

## Surgical Technique

### **Phoenix Tibial Nail System**

Featuring  
CoreLock Technology

- Each nail features CoreLock Technology, a preassembled, embedded locking mechanism for locking all proximal oblique screws, which can also be used to internally mechanically compress up to 5mm for a variety of tibial fractures
- Distally, the tibial nail offers an exceptionally low distal aspect of 4.5mm from the center of the most distal screw hole to the nail tip and 10mm from the center of the second most distal screw hole from the cluster to the nail tip for treatment of very distal fractures

**BIOMET**

## Contents

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Introduction .....	Page 1
Indications and Contraindications .....	Page 2
Design Features.....	Page 3
Surgical Technique .....	Page 6
Product Ordering Information .....	Page 31

## Introduction

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The Phoenix Tibial Nail System is composed of titanium alloy and features CoreLock Technology that offers a preassembled, embedded locking mechanism for locking all proximal oblique screws, which can also be used to internally mechanically compress up to 5mm for a variety of tibial fractures. Distally, the tibial nail offers an exceptionally low distal aspect of 4.5mm from the center of the most distal screw hole to the nail tip and 10mm from the center of the second most distal screw hole of the cluster to the nail tip for treatment of very distal fractures.

The tibial nail is universal and available in outer diameters of 7.5mm, 9mm, 10.5mm, 12mm and 13.5mm for applications in a wide variety of patients in lengths of 240mm-420mm, in 10mm increments. Additionally, the system features a strong, lightweight Radiolucent Targeting Arm that permits radiographic visualization in multiple planes. With its easy to use color-coded instrumentation conveniently contained in a single tray and its innovative implant design, the Phoenix Tibial Nail System is designed to address both patient and surgeon needs.

## Phoenix Tibial Nail System

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This material represents the surgical technique utilized by Michael S. Sirkin, M.D., Cory A. Collinge, M.D. and Kenneth J. Koval, MD. Biomet does not practice medicine. The treating surgeon is responsible for determining the appropriate treatment, technique(s), and product(s) for each individual patient.

## Indications

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### INDICATIONS

#### Phoenix Tibial Nail System

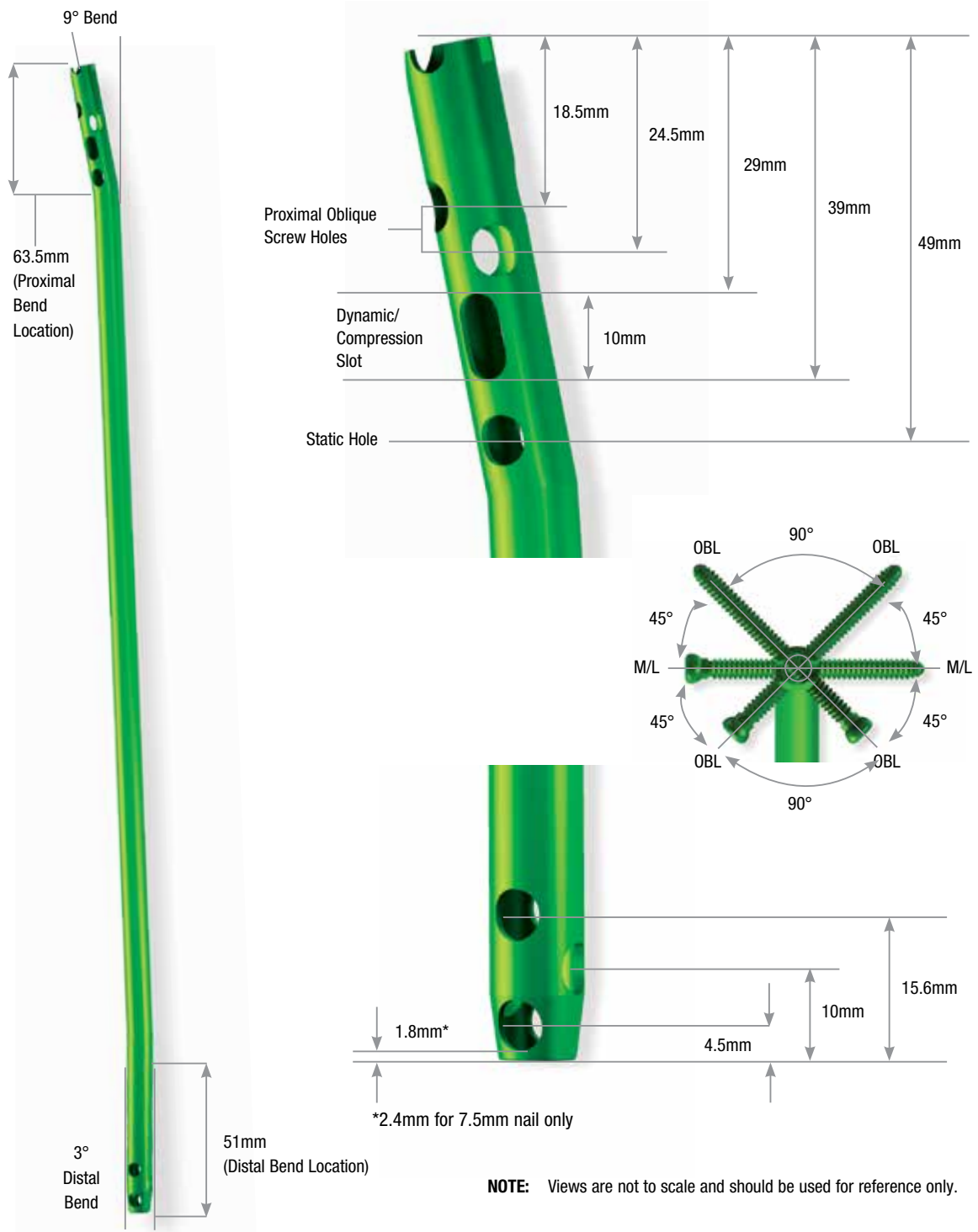
The Phoenix Tibial Nail System is indicated for alignment, stabilization, and fixation of fractures caused by trauma or disease, and the fixation of long bones that have been surgically prepared (osteotomy) for correction of deformity and for arthrodesis.

### CONTRAINDICATIONS

1. Infection.
2. Patient conditions including blood supply limitations, and insufficient quantity or quality of bone.
3. Patients with mental or neurologic conditions who are unwilling or incapable of following postoperative care instructions.
4. Foreign body sensitivity. Where material sensitivity is suspected, testing is to be completed prior to implantation of the device.



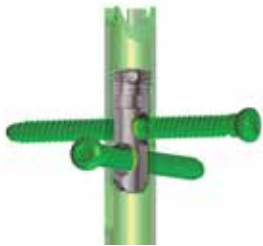
## Design Features



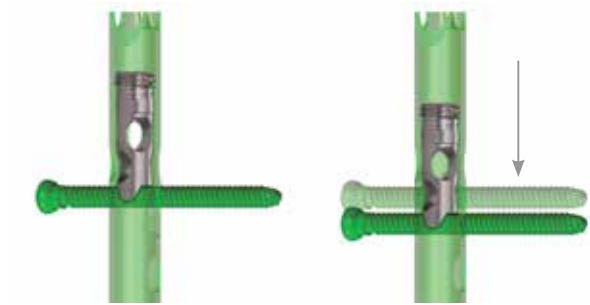
## Design Features (Continued)

### CoreLock Technology

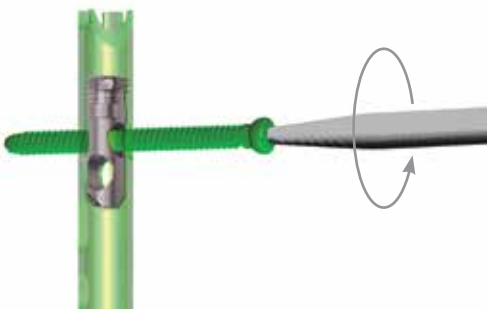
Innovation made simple and elegant through deployment of the preassembled, embedded setscrew/locking mechanism.



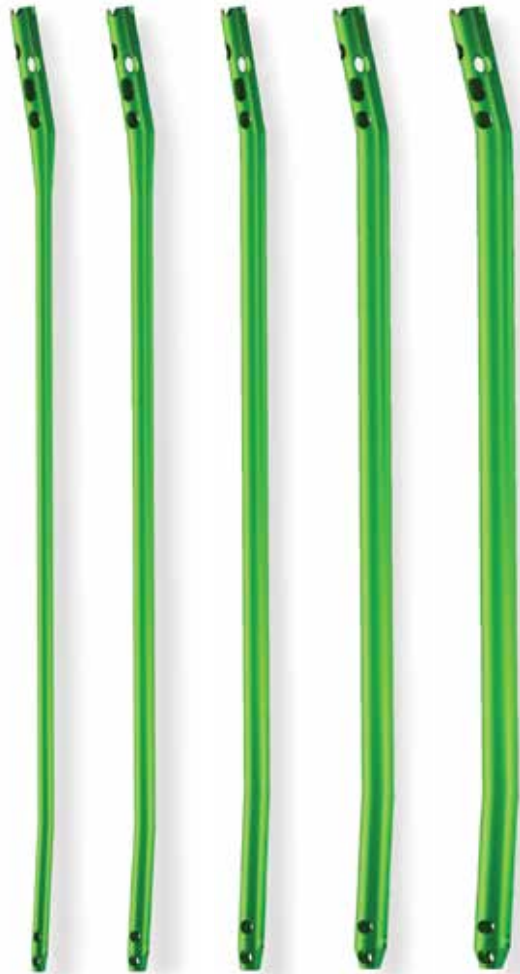
Ability to lock proximal oblique screws to nail via preassembled, embedded setscrew/locking mechanism.



