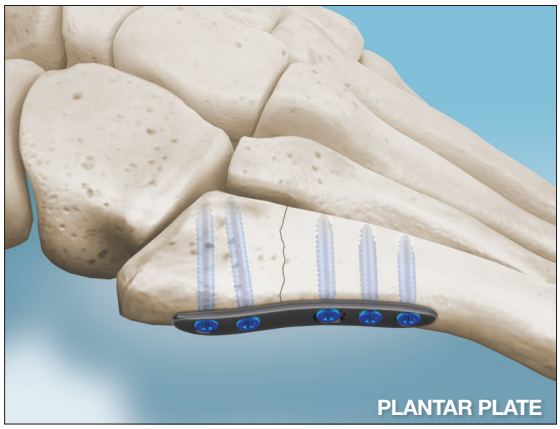
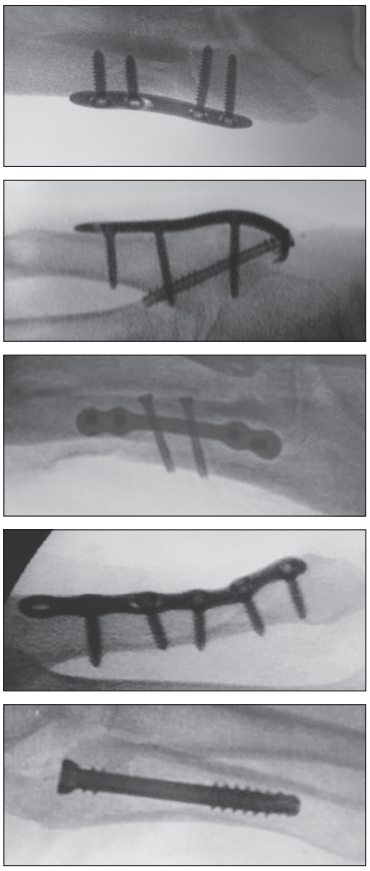
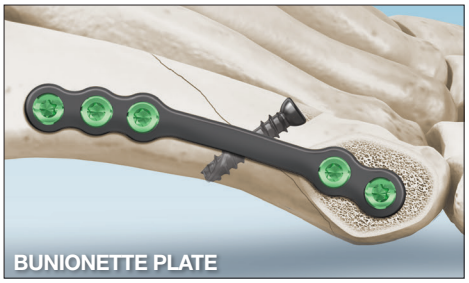
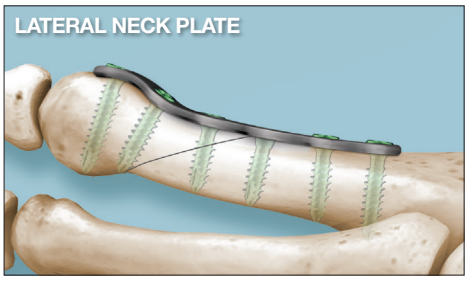
COMPREHENSIVE 5TH MET FRACTURE REPAIR

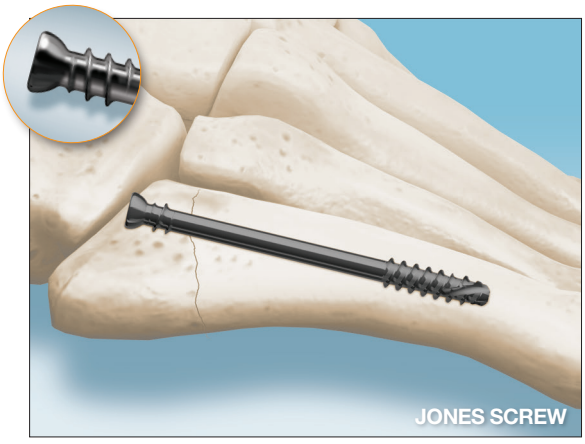
5MS® Fracture Repair System











PLANTAR PLATE Anatomically Contoured 4 & 5 Hole Plating Options

JONES SCREW Featuring Compressive Stability℠ Design

PSEUDO JONES PLATE Innovative Anatomic Curvature with Standard and Long Plating Options

BUNIONETTE PLATE Specifically Designed for Treating Tailor's Bunion

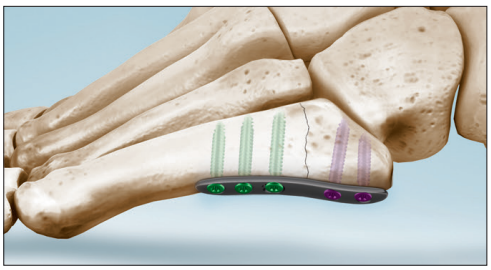
LATERAL NECK PLATE 6 & 8 Hole Anatomically Curved and Scalloped

In2Bones

A GLOBAL EXTREMITY COMPANY

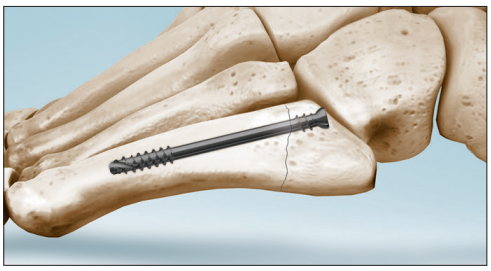
COMPREHENSIVE 5TH MET FRACTURE REPAIR SYSTEM

5MS® Fracture Repair System



4....Plantar Plates

Anatomically contoured 4 & 5 hole plates that resist rotational instability and plantar-lateral gapping

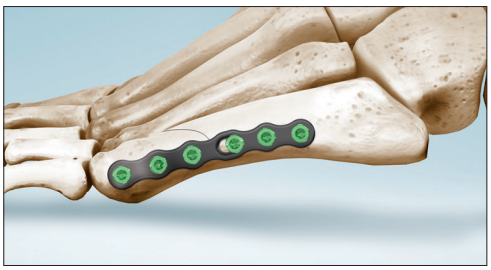


6....CoLag® Jones Fracture Screws

4.5, 5.5 and 6.0mm differential pitch headed compression screw system

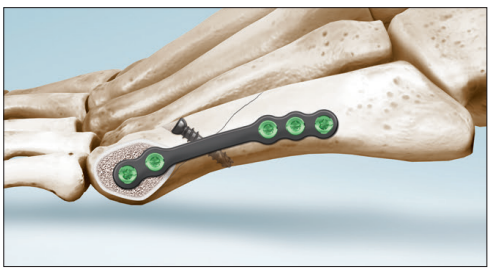
8....Pseudo Jones, Hook Plate

Innovative anatomic curvature for a secure fit with standard and long plate options



10....Lateral Neck Plates

6 & 8 hole anatomically curved and scalloped



11....Bunionette Plates

4 & 5 hole specifically designed for use treating 5th metatarsal diaphyseal osteotomies

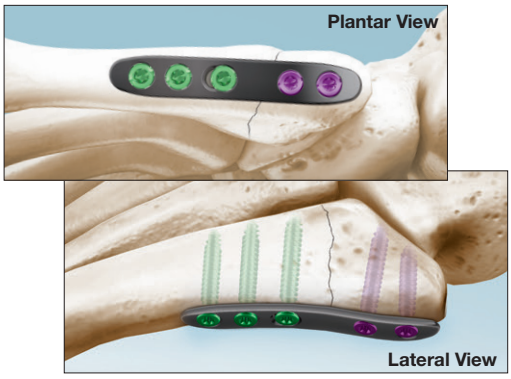
Additional surgical notes at the back of this brochure.

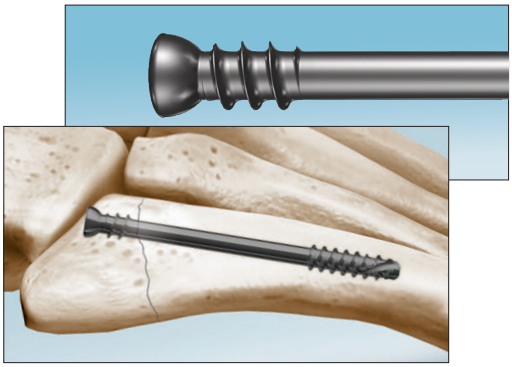
5MS® System Innovations

The uniquely versatile 5MS® Fracture System uses interchangeable 2.4 and 2.7mm screws for all plate types, with the exception of the Large Plantar Plate, which is compatible with 3.0 and 3.5mm screws. Plates and screws are delivered sterile in individual packages, while certain consumable instruments are sterile packaged in a single-use tray. A reusable Instrument Set is provided with color-coded banding to differentiate screw / instrument sizes.

