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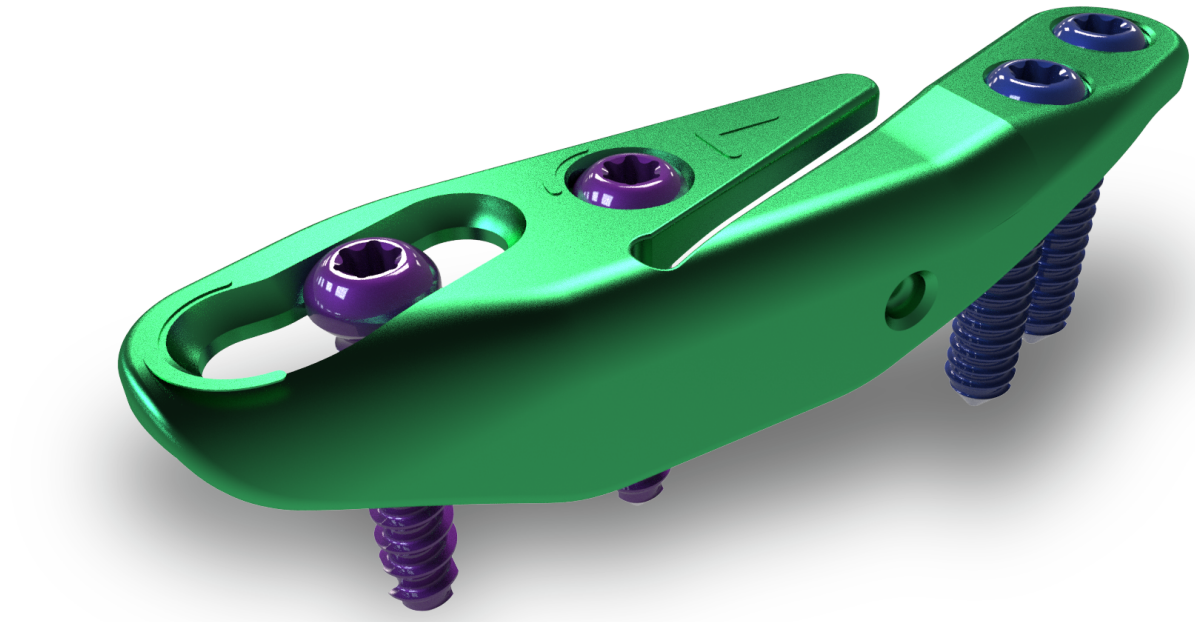
MSP™ Metatarsal Shortening System

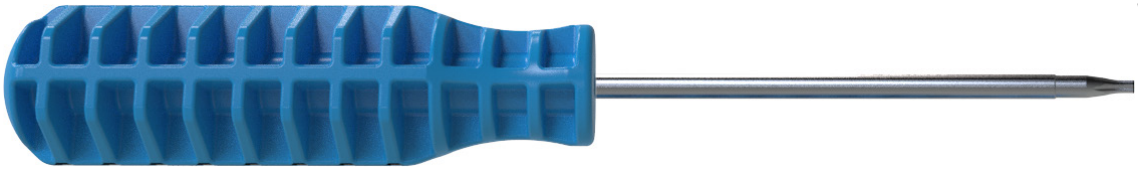
Surgical Technique



MSP™
Metatarsal Shortening System

- **Metaphyseal/Diaphyseal osteotomy does not result in plantar displacement of metatarsal head**
- **Osteotomy guide integrated into implant allows for controlled shortening (up to 6mm)**
- **Keeled design aids in implant positioning and fixation strength[1]**

T6 Driver



1.8mm AO Drill

MSP™ Plate

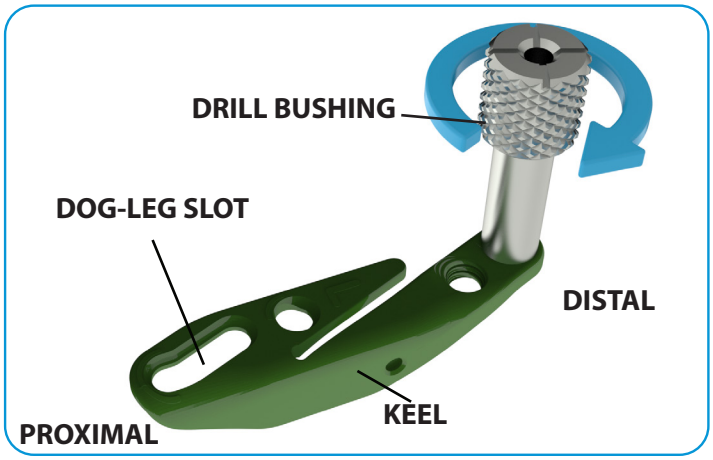
Drill Bushing

Proximal Drill Guide

The MSP Metatarsal Shortening System is manufactured using Ti 6-4 ELI.

