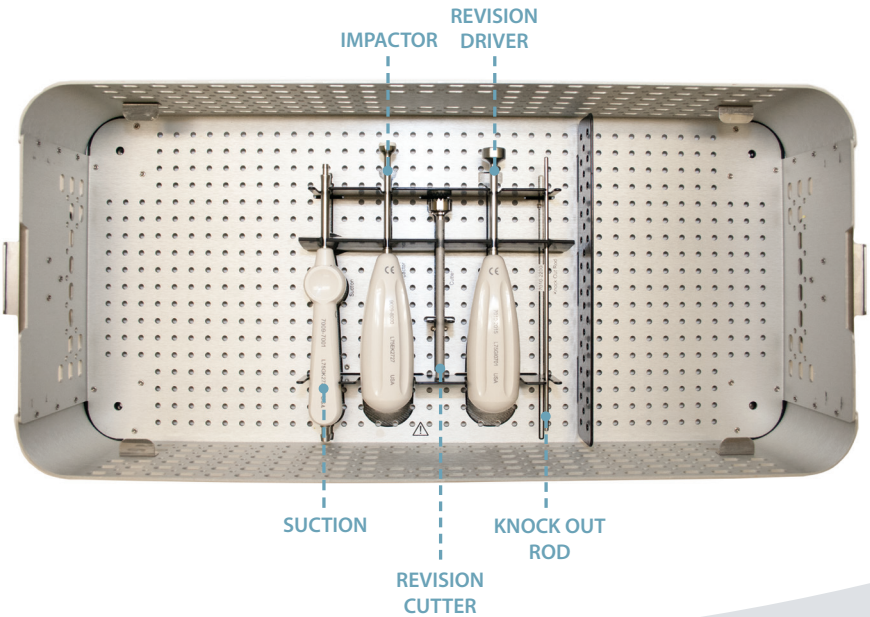
Instruments	
T000-1500	Instrument Kit
T007-1405	Pin Kit, Talus (5-Pack)

Talus Taper Post	
T103-0020	10.3mm x 17.4mm includes 2.0mm guide wire, taper cleaner & trial cap

Talus Articular Component	
T152-0530	0.5mm x 3.0mm Offset
T152-0535	0.5mm x 3.5mm Offset
T152-0540	0.5mm x 4.0mm Offset
T152-0545	0.5mm x 4.5mm Offset
T152-1030	1.0mm x 3.0mm Offset
T152-1035	1.0mm x 3.5mm Offset
T152-1040	1.0mm x 4.0mm Offset
T152-1535	1.5mm x 3.5mm Offset
T152-1545	1.5mm x 4.5mm Offset
T152-2040	2.0mm x 4.0mm Offset

Instrumentation





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This product is covered by one or more of U.S. Patent Nos. 6,520,964; 6,610,067; 6,679,917 and other patents pending.
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ISO 13485

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