Anatomically Contoured Plantar Plates

The 5MS® low profile Plate System provides ease of plating specifically for proximal 5th metatarsal fractures or Jones Fracture indications, IM screw nonunions, curved 5th metatarsals and sclerotic nonunions. The anatomically contoured Plantar Plates are designed for increased biomechanical strength, resisting rotational instability and plantar-lateral gapping at the tension side of the fracture.



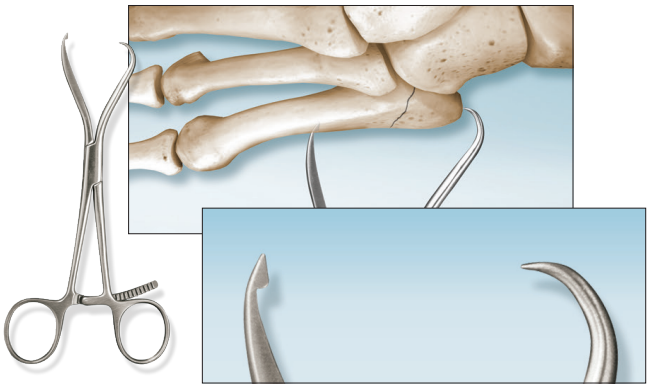


Jones Fracture Screws

The revolutionary 5MS® CoLag® Jones Fracture Screw design combines the rotational stability of a headless screw with the compression levels and ease of use of a conventional headed lag screw. CoLag® Jones Fracture Screws feature a reduced cannulation size for increased screw strength, while facilitating optimal screw placement and use of a larger Guide Wire for reduction.

5MS® Reduction Forceps

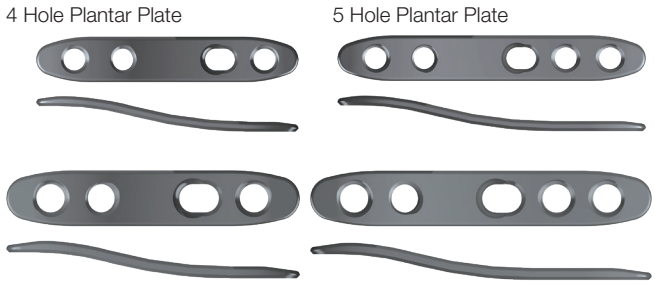
These unique 5MS® Reduction Forceps are specifically designed to maintain alignment and compression of displaced 5th metatarsal fractures during provisional fixation. The barbed and straight ends offer increased utility over standard forceps. The barbed end is designed to provide midshaft purchase while the curved end spikes into the proximal tuberosity.



ANATOMICALLY CONTOURED

Plantar Plates

4 & 5 Hole Plating Options



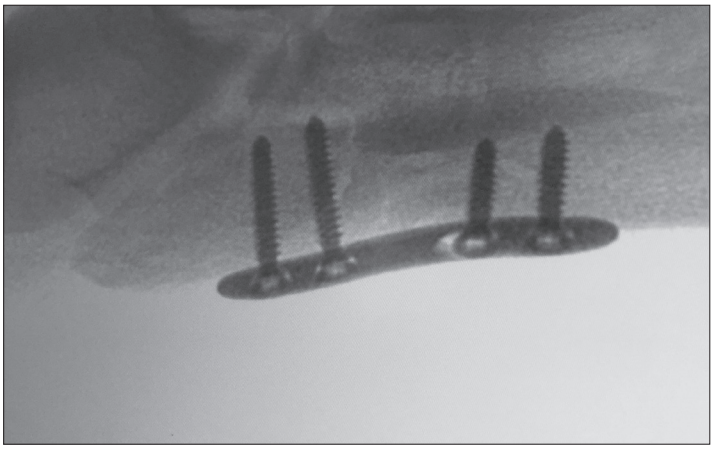
The **5MS® Fracture System's** anatomically contoured **Plantar Plate** is a new solution for proximal 5th metatarsal fractures. In contrast to traditional fixation with intramedullary screws, fixation with a plantar-lateral tension side plate is designed for improved resistance to torsion and plantar gapping for highly active patients including athletes. Applying a compression plate to the tension side of the 5th metatarsal fracture can help facilitate fracture union, improve healing and reduce risk of refracture.[1]

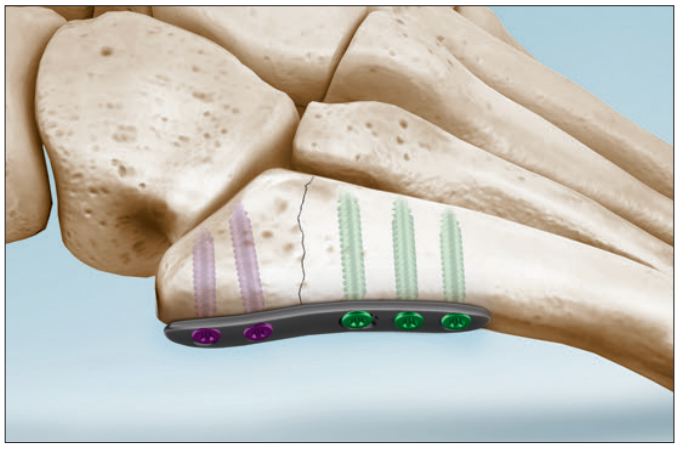
1. Kevin E. Varner, Joshua D. Harris. The Proximal Fifth Metatarsal Metadiaphyseal Jones Fracture: Intramedullary Screw vs Plantar Plate. Operative Techniques in Sports Medicine, 2017; 25:2: 59-66

Design Attributes

- Regular (2.4/2.7mm) and Large (3.0/3.5mm) locking and non-locking screws
- Distal compression slot, non-locking
- Bullet tips at both ends - smaller incision
- Anatomically pre-contoured
- Available in 4 hole and 5 hole versions

Screw sequence

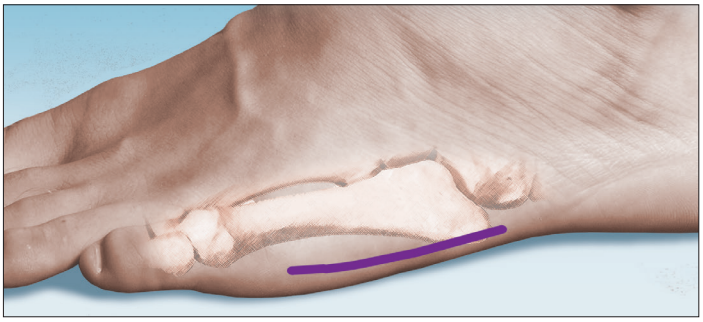


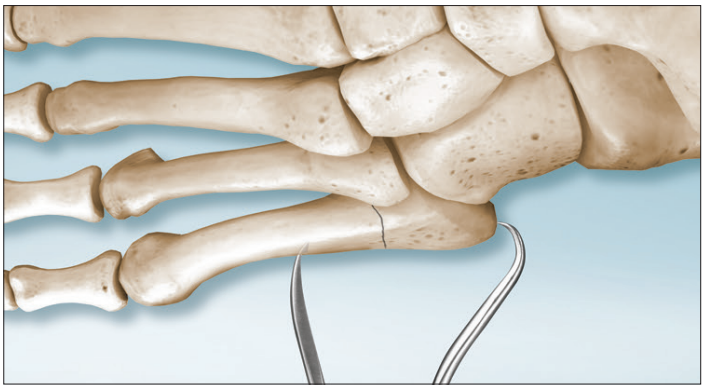


PLANTAR PLATES - PRODUCT DESIGN / PROCEDURE SPECIFICS

Plantar Lateral Incision

Begin with a plantar-lateral incision approximately at the base of the proximal 5th metatarsal tuberosity and extend to the midshaft, taking care not to disrupt tendon and nerve structures. Dissect to the bone exposing the fracture, which should be located under the solid center section of the plate.



