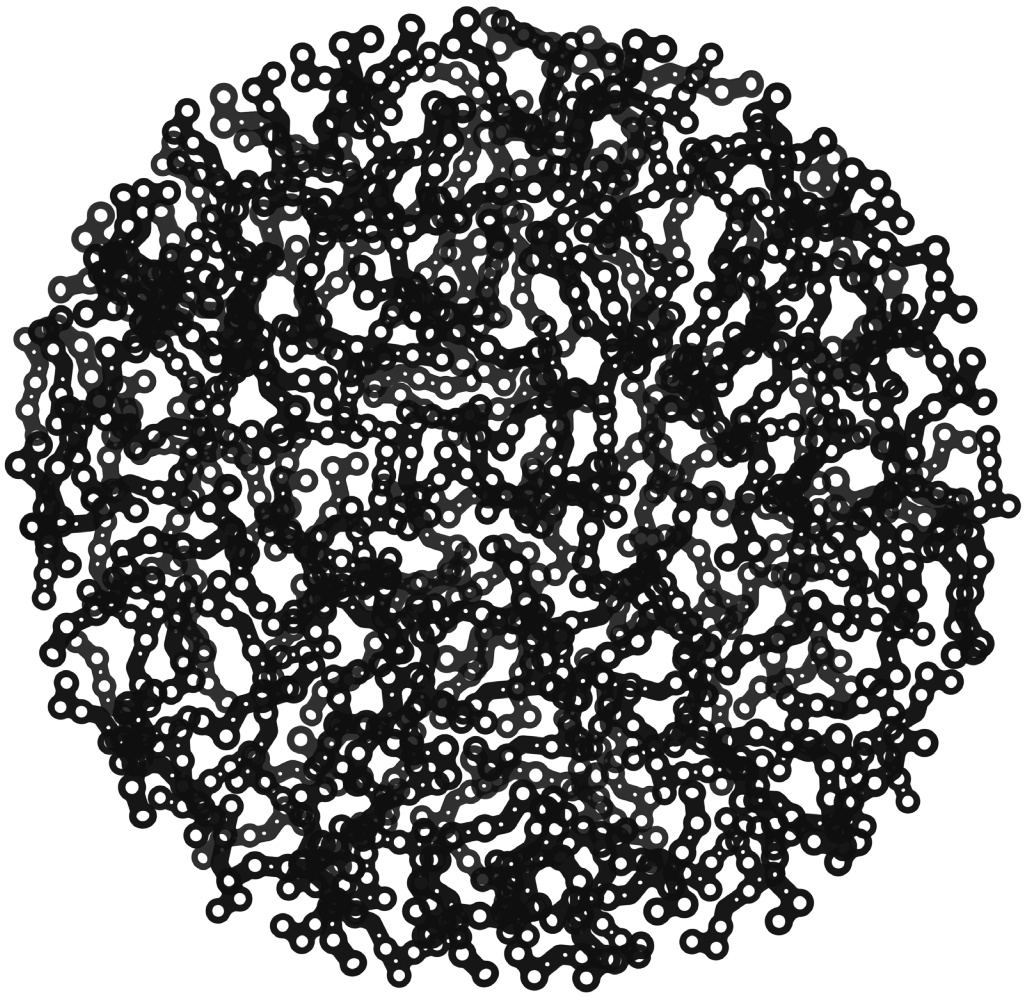
ITS.

Implants
trauma



CAL mi

Anterolateral Calcaneus Locking Plate

CAUTION: Federal Law (USA) restricts this device to sale by or on the order of a board certified physician.

WARNING: If there is no sufficient bone healing, wrong or incomplete postoperative care, plate might break.

All ITS plates are preformed anatomically as a matter of principle. If adjustment of the plate to the shape of the bone is required, this is possible by carefully bending gently in one direction once. Particular care is required when bending in the region of a plate hole, as deformation of the plate may lead to a failure of the locking mechanism. The plate must not be buckled or bent several times. This is particularly important in the case of titanium implants, to prevent material fatigue and subsequent failure. The method of bending is the conscious responsibility of the operating doctor; I.T.S. GmbH can accept no liability whatsoever for this.

