



SURGICAL  
TECHNIQUE

enovis™

# ARSENAL FOOT™ PLATING SYSTEM

PLATING SYSTEM





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Enovis™ is a manufacturer of orthopedic implants and does not practice medicine. This surgical technique was prepared in conjunction with licensed health care professionals. The treating surgeon is responsible for determining the appropriate treatment, technique(s), and product(s) for each individual patient.

See package insert for complete list of potential adverse effects, contraindications, warnings and precautions.

A workshop training is recommended prior to performing your first surgery. All non-sterile devices must be cleaned and sterilized before use.

Multi-component instruments must be disassembled for cleaning. Please refer to the corresponding assembly/disassembly instructions, if applicable. Please remember that the compatibility of different product systems has not been tested unless specified otherwise in the product labeling.

The surgeon must discuss all relevant risks including the finite lifetime of the device with the patient.

### WHY ARSENAL FOOT™ PLATING SYSTEM?

The Arsenal Foot™ Plating System provides a robust plating portfolio to address fusions, fractures, and osteotomies across the forefoot and midfoot.

Arsenal's patented variable angle locking technology – allowing 60° cone of angulation (exceeding the competition), multi-lock functionality, accepting repeatable lock and relock of screws, and dual lead screws make for a powerful combination of patented and innovative solutions.

The System is designed to accommodate 2.7mm and 3.5mm Arsenal locking and non-locking screws.



*MTP*



*LAPIDUS*



*LISFRANC*



*Y-PLATE*



*L-PLATE*



*X-PLATE*



*STRAIGHT*

### INDICATIONS

#### ARSENAL FOOT™ PLATING SYSTEM

The Arsenal Foot™ Plating System is intended for use in trauma and reconstructive procedures of the small bones in the hand/foot, ankle, and other bones appropriate for the size of the device. The plates (implants), screws (implants), and olive wires (instruments) are intended for single use only.

### WARNINGS

#### ARSENAL FOOT PLATING SYSTEM

- Re-operation to remove or replace implants may be required at any time due to medical reasons or device failure. If corrective action is not taken, complications may occur.
- Use of an undersized implant in areas of high functional stress may lead to implant fracture and failure.
- Instruments, guide wires, and olive wires are to be treated as sharps.
- Re-use of devices indicated as single use can result in decreased mechanical and clinical performance of devices.

The Arsenal Foot™ Plating System is designed to accommodate 2.7mm and 3.5mm Arsenal locking and non-locking screws. Choose the screw diameter most suitable based on the procedure and anatomy.

- 60° locking cone of angulation, surpassing competitors by offering up to 30° in any direction
- Locking screws capable to lock and relock up to 5 times, a design feature aimed to minimize implant waste
- Dual lead 2.7mm and 3.5mm locking and non-locking screws designed to save valuable OR time
- 2.7mm Locking and Non-Locking length offerings 8-30mm
- 3.5mm Locking and Non-Locking length offerings 8-50mm

## COLOR CODING

For ease of use, the corresponding instrumentation are color coded based on the screw diameters

- 2.7mm Screw Caddy
- Drill Bits, Drill Guides, Drivers
- 3.5mm Screw Caddy
- Drill Bits, Drill Guides, Drivers

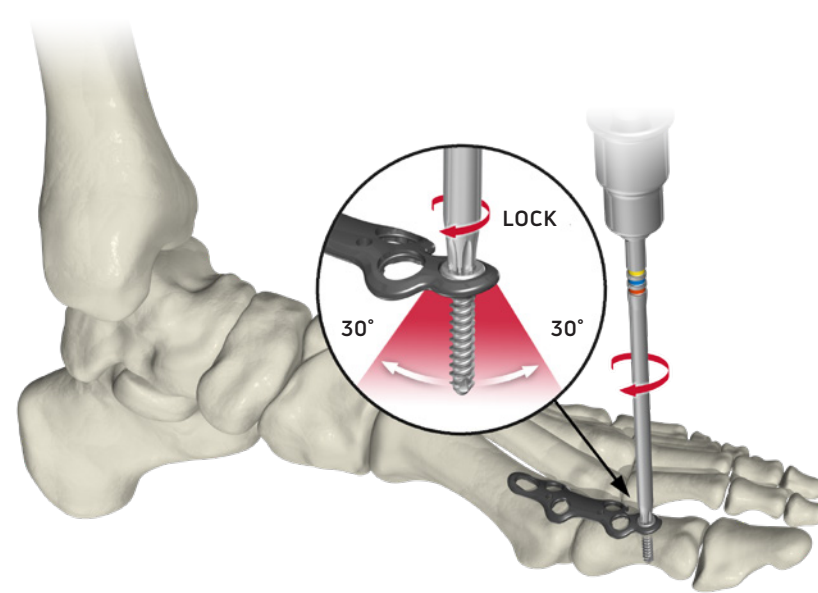


FIGURE 1

## SCREW PLACEMENT

- When using a screw monoaxial, thread the Arsenal Drill Guide Tower into the locking hole (FIGURE 2) or the static angle drill guide.
- All Arsenal Locking screws and locking holes have a 60° polyaxial cone of angulation (30° in any direction). To lock a screw off-axis, the Arsenal Variable Angle Drill Guide may be used (FIGURE 3).
- Use the proper drill corresponding to the size of the screw (TABLE 1).

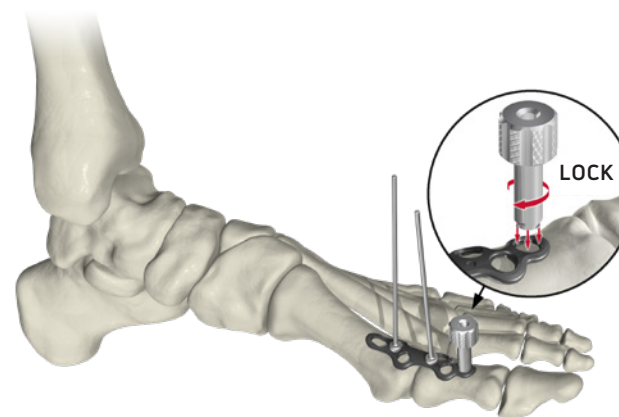


FIGURE 2

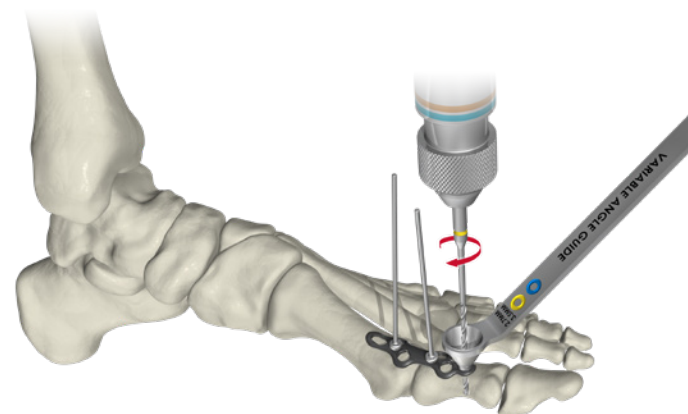


FIGURE 3

TABLE 1

SCREW	DRILL	PART #
2.7MM NON-LOCKING SCREWS	2.7MM ARSENAL SCREW DRILL BIT	330-27-001
2.7MM LOCKING SCREWS		
3.5MM NON-LOCKING SCREWS	3.5MM ARSENAL SCREW DRILL BIT	330-35-001
3.5MM LOCKING SCREWS		

### SCREW LENGTH

Screw length can be determined after drilling using the depth gauge. Using a standard depth gauge provided in the set, insert the tip into the pilot hole and slide the outer casing down until it contacts the bone to measure the appropriate length screw (**FIGURE 4**).

