

Trochanteric Nail System

Surgical Technique



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Trochanteric Nail System

Introduction

The trochanteric nail is a next-generation hip nail that addresses the remaining shortcomings of current systems such as lateral lag screw irritation, lag screw cutout, workflow inefficiencies, and loss of rotational reduction. The system consists of 3 nail types—short nails, long nails, and the innovative extended-short (ES) nails.



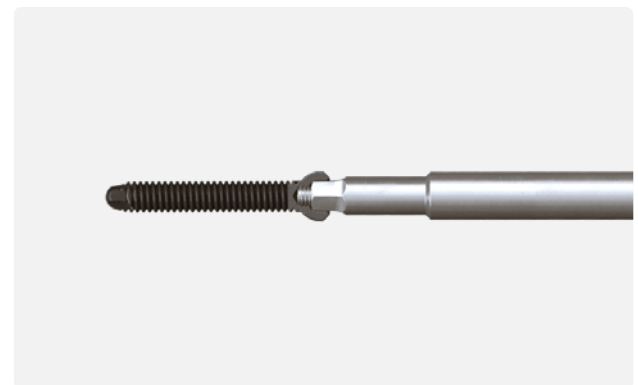
Telescoping Lag Screw

The Arthrex telescoping lag screw allows for controlled self-contained collapse within the lag screw. Other lag screws are designed to slide within the nail during the healing process, which can cause the lateral end of the lag screw to protrude into the patient's soft tissue, causing irritation and/or bursitis.



Biological Augmentation

The system allows for the delivery of orthobiologics (INNOTERE Paste-CPC) through the lag screw and instrumentation.



Advanced Instrumentation

System instruments are designed to reduce surgical pain points and facilitate operative workflow. Some examples include locking the lag screw through the inserter (no set screw required), captured distal 5 mm screws, calibrated drill bits, and jig removal through the more lateral impactor hole.

ES Nail Option

The ES nail combines the mechanical advantages of a long nail with the ease of a short nail. It doubles the torsional rigidity compared to a distally locked, long nail and provides more rigidity than an unlocked long trochanteric nail.¹ It extends through the isthmus of the bone, which can reduce distal tip stress risers, potential “pendulum” effects, and risks of peri prosthetic fractures associated with short nails.

The ES hole is easily targeted through the nail jig without the need for perfect circles or additional attachments or devices.

Patients with shaft fractures should not be treated with the ES trochanteric nail.



Reference

1. Test report T0209. Stress analysis of the aos extended short trochanteric nail vs. the short and long trochanteric nails. *Advanced Orthopaedic Solutions*; September 2006.



Anti-Rotation Screw

Allows for rotational control of the femoral head when inserting the lag screw in good-quality bone and/or basicervical femoral neck fractures and provides additional postoperative rotational stability.

Indications and Preoperative Planning

Indications

The Arthrex trochanteric nail system is intended to treat stable and unstable proximal fractures of the femur including pertrochanteric, intertrochanteric, and high subtrochanteric fractures and combinations of these fractures.

The long trochanteric nail is additionally indicated for subtrochanteric fractures, pertrochanteric fractures associated with shaft fractures, pathologic fractures (including prophylactic use) in osteoporotic bone of the trochanteric and diaphyseal areas, long subtrochanteric fractures, ipsilateral femoral fractures, proximal and distal nonunions and malunions, and revision procedures.

The ES nail is only intended to treat stable and unstable proximal fractures of the femur including pertrochanteric, intertrochanteric, and high subtrochanteric fractures and combinations of these fractures.

Preoperative Planning

Preoperative radiographs of the uninjured femur may be used to establish proper nail diameter, expected amount of reaming (if necessary), lag screw angle, nail length, and lag screw length.



