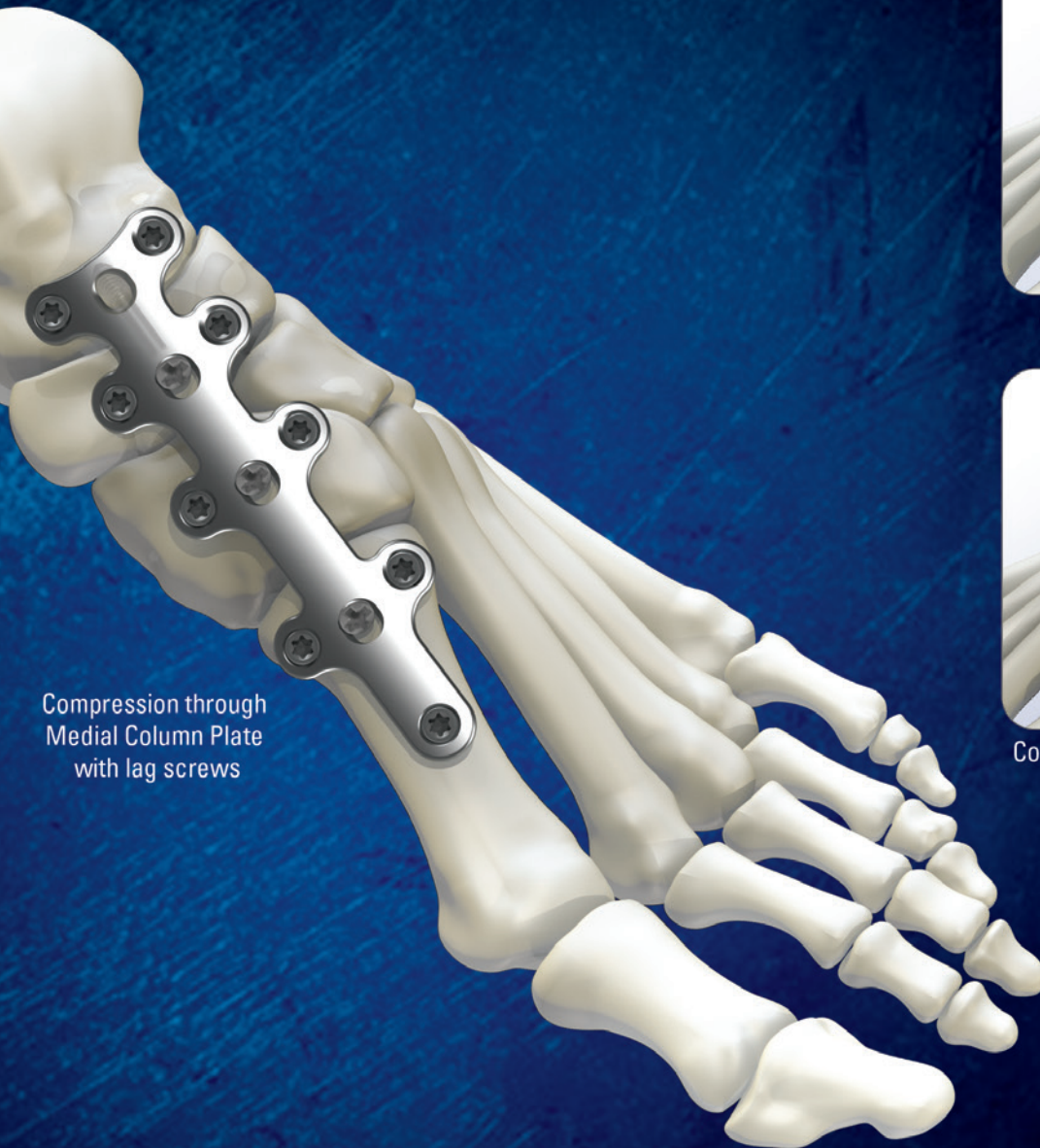


# EXTREMILOCK™

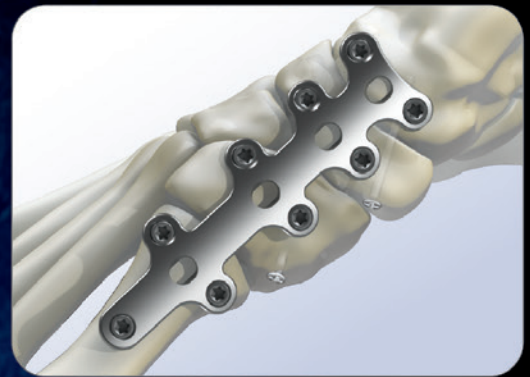
## Foot Plating System

### SURGICAL TECHNIQUE GUIDE

### MEDIAL COLUMN PLATES



Compression through  
Medial Column Plate  
with lag screws



Oblique Interfragmentary Screw Fixation



Compression Through Medial Column Plate



Rethinking Possibilities, Reshaping Lives

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## Table of Contents

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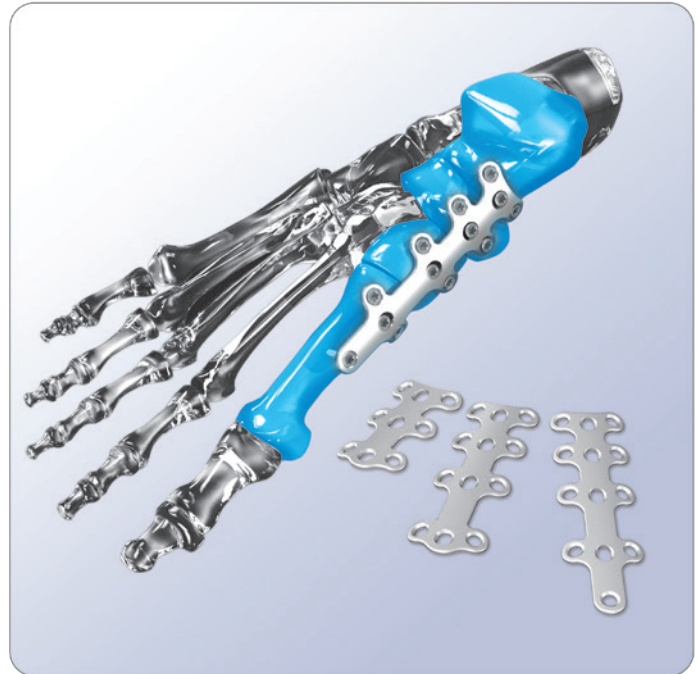
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# I. Introduction

## Product Information

The OsteoMed ExtremiLOCK Foot System Medial Column Plates “**VERSA Plates**” are designed to treat multiple reconstructive procedures and traumatic injuries of the midfoot. The plates can be used for Charcot arthropathy cases and are perfectly contoured for Talonavicular, Naviculocuneiform and Tarsometatarsal fusions.

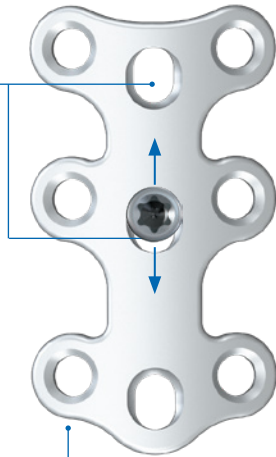
The **VERSA** plates are anatomically designed and provide locking and non-locking variable angle fixation in multiple planes. The plates can be used with 3.5mm/4.0mm fully threaded locking and non-locking cortical screws and in combination with 4.0mm cannulated interfragmentary or 4.0mm cannulated fully threaded screws.



## Features and Benefits

### Compression Slot

Unidirectional and bi-directional compression slot options to assist in compression across the fracture or fusion site.

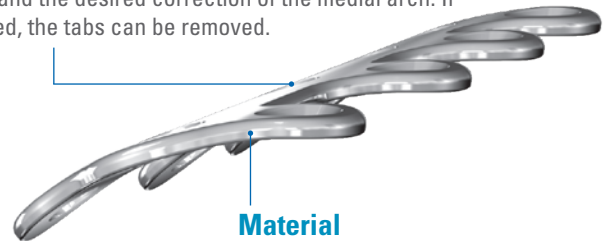


### Anatomically Designed Plates

Designed to match the contour of the bone.

### Plate Contouring

The plate shaft and tabs can be bent depending on patient anatomy and the desired correction of the medial arch. If not needed, the tabs can be removed.



### Material

Titanium plates and screws provide strength and bio-compatibility

### Low Profile

Rounded edges and highly smooth surface minimize soft tissue irritation.



### Large Angled Locking Range

40° of polyaxial locking gives the ability to capture difficult bone fragments. 360° of screw and plate contact create a strong locking construct for plate fixation.