Contents

1. Introduction

P. 5 Preface
P. 6 Screws
P. 7 Properties
P. 8 Pre-operative planning
P. 8 Indications & Contraindications
P. 8 Time of operation

2. Surgical Technique

P. 10 Pre-operative patient preparation
P. 10 Diagnosis
P. 10 Access
P. 10 Reduction
P. 11 Fixation
P. 15 Postoperative treatment
P. 15 Explantation

3. Information

P. 17 Locking
P. 17 Dotize®
P. 18 Order list

Introduction

1.

Hello!

Preface

The Anterolateral Calcaneus Locking Plate is a proven osteosynthesis system for various calcaneus fractures.

The special feature of this implant is the free choice of screw placement. The user is able to set any desired screw in any hole.

The plate design enables a variety of fixation points especially for the support of the subchondral articular surface (either locking or non-locking screw).

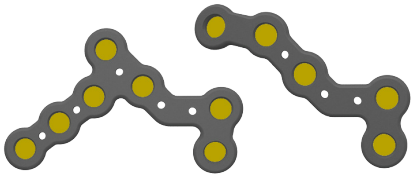
The free choice of screw angulation (+/- 15°, see page 17) provides an advantage in fracture treatment, especially in the case of complex fractures.

Screws

37352-XX-N Cancellous Screw, locking, D=3.5mm, SH

61203-100 Spiral Drill, D=2.0mm, L=100mm, AO Connector

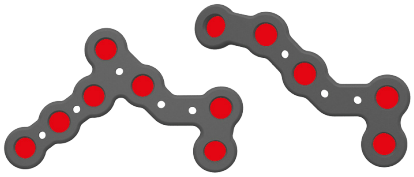
56252 Screwdriver, WS 2.5,
with self-holding sleeve



32351-XX Cortical Screw, D=3.5mm

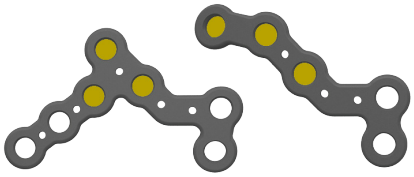
61273-100 Spiral Drill, D=2.7mm, L=100mm, AO Connector

56252 Screwdriver, WS 2.5,
with self-holding sleeve



31404-XX Cancellous Screw, Cannulated, D=4.0mm, Var Thread

56253-170 Screwdriver, Handle 25mm, WS 2.5, L=170mm, Can. 1.7mm



35164-150 Guide Wire, Steel, D=1.6mm,
L=150mm, TR, with thread

Properties

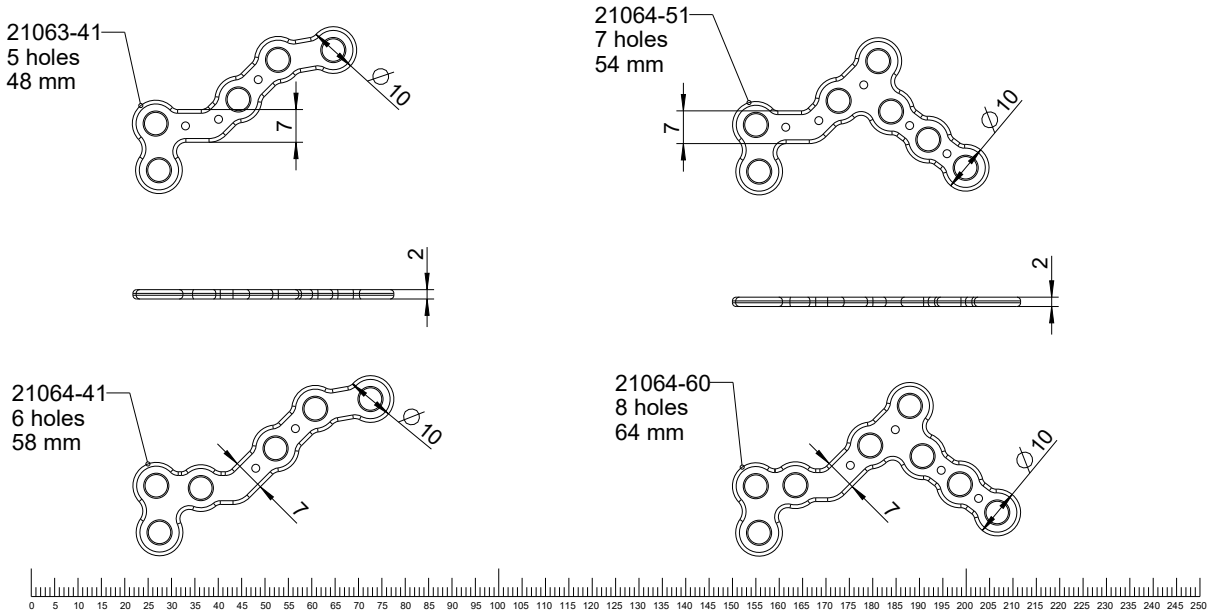
Properties of the material:

- Plate material: Titanium
- Material of screws: TiAl6V4 ELI
- Easier removal of the implant after the fracture has healed
- Improved fatigue strength of implant
- Reduced risk of cold welding
- Reduced risk of inflammation and allergy

Properties of the implant:

- Multi-directional Locking
- Anatomical plate design
- Short plate version located directly under the subtalar joint (small and large)
- Long plate version located directly under the subtalar joint with an extension to posterior tubercle (small and large)
- Plate insertion through a sinus tarsi incision
- Multiple proximal plate holes to gain proper fixation in the sustentaculum tali

Pre-operative planning



Indications, Contraindications & Time of operation

Indications:

- Complex calcaneal fractures
- Intra-articular fractures
- Comminuted fractures
- Fractures of the sustentaculum tali

Contraindications:

- Existing infections in the fracture zone and operation area
- Common situations that do not allow osteosynthesis
- Lack of patient compliance

Time of operation:

- Immediately after trauma or delayed

Surgical Technique

2.

Pre-operative patient preparation

- Supine position with foot supported by a wedge or lateral position
- Tourniquet

Diagnosis

Standard X-ray of the calcaneus (AP, lateral view and Broden's view), axial and coronet CT with reconstructions.

Access

Lateral approach:

- Access by Ollier (Sinus tarsi access)
- Representation of the sinus tarsi, the posterior facet and where applicable the calcaneo-cuboid joint
- A 10 mm long stab incision is recommended to fill the plate holes on the tuber calcanei

Note: Pay attention to the end of the sural nerve and the tendons of the peroneus longus and brevis during the incision

Reduction

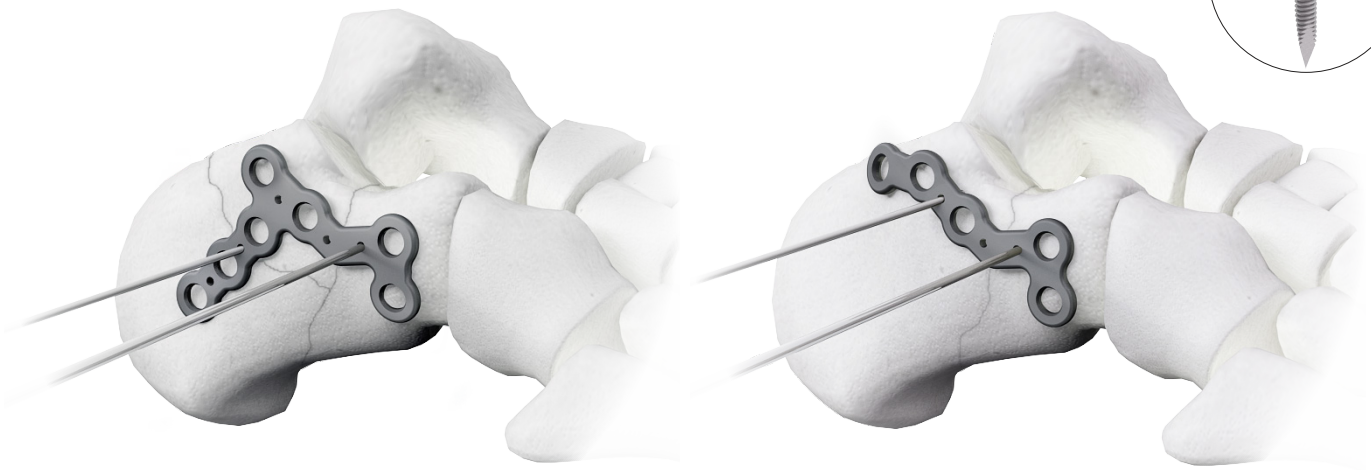
- Open reduction under view by mean of Schanz screw, Steinmann nails, guide wires or Fröhlich distractor
- Padding of comminuted zones with bone substitute