Short trochanteric nail

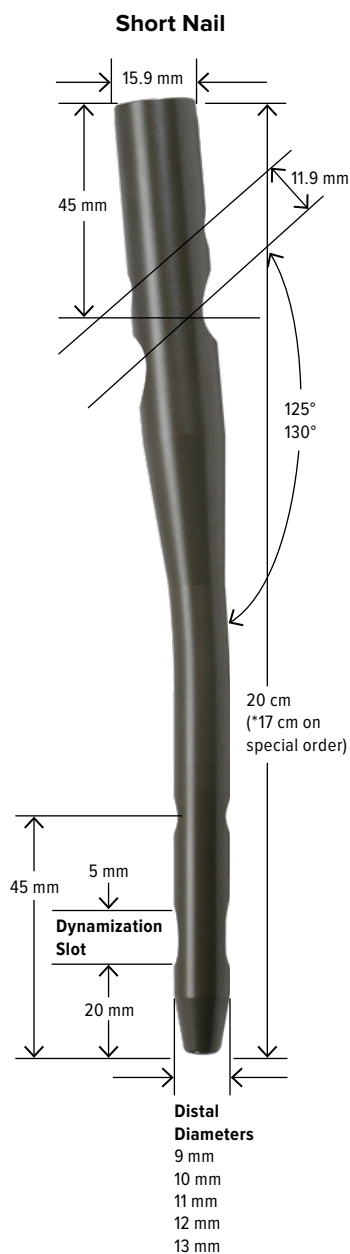


ES trochanteric nail



Long trochanteric nail

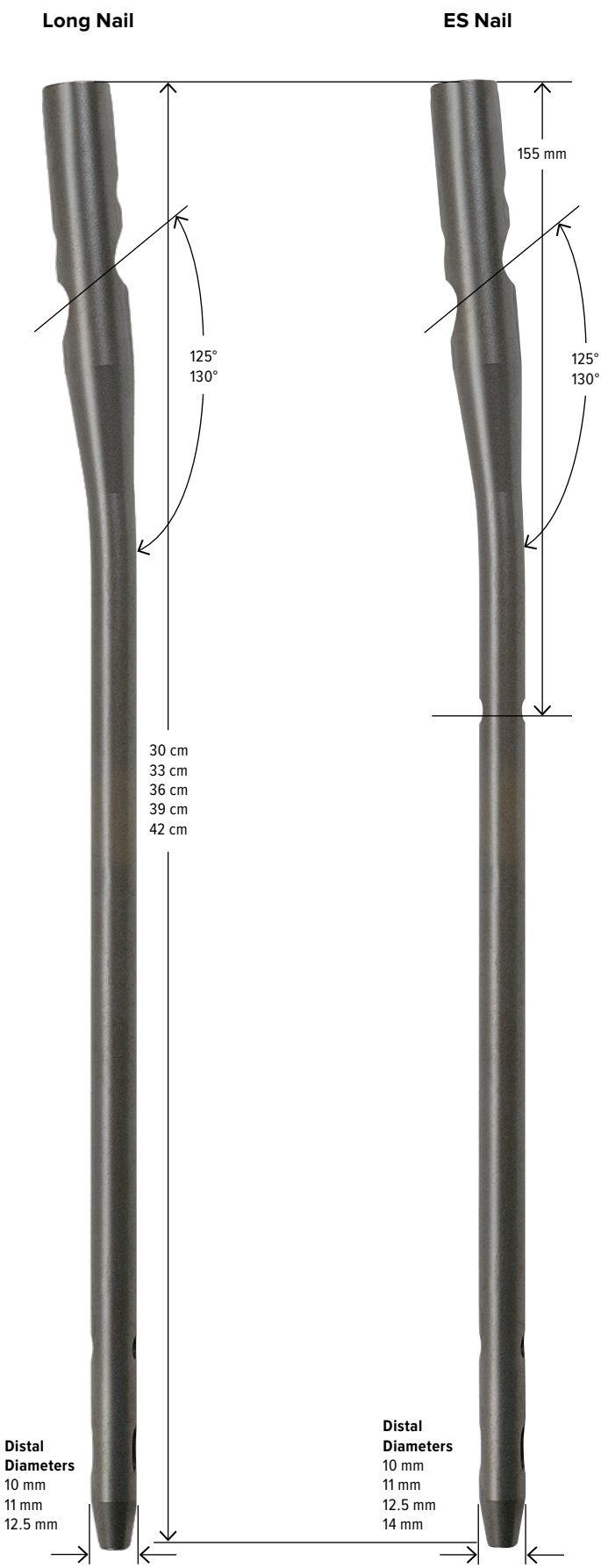
Implant Features



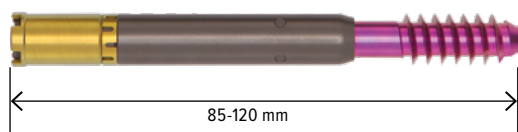
All Nails
5° lateralization

Long and ES Nails
10° anteversion

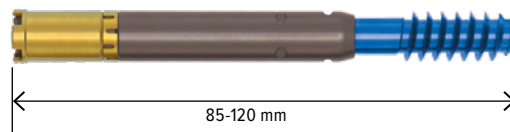
Nail length (cm)	Radius of curvature (m)
30	0.9
33	0.9
36	1
39	1.3
42	1.3