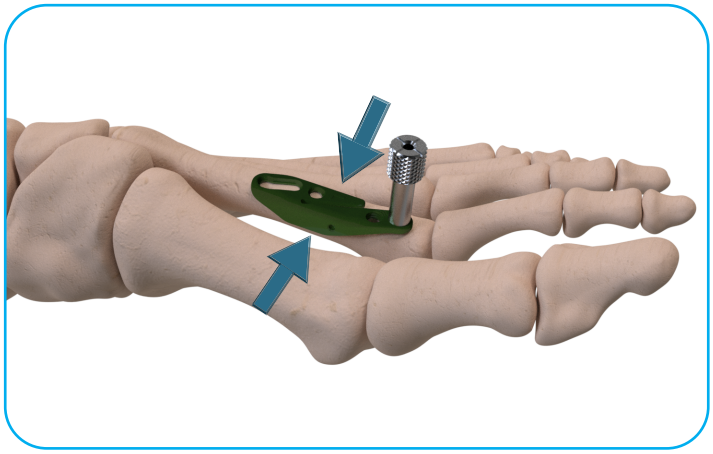
Surgical Technique

1. Select the left or right implant kit based on the operative foot. The keel is oriented medially, and the dog-leg slot is oriented proximally. The distal edge of the plate is positioned approximately 5mm proximal to the metatarsal head. Thread the MSP™ Drill Bushing into the distal hole of the MSP™ Plate. Do not overtighten.

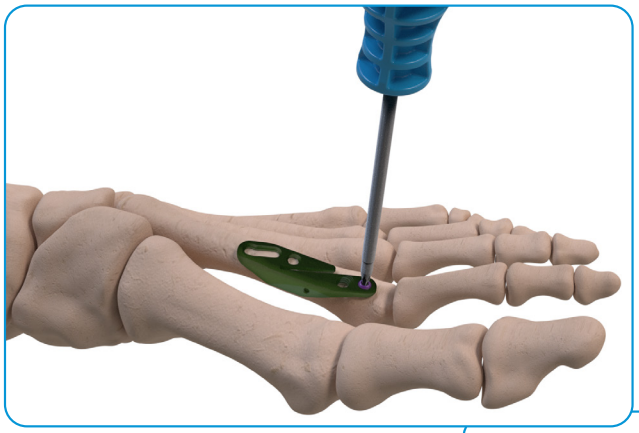


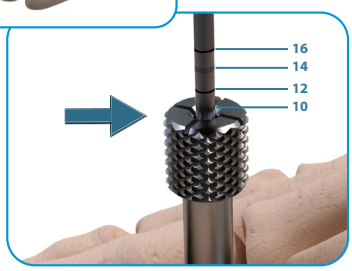
2. Place the MSP™ Plate on the dorsal surface of the bone. Ensure the MSP™ Drill Bushing is in a vertical position. Apply dorsal and medial pressure to plate to ensure complete plate-to-bone contact while drilling.

NOTE: Clamp may be used (not provided)