Fixation

- Place the plate approximately 5-10mm below the posterior facet and aligned at the Böhler-Angle.
- Temporary fix the plate with guide wires on the calcaneus
- Subsequent control under fluoroscopy

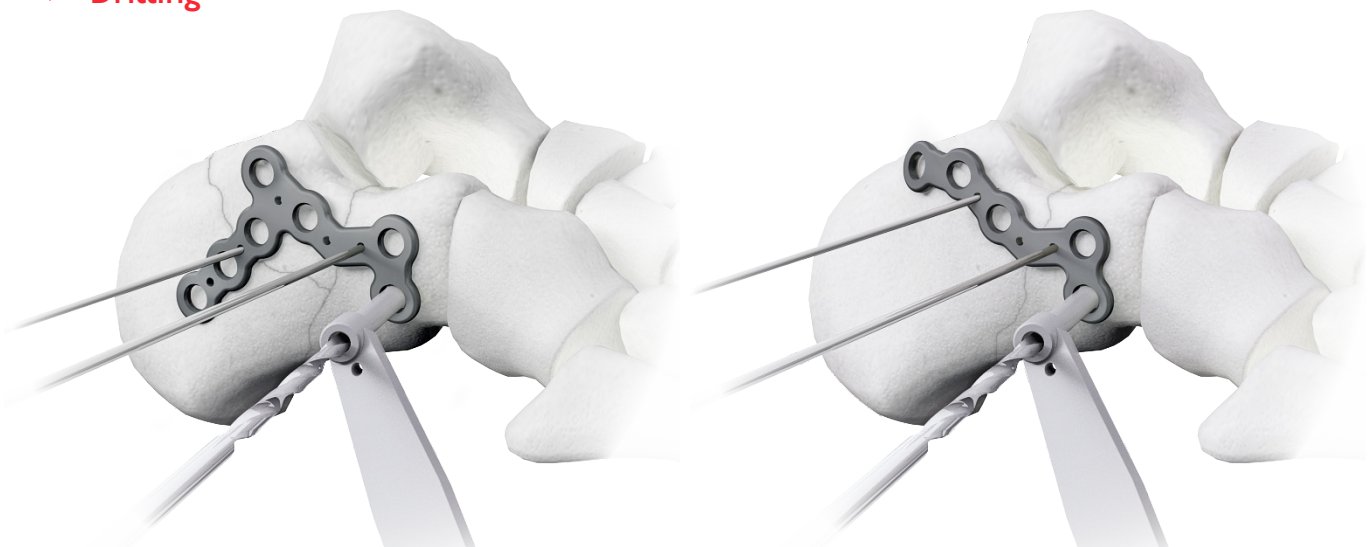
Optionally, the plate can be stabilized using the ITS. Temporary Plate Holder **(58164-150)**.

- **Fixation**



Use the drill guide D=2.7/2.0mm **(62202)** with the spiral drill, D=2.0mm, L=100mm, AO connector **(61203-100)** to drill the holes for the anterior plate holes.