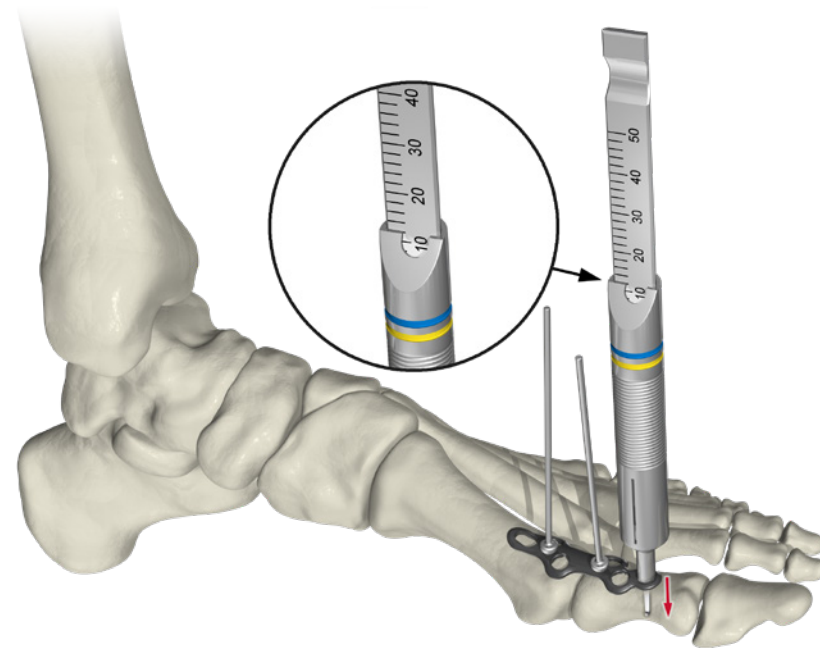


FIGURE 4

## COMPRESSION HOLES

- If dynamic compression is desired, place the appropriate diameter compression drill guide in the compression hole of the plate. Point arrow on the drill guide towards the direction of the desired compression (**FIGURE 5**).
- Bicortical fixation is required for proper use.
- Compression holes accommodate 2.7mm and 3.5mm non-locking screws.

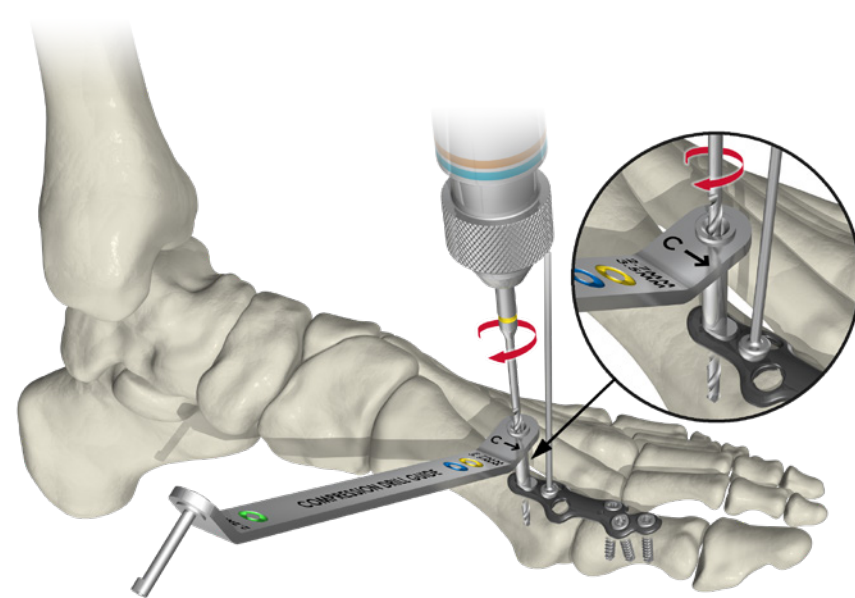


FIGURE 5



### 1. APPROACH

Perform a longitudinal dorsal approach over the metatarsophalangeal (MTP) joint (**FIGURE 6**). Dissection is continued to expose the MTP joint, taking care to protect the neurovascular bundle. Retract the extensor hallucis longus tendon (EHL) laterally to expose the MTP joint capsule. Incise the joint capsule to enable joint preparation.



FIGURE 6

## 2. JOINT PREPARATION

Begin by exposing the metatarsal head. Insert a 0.062" x 6" K-Wire through the center of the metatarsal head and into the diaphysis of the metatarsal. Next, position the concave reamer over the K-Wire and utilize an intermittent drilling technique until the subchondral bone shows signs of bleeding on the joint surface (**FIGURE 7**). Start with the reamer off of the bone.

TABLE 2 - PART KEY

SCREW	PART #
16MM CONCAVE REAMER	311-01-016
16MM CONVEX REAMER	311-02-016
18MM CONCAVE REAMER	311-01-018
18MM CONVEX REAMER	311-02-018
20MM CONCAVE REAMER	311-01-020
20MM CONVEX REAMER	311-02-020
22MM CONCAVE REAMER	311-01-022
22MM CONVEX REAMER	311-02-022
24MM CONCAVE REAMER	311-01-024
24MM CONVEX REAMER	311-02-024
0.062" x 6" K-WIRE STANDARD	210-60-004
0.094" x 6" K-WIRE STANDARD	330-24-004
MCGLAMRY ELEVATOR	330-00-004

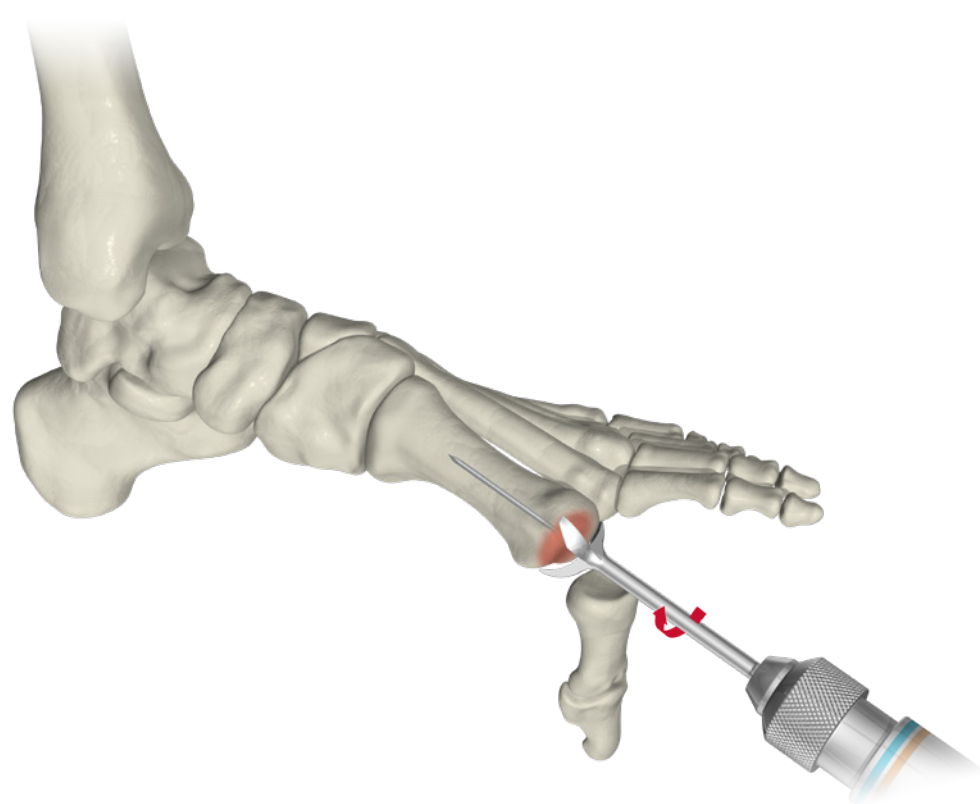


FIGURE 7

## 2. JOINT AND PREPARATION (CON'T.)

Reaming of the phalanx follows a similar procedure to that of the metatarsal head. To adequately expose the articular surface of the phalanx, the toe is plantarflexed and turned into valgus to prevent interference with the metatarsal head. A curved McGlamry is often useful for exposure and in safeguarding the metatarsal head during reaming. A 0.062" x 6" K-Wire is positioned at the center of the articular cartilage and guided through the diaphysis (**FIGURE 8**).