3.5/4.0 mm locking and non-locking screw options.

### Innovative Screw Technology

Double lead screw technology allows for faster insertion and the Hexalobe interface provides optimal torque and tactile feel.

# I. Introduction

## Indications

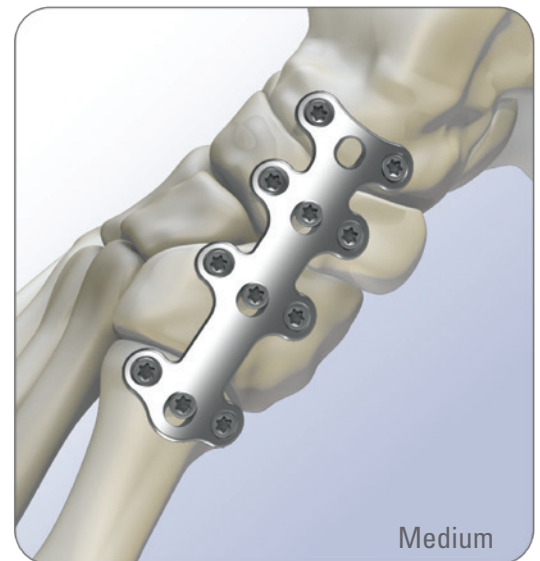
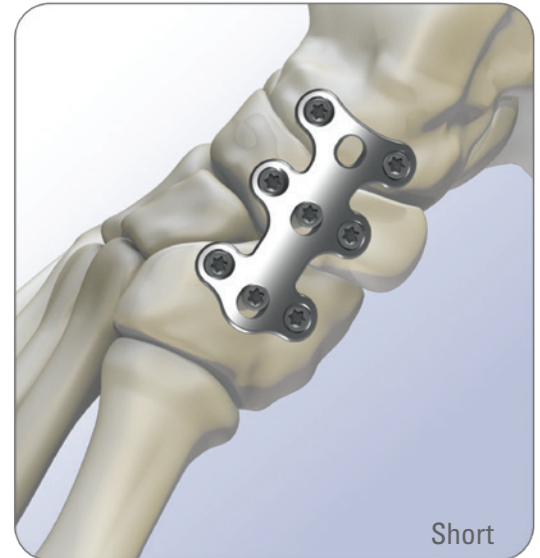
The OSTEOMED ExtremiLOCK Foot Plating System is indicated for use in trauma, general surgery, and reconstructive procedures of the foot, ankle or other bones appropriate for the size of the device.

The OSTEOMED ExtremiLOCK Foot Plating System implants are intended for single use only.

## Contraindications

Use of the OSTEOMED ExtremiLOCK Foot Plating System is contraindicated in the following cases:

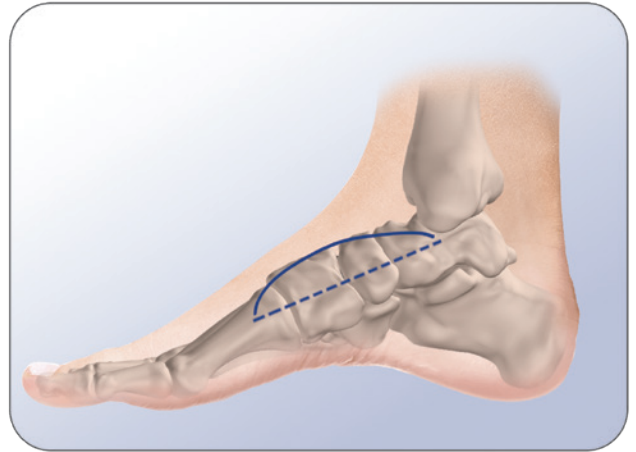
1. Active or suspected infection or in patients who are immunocompromised.
2. Patients previously sensitized to titanium or stainless steel.
3. Patients with certain metabolic diseases.
4. Patients who have insufficient bone or poor bone quality.
5. Patients exhibiting disorders which would cause the patient to ignore the physician's pre- and/or post-operative instructions and/or the limitations of internal rigid fixation implants.
6. Percutaneous K-wire placement is contraindicated in cases of displaced fractures and compressed fractures.



## II. Surgical Technique

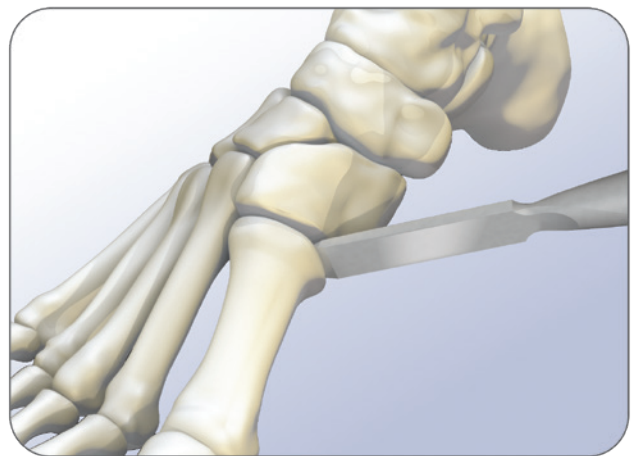
### Step 1 - Exposure

- Make a medial incision starting from the base of the medial malleolus to the first metatarsal between the Tibialis Anterior and posterior Tibialis tendons. A curvilinear incision can also be performed dorsally between the medial aspect of the Extensor Hallucis Longus Tendon and Tibialis Anterior to provide additional exposure.
- A full thickness flap is developed taking care to protect the Neurovascular structures and the Tibialis Anterior tendon.
- Make a sub-periosteal incision to expose the joints.



### Step 2 - Joint Preparation

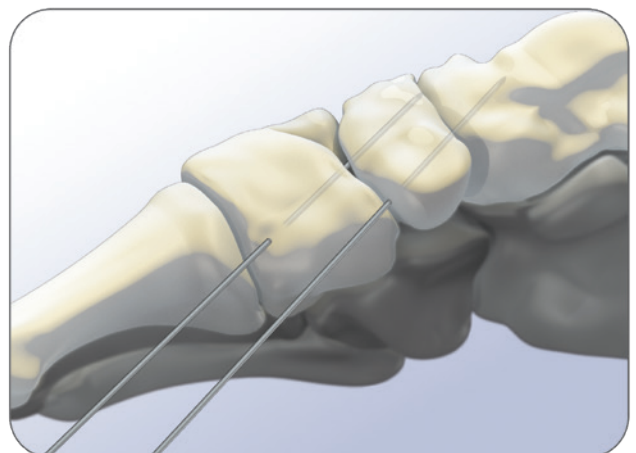
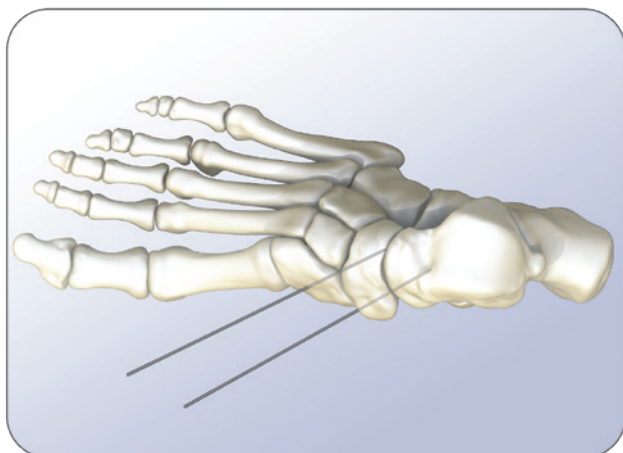
- Expose and prepare all joints for fusion. Preparation is performed with osteotomes, bone curettes, sagittal saw, rongeurs and a rotary burr if necessary.
- Joint preparation is finalized with guide wire, 2.0mm drill bit, or osteotomes to "fish scale" the fusion site to promote bone healing.
- Realignment of the medial column can be obtained by bone resection, reciprocal planning and/or inserting bone graft at the Naviculo-Cuneiform joint and the 1st Metatarsal-Cuneiform joint.



### Step 3 - Joint Alignment

- Place two temporary guide wires to maintain joint position. The first guide wire is placed at the TaloNavicular joint and the second guide wire is placed at the Navicular-Cuneiform joint.
- Confirm position of the guide wires and alignment using fluoroscopy.

**NOTE:** Guide wires can be used for insertion of 4.0mm cannulated lag screw or 4.0mm fully threaded screw when using interfragmentary screw fixation with medial column plate technique. .045" guide wires should be used with 4.0mm cannulated lag screws and 1.6mm guide wires should be used with 4.0mm fully threaded screws.