5mm of internal mechanical compression via embedded setscrew/locking mechanism.



Since the holes within the embedded setscrew are grooved, proximal screw removal can be achieved without disengaging the embedded setscrew.



7.5mm 9mm 10.5mm 12mm 13.5mm

Nail diameters offered:

7.5mm, 9mm, 10.5mm, 12mm and 13.5mm

Offered in lengths ranging from 240mm-420mm (10mm increments)

Proximal diameter for 7.5mm, 9mm and 10.5mm nail is 11mm

Proximal diameter for 12mm nail is 12mm

Proximal diameter for 13.5mm nail is 13.5mm

### Double-Lead Thread Screws

- Composed of Titanium Alloy
- Features a double-lead thread design for quick insertion
- Self-tapping tip
- Interior of 4mm and 5mm cortical screw head is threaded for secure retention to inserter
- Threads are close to screw head and screw tip for better bicortical purchase



#### 4mm Double-Lead Thread Screw

- Used distally for locking 7.5mm nail only
- Color-coded gold

#### 4mm Screw Lengths:

20mm – 58mm  
(Available in 2mm increments)



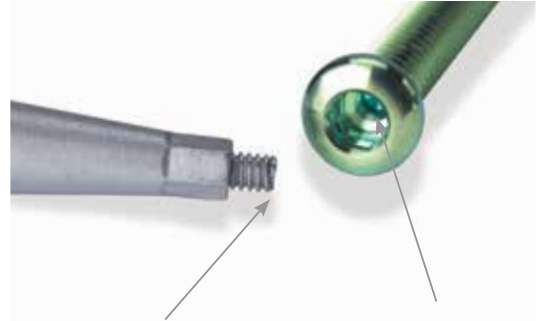
#### 5mm Double-Lead Thread Screw

- Utilized for proximal locking all nail sizes
- Used distally for locking 9mm, 10.5mm and 12mm nail sizes
- Color-coded light green

#### 5mm Screw Lengths:

20mm – 60mm  
(Available in 2mm increments)

65mm – 110mm  
(Available in 5mm increments)



3.5mm Inserter Connector  
(Long & Short) retains head  
of screw

Interior of screw head is  
threaded for retention to  
inserter

### End Caps

3.5mm Inserter Connector retains head of end cap  
to facilitate easier insertion

0mm 5mm 10mm 15mm 20mm



## Surgical Technique

### Step 1. Preoperative Planning

Successful nailing of extreme distal tibia fractures is dependent upon careful preoperative planning and patient evaluation.

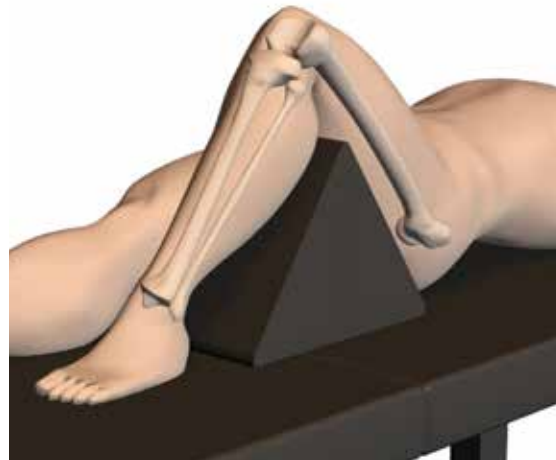
To fully understand the fracture pattern, a complete radiographic evaluation of the entire tibia must be obtained. For those fractures within 4cm of the physal scar, formal ankle radiographs are necessary to accurately assess the bone available for distal locking. Careful scrutiny is mandatory, in order to delineate the presence or absence of any intra-articular pathology. Preoperative planning with the use of implant templates can be helpful to assess whether distal locking is possible.

If grade IV comminution is present, radiographs of the contralateral side will be necessary to help obtain the correct length of the injured extremity. Alternatively, the contralateral side can be measured with the C-arm intraoperatively, prior to prepping and draping, using a radiopaque ruler and fluoroscopy. This will allow for the appropriate length nail to be chosen to accurately restore the length of the fractured tibia.

### Step 2. Patient Positioning And Preparation

The patient is placed in a supine position on a radiolucent operating table, preferably one without metal sides for ease of imaging. Flex the knee 90° or greater over a knee triangle or several rolled towels to provide access for adequate tissue clearance of instruments.

The affected extremity should be prepped and draped free. A thigh tourniquet may be used, but should not be left inflated while intramedullary reaming is performed. Alternatively, a traction table or femoral distractor can be used to obtain fracture reduction and maintain length while the nailing is performed.





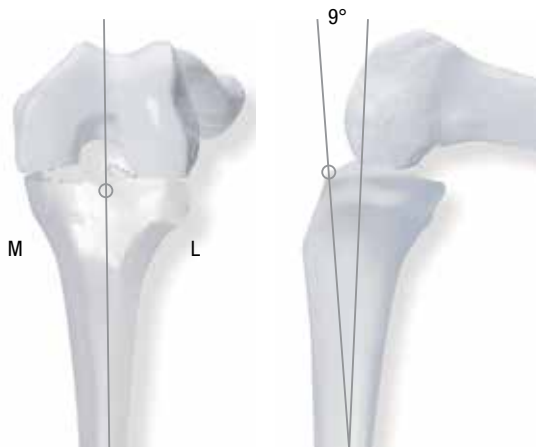
### Step 3. Surgical Exposure

A sagittal midline incision, centered over the patellar tendon, is made from the center of the patella to the top of the tibial plateau. The patellar tendon should be exposed to the level of the paratendon. Either a lateral or medial parapatellar approach is performed, but the knee joint should not be entered. The patella fat pad should only be cleared anteriorly to permit entry for proper portal placement.



### Step 4. Entry Point

A 3.2mm x 460mm Entry Guide Wire (Catalog #27914) is placed just distal to the articular margin, as viewed on the lateral radiograph. On an A/P image, the entrance portal will be just medial to the lateral tibial eminence or just lateral to the midline. This position decreases risk of injury to the menisci, articular cartilage and ACL. Confirm placement of the Guide Wire using the C-arm image.



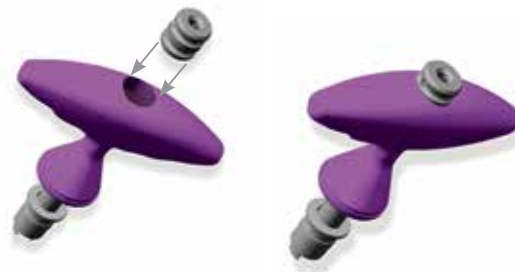
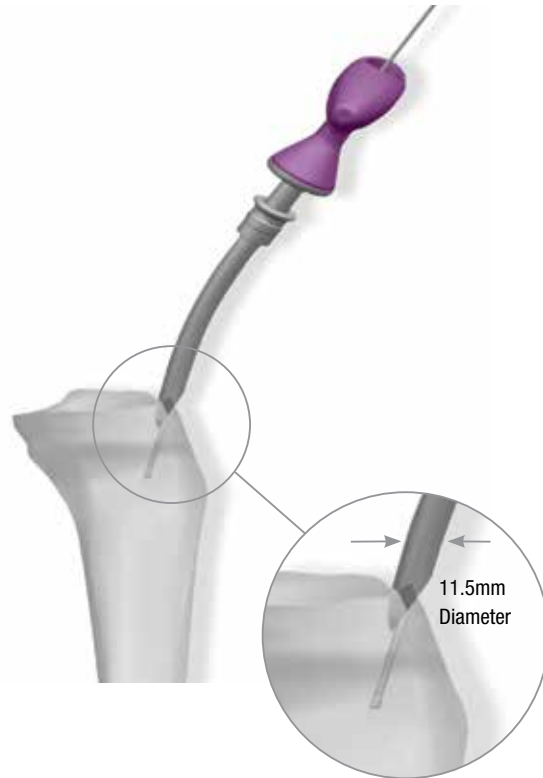
## Surgical Technique (Continued)

### Step 5. Opening The Medullary Canal

Place the Working Channel Soft Tissue Sleeve (Catalog #41029) and the 11.5mm One-Step Reamer (Catalog #41009) over the Guide Wire to enlarge the entry site and drill until entering the canal.