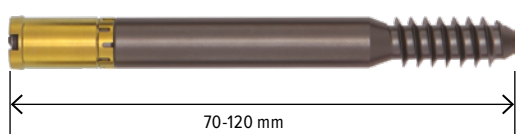
10.5 mm Telescoping Lag Screw



10.5 mm Telescoping Lag Screw, Left



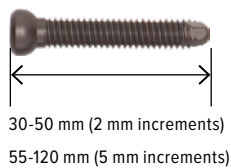
10.5 mm Solid Locking Lag Screw



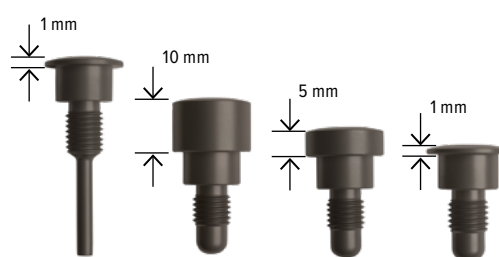
5 mm Anti-Rotation Screw



5 mm Captured Cortical Screw



Captured End Caps



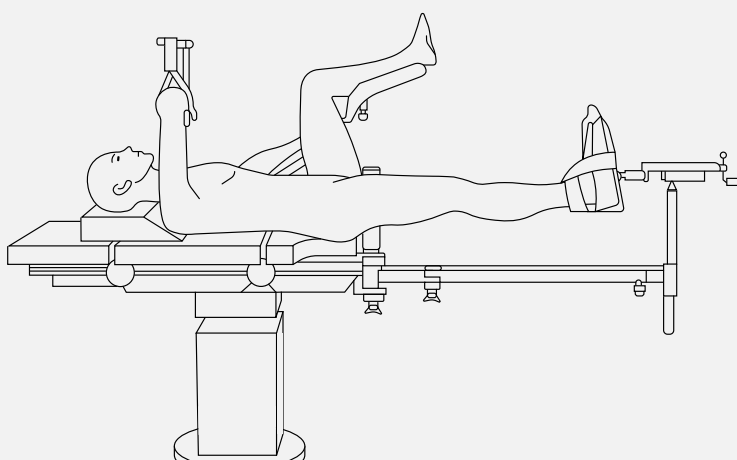
Patient Positioning for Femoral Fracture Procedures

The use of a fracture table facilitates controlled fracture reduction through traction and internal rotation of the leg. This positioning is particularly advantageous for obtaining high-quality AP, axial, and cross-table lateral radiographs. It supports precise alignment, optimal surgical planning, and a safe surgical outcome—especially in the surgical treatment of trochanteric and femoral neck fractures. Various positioning techniques can be used, but all follow the same core principles.

This brochure outlines just one of the commonly used methods in clinical practice:

- › The patient is placed in a supine position on a fracture table.

- › The fractured leg is placed in a foot holder and fixed on the traction table, so that traction and rotation can be applied effectively.
- › The uninjured leg is positioned upward in a leg holder.
- › The torso is abducted 10°-15° to improve access to the intramedullary canal.
- › The ipsilateral arm (same side as the fracture) is placed across the chest to keep it out of the surgical field.
- › The C-arm is positioned on the contralateral side, perpendicular to the patient, allowing clear AP and lateral views of the entry point, fracture site, and distal femur.

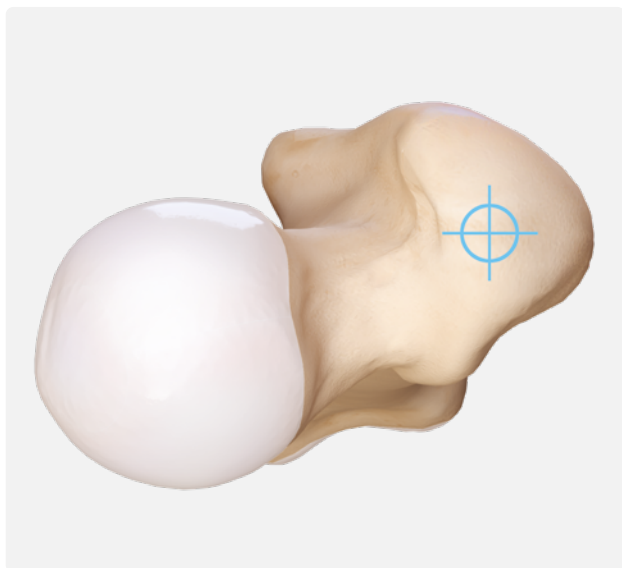


Entry Point

In general, the entry point for the nail is located at the tip of the greater trochanter. This may vary depending on the patient anatomy, fracture pattern, etc.