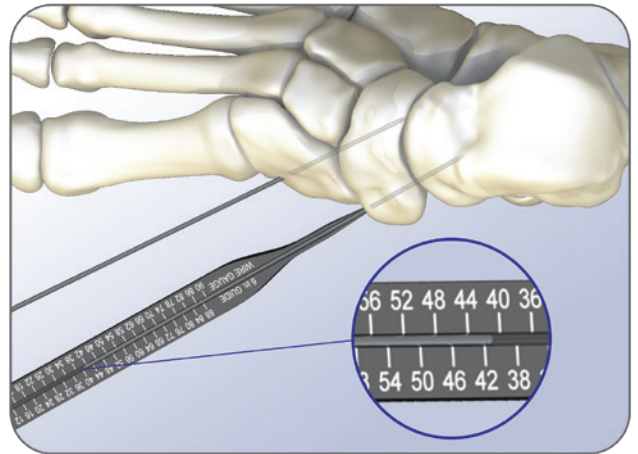


## II. Surgical Technique

### OPTION 1 - OBLIQUE INTERFRAGMENTARY SCREW FIXATION WITH MEDIAL COLUMN PLATE

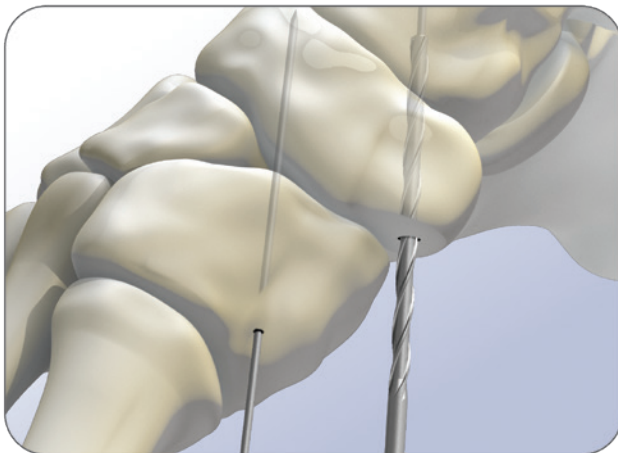
#### Screw Fixation

- Confirm position of the guide wires and alignment using fluoroscopy
- Slide depth gauge over the guide wire until the depth gauge tip is positioned directly against the bone. The proximal end of the guide wire will indicate the screw length required.



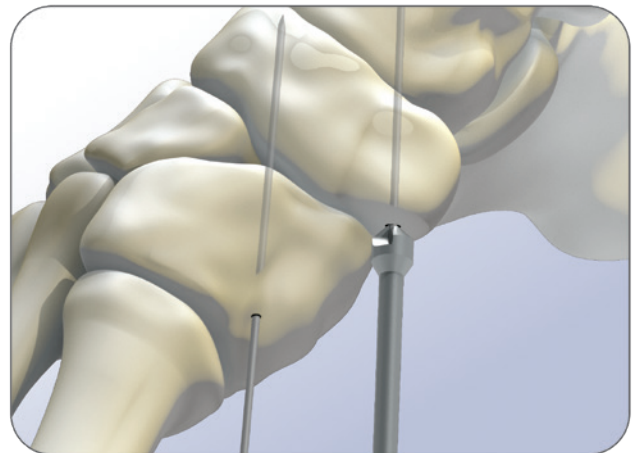
#### Pre-drilling (Optional)

The ExtremiFix Cannulated Screws are self-drilling and self-tapping. In dense cortical bone, pre-drilling is recommended. Place the drill bit over the guide wire and drill to desired depth. Drilling should not go beyond the tip of the guide wire.



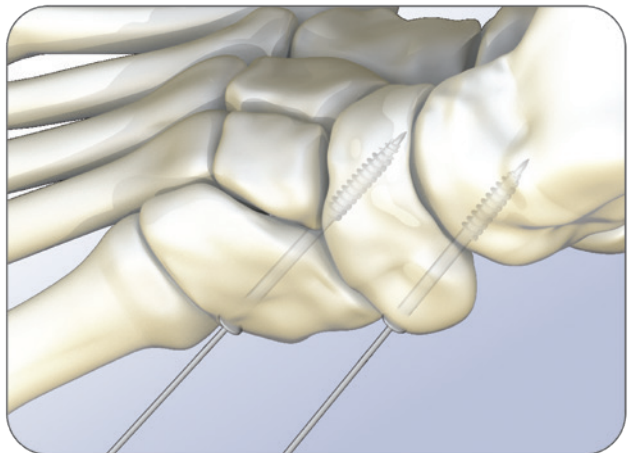
#### Countersink and Proximal Cortex (optional)

Countersinks and proximal cortex are available for headed and headless screws. Countersinking should be performed manually. Place the cannulated countersink or proximal cortex over the guide wire to create a recess on the proximal cortex.



**NOTE:** Overall screw length is measured from the top of the screw head to the tip of the screw. The head height should be considered when countersinking.

- Select the appropriate screw length and insert screw over the guide wire, advance the screw head until fully seated with the surface of the bone.
- Repeat step for secondary screws



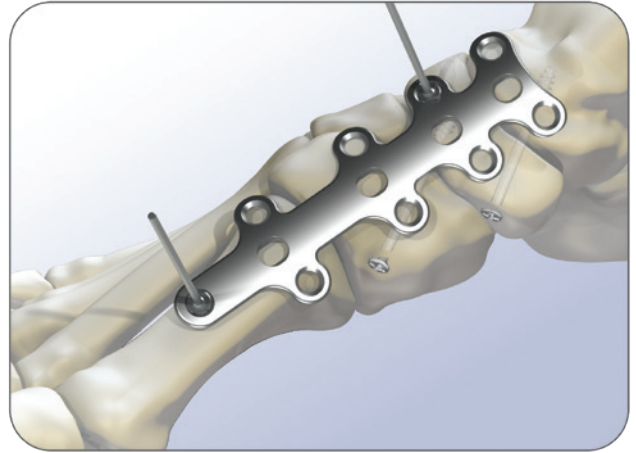
## II. Surgical Technique

### Medial Column Plate Fixation

- Select appropriate plate size based on surgical indication and patient anatomy and temporarily fix to the bone using plate TAKs.

**NOTE: Plate TAKs should only be used in the locking holes. Avoid placing in compression holes.**

- The Medial Column Plates are anatomically contoured but may require additional bending and cutting depending on the patient anatomy and desired correction. The plates should only be bent away from the locking holes.
- Use image intensification to verify plate position.

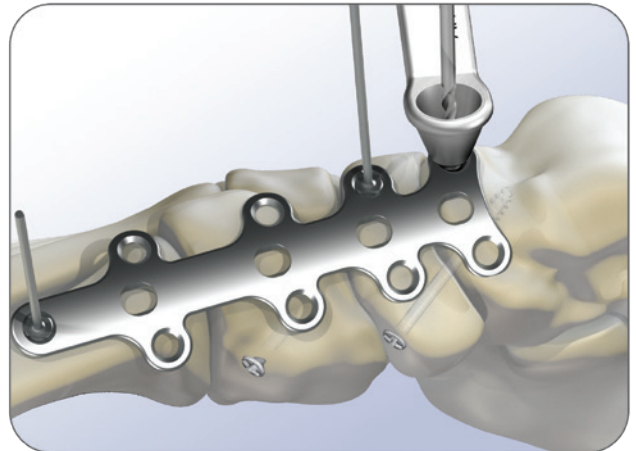


### Talonavicular Joint Fixation

#### Talus Fixation

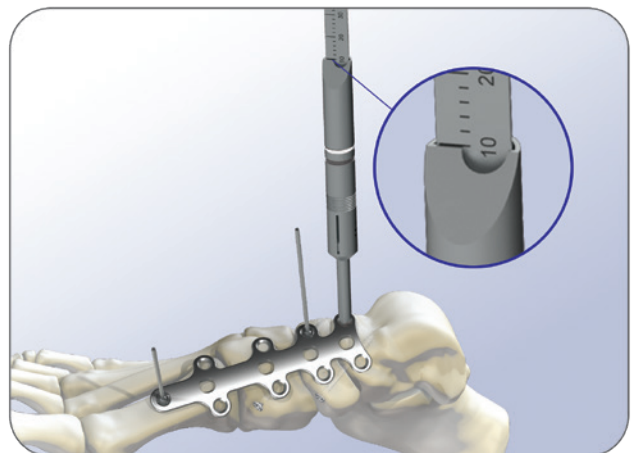
- The medial column plates can be used with either 3.5mm or 4.0mm locking and non-locking screws. Select the appropriate size angled locking drill guide\* or pilot drill guide. Place drill guide into the proximal dorsal talar locking screw holes ensuring the guide is firmly against the plate hole and drill to the desired depth. Verify drill bit depth under radiographic imaging.

