Phoenix Suprapatellar Approach

Surgical Technique Addendum

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At Biomet, we strive to view our work through the eyes of one surgeon and one patient. We treat every solution we provide as if it's meant for a family member.

Our approach to innovation creates real solutions that assist each surgeon in the delivery of durable personalized care to each patient, whether that solution requires a minimally invasive surgical technique, advanced biomaterials or a patient-matched implant.

When one surgeon connects with one patient to provide personalized care, the promise of medicine is fulfilled.

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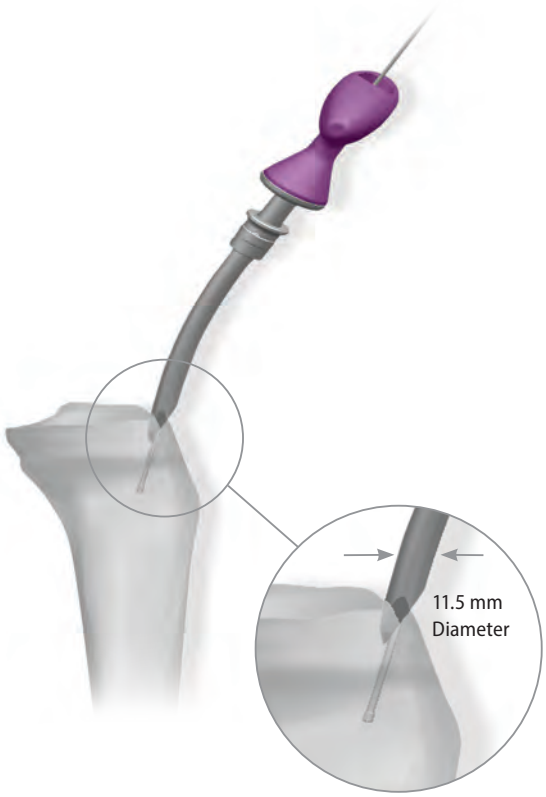
Surgical Technique Addendum

Use this addendum in conjunction with the Phoenix Tibia Surgical Technique, BMET0350.0-GBL

Step 5.
Opening The Medullary Canal

Place the Extended Working Channel Soft Tissue Sleeve (Catalog #SSI000237) and the 11.5 mm One-Step Reamer over the Guide Wire to enlarge the entry site and drill until entering the canal.

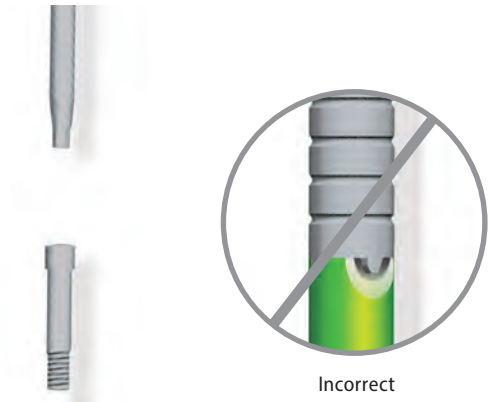
Alternatively, a Curved Cannulated Awl (Catalog #41026) attached to a Modular T-Handle, Non-Ratcheting (Catalog #29407) can be used to obtain the entrance portal.



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 9.
Nail Assembly

Attach the Suprapatellar Driver Handle (Catalog #SSI000229) 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 Nose and proceed to thread into the nail and secure using a 5 mm Connecting Bolt Inserter (Catalog #41003) attached to the Modular T-Handle, Non-Ratcheting (Catalog #29407).



Incorrect

Proximal Targeting

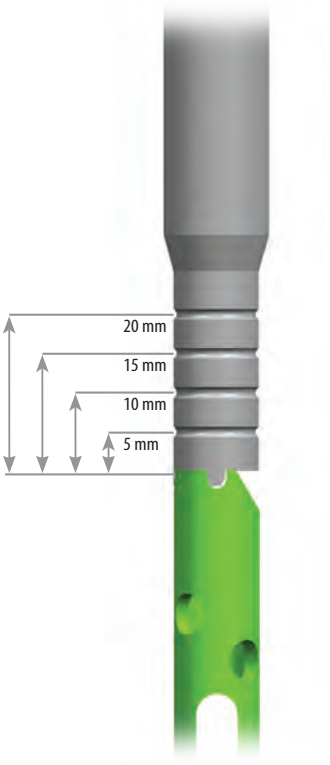
Note: To ensure accurate proximal targeting, attach the Tibial Nail Targeting Arm (Catalog #41000) to the Driver Handle and insert the Soft Tissue Guide, Drill Sleeve and 4.3 mm Calibrated Drill Bit through the associated arm slot to ascertain accuracy. Upon confirming accurate trajectories, remove the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

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 Cannulated Slap Hammer Adapter (Catalog #SSI000235) 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.