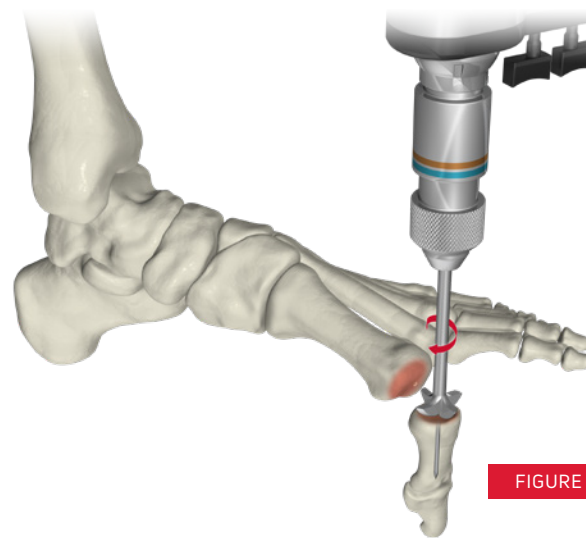


FIGURE 8

**⚠ CAUTION:** Progress through reamer sizes until an equal radius has been applied to the metatarsal and phalangeal sides, creating a conformed surface.

Achieve initial stabilization of the fusion site using an appropriately sized K-wire (**FIGURE 9**). Alternatively, excise any remaining cartilage from the articular surfaces of the metatarsal head and proximal phalanx using a combination of osteotomes, curettes, and/or a bur until bleeding subchondral bone is achieved.



FIGURE 9

### 3. INTERFRAGMENTARY SCREW PLACEMENT

An Interfragmentary Screw may be placed at this time  
(FIGURE 10).

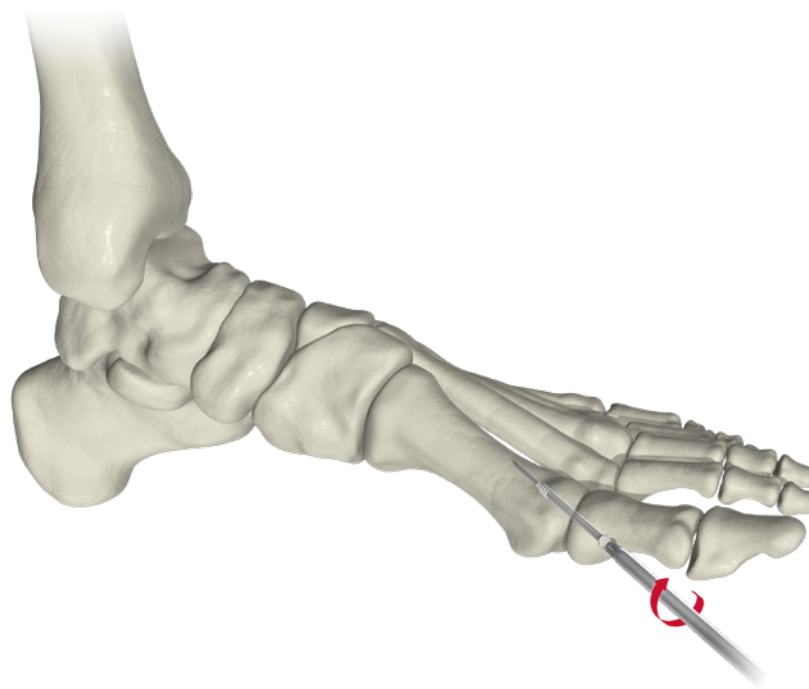


FIGURE 10

#### 4. PLATE SELECTION AND PLACEMENT

Select the proper MTP plate. Ensure plate contours to match the anatomy of the metatarsal head and proximal phalanx. The Arsenal Drill Guide Tower can be used for placement to verify plate selection.

The chosen plate ought to be temporarily fixated using the supplied olive wires (FIGURE 11). Olive wires can be placed in the locking screw holes or the olive wire holes on the plate.

TABLE 3 - PART KEY

SCREW	PART #
2.7MM/3.5MM ARSENAL DRILL GUIDE TOWER	330-00-008
0.062" x 3.25" OLIVE WIRE PARTIALLY THREADED	330-60-005

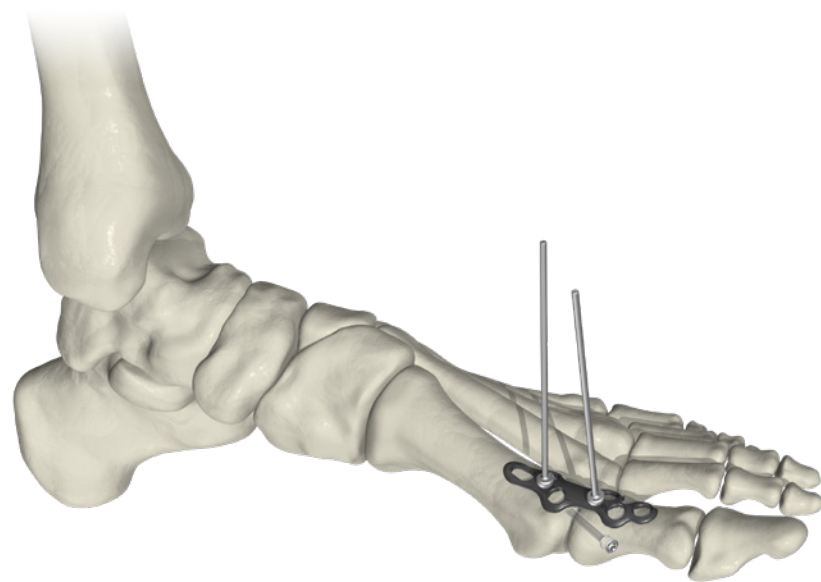
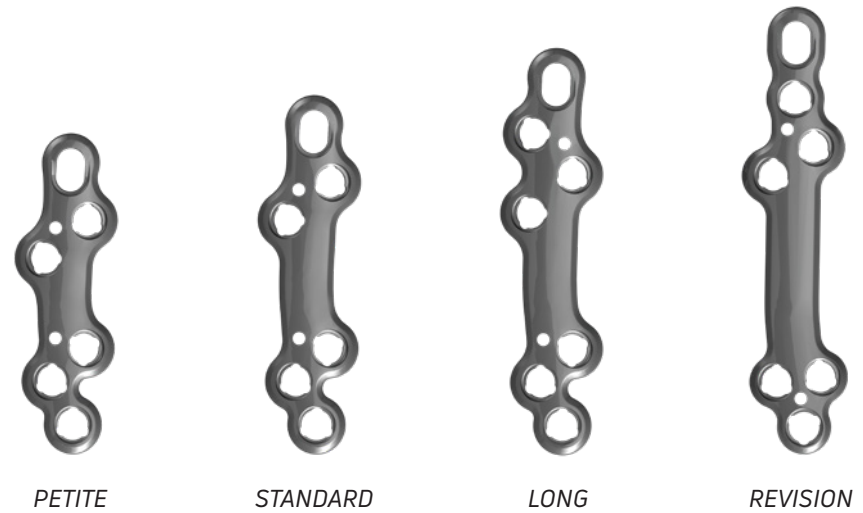


FIGURE 11

### 5. SCREW FIXATION

Screws should be inserted in the following order  
(FIGURE 12).