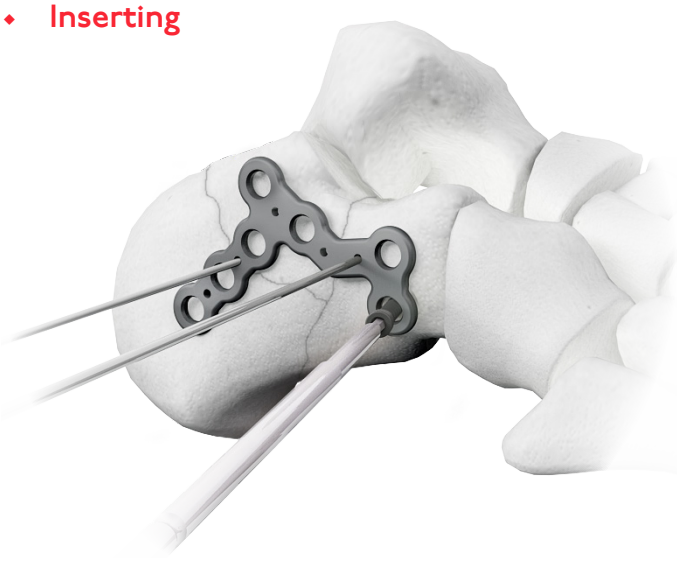
- **Drilling**

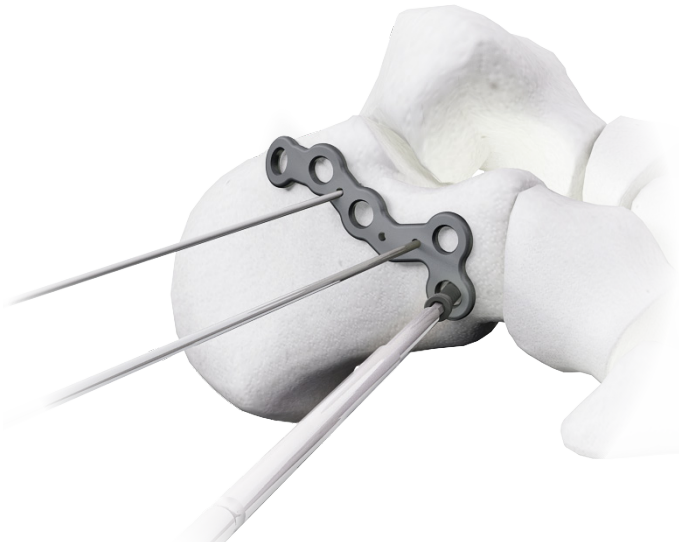


Use the screwdriver, WS 2.5, self-holding sleeve **(56252)** to insert D=3.5mm cancellous screw, SH, **(37352-XX-N)** of appropriate lengths determined previously with the depth gauge, solid small fragment screws **(59022)**.

- **Measuring**

- **Inserting**



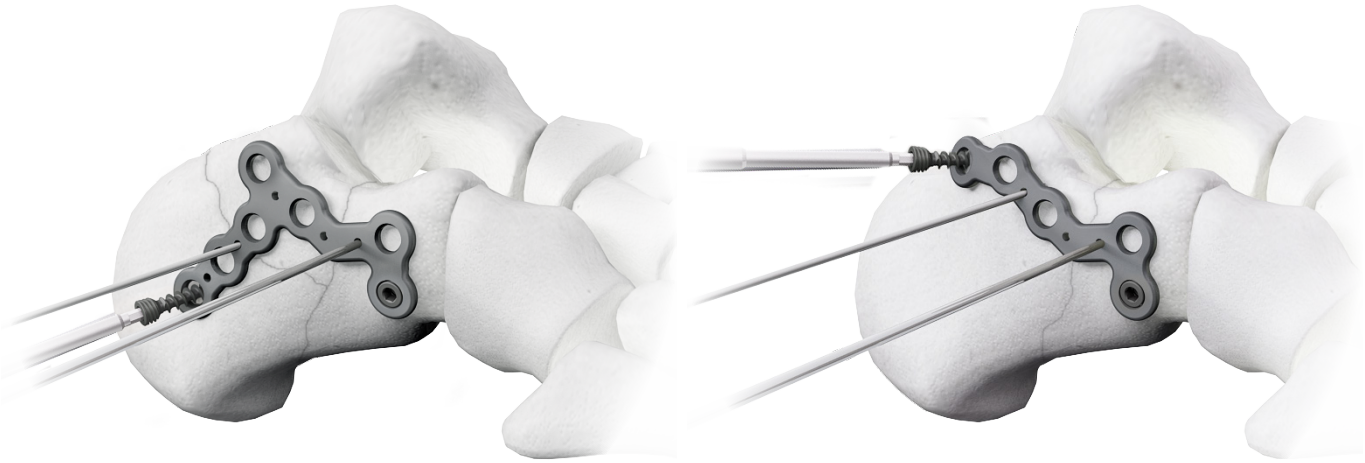


Subsequently, drill a hole into one of the tubercle plate holes close to the posterior facet towards the sustentaculum tali using the drill guide, D=2.7/2.0mm **(62202)** with the spiral drill D=2.0mm, L=100mm, AO Connector **(61203-100)**.