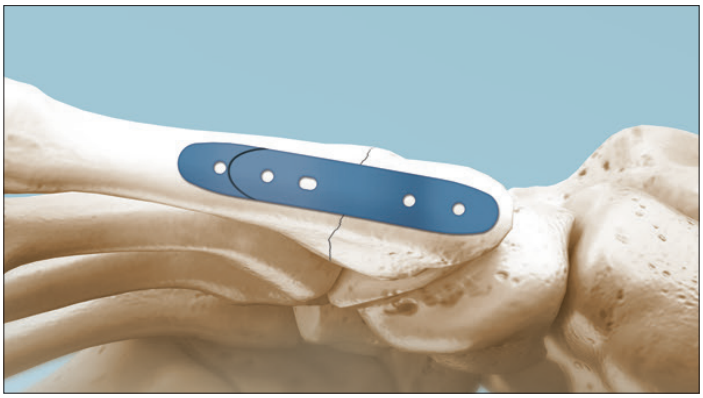


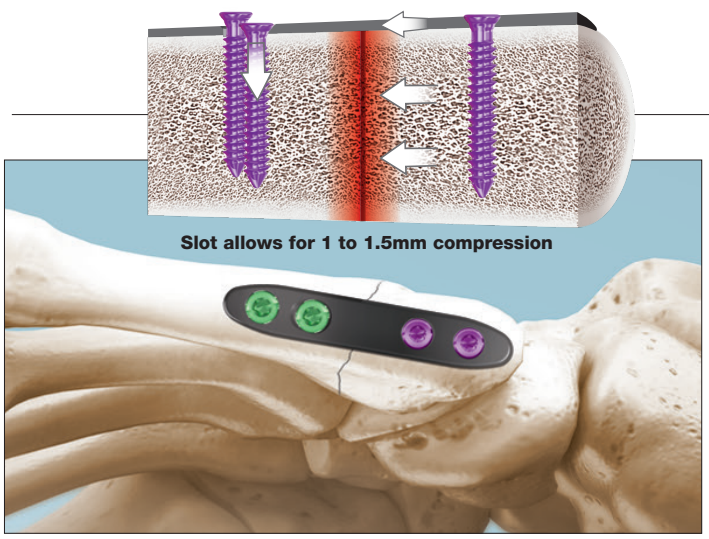
5MS® Reduction Forceps

Use the provided 5MS® Reduction Forceps to maintain alignment and compression of the fracture during provisional fixation. It may be necessary to use the provided Guide Wire to puncture the lateral cortex midshaft for insertion of the barbed end, with the curved end spiked into the proximal tuberosity.

Plate Selection

Use the Plantar Plate Trials to determine if the standard plate (2.4/2.7mm screws) or the larger plate (3.0/3.5mm screws) will be used. The Plate Trials have a 4 hole plate length laser marking for reference.

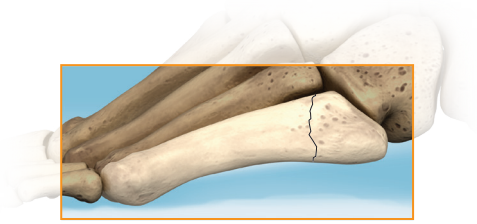




Compression Slot Placement

Place the plate on the bone with the solid section over the fracture and the compression slot distal. If additional contouring is needed, use the supplied Plate Benders to anatomically form the plate. Sterile Olive Wires are supplied for provisional plate fixation.

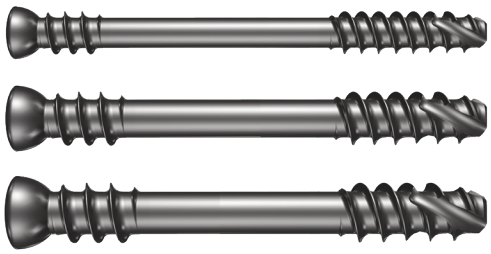
*For more information refer to the **Additional Surgical Notes** at the back of this brochure.*



HEADED COMPRESSION SCREW SYSTEM

CoLag® Jones Fracture Screws

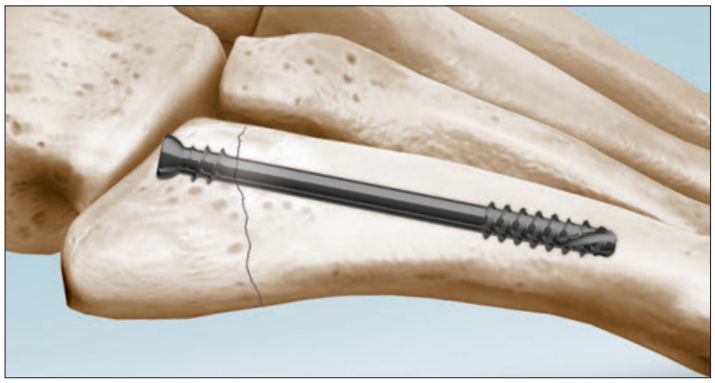
4.5, 5.5 and 6.0mm

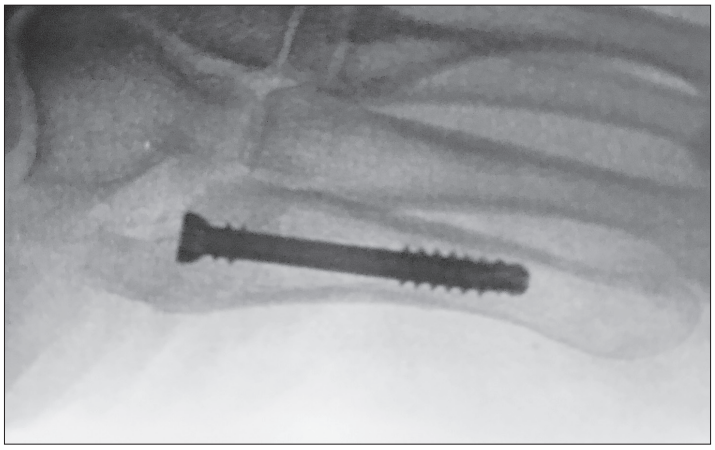


CoLag® **Jones Fracture Headed Compression Screws** are designed to treat Jones Fractures. This screw design unites the rotational stability of a headless screw with the compression levels of a conventional headed lag screw. The dual lead primary threads and differential pitch secondary threads provide increased rotational stability of bone fragments, while the uniquely designed low profile head provides improved holding power. CoLag® Jones Fracture Screws are cannulated, and self-tapping for guided/simplified placement. The system utilizes a set of reusable instruments that are color coded for increased operating room efficiency.

Design Attributes

- Increased rotational stability
- Dual lead distal threads
- Counter-sinkable heads
- Reduced cannulation 1.6mm
- 2.2mm guide wire used for reduction
- Available in 4.5, 5.5 and 6.0mm diameter sizes & 40-70mm lengths in 2.5mm increments

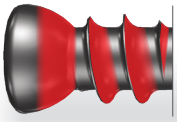




Screw sizer: Ensure that the distal thread outline of the Sizer is at least 1cm past the fracture site to ensure proper screw performance.

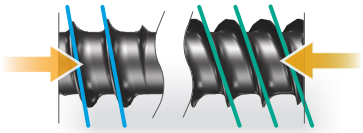
Unique Thread / Head Design

Proximal Threads / Head design creates Unique Compressive Stability℠



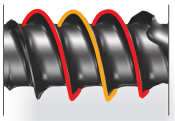
Differential Pitch Generated Compression

The differential pitch threads develop compression lock of the fracture to fragment.



Dual Lead Threads

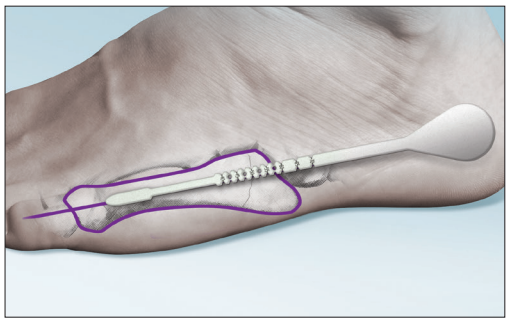
Dual Lead Threads for fast insertion



JONES SCREWS - PRODUCT DESIGN / PROCEDURE SPECIFICS

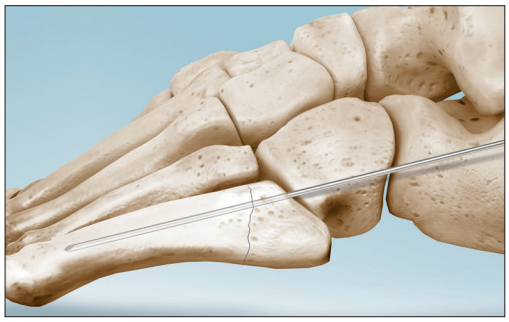
Outline Profile and Sizing

Outline the profile of the 5th Metatarsal onto the skin and include the centerline axis. The Jones Screw Sizer is placed against the lateral aspect of the metatarsal, outside the skin, and fluoroscopy is used to estimate screw length.

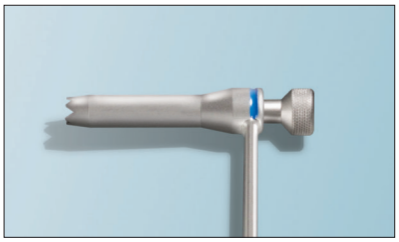


Reduction Pin Placement

A 2.2mm Steinmann Pin is used for initial reduction of the fracture, drilling and tapping. This pin is swapped out for a 1.6mm Guidewire later for the final cannulated Jones Fracture Screw placement. This allows for a more robust screw shaft via narrower cannulation.