**NOTE: The angled locking drill guide will ensure the drill remains within the 40° angled locking screw range ( $\pm 20^\circ$  from center).**



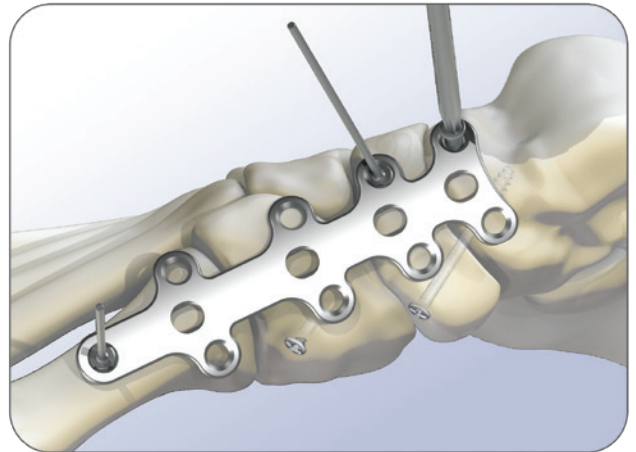
\* angled locking drill guide shown

- Use depth gauge to measure the correct screw length.



## II. Surgical Technique

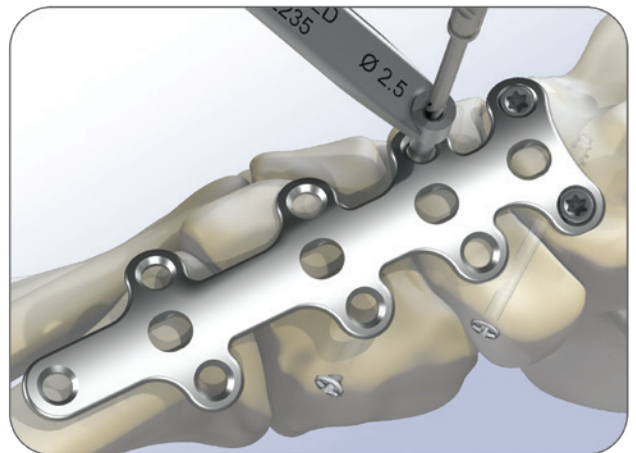
- Insert the measured screw length variable angle locking or non-locking screw. Confirm screw position and length prior to final tightening.
- Drill and insert remaining proximal Talar screw following the above technique.



### Navicular Fixation

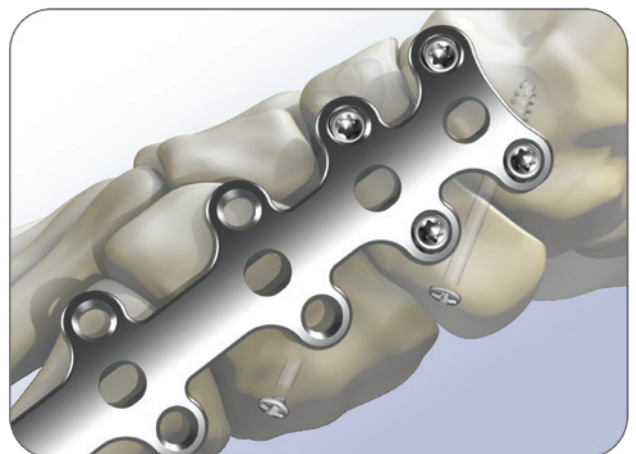
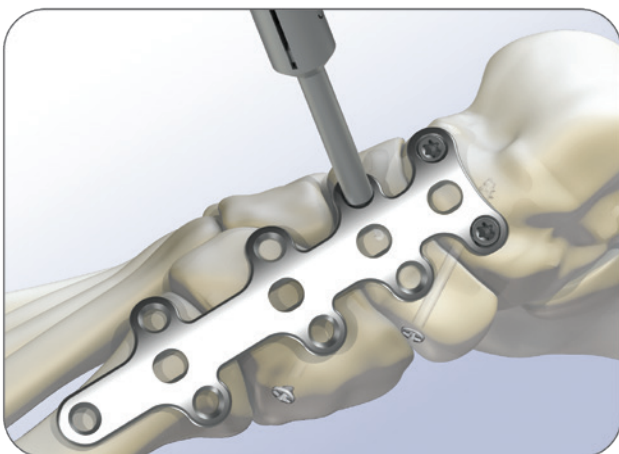
- Select the appropriate size angled locking drill guide or pilot drill guide\*. Place drill guide into the proximal dorsal Navicular locking screw holes ensuring the guide is through the plate hole, firmly on the bone and drill to the desired depth. Verify drill bit depth under radiographic imaging.

**NOTE:** The angled locking drill guide will ensure the drill remains within the 40° angled locking screw range ( $\pm 20^\circ$  from center).



\* pilot drill guide shown

- Use depth gauge to measure the correct screw length.
- Insert the measured screw length variable angle locking or non-locking screw. Confirm screw position and length prior to final tightening.
- Drill and insert remaining proximal Navicular screw following the above technique.





## II. Surgical Technique

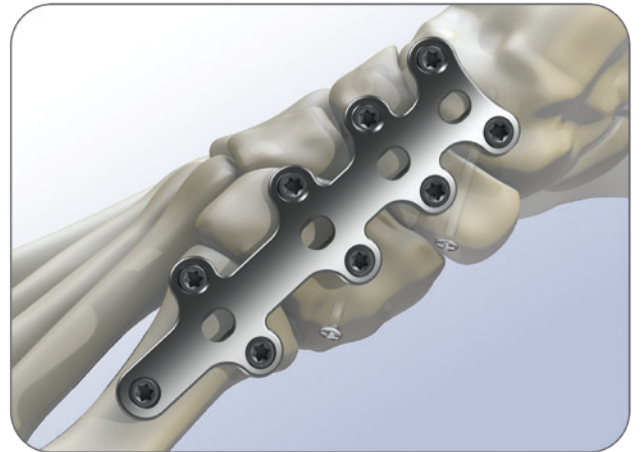
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### Cuneiform and Metatarsal Fixation

- Follow previous steps for drilling pilot hole, screw measurement and screw insertion.

### Final Construct

- After copious flush with saline, layered closure is performed.
- Compression dressing and splints are applied.



## II. Surgical Technique

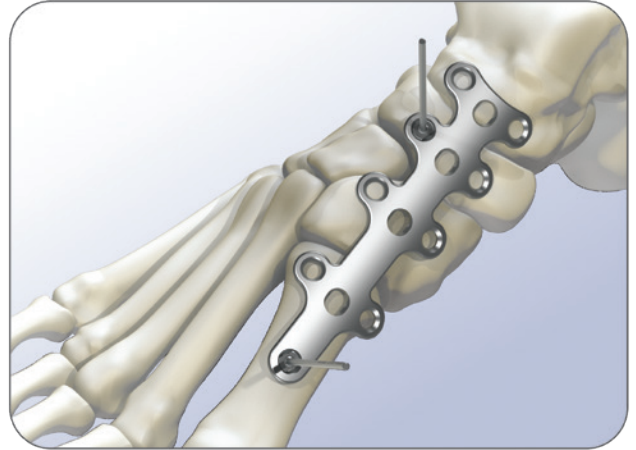
### OPTION 2 - COMPRESSION THROUGH MEDIAL COLUMN PLATE

#### Medial Column Plate Fixation

- Select appropriate plate size based on surgical indication and patient anatomy and temporarily fix to the bone using plate TAKs.

**NOTE:** Plate TAKs should only be used in the locking holes. Avoid placing in compression holes.

- The Medial Column Plates are anatomically contoured but may require additional bending and cutting depending on the patient anatomy and desired correction. The plates should only be bent away from the locking holes.
- Use image intensification to verify plate position.