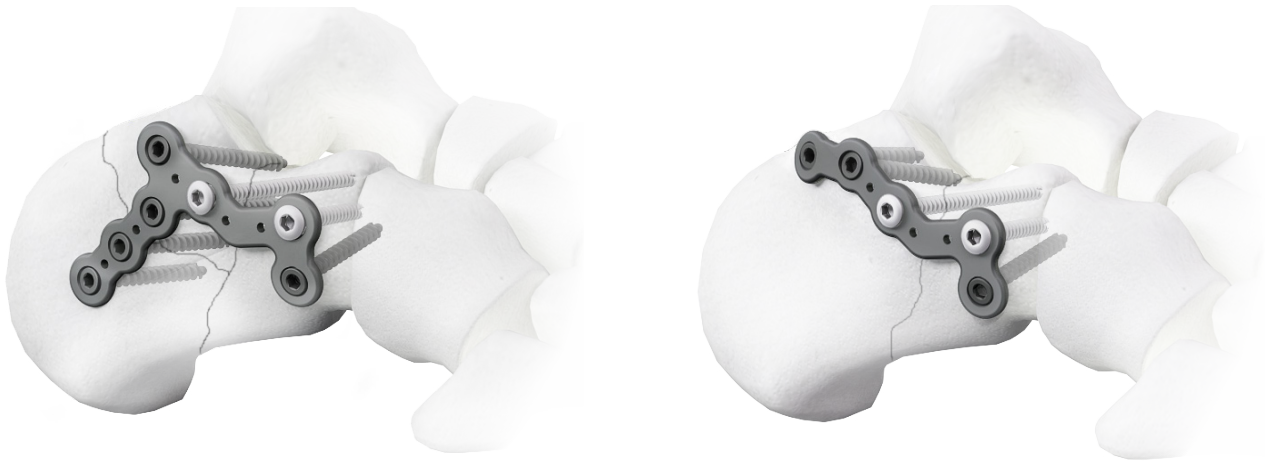
Note: Caution when inserting screws towards sustentaculum tali.

Use the screwdriver, WS 2.5, self-holding sleeve **(56252)** to insert D=3.5mm cancellous screw, SH, **(37352-XX-N)** of appropriate lengths determined previously with the depth gauge, solid small fragment screws **(59022)**.

- **Drilling, Measuring, Inserting**

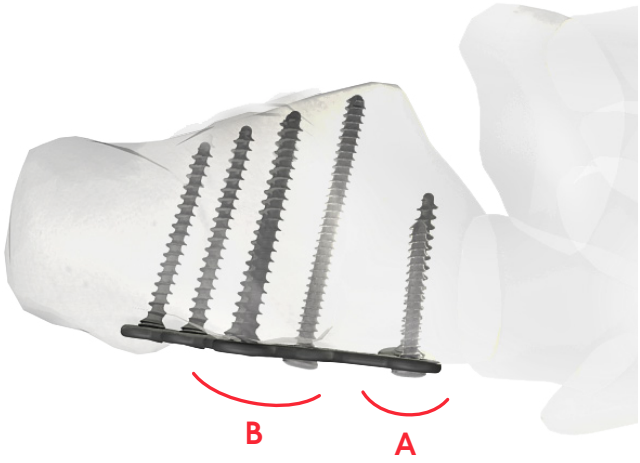


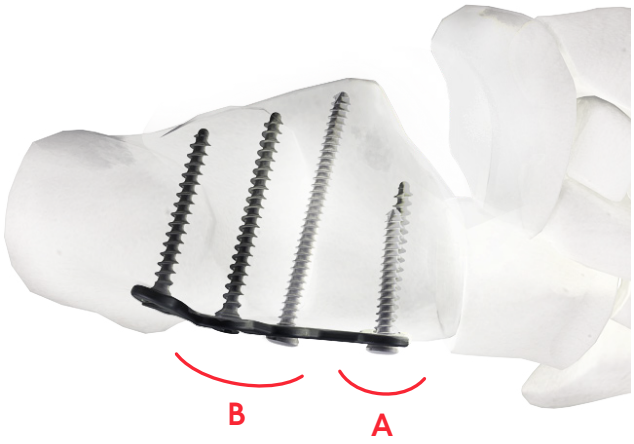
The remaining plate holes are then filled, with either locking or non-locking screws. For placing screws at tuber calcanei a 10mm stab incision is recommended. Subsequent control of plate position under fluoroscopy.



The plate design enables the use of multiple fixation points, optionally locking, especially to buttress the articular surface with subchondral screws.