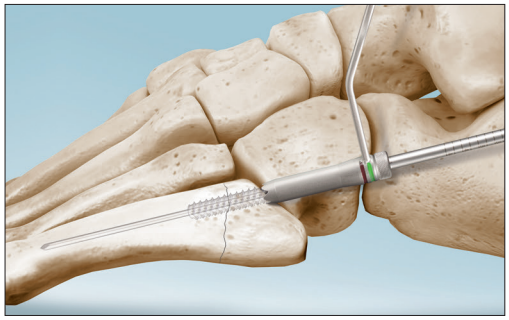


Guide Assembly



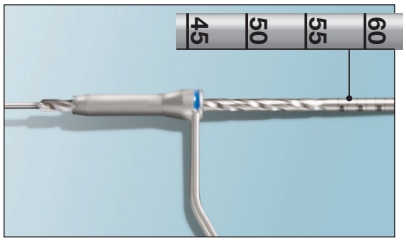
Wire Guide within Drill Guide

The 2.2mm Wire Guide Sleeve is inserted into the 4.5mm Drill Guide. The Wire Guide Sleeve has a tapered body that will press-fit into the Drill Guide with light manual pressure. Drive the 2.2 Steinmann Pin through the combined Assembly in the trajectory that will be used to implant the screw starting at a "high and inside" location aligned with the axis of the bone.

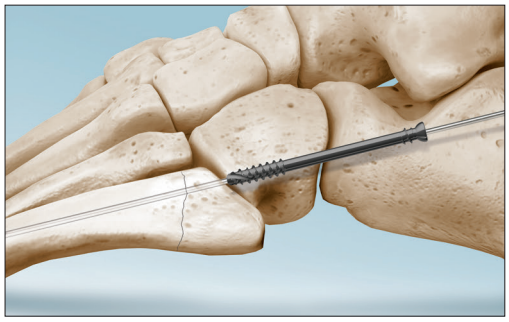


Drill, Tap and Size

Remove the Wire Guide Sleeve leaving the Drill Guide and Steinmann Pin in place. Drive 3.5mm Cannulated Drill over the pin through the Drill Guide to the desired depth. **NOTE**: Drill has depth measurements etched on the shaft. (***Optional Measurement with large Depth Gauge***: After placing the Steinman Pin, remove the Wire Guide Sleeve and place the large Depth Gauge over the Steinman Pin to measure for screw length. Drill to the appropriate depth.)



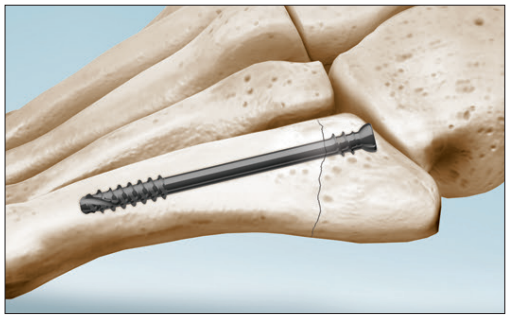
Cannulated Drill within Drill Guide



Remove the Drill and optionally thread tap the intramedullary canal. If the tap feels loose after the 4.5mm pass increase tap diameter sequentially until appropriate resistance is met. While tapping is optional it is recommended, especially for screw diameters larger than 4.5mm.

Guide Wire Swap and Insert Screw

Remove the Tap and 2.2mm Pin leaving the Drill Guide in place. Manually replace the 2.2mm Pin with the 1.6mm Pin advancing slightly for firmer placement with care not to violate the joint. Insert selected size screw. **NOTE**: For additional compression and/or help with fracture reduction, the 5MS® Reduction Forceps can be applied percutaneously prior to inserting the screw.



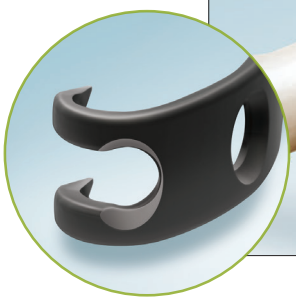
*For more information refer to the **Additional Surgical Notes** at the back of this brochure.*

INNOVATIVE ANATOMIC CURVATURE

Pseudo Jones Hook Plate

Standard and Long Plate Options

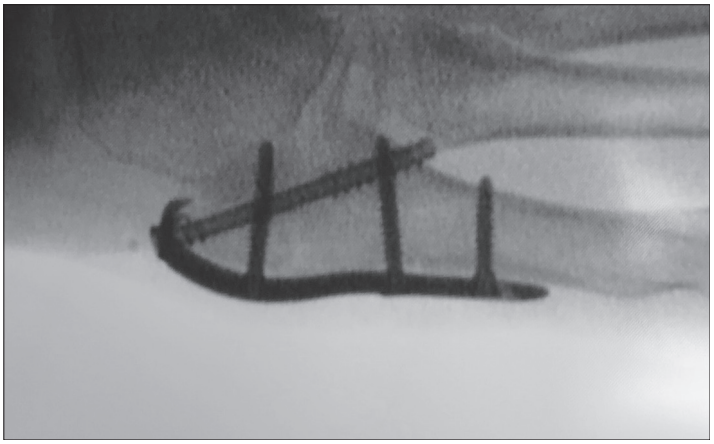
Tine counterbore



The **Pseudo Jones Hook Plate** has an innovative anatomic curvature for a secure fit. Proximal tines spacing is compatible with the CoLag® 3.0 Screw [available separately] when compression is needed. The plate hooks are placed intra-osseous, proximal to the fracture to provide a means of reducing the avulsed fragment.

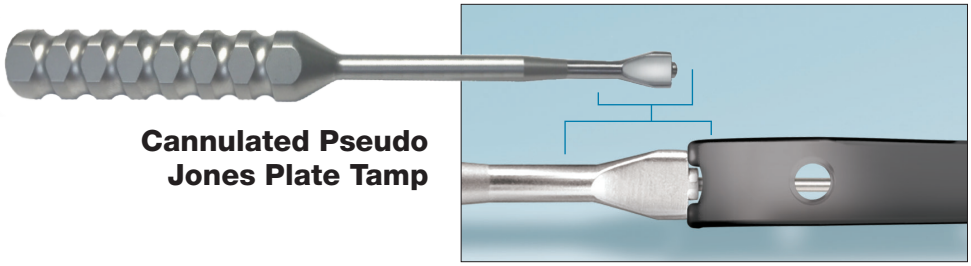
Design Attributes

- 2.4/2.7mm Locking & Non-locking Screws
- Standard and Long plate options
- 3.0mm lag screw targeted between plate hooks
- Bullet tip at distal end
- Cannulated Plate Tamp



Shown with CoLag® 3.0 Screw option

Screw sequence



Cannulated Pseudo Jones Plate Tamp

Hook Plate - PRODUCT DESIGN / PROCEDURE SPECIFICS

5MS® Forceps

For displaced fractures use the provided 5MS Reduction Forceps for alignment and compression during provisional fixation. Use the Guide Wire to puncture the lateral cortex midshaft for insertion of the barbed end with the curved end spiked into the proximal tuberosity. All provisional fixation must be located to not interfere with plate placement.

Plate Placement

Place the plate on the bone so the sharp plate tines capture the avulsed fragment. Apply manual pressure so tines gain appropriate purchase. An Olive Wire placed in the distal end of the guide wire slot can be used to provisionally secure the plate. Use the cannulated Pseudo Jones Plate Tamp to seat the tines securely into the bone.

Screw Fixation

Use the non-locking Drill Guide, Drill, Depth Gauge, and T7 Driver to install a screw into the distal non-compression sliding slot.

OPTION: A 3.0 mm CoLag® Screw may be placed between the proximal tines of the plate. See subsequent CoLag® Screw placement recommendations. Place the remaining screws.

Optional 3.0 CoLag® Screw placement

CoLag® is a separate implant and instrument tray

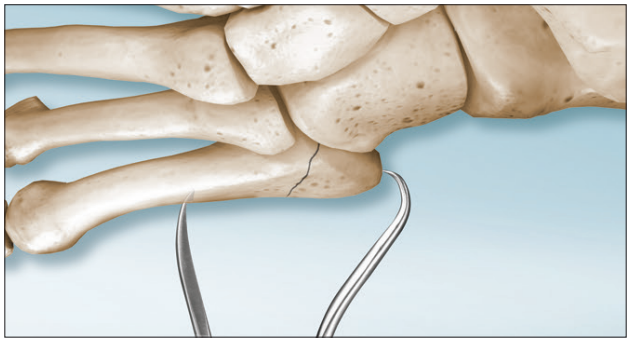
For additional stability of the avulsed fragment, it is recommended to place a 3.0mm CoLag® headed compression screw between the plate tines into the far cortex.