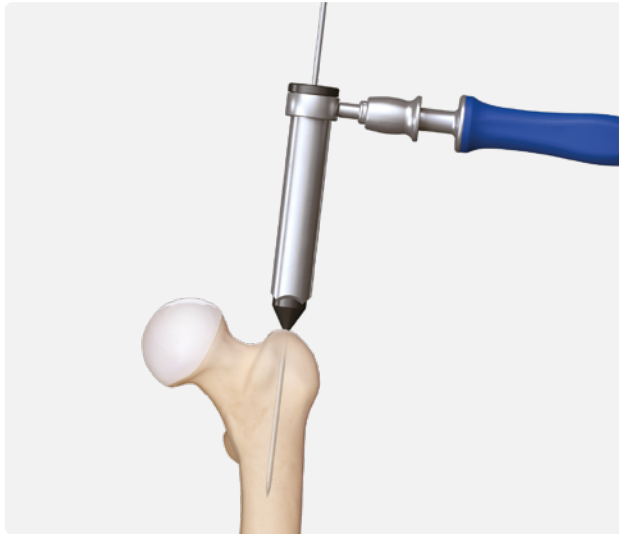
AP: Tip of the greater trochanter

Lateral: Junction of the anterior and middle third of greater trochanter to optimize placement within the femoral neck



Trochanteric Nail System Surgical Technique

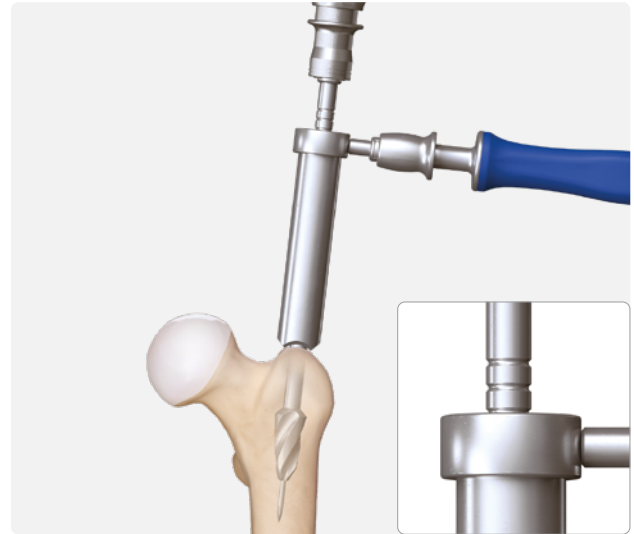
Entry Option 1: Opening One-Step Reamer



1a

Insert the **3.2 mm guide pin** through the **soft-tissue protector with pin guide** while aiming towards the central axis of the femoral shaft in the AP and lateral image views, distal to the lesser trochanter.

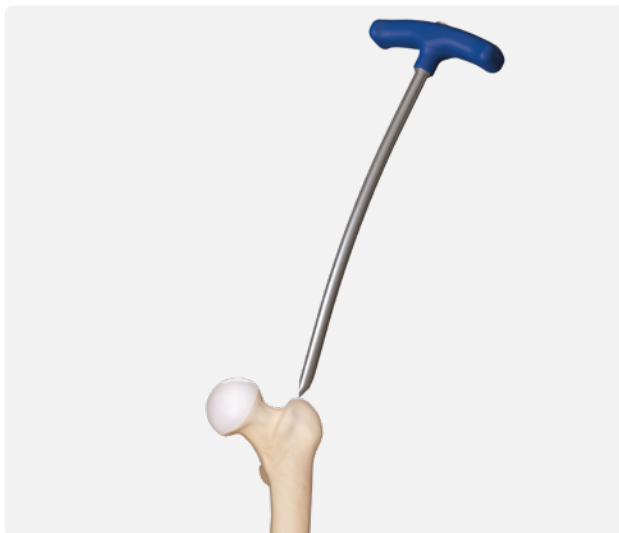
Guide pin, 3.2 mm × 381 mm, sterile	AR-9095-41S
Soft-tissue protector, Hudson, quick connect	AR-9095-21
Pin guide, for soft-tissue protector, 3.2 mm	AR-9095-10
Screwdriver handle, cannulated, large Hudson	AR-9095-25



Remove the **black pin guide** and then ream over the 3.2 mm guide pin with the **16.5 mm cannulated entry reamer**. The entry reamer has grooves that are read from the top of the **soft-tissue protector**. The grooves indicate the reaming depth needed to insert the nail flush, 5 mm, or 10 mm deep into the femur.