Alternatively, a Curved Cannulated Awl (Catalog #41026) attached to a Modular T-Handle, Non-Ratcheting (Catalog #29407) can be used to obtain the entrance portal.



For protection of the Modular T-Handle, Non-Ratcheting during insertion of the Curved Cannulated Awl, use of the Impactor Cap (Catalog #14-441047) is recommended.

### Step 6. Fracture Reduction And Guide Wire Placement

Fracture reduction is performed manually, with use of an image intensifier to aide with positioning. If the canal is to be reamed, a 2.6mm x 80cm Bead Tip Guide Wire (14-410002) is inserted through the opening in the proximal tibia and advanced to the level of the fracture. Images are checked as the Guide Wire is passed across the fracture site. An A/P and lateral image should confirm an intramedullary position of the Guide Wire in the center of the distal fragment in both planes. To help facilitate Guide Wire passage through the fracture site, the Keyless Chuck T-Handle (Catalog #14-442078) may be used. The Guide Wire may be gently impacted into the distal metaphysis to the level of the physeal scar to prevent accidental removal of the guide wire during reaming.

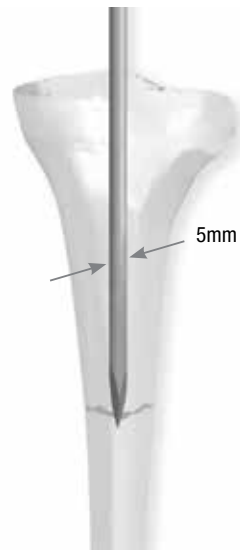


## Surgical Technique (Continued)



In the event of a displaced fracture, the 8.5mm Fracture Reducer (Bowed) (Catalog #14-442068) may be used to facilitate Guide Wire insertion through the fracture site.

In the case of a non-union, where the path to the canal is blocked and unlikely to advance a guide wire or entry reamer across the fracture site, a Pseudarthrosis Pin Straight (Catalog #14-442073) or Curved (Catalog #14-442074) may be used to create an opening for the passage of a guide wire for canal reaming.



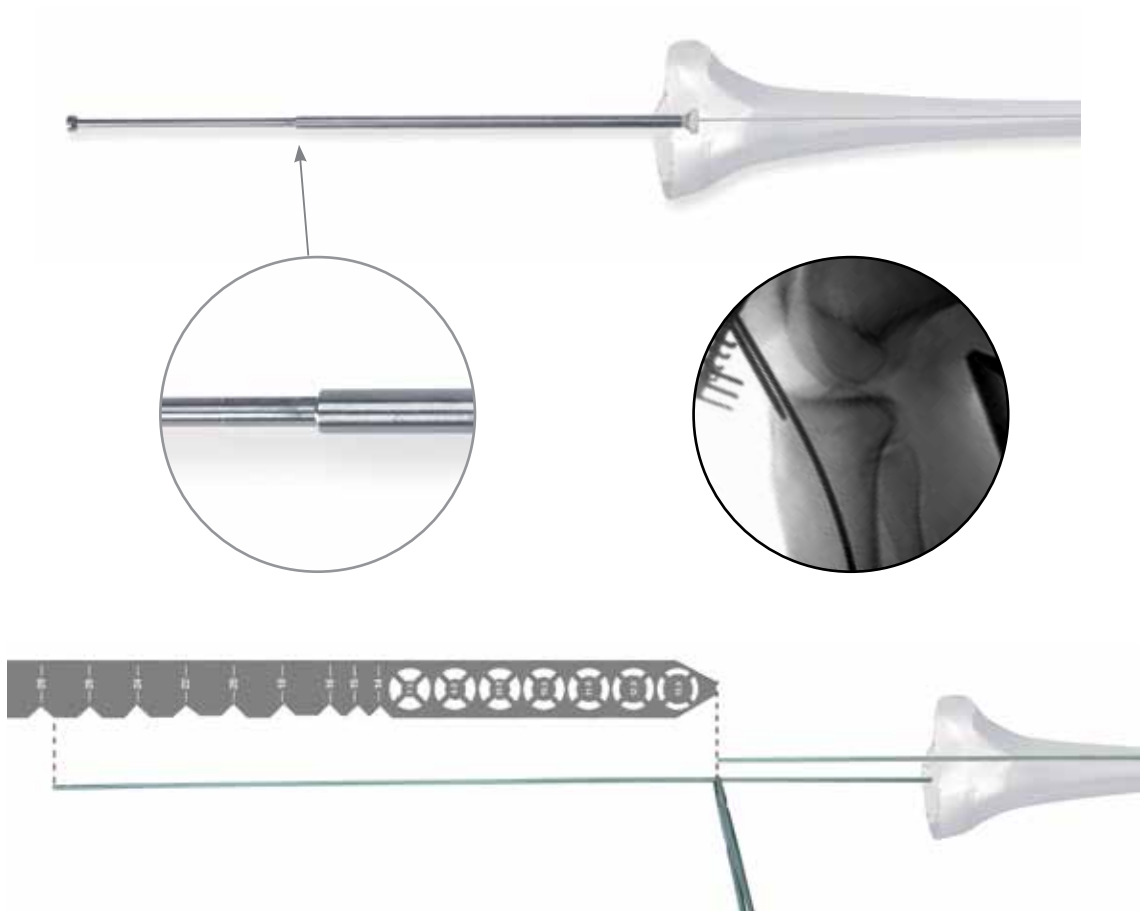
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**Step 7. Determining Nail Length**

The Telescoping Nail Measuring Gauge (Catalog #14-440047) is placed over the 2.6mm Bead Tip Guide Wire, until it rests on the anterior cortex. The nail should come to rest in the distal metaphysis and can be inserted as distal as the physal scar. Choose the appropriate nail on this basis. With the Guide Wire resting at the desired distal level, the telescoping tube is extended to the end of the Guide Wire.

To measure nail length, a direct reading can be made at the juncture of the two tubes. The nail should be countersunk to prevent any impingement. The selected nail should be at least 1cm shorter than the measured medullary canal to permit countersinking of the proximal end of the nail.

Alternatively, either a second Guide Wire of equal length may be used to measure the length of the medullary canal or use of a Medullary Canal and Length Estimator (Catalog #14-442075) may be used to determine nail diameter and length.

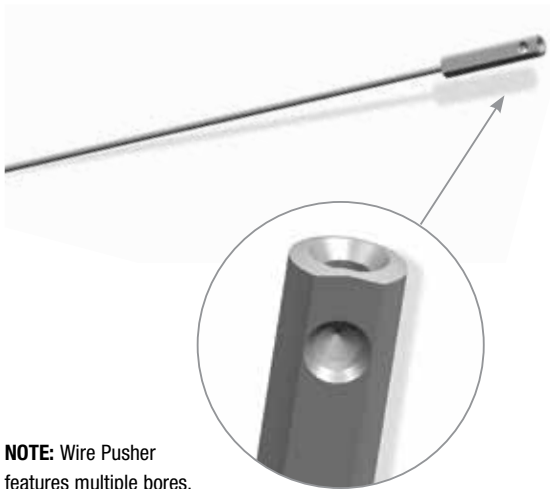


## Surgical Technique (Continued)

### Step 8. Intramedullary Reaming

Upon attaching the 8mm diameter Modular Reamer Head to the Flexible Nitinol Reamer Shaft (40cm-Catalog #27958 or 52cm-Catalog #27940), begin reaming over the Bead Tip Guide Wire in 1mm increments until cortical chatter occurs and then in 0.5mm increments. It is recommended that the surgeon ream to 1mm greater than the diameter of the nail to be inserted.

During medullary canal reaming, the Wire Pusher (Catalog #41027) can be used to help retain the 2.6mm Bead Tip Guide Wire during reamer extraction.



**NOTE:** Wire Pusher features multiple bores.



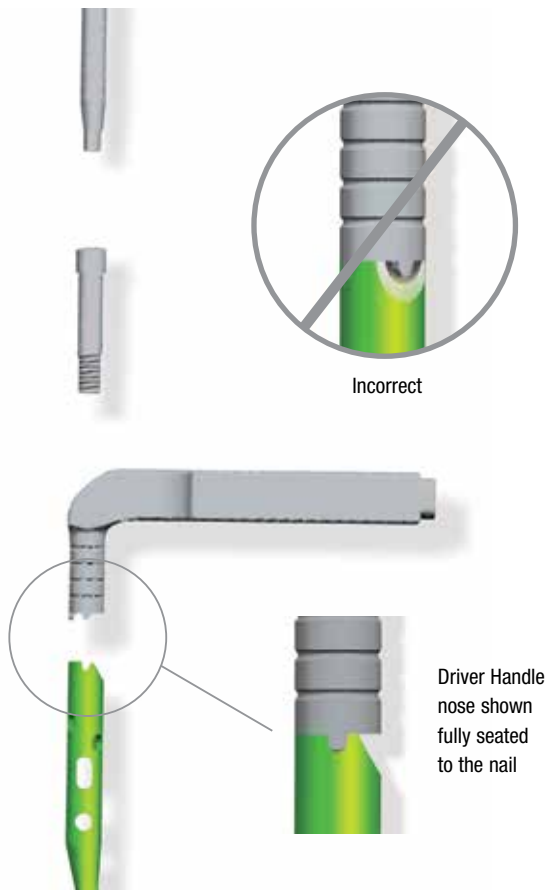
Reamer head diameters available from 8mm to 14.5mm (0.5mm increments)

**NOTE:** The 8mm reamer head is the only forward cutting reamer head; all others are side-cutting.

**NOTE:** Since the 2.6mm Bead Tip Guide Wire (Catalog #14-410002) will pass through all Phoenix Tibial Nail diameter cannulas, an exchange technique is not required.