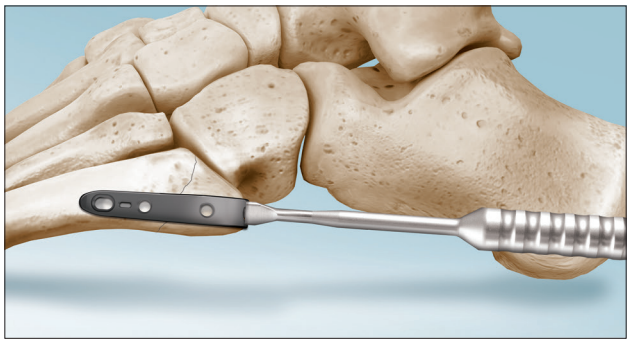
Drive the 1.1mm Guide Wire free hand or with the 1.6 non-locking Drill Guide in the direction of the 4th metatarsal metaphysis dorsal of the most proximal plate screw to the desired screw depth. Use the Small Depth Gauge for measurement placing the Gauge over the Guide Wire and against the bone between the tines. Remove the Depth Gauge and advance the Guide Wire slightly prior to drilling.

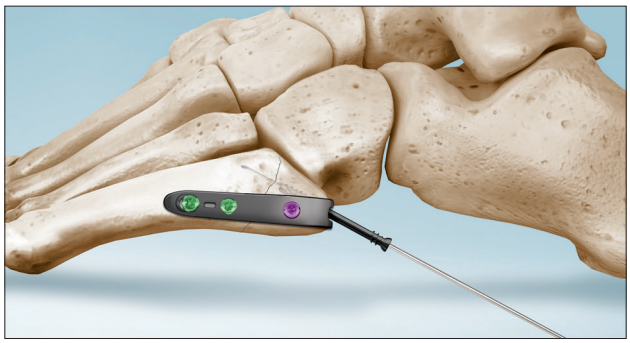
NOTE: Screw Head will seat into plate tine counterbores. Increase the depth reading by 1 – 2mm due to the plate/screw interface.

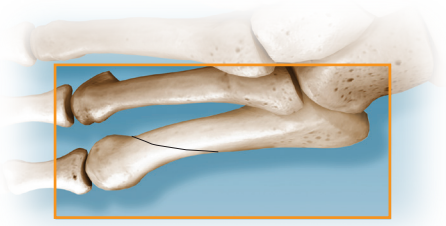
Use the 2.0 non-locking Drill Guide from the 5MS® instrument tray with blunt end for Drill guidance to protect the plate from the Drill flutes. Use the cannulated driver to place the screw over the Guide Wire and through the Pseudo Jones Plate until it seats properly against the tines.

*For more information refer to the **Additional Surgical Notes** at the back of this brochure.*





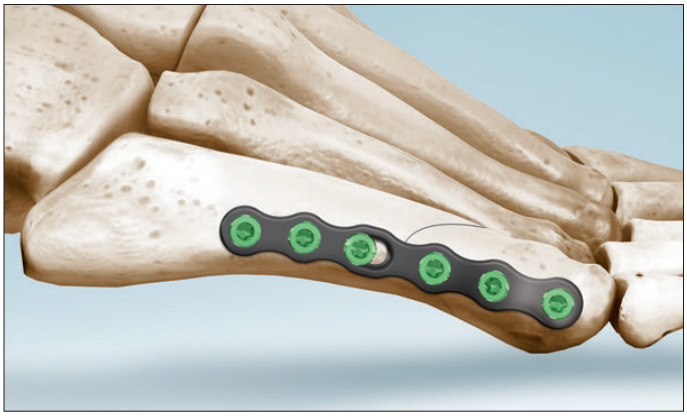




ANATOMICALLY CONTOURED AND SCALLOPED

Lateral Neck Plate

6 & 8 HOLE



The specially designed **Lateral Neck Plate** is anatomically curved and scalloped to fit the midshaft metatarsal and distal metatarsal tuberosity.

Provisional Fixation

Pull the fracture out to length grasping the 5th toe and place a standard reduction clamp across the fracture. The 5MS® Reduction Forceps may be used if the fracture pattern allows. Once the fracture is adequately reduced, pins may be placed across the fracture to gain provisional fixation.

Plate Placement

Use the supplied Plate Trials for sizing. The distal aspect of the plate should be placed just proximal to the metatarso-phalangeal joint with the trajectory of the most distal Screw approximately parallel to the joint space.

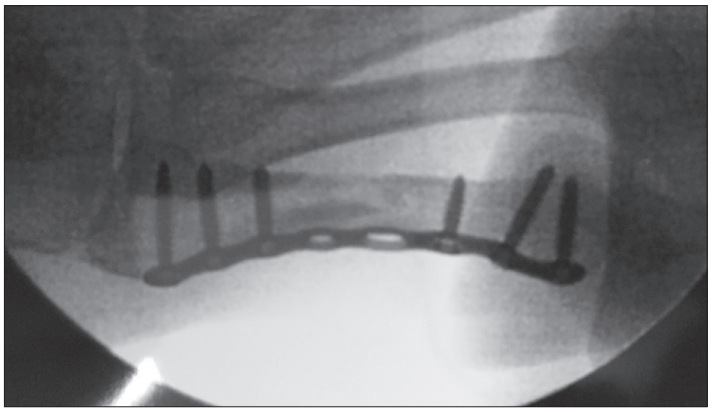
Screw Fixation

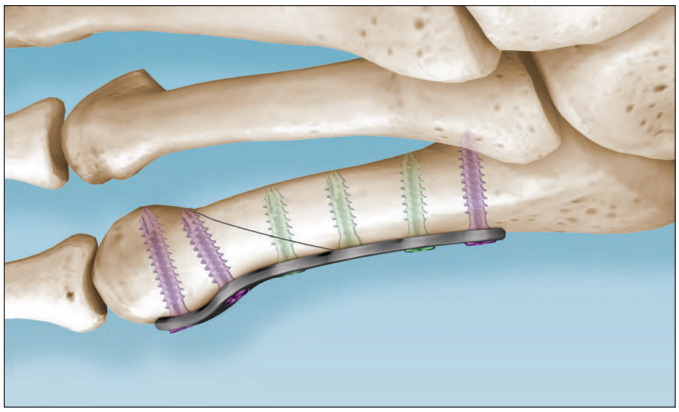
Drill, size, and place the appropriate screws as needed. It is recommended that the first 2 screws be non-locking to ensure flush plate to bone placement. The slot in the plate is a non-compression sliding slot that allows the surgeon to shift the plate distally or proximally to obtain optimal placement. **NOTE**: Locking screw placement of the two most distal holes allows for a maximum length of 15mm for 2.4 screws and 14mm for 2.7 screws without screw interference.

*For more information refer to the **Additional Surgical Notes** at the back of this brochure.*

Design Attributes

- 2.4/2.7mm Locking and Non-Locking Screws
- Sliding slot accomodates non-locking screws
- Most distal screw aimed parallel to joint
- Available in 6 & 8 Hole lengths





SPECIFICALLY DESIGNED FOR TREATING
TAILOR'S BUNION

Bunionette Plate

The **5MS® Bunionette Plate** is specifically designed for use in treating 5th metatarsal diaphyseal osteotomies. It is a low-profile plate that is designed to provide strong fixation of midshaft osteotomies.

Provisional Fixation

A lateral incision is carried out over the 5th metatarsal to expose the shaft of the joint. Resect the bony lateral protuberance and any bone spurs. Preserve as much articular head surface as possible during resection. Perform an osteotomy of choice and gain correction of the bone alignment. Place any stand-alone bone screw such as the CoLag® Screw prior to plate buttressing. After screw fixation, confirm radiographic correction of the deformity.

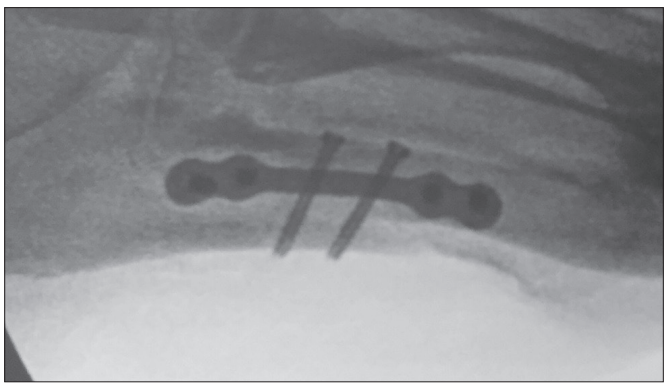


Plate Placement

Using Plate Trials, select a 4 hole or 5 hole, right or left plate. Olive Wires may be used to hold the plate in place during evaluation. The solid midsection of the plate should span the osteotomy. Place the plate on the bone and use Olive Wires to secure.