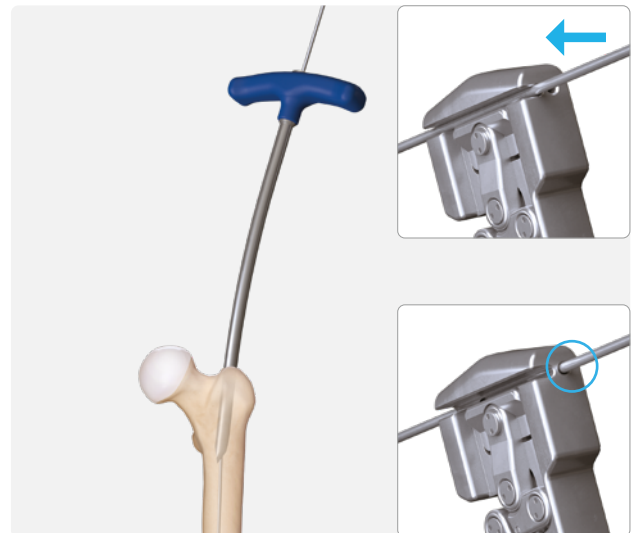
Entry reamer, cannulated, 16.5 mm	AR-9095-01-RU
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Entry Option 2: Cannulated Awl



1b

Alternatively, the greater trochanter can be opened with a **cannulated curved awl**, followed by the 2.5 mm ball nose guide wire placed through the curved awl to the desired depth. The **guide wire gripper** can be used through the guide wire cannulation or the side groove option to advance the wire. The awl is then removed.



Prepare the proximal body with the **16.5 mm cannulated entry reamer** over the **2.5 mm ball nose guide wire** through the **soft-tissue protector**.

Awl T-handle, cannulated, curved, blue	AR-9095-50
Ball nose guide wire, 2.5 mm × 900 mm, sterile	AR-9095-74S
Guide wire gripper	AR-9095-54

Intramedullary Reaming: Long and ES Nails Only



In general, it is not necessary to use flexible reamers to ream the femoral canal for the short trochanteric nail. Reaming may be necessary when using the ES trochanteric nail or long trochanteric nail.

A **reduction tool** (fracture finger) is available to assist in passing the **2.5 mm ball nose guide wire** through diaphyseal fractures by providing additional control of the proximal femoral fragment to gain alignment with the distal fragment(s).

The **guide wire gripper** is used through the guide wire cannulation or the side groove option to advance the wire to the desired depth within the distal femur.

Reduction tool	AR-9095-29
Ball nose guide wire, 2.5 mm × 900 mm, sterile	AR-9095-74S



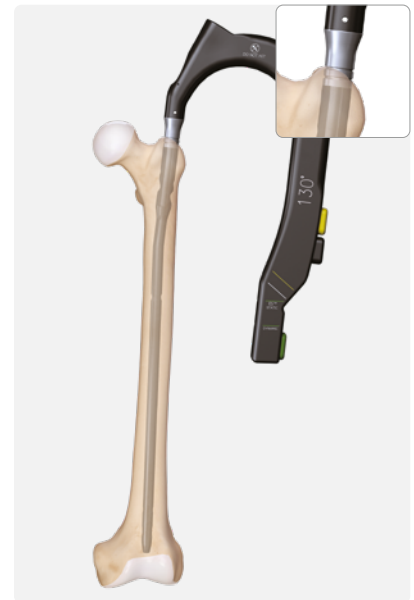
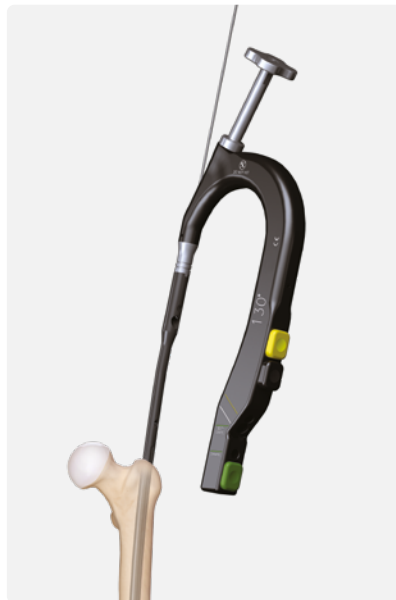
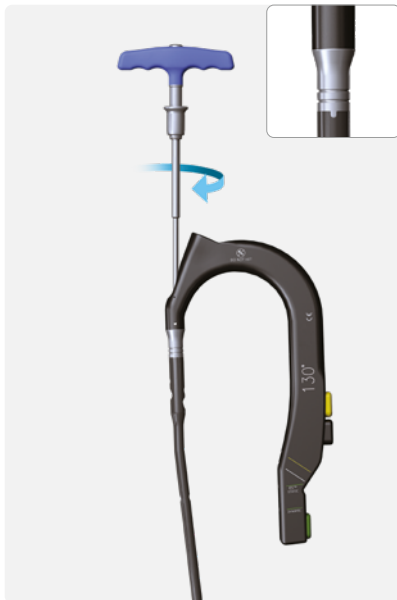
The length for the ES trochanteric nail and long trochanteric nails is determined by sliding the **guide wire depth gauge** over the guide wire to the greater trochanter and reading the measurement from the laser mark on the guide wire.