### Step 9. Nail Assembly

Attach the Driver Handle (Catalog #41018) to the proximal aspect of the tibial nail, ensure the slope is anterior and the three tangs on the underside of the Driver Handle engage with the three slots of the nail. Place the Connecting Bolt (Catalog #41002) into the Driver Handle and proceed to thread into the nail and secure using a 5mm Connecting Bolt Inserter (Catalog #41003) attached to the Modular T-Handle, Non-Ratcheting (Catalog #29407).



**NOTE:** To ensure accurate proximal targeting, attach the Tibial Nail Targeting Arm (Catalog #41000) to the Driver Handle and insert the Soft Tissue Guide, Drill Sleeve and 4.3mm Calibrated Drill Bit through the associated arm slot to ascertain accuracy. Upon confirming accurate trajectories, remove the Targeting Arm and guides, if desired.



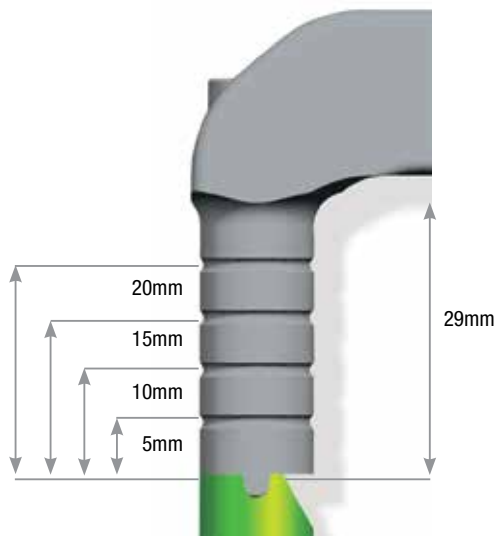
## Surgical Technique (Continued)

### Step 10. Nail Insertion

The tibial nail is inserted manually over the Bead Tip Guide Wire and advanced into the medullary canal. The fracture should be adequately reduced and out to length during insertion of the nail and should be monitored with the image intensifier. The Bead Tip Guide Wire is removed after the nail passes the fracture site. The nail can be countersunk to the level indicated by the groove on the driver nose. Final nail positioning should be checked in both A/P and lateral views to ensure proper alignment.

If a Slotted Mallet (Catalog #14-442053) is desired to seat the nail into the canal, thread the Slap Hammer Adapter (Catalog #41001) into the Driver Handle and attach the Slap Hammer Shaft (Catalog #29448). To avoid nail misalignment, do not strike the Driver Handle directly.

**NOTE:** It is recommended to only attach the Targeting Arm to the Driver Handle once the tibial nail has been completely seated into the canal, to avoid potential loosening.



**NOTE:** Grooves on the Driver Handle nose help indicate depth when countersinking.



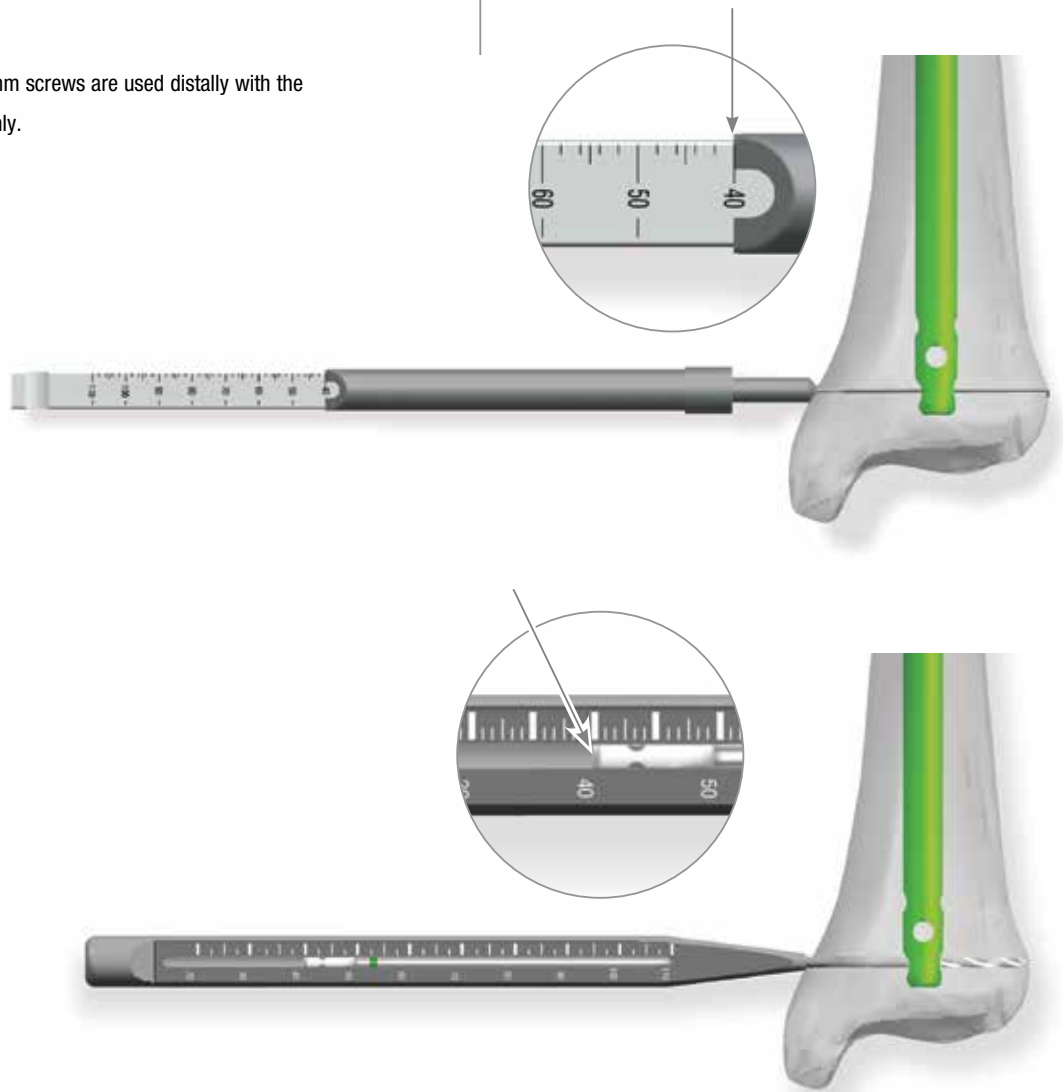


**Step 11. Determining Screw Length And Screw Insertion**

Determining the length of the appropriate screw size for distal locking can be achieved by using a Screw Depth Gauge - Extra Short (Catalog #14-442082) or overlay the 4.3mm x 152mm Short Drill Bit (Catalog #27984) with the Short 4.3mm Drill Measuring Sleeve (Catalog #14-442076). Measurement is read at the end of the drill bit.

Determining the appropriate 5mm screw length for proximal locking can be achieved by using a Screw Depth Gauge - Extra Long (Catalog #14-442081) or the appropriate screw length is measured off the 4.3mm Calibrated Drill Bit, at the end of the Drill Sleeve

**NOTE:** The 4mm screws are used distally with the 7.5mm nail only.



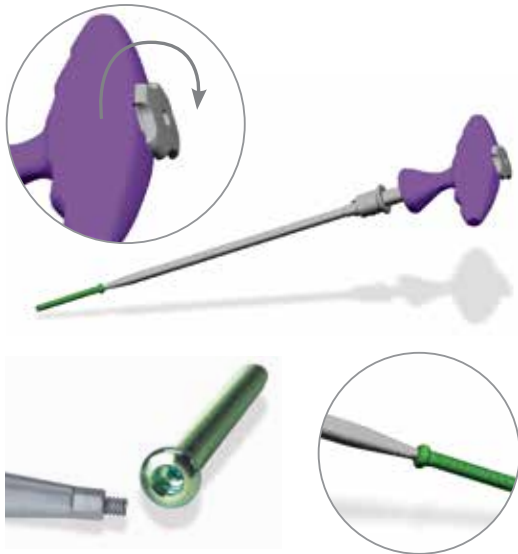
## Surgical Technique (Continued)

### Screw Insertion



When inserting distal screws, place the 3.5mm Inserter Connector, Short (Catalog #14-441045) through the cannula of either the Modular T-Handle, Non-Ratcheting (Catalog #29407) or Modular Straight Handle, Ratcheting (Catalog #29408) and connect the 3.5mm Inserter, Short (Catalog #14-441046).