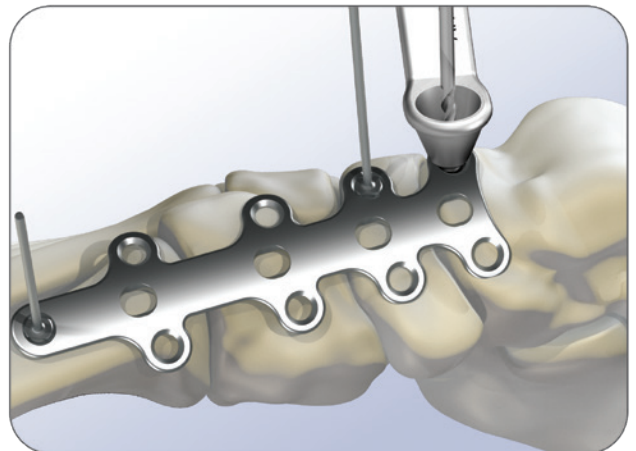


#### Talonavicular Joint Fixation

##### Talus Fixation

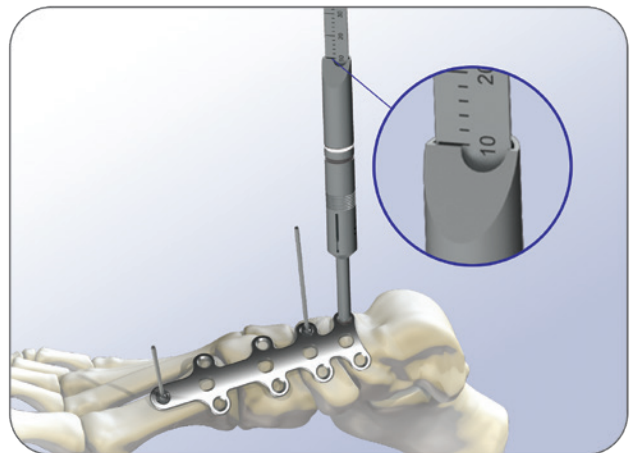
- The medial column plates can be used with either 3.5mm or 4.0mm locking and non-locking screws. Select the appropriate size angled locking drill guide\* or pilot drill guide. Place drill guide into the proximal dorsal talar locking screw hole ensuring the guide is firmly against the plate hole and drill to the desired depth. Verify drill bit depth under radiographic imaging.

**NOTE:** The angled locking drill guide will ensure the drill remains within the 40° angled locking screw range ( $\pm 20^\circ$  from center).



\* angled locking drill guide shown

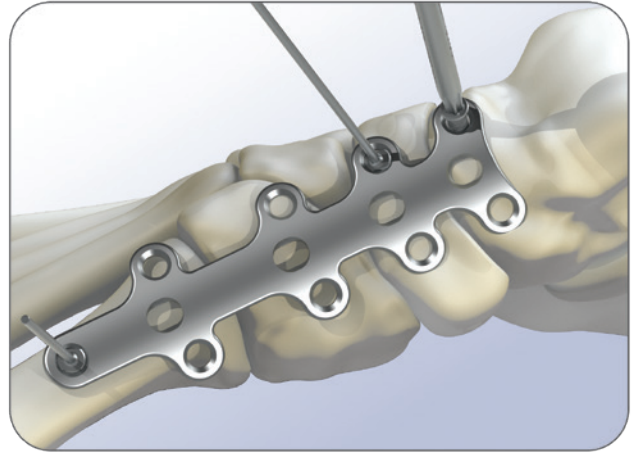
- Use depth gauge to measure the correct screw length.



## II. Surgical Technique

### Talus Fixation (Continue)

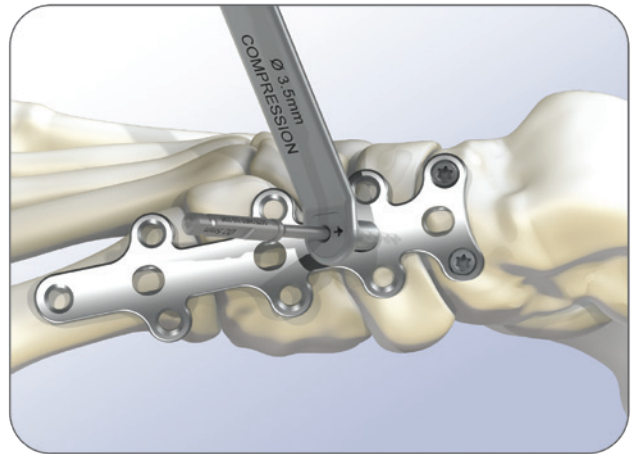
- Insert the measured screw length variable angle locking or non-locking screw. Confirm screw position and length prior to final tightening.
- Drill and insert remaining proximal Talar screw following the above technique.



### Navicular Fixation

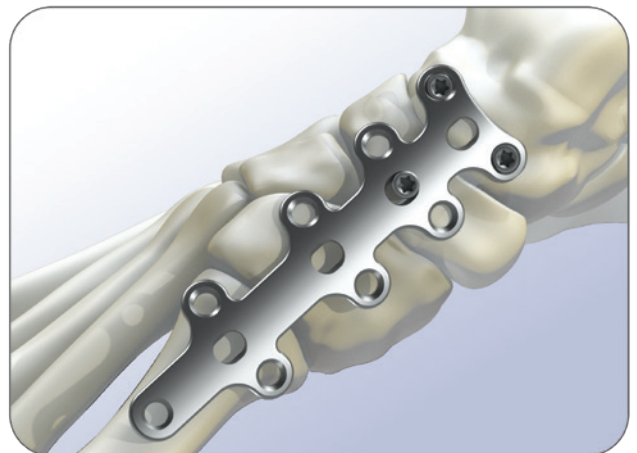
#### Eccentric Drilling Technique

- Place the compression drill guide into the compression screw hole. The arrow will be pointing toward the fusion site to drill eccentrically.
- Drill to the desired depth. Verify drill bit depth under radiographic imaging.
- Remove Plate TAK before placing the non-locking compression screw.
- Use depth gauge to measure the screw length.



- Insert the measured screw length non-locking variable angle screw. Confirm screw position and length prior to final tightening.

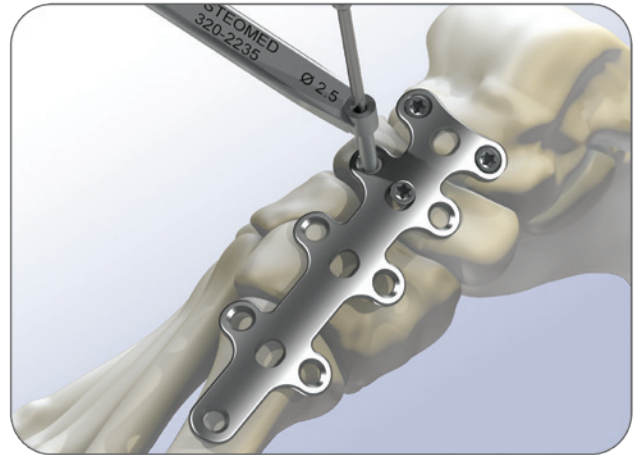
**NOTE: Compression screws must be inserted before any locking screws in the navicular bone.**



## II. Surgical Technique

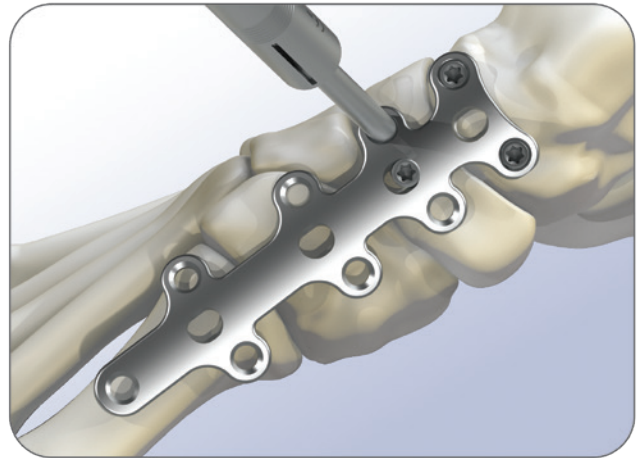
- Select the appropriate size angled locking drill guide or pilot drill guide\*. Place drill guide into the proximal dorsal Navicular locking screw holes ensuring the guide is through the plate hole, firmly on the bone and drill to the desired depth. Verify drill bit depth under radiographic imaging.

**NOTE:** The angled locking guide will ensure the drill remains within the 40° angled locking screw range ( $\pm 20^\circ$  from center).

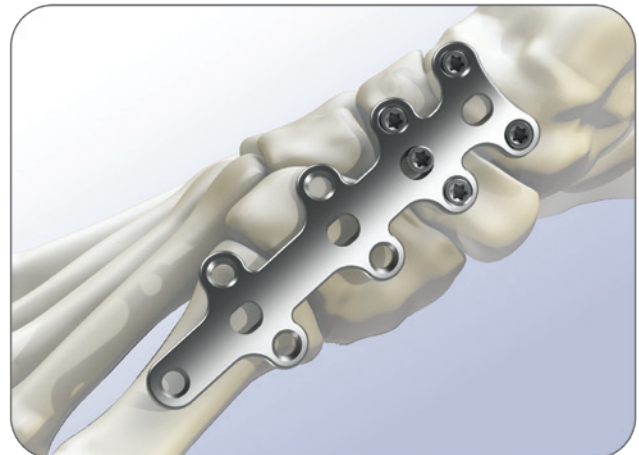


\* pilot drill guide shown

- Use depth gauge to measure the correct screw length.