Guide wire depth gauge, for trochanteric/femoral nail	AR-9095-14
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Begin reaming with the 8 mm front-cutting reamer over the ball nose guide wire. All other reamers are front cutting or side cutting. Sequentially ream until cortical chatter is achieved. It is recommended to ream at least 1 mm to 1.5 mm over the desired nail diameter.

Flexible reamer shaft, nitinol, Hudson	AR-9095R-01
Monobloc reamer, front-cutting, 8 mm	AR-9095FR-80
Flexible reamer head, modular, 9-16.5 mm	AR-9095R-090 to -165
Flexible reamer head, modular, front-cutting, 9-12.5 mm	AR-9095FR-090 to -125



2

Attach the **125° or 130° radiolucent targeting arm** to the desired nail with the **ball hex driver**. Introduce the nail into the proximal femur. If a ball-tip guide wire is used, pass the nail over the guide wire.

For the ES and long nails, use the targeting arm to control nail rotation during implantation. Start with the targeting arm anterior and rotate laterally as the nail advances. This allows the bow of the nail to pass through the proximal femur. The short nail has no bow so it can be implanted with the jig lateral to the leg. If needed, gentle malleting on the **impactor pad** can be used to advance the nail. **Do NOT directly impact the radiolucent targeting arm!**

Radiolucent target arm, 125°, for trochanteric nail	AR-9095-60
Radiolucent target arm, 130°, for trochanteric nail	AR-9095-61
Locking bolt, radiolucent insertion guide	AR-9095-55
T-handle, comfort, cannulated, large Hudson	AR-9095-26
Ball hex driver	AR-9095-07
Impactor pad	AR-9095-31

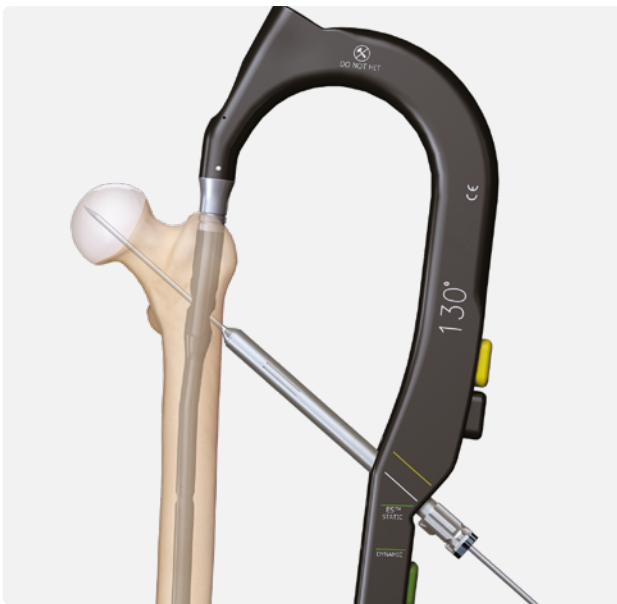


3

Once the nail has been implanted, insert the lag screw triple-sleeve assembly through the targeting arm by pressing the black button. The assembly consists of the **lag screw sheath**, **3.2 mm pin guide**, and **3.2 mm obturator**.

Make an incision and push the assembly up to the lateral cortex of the femur and then remove the obturator.

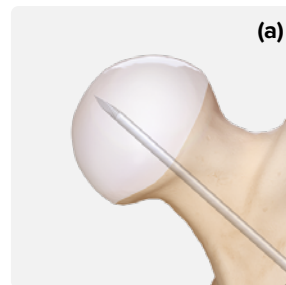
Lag screw sheath, with handle	AR-9095-20
Pin guide, locking, 3.2 mm	AR-9095-52
Obturator, trocar tip, for pin guide, 3.2 mm	AR-9095-70



4

Insert the **3.2 mm lag screw guide pin** with a pin driver through the pin guide into the femoral head. The positioning of the guide pin should be checked on both AP and lateral views.

Guide pin, 3.2 mm × 381 mm, sterile	AR-9095-41S
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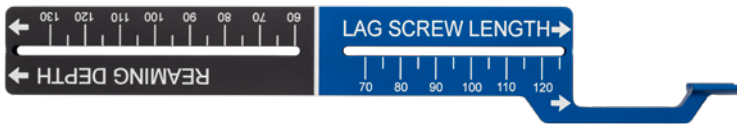
AP (a)—The guide pin should be centered AP in the femoral head or slightly inferior.

Lateral (b)—The guide pin should be centered in the femoral head or slightly posterior.