When inserting proximal screws, place the 3.5mm Inserter Connector, Long (Catalog #14-441043) through the cannula of either the Modular T-Handle, Non-Ratcheting (Catalog #29407) or Modular Straight Handle, Ratcheting (Catalog #29408) and connect the 3.5mm Inserter, Long (Catalog #14-441044).

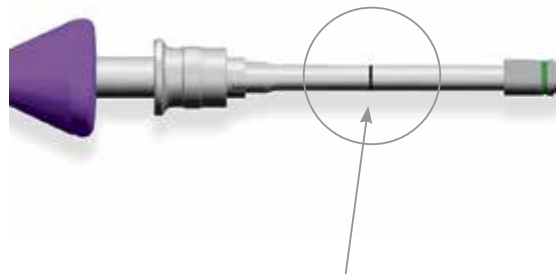


Attach the appropriate screw to the threaded hex tip of the Inserter Connector (Short or Long) and turn the knob in a clockwise fashion.

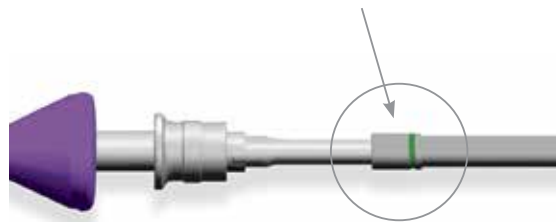


After confirming the screw is retained to the insertion device, proceed with inserting the screw into bone and continue placing additional screws as needed.

**NOTE:** When locking very distal screws, an attempt should be made to countersink slightly, but not through the near cortex.



During proximal screw insertion, the line mark on the 3.5mm Inserter, Long indicates when the screw head is fully seated (Ensure the Soft Tissue Sleeve is firmly against bone).



**NOTE:** For final tightening 4mm screws and 5mm screws, the 3.5mm Solid Inserter-Long (Catalog #14-441051) or the 3.5mm Solid Inserter-Short (Catalog #14-441052) should be used.

**Step 12. Targeting Arm Assembly**



Assemble the Tibial Nail Targeting Arm (Catalog #41000) to the Driver Handle and secure with the Thumb Screw (Catalog #41023).

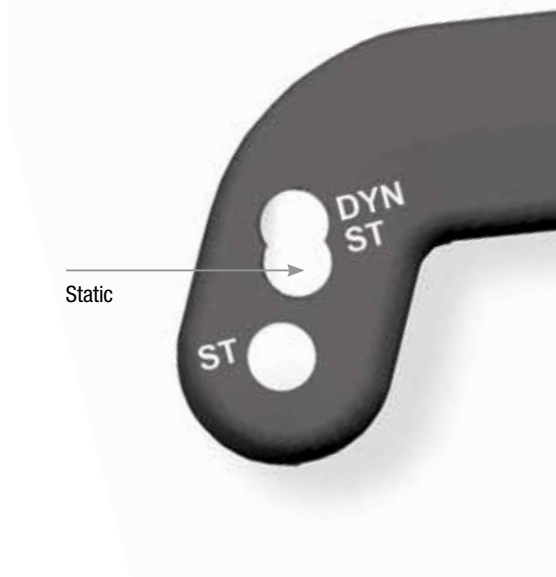
## Surgical Technique (Continued)

### Step 13a. Proximal Locking - Static Screws



Assemble the Trocar (Catalog #41006) to the Drill Sleeve (Catalog #41005) and insert through the Soft Tissue Sleeve (Catalog #41004) through the Static hole (Dynamic Compression Slot) of the Targeting Arm. Advance to the bone to determine and mark the entry point. Remove the Trocar and advance the assembly to the near cortex.

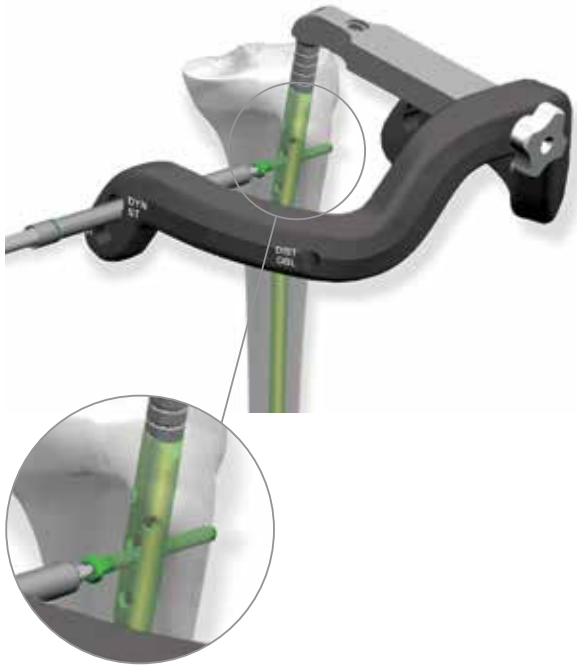
#### Dynamic Compression Slot



Insert the 4.3mm Calibrated Drill Bit (Catalog #41010) through the Drill Sleeve to perforate the medial cortex, pass through the nail and perforate the lateral cortex. With the Drill Sleeve assembly held firmly against the medial cortex, the appropriate screw length is measured off the Calibrated Drill Bit, at the end of the Drill Sleeve. Alternatively, a Screw Depth Gauge (Extra Long) (Catalog #14-442081) may be used to determine or verify the length of the screw.

**NOTE:** All nail diameters utilize 5mm screws proximally.

**Step 13a. Proximal Locking - Static Screws (Continued)**



The Drill Sleeve is removed and the appropriate 5mm screw is inserted through the Soft Tissue Sleeve (reference pg. 16 for insertion detail). Ensure position of screw with radiographic visualization. Be sure not to exceed more than 2mm in the far cortex.



If desired, the Static screw can be locked with the preassembled, embedded setscrew/locking mechanism. Insert the 4mm Hex Driver (Catalog #41024) through the Driver Handle, into the proximal aspect of the nail and turn in a clockwise motion.

## Surgical Technique (Continued)

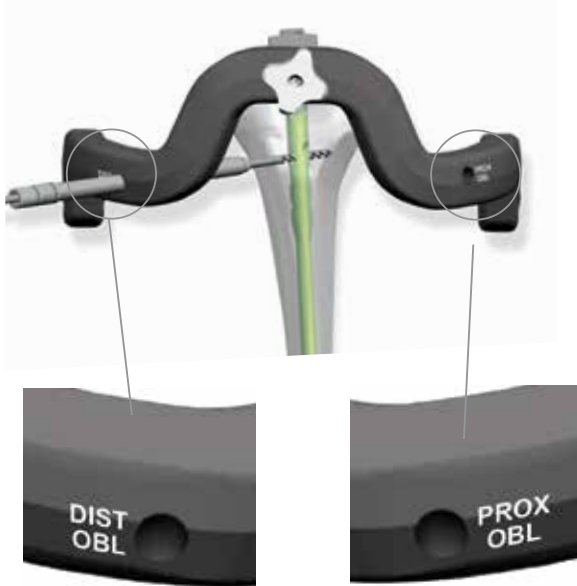
### Step 13a. Proximal Locking - Static Screws (Continued)



An additional screw can be inserted in a similar fashion through the Static hole of the Targeting Arm (reference pg. 16 for insertion detail).

To remove the targeting assembly, insert the 5mm Connecting Bolt Inserter through the Driver Handle to engage the connecting bolt and turn counterclockwise to release attachment from the nail.

### Step 13b. Proximal Locking - Oblique Screws



Assemble the Trocar (Catalog #41006) to the Drill Sleeve (Catalog #41005) and insert through the Soft Tissue Sleeve (Catalog #41004) through either the Distal Oblique or the Proximal Oblique hole of the Targeting Arm. Advance to the bone to determine and mark the entry point. Remove the Trocar and advance the assembly to the near cortex.

Insert the 4.3mm Calibrated Drill Bit (Catalog #41010) through the Drill Sleeve to perforate the medial cortex, pass through the nail and perforate the lateral cortex. With the Drill Sleeve assembly held firmly against the medial cortex, the appropriate screw length is measured off the Calibrated Drill Bit, at the end of the Drill Sleeve. Alternatively, a Screw Depth Gauge (Extra Long) (Catalog #14-442081) may be used to determine or verify the length of the screw.

**NOTE:** All nail diameters utilize 5mm screws proximally.



The Drill Sleeve is removed and the appropriate 5mm screw is inserted through the Soft Tissue Sleeve (reference pg. 16 for insertion detail). Ensure position of screw with radiographic visualization. Be sure not to exceed more than 2mm in the far cortex.

Repeat this procedure for insertion of the second oblique screw.