FIGURE 12

## 5. SCREW FIXATION (CON'T.)

Utilizing the methods outlined in the screw fixation section, insert locking and/or non-locking screws through all locking screw holes distal of the fusion site (FIGURE 13, FIGURE 14, FIGURE 15).

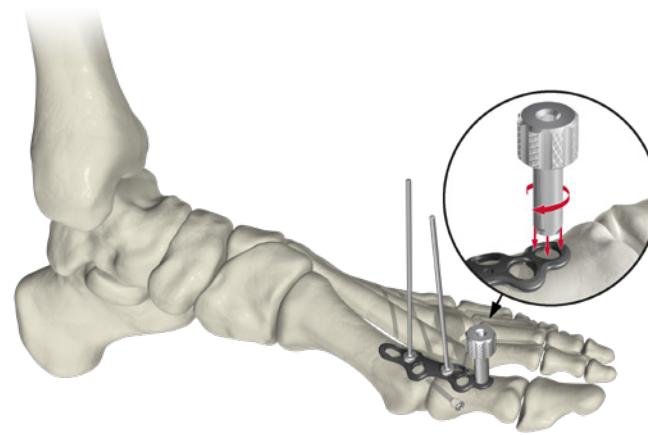


FIGURE 13

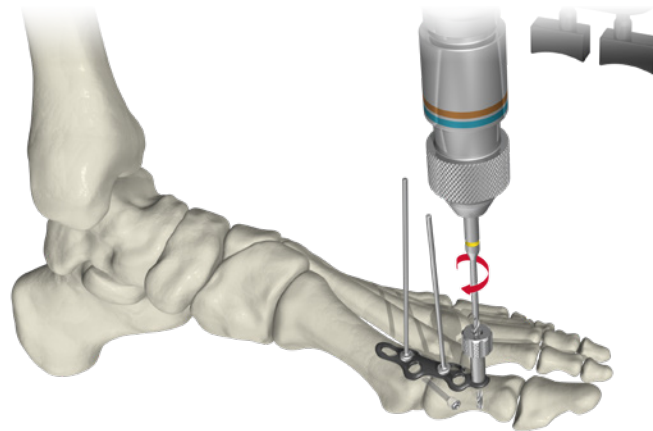


FIGURE 14

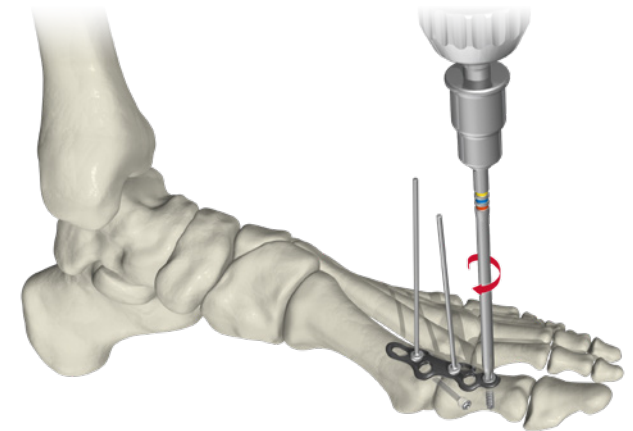


FIGURE 15

## 5. SCREW FIXATION (CON'T.)

Following distal fixation, place a non-locking screw into the compression slot farthest from the joint (FIGURE 16, FIGURE 17, FIGURE 18).

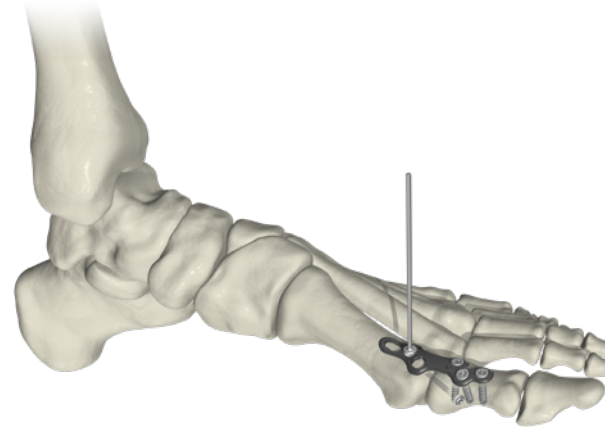


FIGURE 16

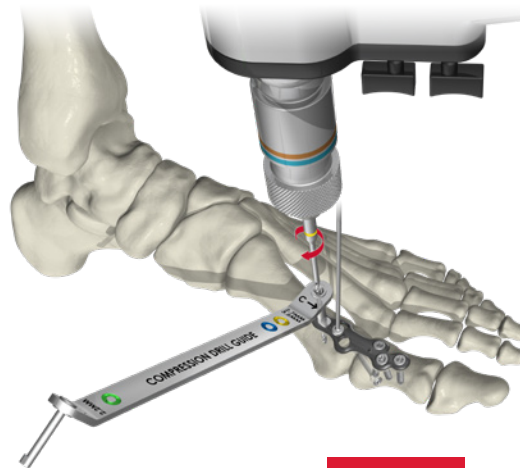


FIGURE 17

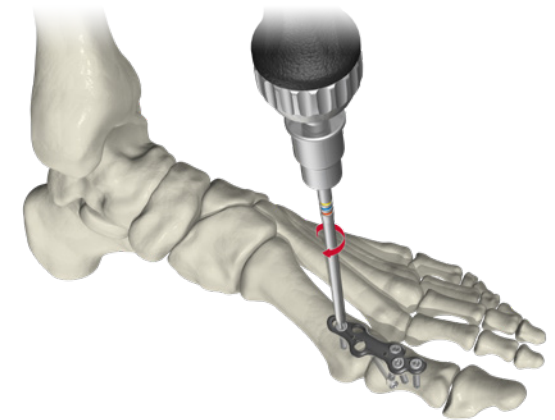


FIGURE 18



### 5. SCREW FIXATION (CON'T.)

Proceed by inserting locking and/or non-locking screws through the remaining holes (**FIGURE 19**).

### 6. FINAL FIXATION

Confirm placement under fluoroscopy

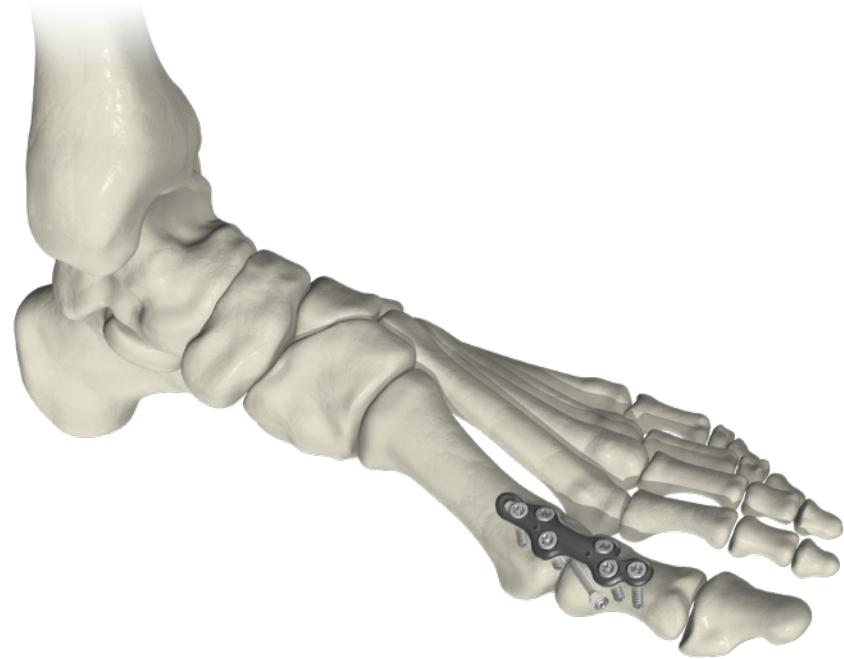


FIGURE 19

### 1. APPROACH

Perform a dorsomedial incision to the 1st TMT, situated just medial to the EHL tendon (**FIGURE 20**). Extend the approach 2-3cm on each side of the TMT. Make an incision in the skin, ensuring identification and protection of overlying neurovascular structures. Deepen the incision to reach the dorsal TMT capsule. Free the EHL with blunt dissection and retract laterally. Confirm 1st TMT joint position directly or with fluoroscopy.