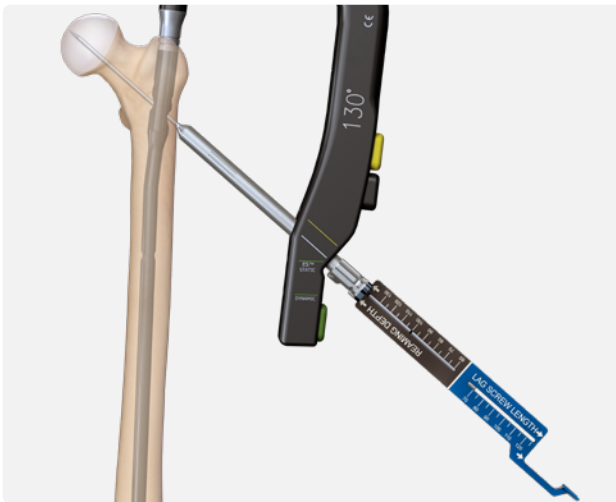
Advance the tip of the guide pin approximately 5 mm from the subchondral bone.

Note: If there is intraoperative instability of the femoral head fragment, the anti-rotation screw sheath and drill guide may be inserted into the targeting module at this time. The anti-rotation screw, the anti-rotation bar, or just the anti-rotation drill may be used to stabilize the head fragment while preparing and inserting the lag screw.

Measurement Device: Lag Screw Depth Gauge



The lag screw depth gauge is a dual-sided tool designed to provide 2 measurements: (1) the reaming depth to the tip of the guide pin and (2) the appropriate lag screw length to ensure the locking ring is centered within the nail when the screw is advanced to the guide pin tip.



1

With the pin guide against the lateral cortex, place the “REAMING DEPTH” side of the lag screw depth gauge over the guide pin and against the pin guide.

This measurement will provide the reaming distance from the 3.2 mm pin guide to the tip of the guide pin.

Lag screw depth gauge

AR-9095-73

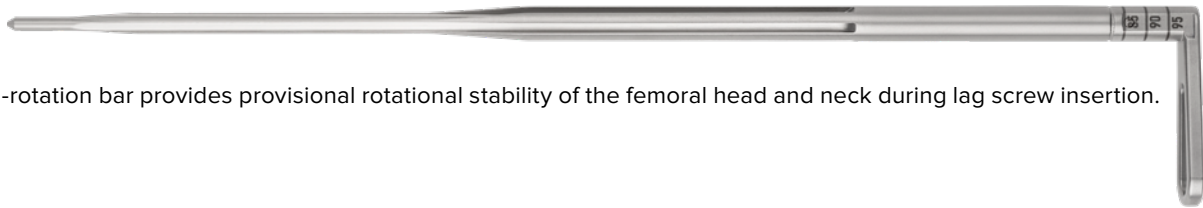


2

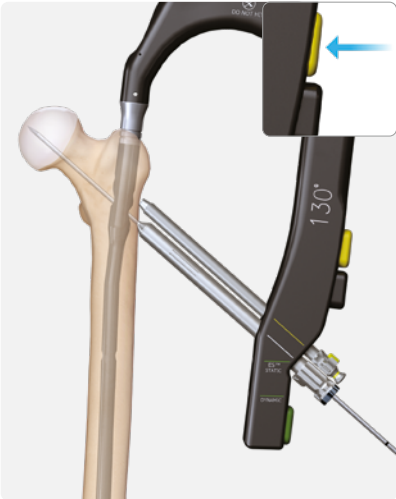
Place the “LAG SCREW LENGTH” side of the lag screw depth gauge over the guide pin with the extension pressed against the targeting arm above or below the lag screw cannula.

This measurement will provide the lag screw length required to ensure the locking ring is centered within the nail when advanced to the tip of the guide pin.

Anti-Rotation Bar (Optional)



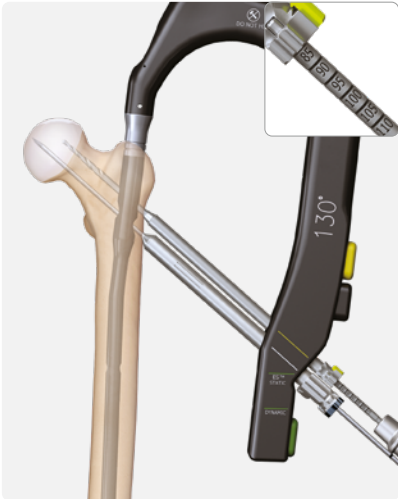
The anti-rotation bar provides provisional rotational stability of the femoral head and neck during lag screw insertion.



1

While depressing the yellow button, insert the anti-rotation triple-sleeve assembly into the targeting arm. Ensure that it is properly seated and positioned against the lateral cortex.