Screw Fixation

Proceed to drill, size, and place the appropriate screw. It is recommended that the first 2 screws be non-locking to ensure flush plate to bone placement. These screws should be placed on each side of the osteotomy site.

*For more information refer to the **Additional Surgical Notes** at the back of this brochure.*

Design Attributes

- 2.4/2.7mm Locking & Non-Locking Screws
- Distal holes disposed toward the plantar aspect
- Available in 5 Hole Right and Left, and 4 Hole (non-right-left specific) options
- Offers rotational control for these osteotomies which often displace with only lag screws

5MS® Fracture Repair System

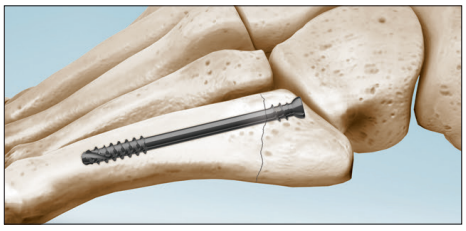
5MS® Fracture & Correction System

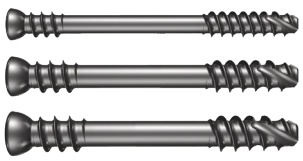
The 5th Metatarsal Fracture System (5MS®) is a collection of plates and screws targeted at orthopedic indications of the 5th metatarsal. The System has four plate families and a set of Jones Fracture specific compression screws that address traumatic fractures and osteotomies of the 5th metatarsal. All plates use interchangeable 2.4 and 2.7 screws with the exception of the Large Plantar Plate which is compatible with 3.0 and 3.5 mm screws.

The System utilizes a set of reusable and sterilizable Instruments, as well as sterile packaged single use Instrument Sets for installing plate screws. Other standard orthopedic operating instrumentation may be required to perform the procedures in the surgical techniques such as reduction clamps, elevators, retractors and power drivers with AO connection.

5MS® CoLag® Jones Fracture Screws

4.5, 5.5 and 6.0mm Headed Compression Screw System





The patient is placed supine with a sandbag under the ipsilateral hip. Orient patient such that the lateral aspect of the affected foot is easily accessed. A tourniquet may be used to prevent a bloody sterile field.

Trace the profile of the mid to proximal 5th metatarsal bone onto the skin and find the centerline axis of the bone. The Jones Screw Sizer may be placed against the lateral aspect of the metatarsal, outside the skin, and fluoroscopy used to estimate screw length. Notches and holes in the Sizer help to read the correct screw size. Ensure that the distal thread outline of the Sizer is at least 1cm past the fracture site to ensure proper screw performance.

NOTE: Sizer measurements correspond to overall screw length.

Make a small incision just proximal to the base of the metatarsal head. Dissect soft tissue down to the 5th metatarsal base while protecting the sural nerve and peroneus brevis tendon.

Assemble the 2.2mm Wire Guide Sleeve into the 4.5 Drill Guide; the Wire Guide Sleeve has a tapered body that will stick-fit into the Drill Guide with light manual pressure. Place the assembled Drill Guide into the incision down to the bone. Begin driving the 2.2mm Steinmann Pin into the base of the 5th metatarsal starting at a “high and inside” location and aligned with the marked axis of the bone. Use fluoroscopy to ensure the Guide Pin is placed correctly. The 2.2mm Pin may be used to manipulate the proximal fragment to regain bone alignment prior to advancing the Pin past the fracture site. Once correct positioning is obtained, continue to advance the Pin across the fracture site to a final depth just beyond the desired screw depth.

NOTE: Screw size specific instruments are color coded for easy selection; 4.5 Screws use blue, 5.5 use green and 6.0 use maroon.

Leaving the 2.2mm Pin and Drill Guide in place, remove the Wire Guide Sleeve from the Drill Guide and slide it off of the Pin.

Load the 3.5 cannulated Drill into a power driver with AO connection and place over the Pin and through the Drill Guide. Drill to the desired depth by aligning the laser marks on the Drill body with the top of the Drill Guide. Ensure the Drill Guide is seated against the bone surface.

NOTE: Laser mark measurements correspond to overall screw length. (***Optional Measurement with large Depth Gauge***: After placing the Steinman Pin, remove the Wire Guide Sleeve and place the large Depth Gauge over the Steinman Pin to measure for screw length. Drill to the appropriate depth.)

Leaving the 2.2mm pin in place, remove the cannulated drill. Load the 4.5 Screw Tap into the AO ratcheting handle and tap over the Guide Pin and through the Drill Guide to the desired depth. If the Tap feels loose inside the canal, the next larger Tap may be used in the same manner until the correct fit is achieved. If a larger Tap is required, remove the 4.5 Drill Guide and use the 5.5/6.0 Drill Guide.

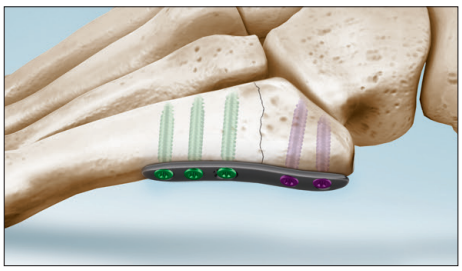
NOTE: Tapping is optional but recommended, especially for screw diameters larger than 4.5mm.

With the drill guide in place, remove the 2.2mm wire and place the 1.6mm Guide Pin through the prepared canal. The Guide Pin may be advanced into the bone for a firmer placement taking care not to violate the metatarsophalangeal joint. A smaller wire allows for smaller screw cannulation and ultimately a stronger screw. Screw depth can be checked again by measuring with the extra-medullary Sizer instrument.

Load the appropriate Driver Tip into the ratchet handle and open the selected size sterile screw. Load the screw onto the driver tip and place the screw over the 1.6mm Guide Pin. Advance the screw until fully seated.

NOTE: For additional compression and/or help with fracture reduction, the 5MS® Reduction Forceps can be applied percutaneously prior to inserting the screw.

This will allow for maximum fracture reduction/compression. Check final fracture reduction and screw placement under fluoroscopy prior to closing the incision. Close the incision by preferred methods.



Plantar Plate (Regular/Large)

4 & 5 Hole Anatomically Contoured Plantar Plates

Extend a plantar-lateral incision beginning approximately at the base of the proximal 5th metatarsal tuberosity and extend to the midshaft of the 5th metatarsal. Take care not to disrupt tendon and nerve structures. The Abductor Digiti Minimi muscle is reflected in a plantar direction. Dissect to the bone to expose the fracture. Use the Plantar Plate Trials to determine if the Regular Plate (2.4/2.7mm Screws) or the Large Plate (3.0/3.5mm Screws) will be used.

Once the size has been chosen, select the appropriate corresponding sterile packaged Instrument Kit to supplement the plate screw implantation.

Autologous bone graft or demineralized bone matrix may be placed around the fracture at this time prior to compressing the fracture with the provided Forceps.

The straight/curved Reduction Forceps are provided in the tray may be used to assist in maintaining alignment and compression of the fracture during provisional fixation.

It may be necessary to use the 0.062" Guide Wire provided in the Sterile Instrument Set to puncture the lateral cortex for insertion of the barbed end of the Reduction Forceps. The barbed end should be inserted into the midshaft of the bone on the distal side of the fracture site and the curved end spiked into the proximal tuberosity.

Using the Plate Trial, determine if a 4 Hole or 5 Hole Plate will be used. The 5 Hole Plate Trials have a representative laser marking for the 4 Hole Plate length for reference. Olive Wires may be used to hold the plate in place while evaluating fit.

Select and open the chosen sterile Plantar Plate.

Place the plate on the bone with the solid section over the fracture and the compression slot on the distal side of the fracture. If additional contouring is needed, use the supplied Plate Benders to anatomically form the plate.

Place an Olive Wire through the most distal hole, and a second Olive Wire through the 2nd most proximal hole.

Place the first Screw in the most proximal hole. It is recommended that this Screw be non-locking to reduce the chance of plate step-off. Take care to select the correctly sized non-locking laser marked Drill Guide (1.6/1.9 for the 2.4/2.7mm screws or the 2.3/2.8mm Drill Guide for the 3.0/3.5mm screws). Load the sterile Drill into an AO power driver and drill through the non-locking Drill Guide in the most proximal hole aiming generally toward the 5th tarsometatarsal joint. Depth markings on the drill can be used to estimate screw length from the top surface of the Drill Guide.

The Depth gauge may be used to take a more precise depth measurement at this time. Size the screw short of the joint space.