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).

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.

Insert the 4.3 mm 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.

Step 13a.
Proximal Locking – Static Screws (cont.)

The Drill Sleeve is removed and the appropriate 5 mm 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 2 mm in the far cortex.

If desired, the Static screw can be locked with the reassembled, embedded setscrew/locking mechanism. Insert the Extended 4 mm Hex Driver (Catalog #SSI000234) through the Driver Handle, into the proximal aspect of the nail and turn in a clockwise motion.

Step 13a.
Proximal Locking – Static Screws (cont.)

An additional screw can be inserted in a similar fashion through the Static hole of the Targeting Arm (reference page 21 of Phoenix Tibia Surgical Technique, BMET0350.0). To remove the targeting assembly, insert the 5 mm 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. The Drill Sleeve is removed and the appropriate 5 mm screw is inserted through the Soft Tissue Sleeve (reference page 21 of Phoenix Tibia Surgical Technique, BMET0350.0 for insertion details). Ensure position of screw with radiographic visualization. Be sure not to exceed more than 2 mm in the far cortex. Repeat this procedure for insertion of the second oblique screw. Insert the 4.3 mm 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.

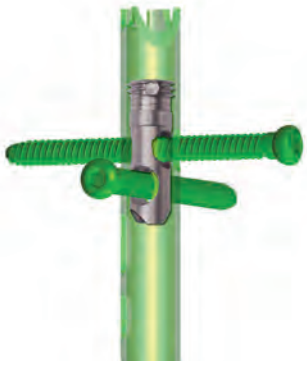
Note: All nail diameters utilize 5 mm screws proximally.

The Drill Sleeve is removed and the appropriate 5 mm 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 2 mm in the far cortex.

Step 13b.
Proximal Locking – Oblique Screws (cont.)

When insertion of the proximal oblique screws are completed, insert the Extended 4 mm 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.

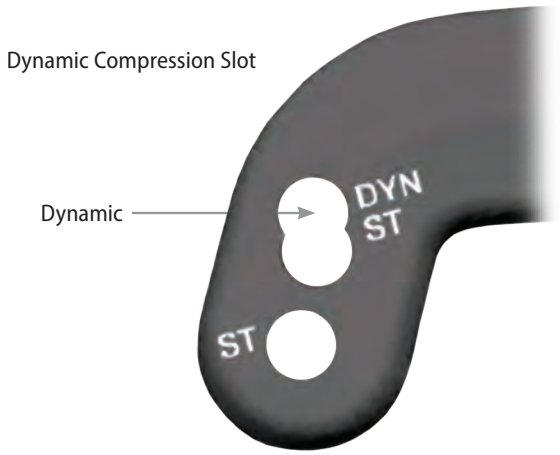
To remove the targeting assembly, insert the 5 mm Connecting Bolt Inserter through the Driver Handle to engage the connecting bolt and turn counterclockwise to release attachment from the nail.



Step 13c.
Proximal Locking – Compression (Optional)

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

Step 13c.
Proximal Locking – Compression (Optional) (cont.)

Insert the 4.3 mm 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.

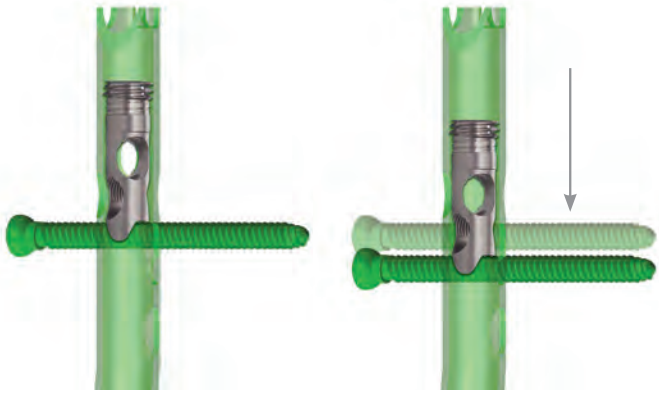
Note: All nail diameters utilize 5 mm screws proximally.

The Drill Sleeve is removed and the appropriate 5 mm 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 2 mm in the far cortex.

Step 13c.
Proximal Locking – Compression (Optional) (cont.)

If using the preassembled setscrew for compression is desired, insert the Extended 4 mm Hex Driver (Catalog #SSI000234) 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.



Step 13c.
Proximal Locking – Compression (Optional) (cont.)