## Surgical Technique (Continued)

### Step 13b. Proximal Locking - Oblique Screws (Continued)



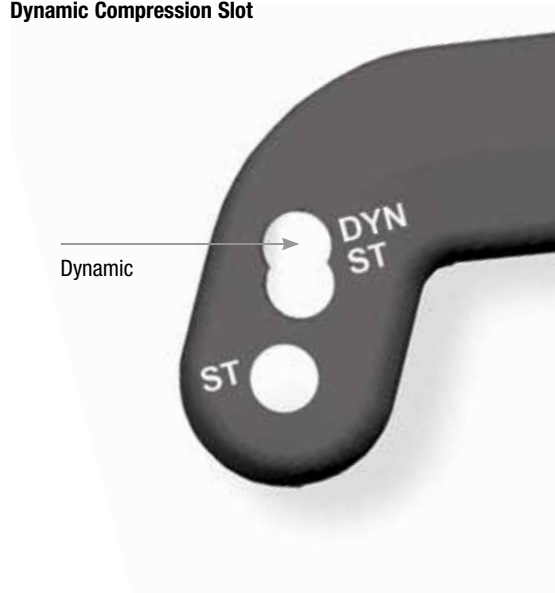
When insertion of the proximal oblique screws are completed, insert the 4mm Hex Driver through the Driver Handle into the proximal aspect of the nail and turn in a clockwise motion to lock the oblique screws with the preassembled, embedded setscrew/locking mechanism. When complete, remove the hex driver.

To remove the targeting assembly, insert the 5mm Connecting Bolt Inserter through the Driver Handle to engage the connecting bolt and turn counterclockwise to release attachment from the nail.



### Step 13c. Proximal Locking - Compression (Optional)

#### Dynamic Compression Slot



The Phoenix Tibial Nail offers a preassembled, embedded setscrew/locking mechanism that can provide up to 5mm of compression.

**NOTE:** If compression is desired, first ensure distal locking has been completed. Prior to compressing, remove the sleeve assembly from bone.



Assemble the Trocar (Catalog #41006) to the Drill Sleeve (Catalog #41005) and insert through the Soft Tissue Sleeve (Catalog #41004) through the Dynamic hole (Dynamic Compression Slot) of the Targeting Arm. Advance to the bone to determine and mark the entry point. Remove the Trocar and advance the assembly to the near cortex.

**NOTE:** Mechanical compression may only be achieved through the Dynamic hole and deployment of the preassembled, embedded setscrew/locking mechanism.

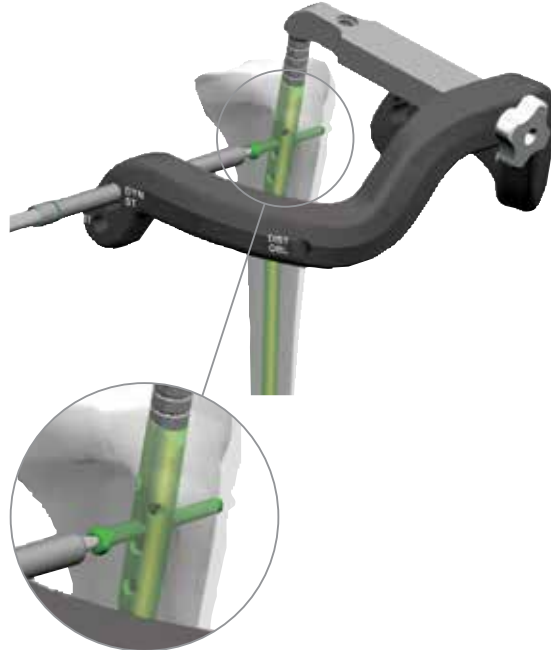
## Surgical Technique (Continued)

### Step 13c. Proximal Locking - Compression (Optional) Continued



Insert the 4.3mm Calibrated Drill Bit (Catalog #41010) through the Drill Sleeve to perforate the medial cortex, pass through the nail and perforate the lateral cortex. With the Drill Sleeve assembly held firmly against the medial cortex, the appropriate screw length is measured off the Calibrated Drill Bit, at the end of the Drill Sleeve. Alternatively, a Screw Depth Gauge (Extra Long) (Catalog #14-442081) may be used to determine or verify the length of the screw.

**NOTE:** All nail diameters utilize 5mm screws proximally.



The Drill Sleeve is removed and the appropriate 5mm screw is inserted through the Soft Tissue Sleeve (reference pg. 16 for insertion detail). Ensure position of screw with radiographic visualization. Be sure not to exceed more than 2mm in the far cortex.

**Step 13c. Proximal Locking - Compression (Optional)**  
**Continued**



If using the preassembled setscrew for compression is desired, insert the 4mm Hex Driver (Catalog #41024) through the Driver Handle, into the proximal aspect of the nail and turn in a clockwise motion. Monitor screw position and fracture compression under radiographic visualization.

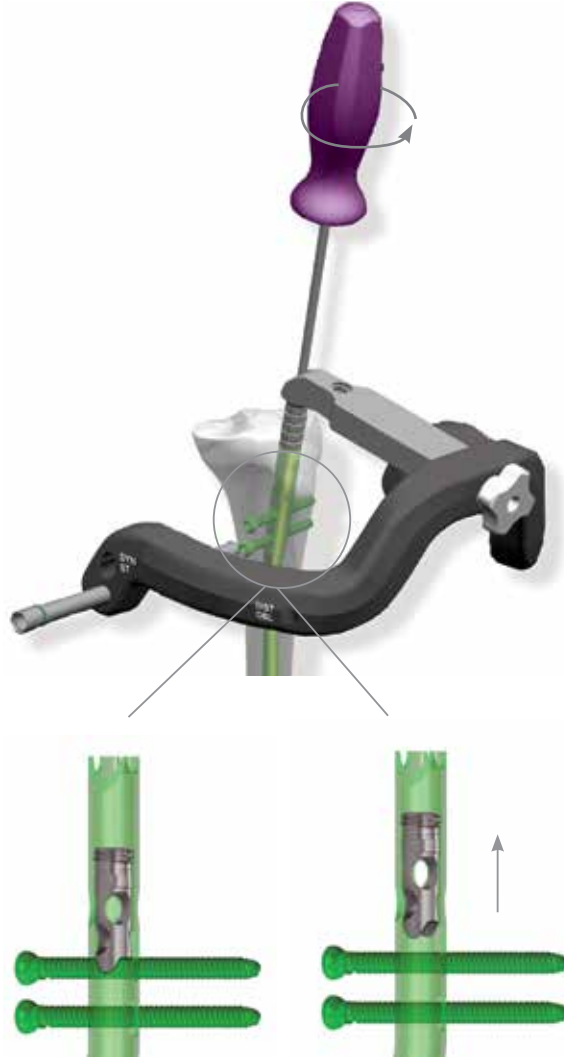
Alternatively, a backstroke technique can be employed for compressing the fracture by using the Slotted Mallet in a reverse manner under radiographic visualization monitoring.

## Surgical Technique (Continued)

### Step 13c. Proximal Locking - Compression (Optional) Continued



After desired compression is achieved, repeat screw insertion through the Static hole to support the achieved compression.



Upon screw insertion into the Static hole, use the 4mm Hex Driver to reverse the preassembled setscrew (counterclockwise) until it stops against the Connecting Bolt. This will ensure correct positioning of the preassembled setscrew for locking the proximal oblique screws, if desired.

**Step 13c. Proximal Locking - Compression (Optional)**  
**Continued**



When insertion of the proximal oblique screws are completed, insert the 4mm Hex Driver through the Driver Handle into the proximal aspect of the nail and turn in a clockwise motion to lock the oblique screws with the preassembled, embedded setscrew/locking mechanism. When complete, remove the hex driver.

To remove the targeting assembly, insert the 5mm Connecting Bolt Inserter through the Driver Handle to engage the connecting bolt and turn counterclockwise to release attachment from the nail.

## Introduction

### Step 14. Distal Locking

Verify the depth of the nail distally in both A/P and lateral views. The Phoenix Tibial Nail may be locked distally with screws in both the sagittal and frontal planes. Distal A/P locking allows for placement of perpendicular screws for a more secure fixation of the distal fragment.