- Insert the measured screw length variable angle locking or non-locking screw. Confirm screw position and length prior to final tightening.
- Drill and insert remaining proximal Navicular screw following the above technique.



## II. Surgical Technique

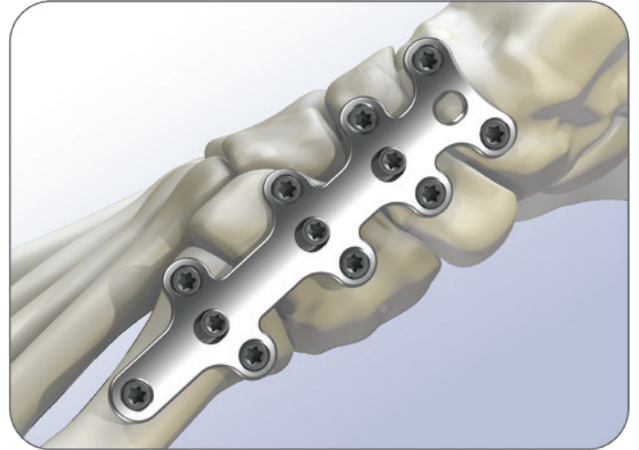
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### Cuneiform and Metatarsal Fixation

- Follow previous steps for drilling pilot hole, screw measurement and screw insertion.

### Final construct

- After copious flush with saline, layered closure is performed.
- Compression dressing and splints are applied.



## II. Surgical Technique

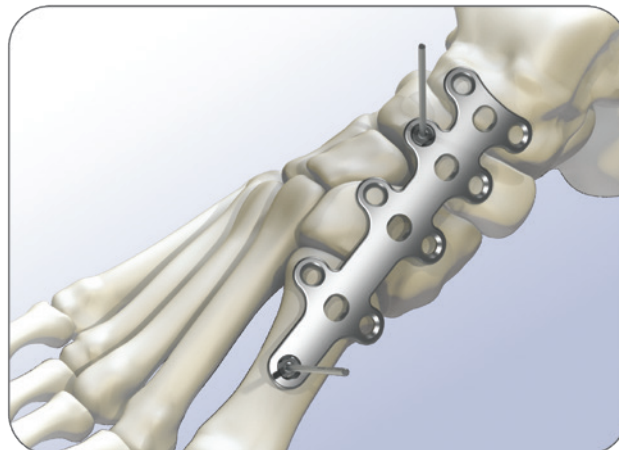
### OPTION 3 - COMPRESSION THROUGH MEDIAL COLUMN PLATE WITH LAG SCREWS

#### Medial Column Plate Fixation

- Select appropriate plate size based on surgical indication and patient anatomy and temporarily fix to the bone using plate TAKs.

**NOTE:** Plate TAKs should only be used in the locking holes. Avoid placing in compression holes.

- The Medial Column Plates are anatomically contoured but may require additional bending and cutting depending on the patient anatomy and desired correction. The plates should only be bent away from the locking holes.
- Use image intensification to verify plate position.

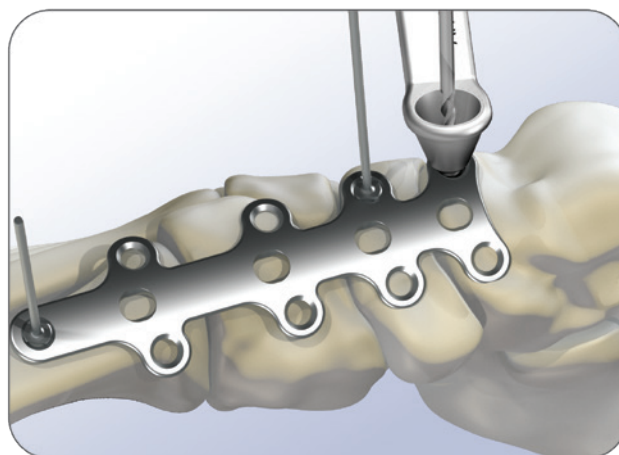


#### Talonavicular Joint Fixation

##### Talus Fixation

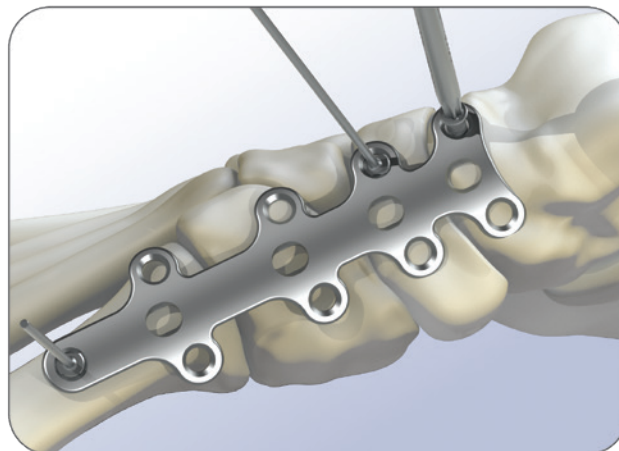
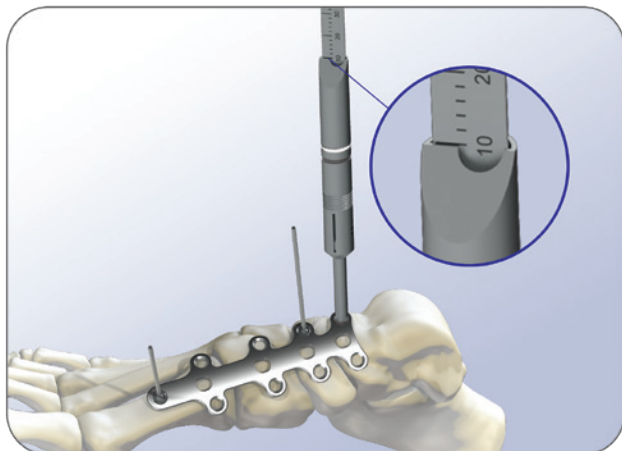
- The medial column plates can be used with either 3.5mm or 4.0mm locking and non-locking screws. Select the appropriate size angled locking drill guide\* or pilot drill guide. Place drill guide into the proximal dorsal talar locking screw hole ensuring the guide is firmly against the plate hole and drill to the desired depth. Verify drill bit depth under radiographic imaging.

**NOTE:** The angled locking drill guide will ensure the drill remains within the 40° angled locking screw range ( $\pm 20^\circ$  from center).



\* angled locking drill guide shown

- Use depth gauge to measure the correct screw length.
- Insert the measured screw length variable angle locking or non-locking screw. Confirm screw position and length prior to final tightening.
- Drill and insert remaining proximal Talar screw following the above technique.