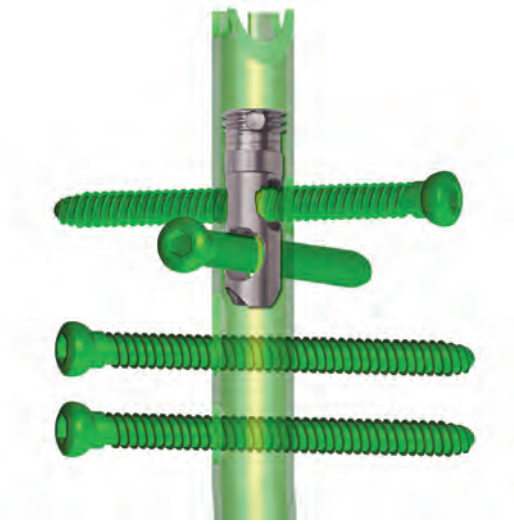
After desired compression is achieved, repeat screw insertion through the Static hole to support the achieved compression.

Upon screw insertion into the Static hole, use the Extended 4 mm 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) (cont.)

When insertion of the proximal oblique screws is completed, insert the Extended 4 mm 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 5 mm Connecting Bolt Inserter through the Driver Handle to engage the connecting bolt and turn counterclockwise to release attachment from the nail.



Product Ordering Information

Instruments

Catalog#	Description	Qty
27940	52 cm Ni-Ti Reamer Shaft	1
27958	40 cm Ni-Ti Reamer Shaft	1
27977	Stryker/AO Power Adapter	1
29407	Modular T-Handle, Non-Ratcheting	1
29408	Modular Straight Handle, Ratcheting	1
29448	Slap Hammer Shaft	1
41000	Tibial Nail Targeting Arm	1
41001	Slap Hammer Adapter	1
41002	Connecting Bolt Driver	2
41003	5 mm Connecting Bolt Inserter	1
41004	Soft Tissue Sleeve	2
41005	Drill Sleeve	2
41006	Trocar	2
41018	Driver Handle	1
41023	Thumb Screw	2
41024	4 mm Hex Driver	1
41026	Curved Cannulated Awl	1
41027	Wire Pusher	1
41029	Working Channel Soft Tissue Sleeve	1
467534	8.0 mm Reamer Head	1
467536	8.5 mm Reamer Head	1
467538	9.0 mm Reamer Head	1
467540	9.5 mm Reamer Head	1
467542	10.0 mm Reamer Head	1
467544	10.5 mm Reamer Head	1
467546	11.0 mm Reamer Head	1
467548	11.5 mm Reamer Head	1
467550	12.0 mm Reamer Head	1
467552	12.5 mm Reamer Head	1
467554	13.0 mm Reamer Head	1
467556	13.5 mm Reamer Head	1
467558	14.0 mm Reamer Head	1
467560	14.5 mm Reamer Head	1

* Available sterile packed

Instruments (cont.)

Catalog#	Description	Qty
595400	Tibial Nail Instrument Tray (empty)	1
14-400082	Tibial Nail Instrument Tray (fully kitted)	
14-440047	Telescoping Nail Measuring Gauge	1
14-441043	3.5 mm Inserter Connector, Long	1
14-441044	3.5 mm Inserter, Long	1
14-441045	3.5 mm Inserter Connector, Short	1
14-441046	3.5 mm Inserter, Short	1
14-441047	Impactor Cap	1
14-441048	Nail Extractor Tap*	1
14-441051	3.5 mm Solid Inserter, Long	1
14-441052	3.5 mm Solid Inserter, Short	1
14-442053	Slotted Mallet	1
14-442066	3/4" Hex Driver	1
14-442068	8.5 mm Fracture Reducer (Bowed)	1
14-442073	Pseudarthrosis Pin Straight	1
14-442074	Pseudarthrosis Pin Curved	1
14-442075	Medullary Canal and Length Estimator	1
14-442076	Short 4.3 mm Drill Measuring Sleeve	1
14-442078	Keyless Chuck T-Handle	1
14-442081	Screw Depth Gauge (Extra Long)	1
14-442082	Screw Depth Gauge (Extra Short)	1
14-442084	3.5 mm Hex Screw Extractor*	1
14-442085	8.5 mm Fracture Reducer Straight	1
14-442089	Hall/Stryker Power Adapter	1
14-442098	Entry Trocar	1
SSI000237**	Extended Working Channel Soft Tissue Sleeve	1
SSI000238**	Extended Working Channel Trocar	1
SSI000234**	Extended 4 mm Hex Driver	1
SSI000235**	Cannulated Slap Hammer Adapter	1
SSI000229**	Suprapatella Driver Handle	1

** Part code used specifically with suprapatella approach

Notes

Biomet does not practice medicine and does not recommend any particular orthopaedic implant or surgical technique and is not responsible for the kind of treatment selected for a specific patient. The surgeon who performs any implant procedure is responsible for determining and utilizing the appropriate techniques for implanting prosthesis in each individual patient.

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