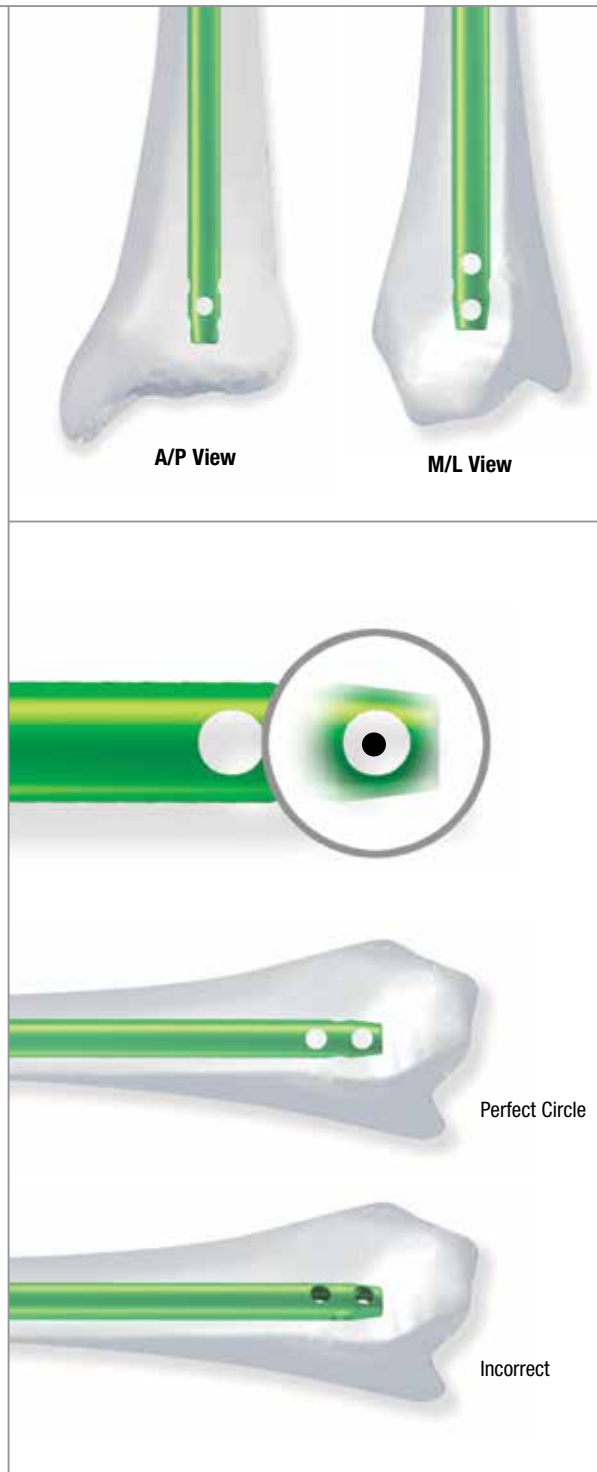
When treating distal third fractures, ensure at a minimum, two distal locking screws are used below the fracture site.

**NOTE:** When locking from anterior to posterior all instruments placed to the bone should be done medial to the tibialis anterior tendon. The tendon should be retracted laterally to allow safe placement of the locking screw.

Distal locking may be accomplished using a freehand technique or by using the Biomet Radiolucent Targeting Device. The image intensifier is aligned with the more distal hole in the nail, such that the hole appears as a perfect circle. A knife blade is placed on the skin, with the incision point verified on the image intensifier, and a 1 cm incision is made over the hole in the nail. The tip of the drill bit appears as a solid circle in the center of the screw hole. Proceed to drill through both cortices. The position of the drill bit is confirmed on the image intensifier in both the A/P and Lateral planes, before it is withdrawn. Additional screw holes are drilled in a similar fashion.

**NOTE:** Distally, a 3.2mm drill bit is used for 4mm screws with the 7.5mm nails only and a 4.3mm drill bit is used for 5mm screws with 9mm or larger nails.

**NOTE:** For final tightening 4mm screws and 5mm screws, the 3.5mm Solid Inserter-Long (Catalog #14-441051) or the 3.5mm Solid Inserter-Short (Catalog #14-441052) should be used.



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### End Cap Insertion

If desired, one of five different profile end caps ranging from 0mm to 20mm (available in 5mm increments) can be inserted into the proximal end of the Phoenix Tibial Nail to prevent bony in-growth. For insertion, thread the end cap to the insertion device, in similar fashion for screw insertion (as referenced on pg. 16).



**NOTE:** For final tightening end caps, the 3.5mm Solid Inserter-Long (Catalog #14-441051) or the 3.5mm Solid Inserter-Short (Catalog #14-441052) should be used.

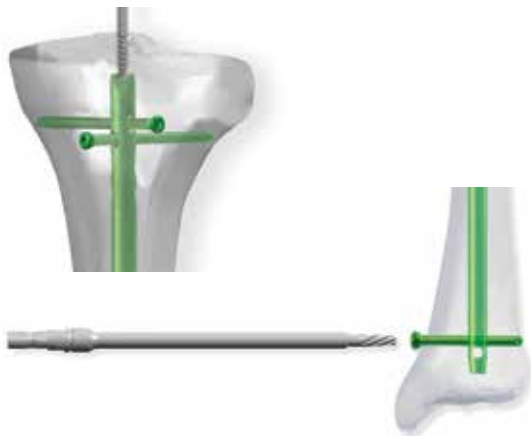
## Surgical Technique (Continued)

### Nail Removal

Remove the end cap if implanted and all but one of the locking screws with the 3.5mm Inserter Connector. It is important to leave one screw in the nail to prevent nail rotation when connecting the nail extractor to the nail. Alternatively, if all screws have been removed a 4.3mm Drill Bit can be placed through any of the removed screw holes. If needed, the 3.5mm Hex Screw Extractor\* (Catalog #14-442084) may be used to remove either a 4mm or 5mm screw.

Insert a Guide Wire into the top of the nail to help guide the extractor to the proximal portion of the nail. Attach the 3/4" Driver (Catalog #14-442066) to the Nail Extractor Tap\* (Catalog #14-441048) and thread the assembly into the top of the nail. A tight interference fit should be achieved. The extractor is meant to cross-thread into the proximal portion of the nail. Thread the Slap Hammer Shaft (Catalog #29448) into the Nail Extractor Tap and remove the remaining screw or drill bit. Extract the nail with a backslapping motion using the Slotted Mallet.

**NOTE:** Since the holes within the embedded setscrew are grooved, proximal screw removal can be achieved without disengaging the embedded setscrew.



\*Available sterile packed





## Product Ordering Information

### 7.5mm Tibial Nails

Catalog#	Description
40024	Tibial Nail, 7.5mm x 240mm
40025	Tibial Nail, 7.5mm x 250mm
40026	Tibial Nail, 7.5mm x 260mm
40027	Tibial Nail, 7.5mm x 270mm
40028	Tibial Nail, 7.5mm x 280mm
40029	Tibial Nail, 7.5mm x 290mm
40030	Tibial Nail, 7.5mm x 300mm
40031	Tibial Nail, 7.5mm x 310mm
40032	Tibial Nail, 7.5mm x 320mm
40033	Tibial Nail, 7.5mm x 330mm
40034	Tibial Nail, 7.5mm x 340mm
40035	Tibial Nail, 7.5mm x 350mm
40036	Tibial Nail, 7.5mm x 360mm
40037	Tibial Nail, 7.5mm x 370mm
40038	Tibial Nail, 7.5mm x 380mm
40039	Tibial Nail, 7.5mm x 390mm
40040	Tibial Nail, 7.5mm x 400mm
40041	Tibial Nail, 7.5mm x 410mm
40042	Tibial Nail, 7.5mm x 420mm

### 9mm Tibial Nails

Catalog#	Description
40324	Tibial Nail, 9mm x 240mm
40325	Tibial Nail, 9mm x 250mm
40326	Tibial Nail, 9mm x 260mm
40327	Tibial Nail, 9mm x 270mm
40328	Tibial Nail, 9mm x 280mm
40329	Tibial Nail, 9mm x 290mm
40330	Tibial Nail, 9mm x 300mm
40331	Tibial Nail, 9mm x 310mm
40332	Tibial Nail, 9mm x 320mm
40333	Tibial Nail, 9mm x 330mm
40334	Tibial Nail, 9mm x 340mm
40335	Tibial Nail, 9mm x 350mm
40336	Tibial Nail, 9mm x 360mm

### 9mm Tibial Nails (cont'd)

Catalog#	Description
40337	Tibial Nail, 9mm x 370mm
40338	Tibial Nail, 9mm x 380mm
40339	Tibial Nail, 9mm x 390mm
40340	Tibial Nail, 9mm x 400mm
40341	Tibial Nail, 9mm x 410mm
40342	Tibial Nail, 9mm x 420mm

### 10.5mm Tibial Nails

Catalog#	Description
40624	Tibial Nail, 10.5mm x 240mm
40625	Tibial Nail, 10.5mm x 250mm
40626	Tibial Nail, 10.5mm x 260mm
40627	Tibial Nail, 10.5mm x 270mm
40628	Tibial Nail, 10.5mm x 280mm
40629	Tibial Nail, 10.5mm x 290mm
40630	Tibial Nail, 10.5mm x 300mm
40631	Tibial Nail, 10.5mm x 310mm
40632	Tibial Nail, 10.5mm x 320mm
40633	Tibial Nail, 10.5mm x 330mm
40634	Tibial Nail, 10.5mm x 340mm
40635	Tibial Nail, 10.5mm x 350mm
40636	Tibial Nail, 10.5mm x 360mm
40637	Tibial Nail, 10.5mm x 370mm
40638	Tibial Nail, 10.5mm x 380mm
40639	Tibial Nail, 10.5mm x 390mm
40640	Tibial Nail, 10.5mm x 400mm
40641	Tibial Nail, 10.5mm x 410mm
40642	Tibial Nail, 10.5mm x 420mm