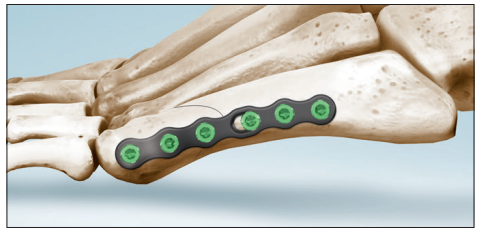
Select and open the chosen diameter and length sterile screw. Load the correctly sized Driver (T7 for 2.4/2.7 screws and T8 for 3.0/3.5mm screws) into the handle and install the screw into the plate. Using fluoroscopy ensure that the screw has not violated the joint space. Remove the proximal Olive Wire.

Next, drill and place a non-locking screw in the compression slot.
If compression is not desired, the Drill Guide may be placed in the spherical counterbore (closer to the fracture), otherwise place the Drill Guide or optional Compression Slot Drill Guide on the beveled side of the slot (away from the fracture) and drill. Precise depth measurement using the depth gauge may be taken at this time, downsize screw selection 1-2 mm due to the deep seated counterbore. Remove the distal Olive Wire and place the non-locking screw in the compression slot. The slot provides approximately 1to 1.5mm of compression.

Remove the distal Olive Wire and provisional fixation if used. Complete the installation of the remaining screws, locking screws are recommended. Close the incision by preferred methods.

Lateral Neck Fracture Repair

6 & 8 Hole Anatomically Curved and Scalloped



A lateral incision is carried out from the 5th metatarsophalangeal joint to the proximal 5th metatarsal base. Expose the fracture site along the lateral aspect of the 5th metatarsal taking care to preserve tendon and nerve structure.

Select and open the 2.4/2.7 sterile Instrument Set.

Pull the fracture out to length by grasping the 5th toe and place a standard reduction clamp across the fracture.

Use the .062" Guide Wire provided in

the sterile Instrument Set to puncture the lateral cortex for insertion of the barbed end of the Reduction Forceps. The barbed end should be inserted into the midshaft of the bone on the distal side of the fracture site(s) and the curved end spiked into the proximal tuberosity.

Once the clamp is placed and the fracture is adequately reduced, pins may be placed across the fracture to gain provisional fixation.

Use the supplied Plate Trials to size the plate. The distal aspect of the plate should be placed just proximal to the metatarsophalangeal joint with the trajectory of the most distal screw approximately parallel to the joint space.

Select and open the chosen sterile Lateral Neck Plate.

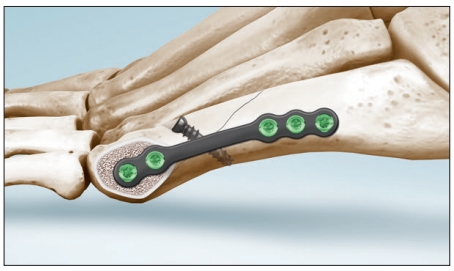
Place the plate on the bone and use Olive Wires to secure. If additional contouring is needed, use the supplied Plate Benders to anatomically form the plate taking care not to deform plate holes.

Proceed to drill, size, and place the appropriate screws as needed. It is recommended that the first 2 screws be non-locking to ensure flush plate to bone placement. The slot in the Lateral Neck Plate is a non-compression sliding slot which allows the surgeon to slide the plate distally or proximally to obtain optimal placement.

NOTE: Screw length measurements are calibrated for bicortical placement, downsize screw selection if needed.

NOTE: Locking screw placement of the two most distal holes allows for a maximum length of 15mm for 2.4 screws and 14mm for 2.7 screws without screw interference.

Close the incision by preferred methods.



Bunionette (Tailor's Bunion) Osteotomy and Correction

Specifically Designed for Treating Tailor's Bunion

A lateral incision is carried out over the 5th metatarsal to expose the shaft of the 5th metatarsal to the metatarsophalangeal joint.

Perform a resection of the bony lateral protuberance and any bone spurs. Make sure to preserve as much articular head surface as possible during resection.

Perform an osteotomy of choice and gain correction of the bone alignment.

Select and open the 2.4/2.7 sterile Instrument Set.

The .062" sterile Guide Wires may be used to gain provisional fixation of the osteotomy.

If stand-alone bone screws or I.B.S. Headless Compression Screws are to be used in conjunction with the Bunionette Plate, they should be placed at this time prior to plate buttressing. After screw fixation, confirm radiographic correction of the deformity.

Using the Plate Trials, determine if a 4 Hole or 5 Hole Plate will be used. The Plate Trials have a representative laser marking for the 4 Hole Plate length for reference. Olive Wires may be used to hold the plate in place while evaluating fit. The solid midsection of the plate should adequately span the osteotomy.

Select and open the chosen sterile Bunionette Plate.

NOTE: The 4 hole Plate is non left or right specific.

Place the plate on the bone and use Olive Wires to secure. If additional contouring is needed, use the supplied Plate Benders to anatomically form the plate.

Proceed to drill, size, and place the appropriate screws as needed. It is recommended that the first 2 screws are non-locking to ensure flush plate to bone placement. These screws should be placed on each side of the osteotomy site.

NOTE: Screw size specific instruments are color coded for easy selection; 2.4mm screws use dark green, 2.7mm use violet.

NOTE: Screw length measurements are calibrated for bicortical placement, downsize screw selection if needed.

Close the incision by preferred methods.

Pseudo Jones Plating

Innovative Anatomic Curved Plates with 3.0mm CoLag® Screw Option

Standard and Long Plate Options

Expose the fracture site with a lateral incision extending just proximal to the 5th metatarsal turberosity. Take care not to damage the sural nerve and the peroneus brevis tendon.

Select and open the 2.4/2.7 sterile Instrument Set.

For grossly displaced fractures, use the straight/curved Reduction Forceps provided in the Tray to assist in maintaining alignment and reduction of the fracture during provisional fixation. It

may be necessary to use the .062" Guide Wire provided in the sterile Instrument Set to puncture the lateral cortex for insertion of the barbed end of the Reduction Forceps. The barbed end should be inserted into the midshaft of the bone on the distal side of the fracture site and the curved end spiked into the proximal tuberosity. Once the clamp is placed and the fracture is adequately reduced, place the sterile Guide Wire(s) across the fracture to gain provisional fixation. Place all provisional fixation such that it will not interfere with plate placement.

Open the sterile plate and place it on the bone such that the sharp plate tines appropriately capture the avulsed fragment. Manual pressure should allow the Tines to gain initial bite in the bone. If additional contouring is needed, use the supplied Plate Benders to anatomically form the plate.

A sterile Olive Wire may be used in the distal end of the Guide Wire slot to provisionally secure the plate in place. Use the Pseudo Jones Plate Tamp to seat the Tines deeper into the bone. The Plate Tamp is cannulated for a .062" Guide Wire to allow for more stable and guided tamping if needed.

Using the non-locking Drill Guide, drill, depth gauge, and T7 Driver, install either a 2.4 or 2.7 non-locking Screw into the distal non-compression sliding slot.

NOTE: Screw size specific instruments are color coded for easy selection; 2.4 Screws use dark green, 2.7 use violet.

NOTE: Screw length measurements are calibrated for bicortical placement, downsize screw selection if needed.

Continue to populate the remaining screws with either locking or non-locking 2.4 and 2.7mm screws.

Optional 3.0 CoLag® Screw placement:

For additional stability and fixation of the avulsed fragment, it is recommended to place a 3.0mm CoLag® Headed Compression Screw between the Pseudo Jones Plate Tines and into the far cortex of the 5th metatarsal.

The initial 1.1mm Guide Wire placement may be done free handed or with the use of the 1.6 non-locking Drill Guide (dark green color band side) from the 5MS® tray. Place the 1.1mm wire in the direction of the 4th metatarsal metaphysis and dorsal of the most proximal plate screw. Place the Guide Wire to the desired screw termination depth. Check placement of the wire under fluoroscopy.

Use the small Depth Gauge to take a measurement reading by placing the Gauge over the Guide Wire and down against the bone between the plate tines. Remove the Depth Gauge and advance the Guide Wire slightly prior to drilling.

NOTE: Increase the depth reading by 1 – 2mm due to the plate/screw interface height in order to place the screw to the correct depth.

Use the 2.0 non-locking Drill Guide end (blue color band) from the 5MS® Tray for drill guidance. This will help protect the plate from the Drill flutes.

NOTE: Do not use the supplied countersink tool in this procedure. The 3.0mm CoLag® Screw will seat in the counterbore between the plate tines.

Select and open the sterile screw package. Use the cannulated T8 Driver Bit and AO ratchet handle to place the screw over the Guide Wire and through the Pseudo Jones Plate. Drive the screw until it seats properly between the tines of the plate. Check final placement under fluoroscopy. Close the incision using preferred methods.