FIGURE 20

## 2. JOINT PREPARATION

Insert either the 0.062" x 6" or 0.094" x 6" K-Wire into the distractor on each side of the joint. Distract the joint until sufficient exposure is attained (**FIGURE 21**). An osteotome can be cautiously used to release any ligaments or additional joint capsule that impede joint distraction. After joint distraction, remove 1st TMT cartilage per standard procedure until dense subchondral bone is fully exposed on both sides of the joint.

TABLE 4 - PART KEY

SCREW	PART #
SMALL BONE DISTRACTOR	330-00-002
0.062" x 6" K-WIRE STANDARD	210-60-004
0.094" x 6" K-WIRE STANDARD	330-24-004

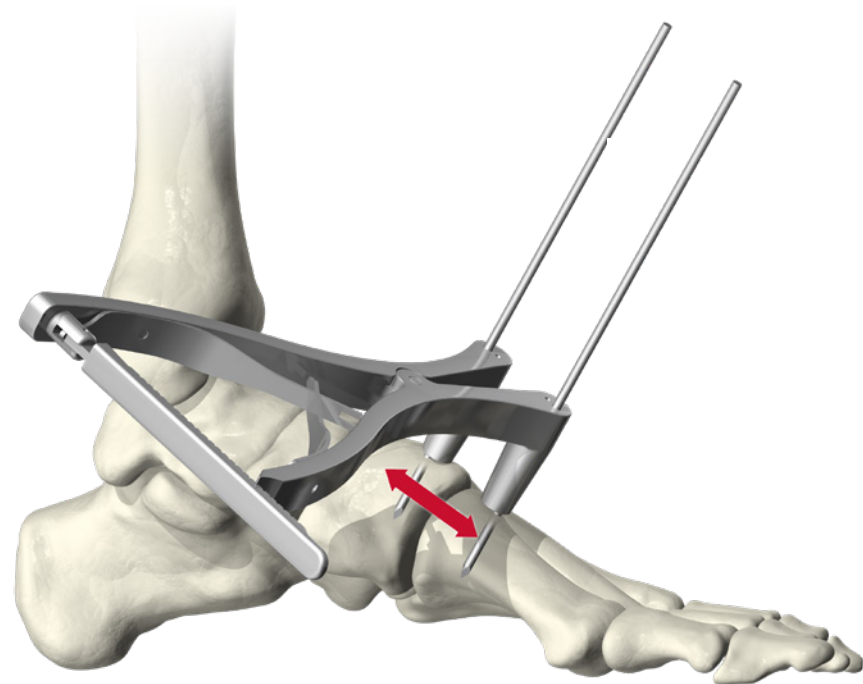


FIGURE 21

### 3. INTERFRAGMENTARY SCREW PLACEMENT

An Interfragmentary Screw may be placed at this time  
(FIGURE 22, FIGURE 22).



FIGURE 22

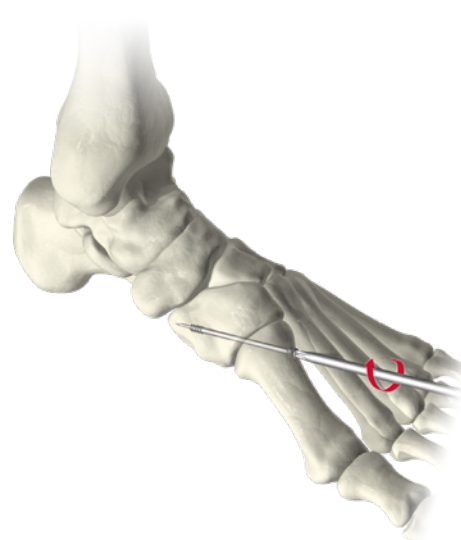


FIGURE 23

#### 4. PLATE SELECTION AND PLACEMENT

Select the proper Lapidus plate. Ensure plate contours to match the anatomy of the corrected joint. The Arsenal Drill Guide Tower can be used for placement to verify plate selection.

The chosen plate should be temporarily fixated using the supplied olive wires (FIGURE 24). Olive wires can be placed in the locking screw holes or the olive wire holes on the plate.

TABLE 5 - PART KEY

SCREW	PART #
2.7MM/3.5MM ARSENAL DRILL GUIDE TOWER	330-00-008
0.062" x 3.25" OLIVE WIRE PARTIALLY THREADED	330-60-005

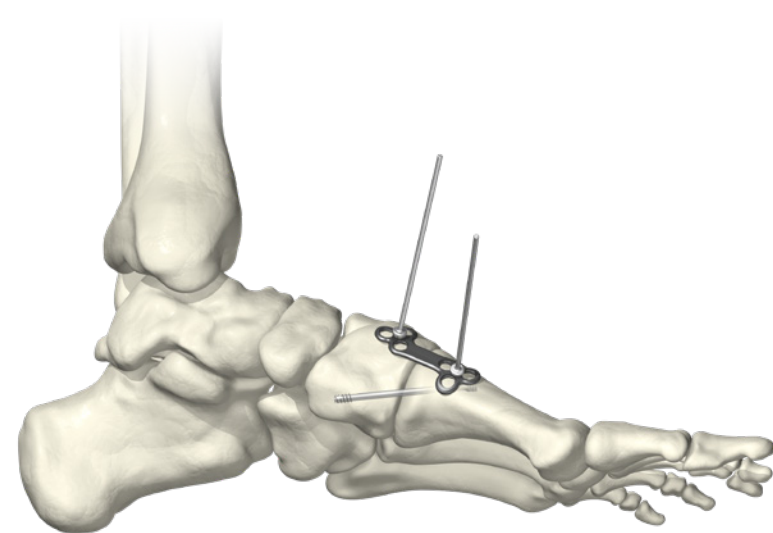
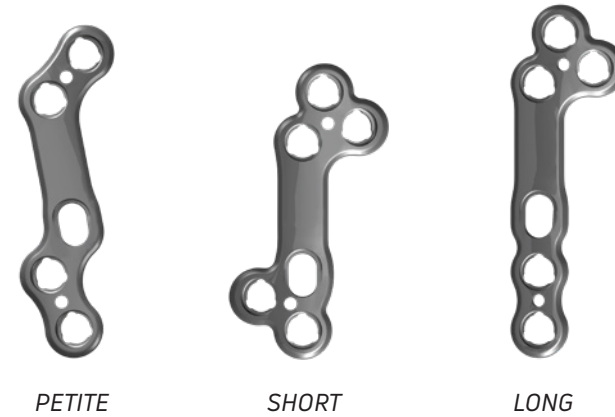


FIGURE 24

### 5. SCREW FIXATION

Screws should be inserted in the following order  
(FIGURE 25).