## Product Ordering Information (Continued)

### 12mm Tibial Nails

Catalog#	Description
40924	Tibial Nail, 12mm x 240mm
40925	Tibial Nail, 12mm x 250mm
40926	Tibial Nail, 12mm x 260mm
40927	Tibial Nail, 12mm x 270mm
40928	Tibial Nail, 12mm x 280mm
40929	Tibial Nail, 12mm x 290mm
40930	Tibial Nail, 12mm x 300mm
40931	Tibial Nail, 12mm x 310mm
40932	Tibial Nail, 12mm x 320mm
40933	Tibial Nail, 12mm x 330mm
40934	Tibial Nail, 12mm x 340mm
40935	Tibial Nail, 12mm x 350mm
40936	Tibial Nail, 12mm x 360mm
40937	Tibial Nail, 12mm x 370mm
40938	Tibial Nail, 12mm x 380mm
40939	Tibial Nail, 12mm x 390mm
40940	Tibial Nail, 12mm x 400mm
40941	Tibial Nail, 12mm x 410mm
40942	Tibial Nail, 12mm x 420mm

### 13.5mm Tibial Nails

Catalog#	Description
14-441224	Tibial Nail, 13.5mm x 240mm
14-441225	Tibial Nail, 13.5mm x 250mm
14-441226	Tibial Nail, 13.5mm x 260mm
14-441227	Tibial Nail, 13.5mm x 270mm
14-441228	Tibial Nail, 13.5mm x 280mm
14-441229	Tibial Nail, 13.5mm x 290mm
14-441230	Tibial Nail, 13.5mm x 300mm
14-441231	Tibial Nail, 13.5mm x 310mm
14-441232	Tibial Nail, 13.5mm x 320mm
14-441233	Tibial Nail, 13.5mm x 330mm
14-441234	Tibial Nail, 13.5mm x 340mm
14-441235	Tibial Nail, 13.5mm x 350mm
14-441236	Tibial Nail, 13.5mm x 360mm
14-441237	Tibial Nail, 13.5mm x 370mm
14-441238	Tibial Nail, 13.5mm x 380mm
14-441239	Tibial Nail, 13.5mm x 390mm
14-441240	Tibial Nail, 13.5mm x 400mm
14-441241	Tibial Nail, 13.5mm x 410mm
14-441242	Tibial Nail, 13.5mm x 420mm

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**4mm Double-Lead Thread Screws**

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<b>Catalog#</b>	<b>Description</b>
14-400420	4mm x 20mm screw
14-400422	4mm x 22mm screw
14-400424	4mm x 24mm screw
14-400426	4mm x 26mm screw
14-400428	4mm x 28mm screw
14-400430	4mm x 30mm screw
14-400432	4mm x 32mm screw
14-400434	4mm x 34mm screw
14-400436	4mm x 36mm screw
14-400438	4mm x 38mm screw
14-400440	4mm x 40mm screw
14-400442	4mm x 42mm screw
14-400444	4mm x 44mm screw
14-400446	4mm x 46mm screw
14-400448	4mm x 48mm screw
14-400450	4mm x 50mm screw
14-400452	4mm x 52mm screw
14-400454	4mm x 54mm screw
14-400456	4mm x 56mm screw
14-400458	4mm x 58mm screw

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**5mm Double-Lead Thread Screws**

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<b>Catalog#</b>	<b>Description</b>
14-405020	5mm x 20mm screw
14-405022	5mm x 22mm screw
14-405024	5mm x 24mm screw
14-405026	5mm x 26mm screw
14-405028	5mm x 28mm screw
14-405030	5mm x 30mm screw
14-405032	5mm x 32mm screw
14-405034	5mm x 34mm screw
14-405036	5mm x 36mm screw
14-405038	5mm x 38mm screw
14-405040	5mm x 40mm screw
14-405042	5mm x 42mm screw
14-405044	5mm x 44mm screw
14-405046	5mm x 46mm screw
14-405048	5mm x 48mm screw
14-405050	5mm x 50mm screw
14-405052	5mm x 52mm screw
14-405054	5mm x 54mm screw
14-405056	5mm x 56mm screw
14-405058	5mm x 58mm screw
14-405060	5mm x 60mm screw
14-405065	5mm x 65mm screw
14-405070	5mm x 70mm screw
14-405075	5mm x 75mm screw
14-405080	5mm x 80mm screw
14-405085	5mm x 85mm screw
14-405090	5mm x 90mm screw
14-405095	5mm x 95mm screw
14-405100	5mm x 100mm screw
14-405105	5mm x 105mm screw
14-405110	5mm x 110mm screw

**Product Ordering Information (Continued)**

<b>End Caps</b>		<b>Disposables</b>		
<b>Catalog#</b>	<b>Description</b>	<b>Catalog#</b>	<b>Description</b>	<b>Qty</b>
14-441280	End Cap, 0mm	27914	3.2mm x 460mm Entry Guide Wire	2
14-441281	End Cap, 5mm	27984	4.3mm x 152mm Short Drill Bit	2
14-441282	End Cap, 10mm	41009	One-Step Reamer, 11.5mm	1
14-441283	End Cap, 15mm	41010	4.3mm x 320mm Calibrated Drill Bit	2
14-441284	End Cap, 20mm	467210	3.2mm x 80cm Nail Driving Guide	2
		471133	3.2mm x 355mm Entry Guide Wire	2
		471830	Radiolucent Targeting Device	1
		471835	3.2mm Radiolucent Targeting Device Twist Drill	1
		471843	4.3mm Radiolucent Targeting Device Twist Drill	1
		472060	3.2mm x 180mm Calibrated Drill Bit	2
		14-410002	2.6mm x 80cm Bead Tip Guide Wire	2

<b>Instruments</b>			<b>Instruments (Continued)</b>		
<b>Catalog#</b>	<b>Description</b>	<b>Qty</b>	<b>Catalog#</b>	<b>Description</b>	<b>Qty</b>
27940	52cm Ni-Ti Reamer Shaft	1	595400	Tibial Nail Instrument Tray (empty)	1
27958	40cm Ni-Ti Reamer Shaft	1	14-400082	Tibial Nail Instrument Tray (fully kitted)	
27977	Stryker†/AO Power Adapter	1	14-440047	Telescoping Nail Measuring Gauge	1
29407	Modular T-Handle, Non-Ratcheting	1	14-441043	3.5mm Inserter Connector, Long	1
29408	Modular Straight Handle, Ratcheting	1	14-441044	3.5mm Inserter, Long	1
29448	Slap Hammer Shaft	1	14-441045	3.5mm Inserter Connector, Short	1
41000	Tibial Nail Targeting Arm	1	14-441046	3.5mm Inserter, Short	1
41001	Slap Hammer Adapter	1	14-441047	Impactor Cap	1
41002	Connecting Bolt Driver	2	14-441048	Nail Extractor Tap*	1
41003	5mm Connecting Bolt Inserter	1	14-441051	3.5mm Solid Inserter, Long	1
41004	Soft Tissue Sleeve	2	14-441052	3.5mm Solid Inserter, Short	1
41005	Drill Sleeve	2	14-442053	Slotted Mallet	1
41006	Trocar	2	14-442066	3/4" Hex Driver	1
41018	Driver Handle	1	14-442068	8.5mm Fracture Reducer (Bowed)	1
41023	Thumb Screw	2	14-442073	Pseudarthrosis Pin Straight	1
41024	4mm Hex Driver	1	14-442074	Pseudarthrosis Pin Curved	1
41026	Curved Cannulated Awl	1	14-442075	Medullary Canal and Length Estimator	1
41027	Wire Pusher	1	14-442076	Short 4.3mm Drill Measuring Sleeve	1
41029	Working Channel Soft Tissue Sleeve	1	14-442078	Keyless Chuck T-Handle	1
467534	8.0mm Reamer Head	1	14-442081	Screw Depth Gauge (Extra Long)	1
467536	8.5mm Reamer Head	1	14-442082	Screw Depth Gauge (Extra Short)	1
467538	9.0mm Reamer Head	1	14-442084	3.5mm Hex Screw Extractor*	1
467540	9.5mm Reamer Head	1	14-442085	8.5mm Fracture Reducer Straight	1
467542	10.0mm Reamer Head	1	14-442089	Hall/Stryker† Power Adapter	1
467544	10.5mm Reamer Head	1	14-442098	Entry Trocar	1
467546	11.0mm Reamer Head	1			
467548	11.5mm Reamer Head	1			
467550	12.0mm Reamer Head	1			
467552	12.5mm Reamer Head	1			
467554	13.0mm Reamer Head	1			
467556	13.5mm Reamer Head	1			
467558	14.0mm Reamer Head	1			
467560	14.5mm Reamer Head	1			

†Stryker is a registered trademark of The Stryker Corp.

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