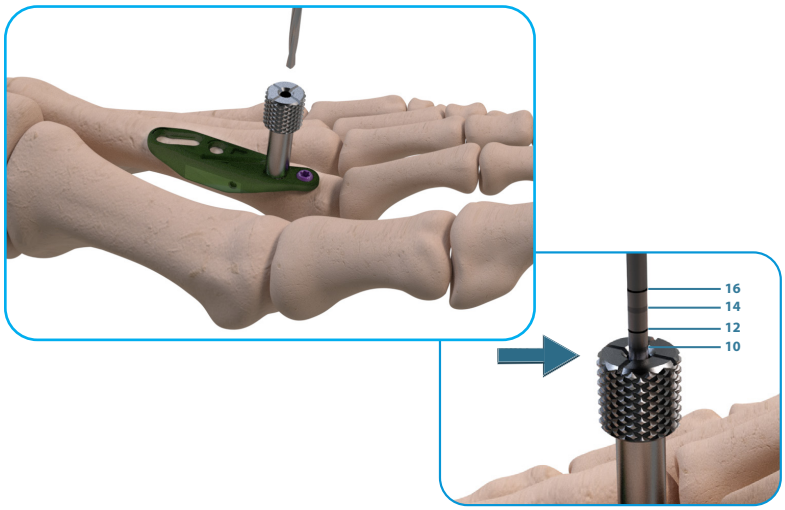


3. Use the 1.8mm AO drill bit to drill the distal hole. Drill a hole through the MSP™ Drill Bushing, into the bone. Use the markings on the AO Drill to measure the screw length at the top of the MSP™ Drill Bushing and select the appropriate length locking screw. Remove the drill bushing. Place the **Locking Screw** in the distal hole and fully tighten.





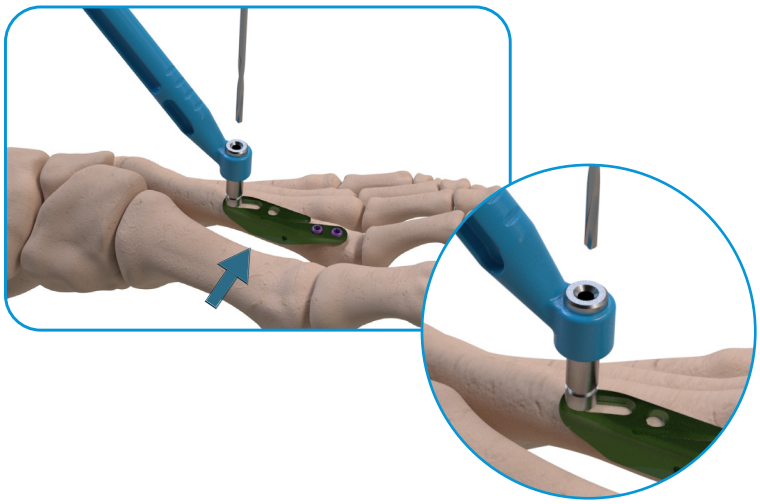
4. Thread the drill bushing into the second distal hole and use the AO drill bit to drill the second distal hole. Use the markings on the AO Drill to measure the screw length at the top of the MSP™ Drill Bushing and select the appropriate length locking screw. Remove drill bushing. Place a **Locking Screw** in the second distal hole and fully tighten.



5. **NOTE: Ensure the keel is in contact with the medial cortex.**

Using the MSP™ Proximal Drill Guide, drill a hole into the bone in the proximal end of the dog-leg slot. Drill as far proximal as possible. Measure the screw length at the top of the MSP™ Proximal Drill Guide and select the appropriate length Cortical Screw. Place the **Cortical Screw**, **but do not fully tighten**.

Note: Use the end with the single groove and apply dorsal/medial pressure to the plate while drilling to ensure complete bone-to-plate



Alternate Order for Screw Placement

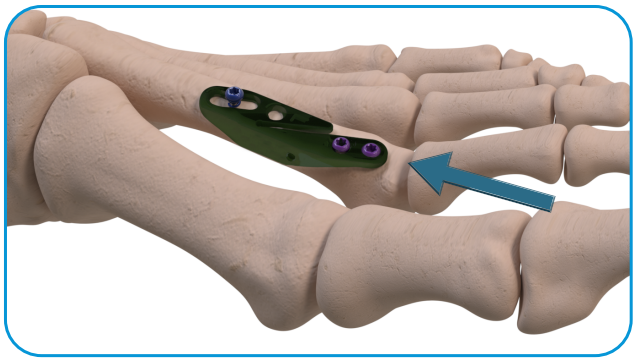
Drill and insert screws in the following order:

1. Most distal hole
2. Dog-leg slot
3. Second distal hole
4. Proceed to step 6 as usual

NOTE: The alternate screw placement technique may help ensure consistent, optimal bone-to-plate contact. For both the standard and alternate screw placement technique, it is critical to apply dorsal/medial pressure to the plate while drilling to confirm complete bone-to-plate contact.