At the process anterior the screws are inserted parallel to the calcaneocuboid joint **(A)**. Screws to buttress the posterior and middle facet **(B)** have to be inserted pre-angled anterior to achieve a proper fixation in the hard cortical bone of the sustentaculum tali.





Postoperative treatment

- Plastex cast of the lower leg for 2 weeks until healing
- Physical therapy
- Mobilization by crutches
- Relief of the strain for 8-12 weeks

Explantation

If desired by the patient, the implant can be removed.
Removal should be performed at the earliest 6 months later or after radiographic verification of the healed bone.

The problem of cold welding was resolved by using a special surface treatment (for further information see page 17).

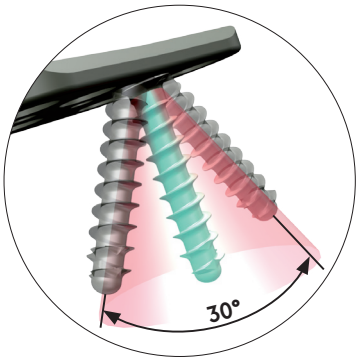
Information

3.

Locking

Locking works because:

- Screw material (TiAlV) is slightly harder than plate material (Titanium Grade 2)
- Screw head **forms** thread into the plate (no cutting)



Benefits:

- ± 15° and Locking
- No pre threading
- No cold welding
- No debris
- You can re-set the screw up to 3 times

Dotize®

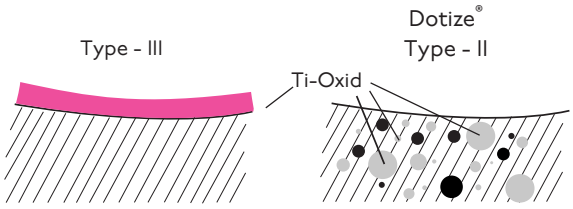
Chemical process - anodization in a strong alkaline solution*

Type III anodization

- Layer thickness 60-200nm
  - \+ Different colors
  - \- Implant surface remains sensitive to:
    Chipping
    Peeling
    Discoloration

Dotize Type II anodization

- Layer thickness 2000-10 000nm
  - \+ Film becomes an interstitial part of the titanium
  - \- No visible cosmetic effect



Anodization Type II leads to following benefits*

- Oxygen and silicon absorbing conversion layer
- Decrease in protein adsorption
- Closing of micro pores and micro cracks
- Reduced risk of inflammation and allergy
- Hardened titanium surface
- Reduced tendency of cold welding of titanium implants
- Increased fatigue resistance of implants
- Improved wear and friction characteristics

* White Paper: Ti6Al4V with Anodization Type II: Biological Behavior and Biomechanical Effects; Axel Baumann, Nils Zander

Order list

Anterolateral Calcaneus Plate, Small	21063-41
Anterolateral Calcaneus Plate, Large	21064-41
Anterolateral Calcaneus Plate, Tuber, Small	21064-51
Anterolateral Calcaneus Plate, Tuber, Large	21064-60

Cancellous Screw, Locking, SH, D=3.5mm, L=26mm	37352-26-N
Cancellous Screw, Locking, SH, D=3.5mm, L=28mm	37352-28-N
Cancellous Screw, Locking, SH, D=3.5mm, L=30mm	37352-30-N
Cancellous Screw, Locking, SH, D=3.5mm, L=32mm	37352-32-N
Cancellous Screw, Locking, SH, D=3.5mm, L=34mm	37352-34-N
Cancellous Screw, Locking, SH, D=3.5mm, L=36mm	37352-36-N
Cancellous Screw, Locking, SH, D=3.5mm, L=38mm	37352-38-N
Cancellous Screw, Locking, SH, D=3.5mm, L=40mm	37352-40-N
Cancellous Screw, Locking, SH, D=3.5mm, L=42mm	37352-42-N
Cancellous Screw, Locking, SH, D=3.5mm, L=44mm	37352-44-N
Cancellous Screw, Locking, SH, D=3.5mm, L=46mm	37352-46-N
Cancellous Screw, Locking, SH, D=3.5mm, L=48mm	37352-48-N
Cancellous Screw, Locking, SH, D=3.5mm, L=50mm	37352-50-N