5MS® Plates & Jones Fracture Screws System and Instruments designed by:

Travis Hanson, MD

Keith Heier, MD

Kevin Varner, MD

5TH METATARSAL FRACTURE REPAIR

5MS® Fracture Repair System

5MS® Fracture Plates

5MS® Plantar Plates

CATALOG NO	DESCRIPTION
P60 ST011	Plantar Plate, 5 Hole
P60 ST012	Plantar Plate, 4 Hole
P60 ST021	Plantar Plate, LRG, 5 Hole
P60 ST022	Plantar Plate, LRG, 4 Hole

5MS® Lateral Neck Plates

P60 ST031 ..... Lateral Neck Plate, 8H, **R**ight
P60 ST032 ..... Lateral Neck Plate, 6H, **R**
P60 ST033 ..... Lateral Neck Plate, 8H, **L**eft
P60 ST034 ..... Lateral Neck Plate, 6H, **L**

5MS® Bunionette Plates

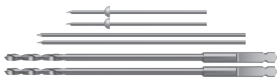
P60 ST041 ..... Bunionette Plate, 5 Hole, **R**ight
P60 ST042 ..... Bunionette Plate, 4 Hole, **R/L**
P60 ST043 ..... Bunionette Plate, 5 Hole, **L**eft

5MS® Pseudo Jones Plate

P60 ST050 ..... Pseudo Jones Plate, Standard
P60 ST051 ..... Pseudo Jones Plate, Long

Sterile Single Use Instrument Kit

P06 S0001
for 2.4 / 2.7mm Screws
P04 S0003
for 3.0 / 3.5mm Screws



Additional Sterile, Single Use Instruments

P06 S0021 T7 Driver Bit - Solid - AO, 2.4/2.7mm 5MS Screws
P04 S0051 T8 Driver Bit - Solid - AO, 3.0/3.5mm CoLink Screws
P06 S0031 T15 Cannulated Driver - AO, 4.5mm Jones Screws
P06 S0041 T25 Cannulated Driver - AO, 5.5/6.0mm Jones Screws
C01 S0018 CoLink T8 Screw Extractor

Sterile Screw Tube End Color Legend

STYLE: **L** / **NL**
DIA. SIZE, LENGTH
QUICK RELEASE TAB

- 5MS **2.4mm** **L**ocking / **N**on-locking
- 5MS **2.7mm** **L**ocking / **N**on-locking
- 5MS **3.0mm** **L**ocking / **N**on-locking
- 5MS **3.5mm** **L**ocking / **N**on-locking

CoLag Jones
4.5mm
5.5mm
6.0mm

5MS® Plate Screws

Non-Locking 2.4 / 2.7mm

2.4 STERILE

CATALOG NO	DIA x LENGTH
P62 ST408	2.4 x 8mm
P62 ST409	2.4 x 9mm
P62 ST410	2.4 x 10mm
P62 ST411	2.4 x 11mm
P62 ST412	2.4 x 12mm
P62 ST413	2.4 x 13mm
P62 ST414	2.4 x 14mm
P62 ST415	2.4 x 15mm
P62 ST416	2.4 x 16mm
P62 ST418	2.4 x 18mm
P62 ST420	2.4 x 20mm
P62 ST422	2.4 x 22mm

2.7 STERILE

P62 ST708	2.7 x 8mm
P62 ST709	2.7 x 9mm
P62 ST710	2.7 x 10mm
P62 ST711	2.7 x 11mm
P62 ST712	2.7 x 12mm
P62 ST713	2.7 x 13mm
P62 ST714	2.7 x 14mm
P62 ST715	2.7 x 15mm
P62 ST716	2.7 x 16mm
P62 ST718	2.7 x 18mm
P62 ST720	2.7 x 20mm
P62 ST722	2.7 x 22mm
P62 ST724	2.7 x 24mm

Locking 2.4 / 2.7mm

2.4 STERILE

CATALOG NO	DIA x LENGTH
P64 ST408	2.4 x 8mm
P64 ST409	2.4 x 9mm
P64 ST410	2.4 x 10mm
P64 ST411	2.4 x 11mm
P64 ST412	2.4 x 12mm
P64 ST413	2.4 x 13mm
P64 ST414	2.4 x 14mm
P64 ST415	2.4 x 15mm
P64 ST416	2.4 x 16mm
P64 ST418	2.4 x 18mm
P64 ST420	2.4 x 20mm
P64 ST422	2.4 x 22mm

2.7 STERILE

P64 ST708	2.7 x 8mm
P64 ST709	2.7 x 9mm
P64 ST710	2.7 x 10mm
P64 ST711	2.7 x 11mm
P64 ST712	2.7 x 12mm
P64 ST713	2.7 x 13mm
P64 ST714	2.7 x 14mm
P64 ST715	2.7 x 15mm
P64 ST716	2.7 x 16mm
P64 ST718	2.7 x 18mm
P64 ST720	2.7 x 20mm
P64 ST722	2.7 x 22mm
P64 ST724	2.7 x 24mm

Non-Locking 3.0 / 3.5m

3.0 STERILE

CATALOG NO	DIA x LENGTH
V30 ST208	3.0x 8mm
V30 ST210	3.0 x 10mm
V30 ST212	3.0 x 12mm
V30 ST214	3.0 x 14mm
V30 ST216	3.0 x 16mm
V30 ST218	3.0 x 18mm
V30 ST220	3.0 x 20mm
V30 ST222	3.0 x 22mm
V30 ST224	3.0 x 24mm

3.5 STERILE

V35 ST208	3.5 x 8mm
V35 ST210	3.5 x 10mm
V35 ST212	3.5 x 12mm
V35 ST214	3.5 x 14mm
V35 ST216	3.5 x 16mm
V35 ST218	3.5 x 18mm
V35 ST220	3.5 x 20mm
V35 ST222	3.5 x 22mm
V35 ST224	3.5 x 24mm

Locking 3.0 / 3.5mm

3.0 STERILE

CATALOG NO	DIA x LENGTH
V30 ST308	3.0 x 8mm
V30 ST310	3.0 x 10mm
V30 ST312	3.0 x 12mm
V30 ST314	3.0 x 14mm
V30 ST316	3.0 x 16mm
V30 ST318	3.0 x 18mm
V30 ST320	3.0 x 20mm
V30 ST322	3.0 x 22mm
V30 ST324	3.0 x 24mm

3.5 STERILE

V35 ST308	3.5 x 8mm
V35 ST310	3.5 x 10mm
V35 ST312	3.5 x 12mm
V35 ST314	3.5 x 14mm
V35 ST316	3.5 x 16mm
V35 ST318	3.5 x 18mm
V35 ST320	3.5 x 20mm
V35 ST322	3.5 x 22mm
V35 ST324	3.5 x 24mm

5MS® CoLag® Jones Fracture Screws

4.5

4.5mm

CATALOG NO	DIA x LENGTH
P60 ST440	4.5 x 40.0mm
P60 ST442	4.5 x 42.5mm
P60 ST445	4.5 x 45.0mm
P60 ST447	4.5 x 47.5mm
P60 ST450	4.5 x 50.0mm
P60 ST452	4.5 x 52.5mm
P60 ST455	4.5 x 55.0mm
P60 ST457	4.5 x 57.5mm
P60 ST460	4.5 x 60.0mm
P60 ST465	4.5 x 65.0mm
P60 ST470	4.5 x 70.0mm

5.5

5.5mm

CATALOG NO	DIA x LENGTH
P60 ST540	5.5 x 40.0mm
P60 ST542	5.5 x 42.5mm
P60 ST545	5.5 x 45.0mm
P60 ST547	5.5 x 47.5mm
P60 ST550	5.5 x 50.0mm
P60 ST552	5.5 x 52.5mm
P60 ST555	5.5 x 55.0mm
P60 ST557	5.5 x 57.5mm
P60 ST560	5.5 x 60.0mm
P60 ST565	5.5 x 65.0mm
P60 ST570	5.5 x 70.0mm

6.0

6.0mm

CATALOG NO	DIA x LENGTH
P60 ST640	6.0 x 40.0mm
P60 ST642	6.0 x 42.5mm
P60 ST645	6.0 x 45.0mm
P60 ST647	6.0 x 47.5mm
P60 ST650	6.0 x 50.0mm
P60 ST652	6.0 x 52.5mm
P60 ST655	6.0 x 55.0mm
P60 ST657	6.0 x 57.5mm
P60 ST660	6.0 x 60.0mm
P60 ST665	6.0 x 65.0mm
P60 ST670	6.0 x 70.0mm

In2Bones
A GLOBAL EXTREMITY COMPANY

Corporate Headquarters
In2Bones Global, Inc. • Memphis, TN • USA
844. 602. 6637 • Info@i2b-USA.com

International Office
In2Bones SAS • Lyon • France
+33 (0)4 72 29 26 26

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