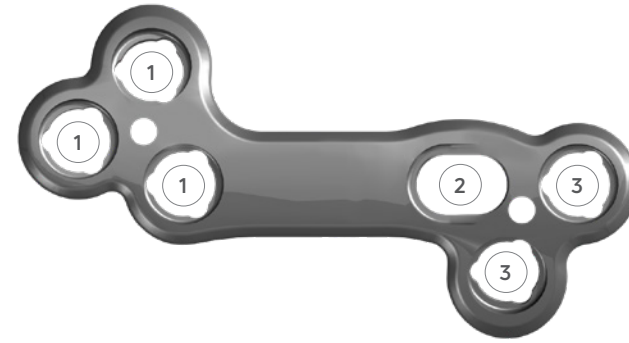


FIGURE 25

## 5. SCREW FIXATION (CON'T.)

Utilizing the methods outlined in the screw fixation section, insert locking and/or non-locking screws through all locking screw holes distal to the fusion site (FIGURE 26, FIGURE 27, FIGURE 28).

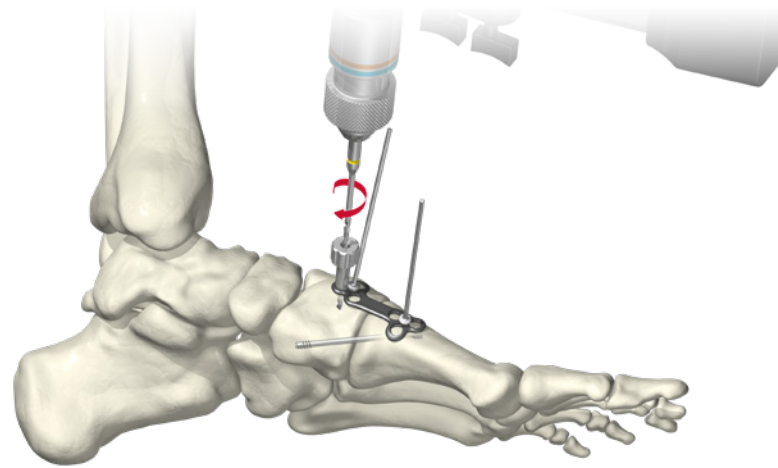


FIGURE 26

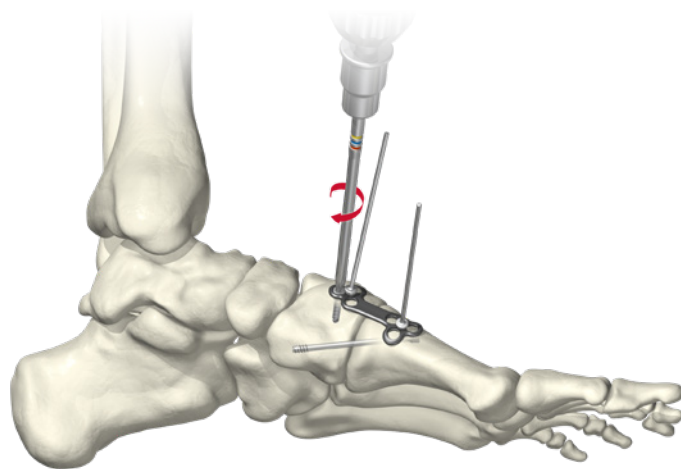


FIGURE 27

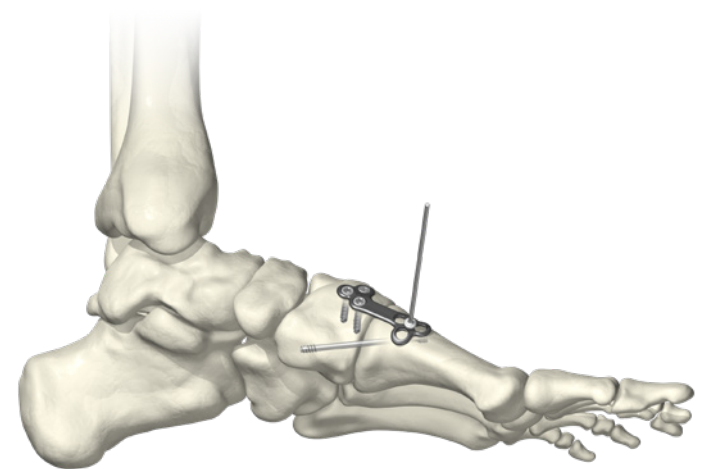


FIGURE 28

### 5. SCREW FIXATION (CON'T.)

Following proximal fixation, place a non-locking screw into the compression slot distal from the joint (**FIGURE 29, FIGURE 30**).

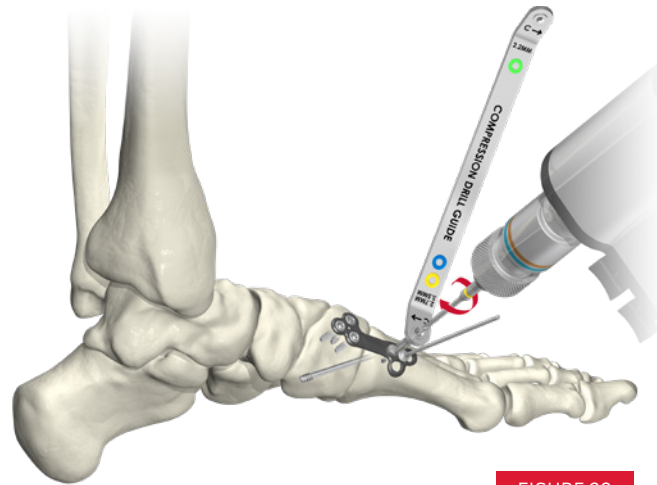


FIGURE 29

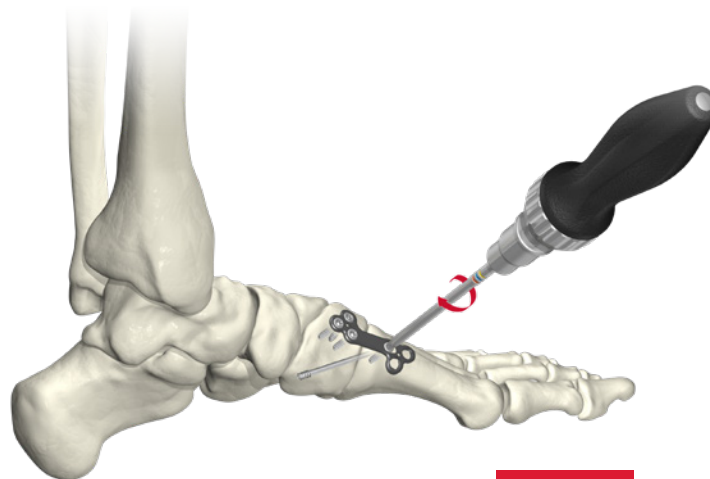


FIGURE 30



### 5. SCREW FIXATION (CON'T.)

Proceed by inserting locking and/or non-locking screws through the remaining holes (FIGURE 31).