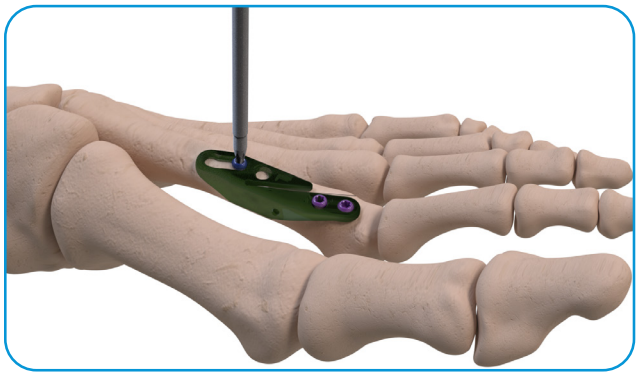
6. Using an oscillating saw, cut the bone obliquely through the cutting guide in the MSP™ Plate. The saw will be perpendicular to the dorsal surface of the MSP™ Plate.

7. Shorten the metatarsal by moving the bone proximally to the desired length. A total correction of 6mm is achieved if the screw reaches the most distal edge of the dog-leg slot.



8. **Fully tighten the dog-leg screw.**

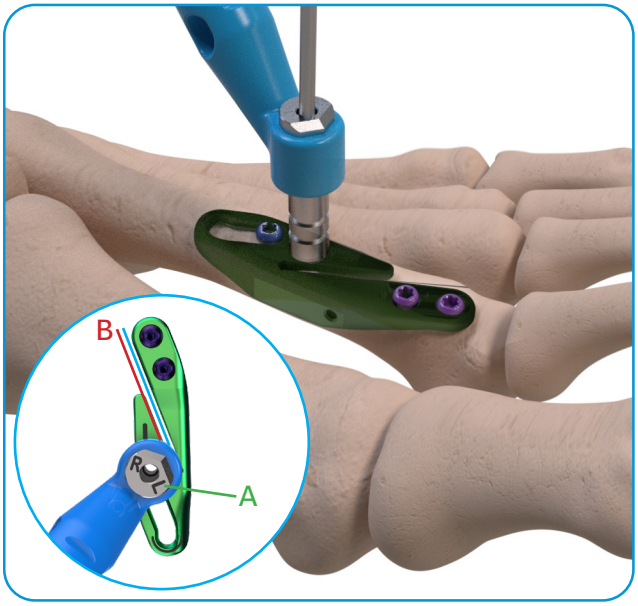
NOTE: A separately packaged, sterile torque-limiting driver is available.



9. Using the double-groove side of the MSP™ Proximal Drill Guide, insert the AO drill bit into the second proximal hole and drill. Use the markings on the AO Drill to measure the screw length at the top of the MSP™ Drill Bushing and select the appropriate length Cortical Screw. Place the **Cortical Screw** in the remaining proximal hole and fully tighten.

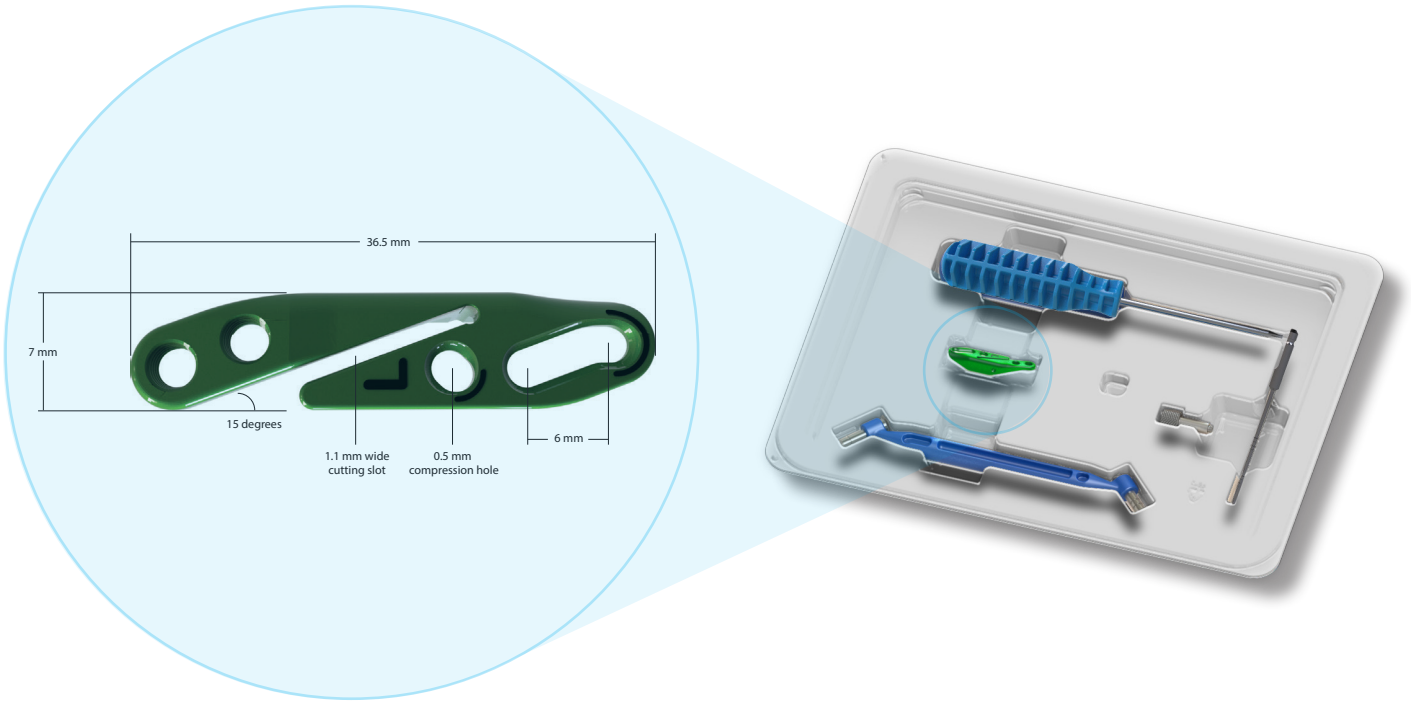
NOTE: Drill guide offsets AO drill to create 0.5mm compression across osteotomy.