Sterilisation Tray, Anterolateral Calcaneus Plate	50279

Screw Driver, WS 2.5, Self Holding Sleeve	56252

Depth Gauge, Solid Small Fragment Screws	59022

Drill Guide, D=2.7/2.0mm	62202

Spiral Drill, D=2.0mm, L=100mm, AO Connector	61203-100

Special sizes & instruments optional on request *

Cancellous Screw, Locking, SH, D=4.2mm, L=26mm	37422-26-N
Cancellous Screw, Locking, SH, D=4.2mm, L=28mm	37422-28-N
Cancellous Screw, Locking, SH, D=4.2mm, L=30mm	37422-30-N
Cancellous Screw, Locking, SH, D=4.2mm, L=32mm	37422-32-N
Cancellous Screw, Locking, SH, D=4.2mm, L=34mm	37422-34-N
Cancellous Screw, Locking, SH, D=4.2mm, L=36mm	37422-36-N
Cancellous Screw, Locking, SH, D=4.2mm, L=38mm	37422-38-N
Cancellous Screw, Locking, SH, D=4.2mm, L=40mm	37422-40-N
Cancellous Screw, Locking, SH, D=4.2mm, L=42mm	37422-42-N
Cancellous Screw, Locking, SH, D=4.2mm, L=44mm	37422-44-N
Cancellous Screw, Locking, SH, D=4.2mm, L=46mm	37422-46-N
Cancellous Screw, Locking, SH, D=4.2mm, L=48mm	37422-48-N
Cancellous Screw, Locking, SH, D=4.2mm, L=50mm	37422-50-N

Cortical Screw, D=3.5mm, L=26mm	32351-26
Cortical Screw, D=3.5mm, L=28mm	32351-28
Cortical Screw, D=3.5mm, L=30mm	32351-30
Cortical Screw, D=3.5mm, L=32mm	32351-32

* Delivery times, prices & minimum quantities may vary from standard

Cortical Screw, D=3.5mm, L=34mm	32351-34
Cortical Screw, D=3.5mm, L=36mm	32351-36
Cortical Screw, D=3.5mm, L=38mm	32351-38
Cortical Screw, D=3.5mm, L=40mm	32351-40
Cortical Screw, D=3.5mm, L=42mm	32351-42
Cortical Screw, D=3.5mm, L=44mm	32351-44
Cortical Screw, D=3.5mm, L=48mm	32351-48
Cortical Screw, D=3.5mm, L=50mm	32351-50

Cancellous Screw, Cannulated, D=4.0mm, L=34mm, Var. Thread	31404-34
Cancellous Screw, Cannulated, D=4.0mm, L=36mm, Var. Thread	31404-36
Cancellous Screw, Cannulated, D=4.0mm, L=38mm, Var. Thread	31404-38
Cancellous Screw, Cannulated, D=4.0mm, L=40mm, Var. Thread	31404-40
Cancellous Screw, Cannulated, D=4.0mm, L=42mm, Var. Thread	31404-42
Cancellous Screw, Cannulated, D=4.0mm, L=44mm, Var. Thread	31404-44
Cancellous Screw, Cannulated, D=4.0mm, L=46mm, Var. Thread	31404-46
Cancellous Screw, Cannulated, D=4.0mm, L=48mm, Var. Thread	31404-48
Cancellous Screw, Cannulated, D=4.0mm, L=50mm, Var. Thread	31404-50

Screwdriver, Handle 25mm, WS 2.5, L=170mm, Can. 1.7mm	56253-170

Depth Gauge 1.6mm, Can. 4.0mm Screw, 9mm Thread	59163

Spiral Drill, D=2.5mm, L=110mm, AO Connector	61253-110
Spiral Drill, D=2.7mm, L=100mm, AO Connector	61273-100

Guide Wire, Steel, D=1.6mm, L=228mm, TR, w. Thrd.	35164-228

For detailed cleaning and sterilization instructions, please refer to package insert.

ITS

Notes

I.T.S. USA
1778 Park Avenue N, Suite 200
Maitland, FL 32751

Tel.: 877 - 971 - 8054
Fax: 877 - 971 - 8056
info@its-implantusa.com
www.its-implantusa.com

CE 0297

Order No. CALmi-OP-0118-USA
Edition: January/2018

© ITS. GmbH Graz/Austria 2018.
Subject to technical alterations, errors and misprints excepted.