### 6. FINAL FIXATION

Confirm placement under fluoroscopy

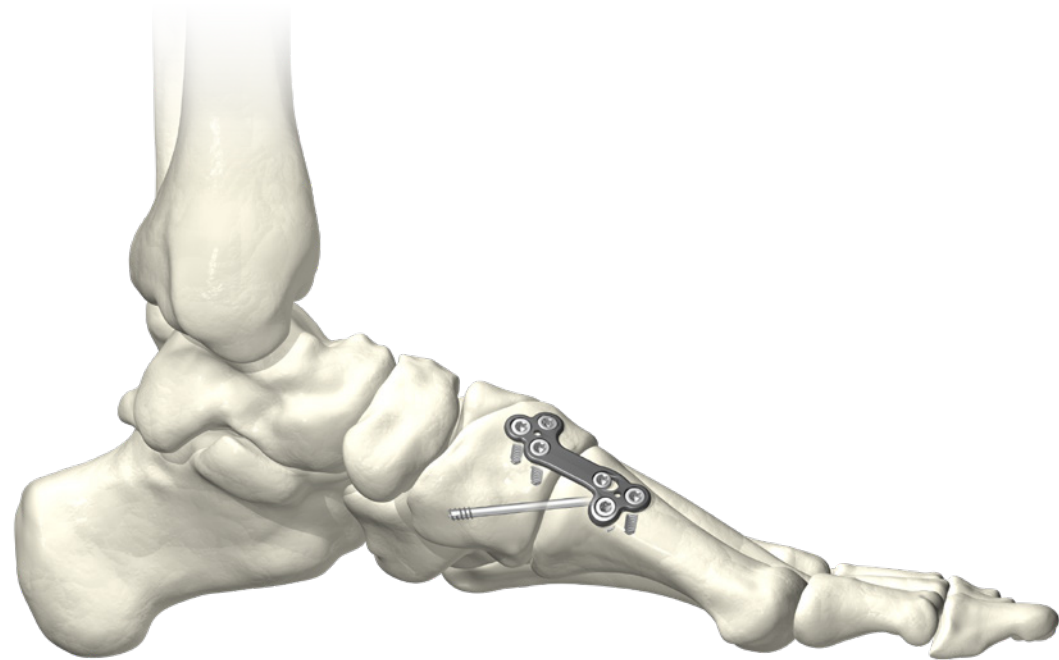


FIGURE 31

### 1. APPROACH

Perform a dorsal incision over the desired TMT joints to be fused (**FIGURE 32**). Dissection is continued to expose the TMT joints, taking care to protect the neurovascular bundle.



FIGURE 32

## 2. JOINT PREPARATION

Place the distractor over the joint to gain exposure to the TMT joint. Insert either the 0.062" x 6" or 0.094" x 6" K-Wire into the distractor on each side of the joint. Distract the joint until sufficient exposure is attained (**FIGURE 33**). An osteotome can be cautiously used to release any ligaments or additional joint capsule that impede joint distraction. After joint distraction, remove TMT cartilage per standard procedure until dense subchondral bone is fully exposed on both sides of the joint.

TABLE 6 - PART KEY

SCREW	PART #
SMALL BONE DISTRACTOR	330-00-002
0.062" x 6" K-WIRE STANDARD	210-60-004
0.094" x 6" K-WIRE STANDARD	330-24-004

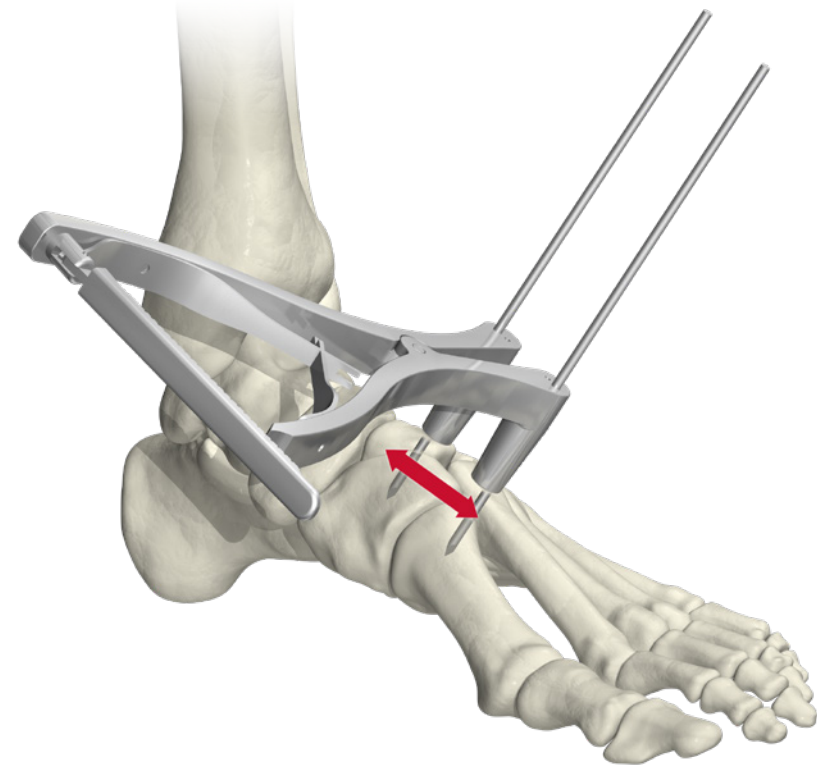


FIGURE 33

## 4. PLATE SELECTION AND PLACEMENT

Select the proper Lisfranc plate. Ensure plate contours to match the anatomy of the corrected joint. The Arsenal Drill Guide Tower can be used for placement to verify plate selection.

The chosen plate should to be temporarily fixated using the supplied olive wires (FIGURE 34). Olive wires can be placed in the locking screw holes or the olive wire holes on the plate.

TABLE 5 - PART KEY

SCREW	PART #
2.7MM/3.5MM ARSENAL DRILL GUIDE TOWER	330-00-008

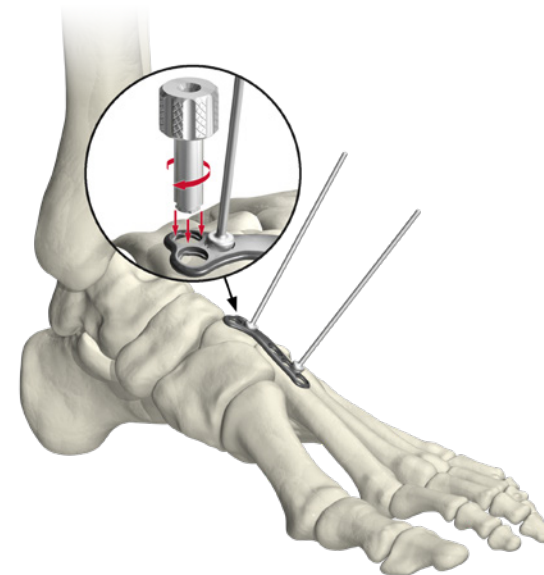


FIGURE 34

### 5. SCREW FIXATION

Screws should be inserted in the following order  
(FIGURE 35).



FIGURE 35

### 5. SCREW FIXATION (CON'T.)

Utilizing the methods outlined in the screw fixation section, insert locking and/or non-locking screws through all locking screw holes proximal of the fusion site (FIGURE 36, FIGURE 37, FIGURE 38).