When drilling, if using a left plate, make sure the "L" edge (A) of the Drill Guide is parallel to the cutting slot (B) (and vice versa if using a right plate).



9.1 For supplemental compression of the osteotomy prior to drilling the final screw hole, a clamp may be used. The MSP™ Plate has a divot on the keel for this purpose.

NOTE: Clamp not provided.



ORDERING INFORMATION

Part No.	Description
MS-SSR	**MSP™ Metatarsal Shortening System Sterile Procedure Kit - Right** 36.5 MSP™ Plate - Right, 1.8mm AO Drill, MSP™ Driver, MSP™ Drill Bushing, MSP™ Proximal Drill Guide
MS-SSL	**MSP™ Metatarsal Shortening System Sterile Procedure Kit - Left** 36.5 MSP™ Plate - Left, 1.8mm AO Drill, MSP™ Driver, MSP™ Drill Bushing, MSP™ Proximal Drill Guide
MS-DR	**MSP™ T6 Driver Sterile**

ORDERING INFORMATION - LOCKING SCREWS

Part #	Description
MS-2408L	2.4mm Diameter Locking Screw - 8mm Length
MS-2410L	2.4mm Diameter Locking Screw - 10mm Length
MS-2412L	2.4mm Diameter Locking Screw - 12mm Length
MS-2414L	2.4mm Diameter Locking Screw - 14mm Length
MS-2416L	2.4mm Diameter Locking Screw - 16mm Length
MS-2418L	2.4mm Diameter Locking Screw - 18mm Length

ORDERING INFORMATION - NON-LOCKING SCREWS

Part #	Description
MS-2408	2.4mm Diameter Cortical Headed Screw - 8mm Length
MS-2410	2.4mm Diameter Cortical Headed Screw - 10mm Length
MS-2412	2.4mm Diameter Cortical Headed Screw - 12mm Length
MS-2414	2.4mm Diameter Cortical Headed Screw - 14mm Length
MS-2416	2.4mm Diameter Cortical Headed Screw - 16mm Length
MS-2418	2.4mm Diameter Cortical Headed Screw - 18mm Length

Reference:
1. Baumhauer, Marcolongo. "The Science Behind Surgical Innovations of the Forefoot", *Foot and Ankle Clinics N Am* 21 (2016)

INDICATIONS: The MSP™ Metatarsal Shortening System is indicated for fixation of fractures, osteotomies, nonunions, malunions and fusions of small bones and small bone segments such as the foot, particularly in osteopenic bone.

CONTRAINDICATIONS: (1) Patient conditions including inadequate bone stock to receive implant; (2) Blood supply limitations and previous or active infections that may inhibit healing; (3) Surgical procedures other than for the indications listed; (4) Patients with conditions that limit their ability or willingness to follow postoperative care instructions; (5) Foreign-body sensitivity. Where material sensitivity is suspected, appropriate test should be made and sensitivity ruled out prior to implantation.

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