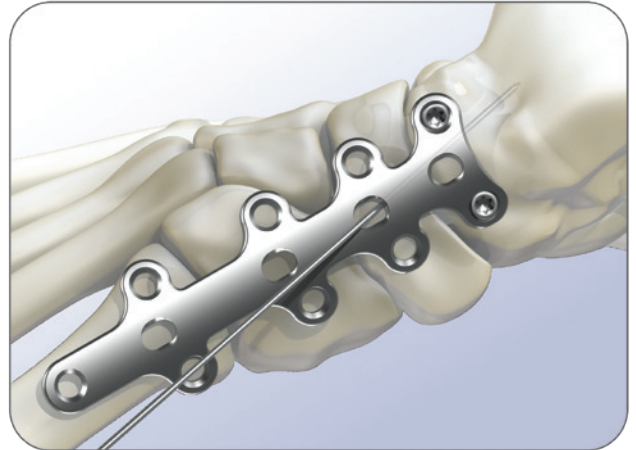


## II. Surgical Technique

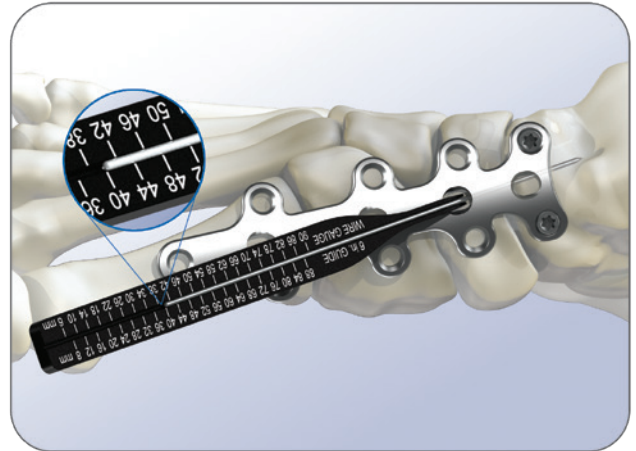
### Navicular fixation

#### Lag screw placement

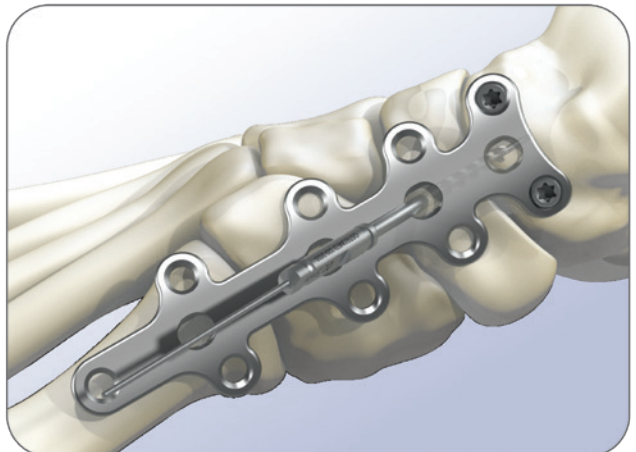
- Insert .045" guide wire into the Talonavicular joint through the compression hole.
- Confirm position of the guide wire and alignment using fluoroscopy.



- Slide depth gauge over the guide wire until the depth gauge tip is positioned directly against the bone. The proximal end of the guide wire will indicate the screw length required.

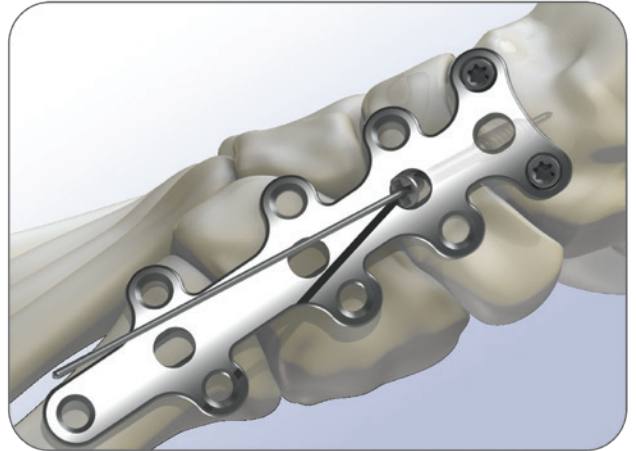


- Place drill over the guide wire and drill to desired depth. Drilling should not go beyond the tip of the guide wire.



## II. Surgical Technique

- Select the appropriate screw length and insert screw over the guide wire, advance screw head until fully seated into the plate for compression.

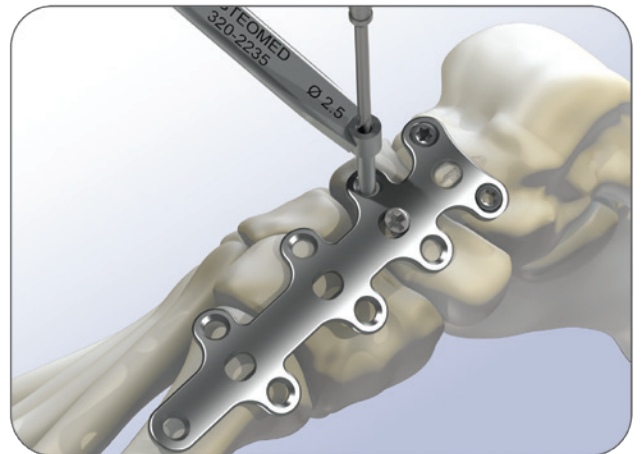


### Navicular Fixation

#### Locking / Non-Locking screw placement

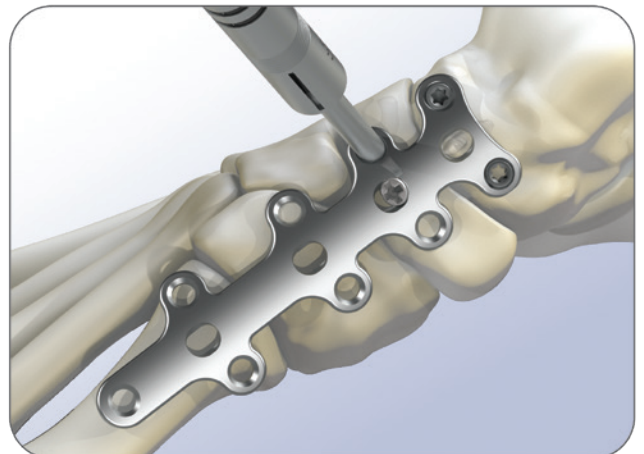
- Select the appropriate size angled locking drill guide or pilot drill guide\*. Place drill guide into the proximal dorsal Navicular locking screw hole ensuring the guide is through the plate hole, firmly on the bone and drill to the desired depth. Verify drill bit depth under radiographic imaging.

**Note:** The angled locking drill guide will ensure the drill remains within the 40° angled locking screw range ( $\pm 20^\circ$  from center).



\* pilot drill guide shown

- Use depth gauge to measure the correct screw length





## II. Surgical Technique

- Insert the measured screw length variable angle locking or non-locking screw. Confirm screw position and length prior to final tightening.
- Drill and insert remaining proximal Navicular screw following the above technique

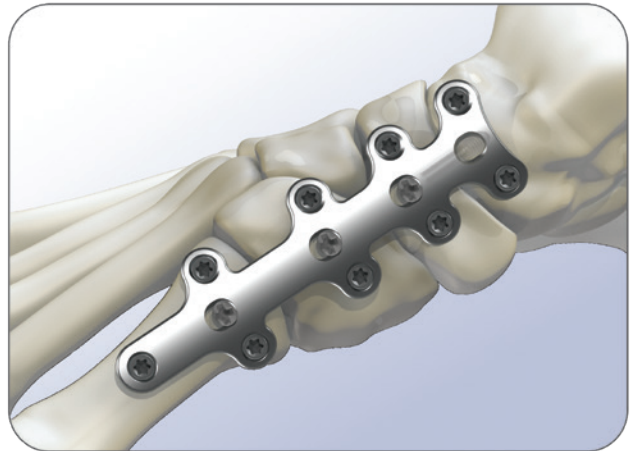


### Cuneiform and Metatarsal Fixation

- Follow previous steps for drilling pilot hole, screw measurement and screw insertion.

### Final construct

- After copious flush with saline, layered closure is performed.
- Compression dressing and splints are applied.



# Product Offering

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**336-3562** 3.5/4.0mm Medial Column Fusion Plate, Short



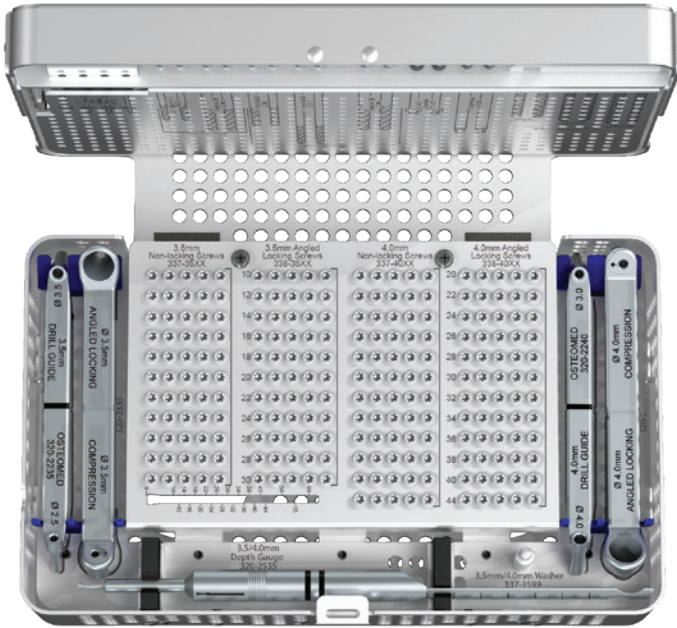
**336-3563** 3.5/4.0mm Medial Column Fusion Plate, Medium