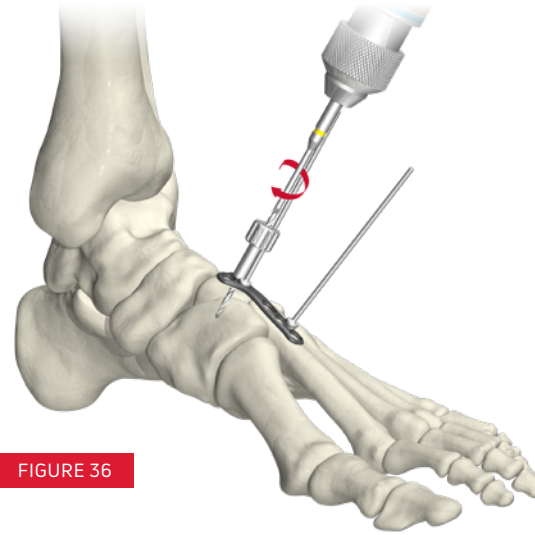


FIGURE 36

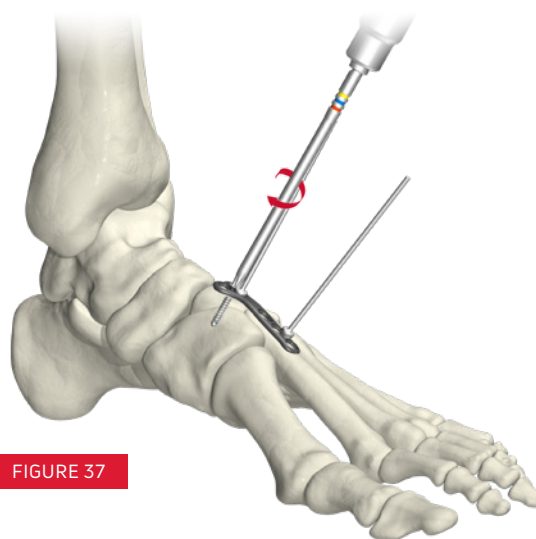


FIGURE 37

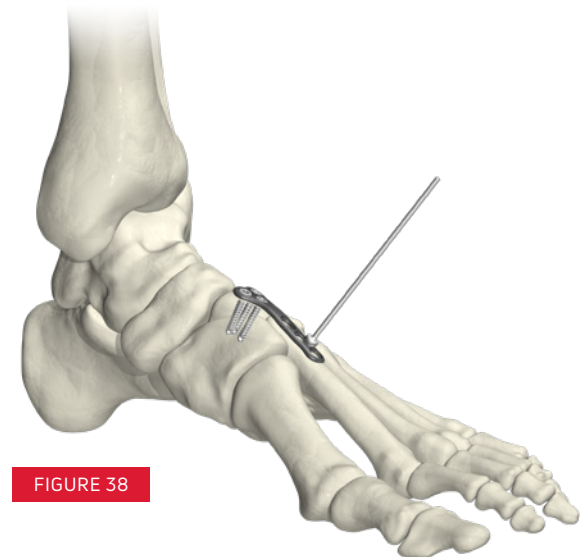


FIGURE 38

## 5. SCREW FIXATION (CON'T.)

Following proximal fixation, place a non-locking screw into the compression slot distal from the joint (**FIGURE 39, FIGURE 40**).

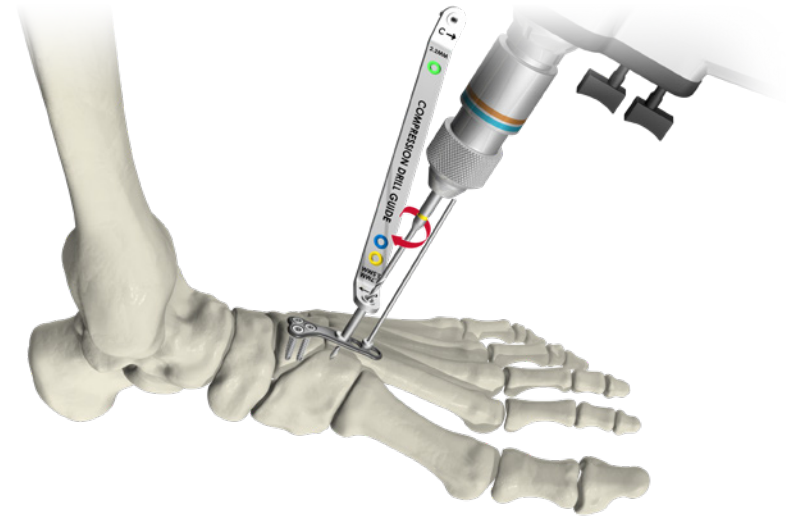


FIGURE 39

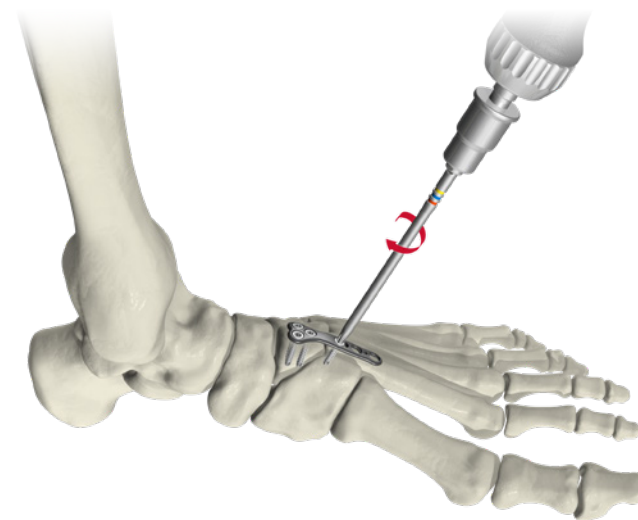


FIGURE 40

### 5. SCREW FIXATION (CON'T.)

Proceed by inserting locking and/or non-locking screws through the remaining holes (**FIGURE 41**).

### 6. FINAL FIXATION

Confirm placement under fluoroscopy



FIGURE 41





## MTP PLATES

PART #	DESCRIPTION
300-82-011	PETITE MTP PLATE, L, 5°
300-82-012	PETITE MTP PLATE, R, 5°
300-82-013	PETITE MTP PLATE, L, 0°
300-82-014	PETITE MTP PLATE, R, 0°
300-82-015	STANDARD MTP PLATE, L, 5°
300-82-016	STANDARD MTP PLATE, R, 5°
300-82-017	STANDARD MTP PLATE, L, 0°
300-82-018	STANDARD MTP PLATE, R, 0°
300-82-019	LONG MTP PLATE, L, 5°
300-82-020	LONG MTP PLATE, R, 5°
300-82-021	LONG MTP PLATE, L, 0°
300-82-022	LONG MTP PLATE, R, 0°
300-82-023	REVISION MTP PLATE, L, 5°
300-82-024	REVISION MTP PLATE, R, 5°
300-82-025	REVISION MTP PLATE, L, 0°
300-82-026	REVISION MTP PLATE, R, 0°

## UTILITY PLATES

PART #	DESCRIPTION
300-80-007	2-HOLE STRAIGHT PLATE
300-80-008	4-HOLE STRAIGHT PLATE
300-80-009	5-HOLE STRAIGHT PLATE
300-80-010	6-HOLE STRAIGHT PLATE
300-80-011	8-HOLE STRAIGHT PLATE
300-80-012	10-HOLE STRAIGHT PLATE
300-89-001	4-HOLE Y-PLATE
300-89-002	5-HOLE Y-PLATE
300-89-003	7-HOLE Y-PLATE
300-89-004	9-HOLE Y-PLATE
300-89-005	12-HOLE Y-PLATE
300-88-003	SHORT 4-HOLE L-PLATE, LEFT
300-88-004	SHORT 4-HOLE L-PLATE, RIGHT
300-88-005	4-HOLE L-PLATE, LEFT
300-88-006	4-HOLE L-PLATE, RIGHT
300-88-007	5-HOLE L-PLATE, LEFT
300-88-008	5-HOLE L-PLATE, RIGHT
300-88-009	STANDARD X-PLATE
300-88-010	LARGE X-PLATE



**LISFRANC PLATES**

PART #	DESCRIPTION
300-85-009	STANDARD LISFRANC, 20°, PLATE
300-85-010	STANDARD LISFRANC, 10°, PLATE
300-85-011	STANDARD LISFRANC, 0°, PLATE
300-85-012	LONG LISFRANC, 20°, PLATE
300-85-013	LONG LISFRANC, 10°, PLATE
300-85-014	LONG LISFRANC, 0°, PLATE

**LAPIDUS PLATES**

PART #	DESCRIPTION
300-83-007	PETITE LAPIDUS PLATE, LEFT
300-83-008	PETITE LAPIDUS PLATE, RIGHT
300-83-009	SHORT LAPIDUS PLATE, LEFT
300-83-010	SHORT LAPIDUS PLATE, RIGHT
300-83-011	LONG LAPIDUS PLATE, LEFT
300-83-012	LONG LAPIDUS PLATE, RIGHT



**enovis.**

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MK-10569 Rev 0

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