**336-3564** 3.5/4.0mm Medial Column Fusion Plate, Long

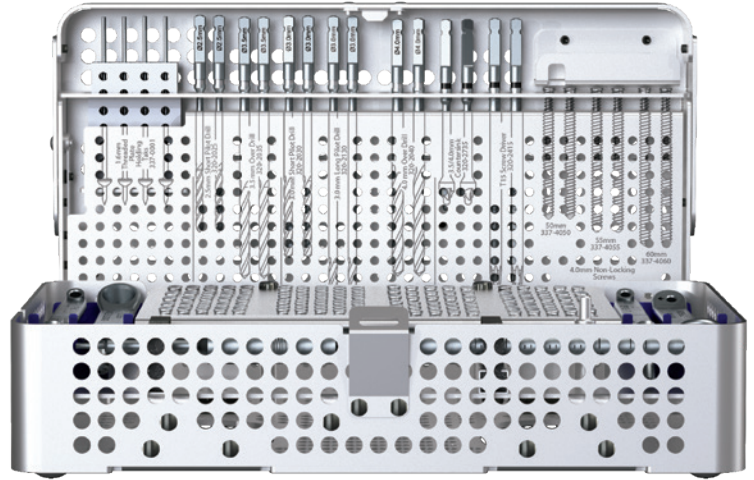
# Organizer Blocks

## 3.5/4.0mm Screw Module



320-2908 3.5/4.0mm Screw Module

\* top view



\* side view

### Screws



337-35xx 3.5mm x 10mm - 30mm Double-Lead Non-Locking Screw, T15



337-40xx 4.0mm x 20mm - 60mm Double-Lead Non-Locking Screw, T15



338-35xx 3.5mm x 10mm - 30mm Double-Lead Locking Screw, T15



338-40xx 4.0mm x 20mm - 44mm Double-Lead Locking Screw, T15

### Instruments



320-2235 2.5mm Pilot/3.5mm Over Drill Guide



320-2240 3.0mm Pilot/4.0mm Over Drill Guide



320-2335 3.5mm Angled Locking/Compression Drill Guide



320-2340 4.0mm Angled Locking/Compression Drill Guide



320-2535 3.5/4.0mm Depth Gauge



337-3599 3.5/4.0mm Washer



337-0001 1.6mm Threaded Holding TAK



320-2030 3.0mm Short Pilot Drill



320-2025 2.5mm Short Pilot Drill



320-2130 3.0mm Long Pilot Drill



320-2035 3.5mm Over Drill



320-2040 4.0mm Over Drill



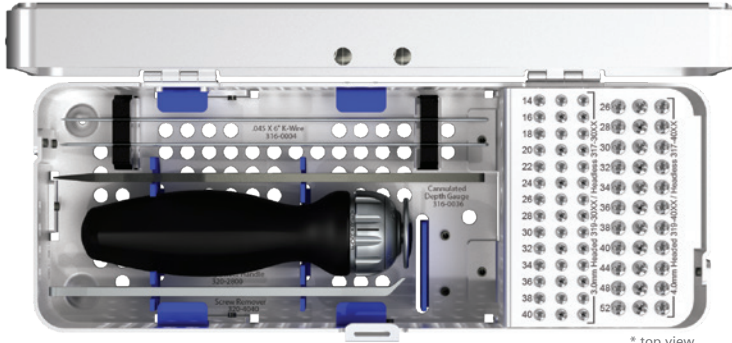
320-2735 3.5/4.0mm Countersink



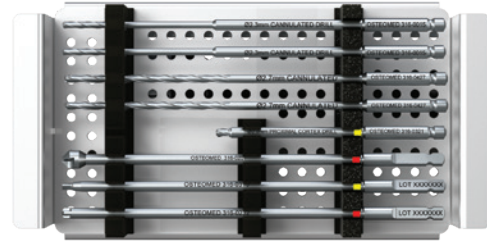
320-2415 T15 Screw Driver

# Organizer Blocks

## 3.0/4.0mm Cannulated Screw Module



320-2909 3.0/4.0mm Cannulated Screw Module



\* top view

### Screws



319-30xx 3.0mm x 14mm - 40mm Cannulated Lag Screw



317-30xx 3.0mm x 14mm - 40mm Headless Cannulated Screw



319-40xx 4.0mm x 26mm - 52mm Cannulated Lag Screw

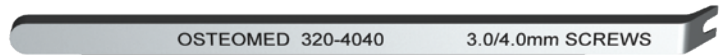


317-40xx 4.0mm x 28mm - 52mm Headless Cannulated Screw

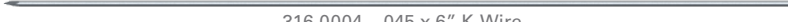
### Instruments



320-2800 Ratcheting Driver Handle



320-4040 3.0/4.0mm Screw Remover



316-0004 .045 x 6" K-Wire



316-0036 Cannulated Depth Gauge 4"/6"



316-0015 2.3mm Cannulated Drill, Quick Release



316-0427 2.3mm Cannulated Drill, Quick Release



316-0201 3.0/4.0mm Cannulated Countersink, Quick Release



316-0232 3.0/4.0mm Cannulated Driver, Long, Quick Release



316-0233 3.0/4.0mm Cannulated Driver, Short, Quick Release



316-0321 2.4mm, Proximal Cortex, Quick Release



316-0314 3.0/4.0mm Headless Tri-lobe Driver, Cannulated, Short, Quick Release



316-0315 3.0/4.0mm Headless Tri-lobe Driver, Cannulated, Long, Quick Release

# Soft Tissue Instrument Tray



320-2910 Mandatory / Soft Tissue Instrument Tray



320-0402 Hohmann Retractor, 6" w/ 15mm Blade



320-1024 Sharp Hook



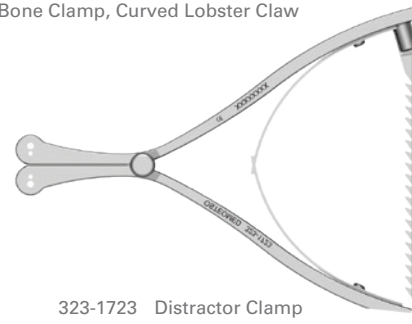
320-0401 Periosteal Elevator, 7.25" w/ 6mm Straight



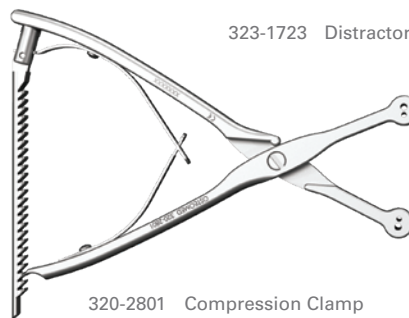
320-0102 Bone Clamp



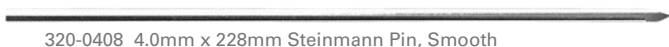
316-0046 Bone Clamp, Curved Lobster Claw



323-1723 Distractor Clamp



320-2801 Compression Clamp



320-0408 4.0mm x 228mm Steinmann Pin, Smooth



320-0409 4.0mm x 228mm Steinmann Pin, Partially Threaded



321-0122 .062 x 7.25" K-Wires



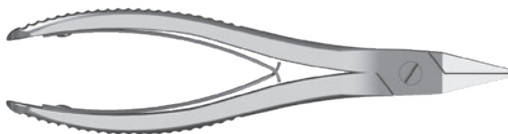
320-2803 2.4mm x 140mm Distractor Compression Pin



320-2702 Plate File



220-0711 Plate Cutter



320-1016 Plate Bending Pliers



220-0027 Forceps



320-2800 Ratcheting Driver Handle



320-2900 ExtremiLOCK Foot System

# OsteoMed Products



ExtremiFix Headless Cannulated Screws



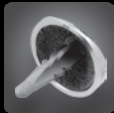
ExtremiFix Cannulated Screws



Large Cannulated Screws



ExtremiFuse



EnCompass



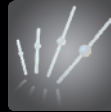
EnCompass Lessers



Hemi



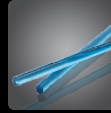
ReFlexion



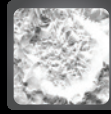
InterPhlex



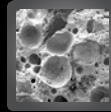
Talar-Fit



Inion



OsteoVationEX



OsteoVation QWIK

For product information, including indications, contraindications, warnings, precautions, potential adverse effects and patient counseling information, see the package insert or contact your local representative; visit [www.osteomed.com](http://www.osteomed.com) for additional product information.



## OSTEOMED

3885 Arapaho Rd.  
Addison, TX 75001  
Customer Service: 800.456.7779  
Outside the U.S.: 001.972.677.4600  
Fax: 800.390.2620  
Fax Outside the U.S.: 001.972.677.4709  
E-mail: [customer.service@osteomed.com](mailto:customer.service@osteomed.com)  
[www.osteomed.com](http://www.osteomed.com)