Anti-Rotation Screw Triple-Sleeve Assembly	
Anti-rotation and distal sheath, locking	AR-9095-16
Anti-rotation drill guide, locking, 5 mm	AR-9095-53
Obturator, trocar tip, for 5 mm anti-rotation drill guide	AR-9095-71



2

Remove the obturator and drill using the 5 mm calibrated stepped drill bit.

Note: A drilling depth approximately 10-15 mm shorter than the planned lag screw position is recommended. To maximize anti-rotation screw thread purchase, avoid drilling beyond the desired screw location.

Calibrated step drill, yellow, 5 mm, sterile	AR-9095-42S
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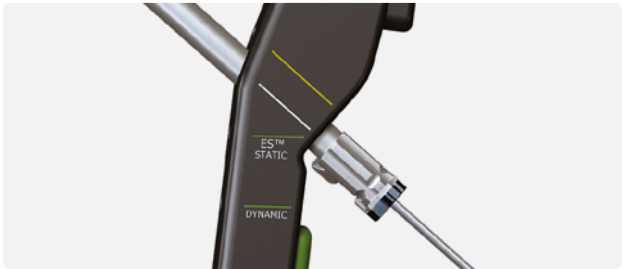
3

Remove the inner drill cannula. Using the drill measurement, insert the appropriately sized anti-rotation bar into the outer sheath.

Calibration marks may be used to confirm the proper depth and potential anti-rotation screw length.

Anti-rotation bar, short, sterile	AR-9095-67S
Anti-rotation bar, long, sterile	AR-9095-67LS

Lag Screw Insertion Technique



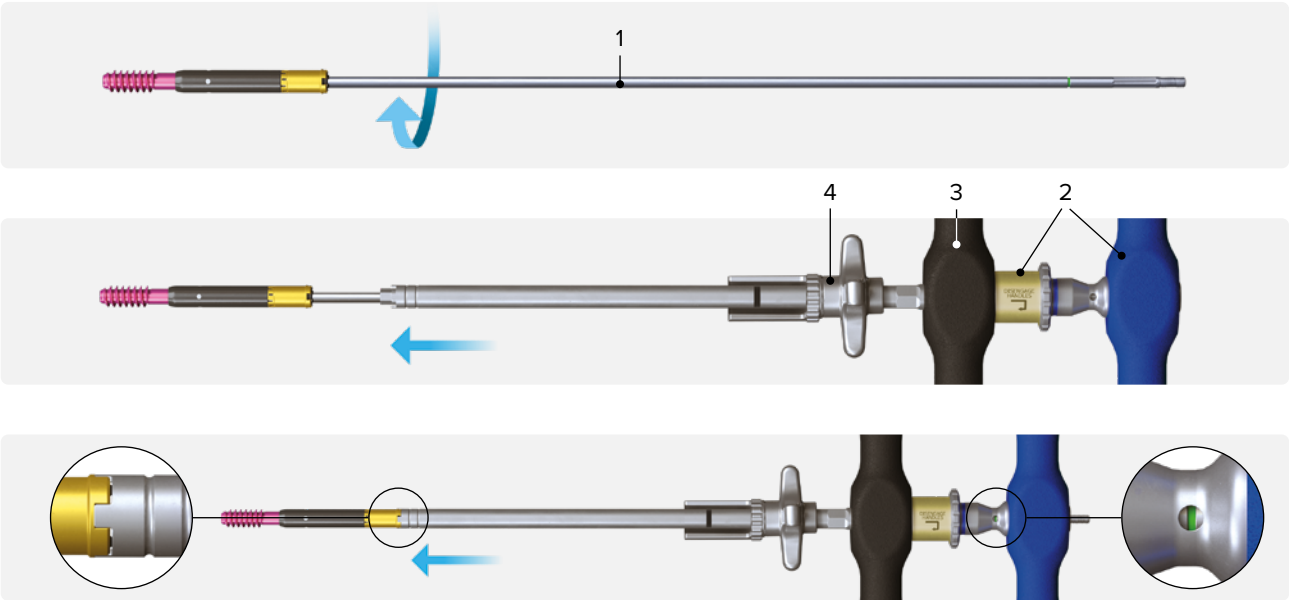
5

Set the **adjustable stop** on the **10.3 mm cannulated lag screw drill** to the desired depth. At least 5-10 mm less than the measurement is recommended so the tip of the drill does not pass beyond the guide pin.

Remove the **3.2 mm pin guide** from the **lag screw sheath** by depressing the black lever. Drill over the lag screw guide pin through the femoral head until the stop contacts the sheath. Confirm the desired depth radiographically and ensure the sheath is seated against the bone.

A **lag screw tap** is available if needed.

Adjustable stop	AR-9095-51
Lag screw drill, cannulated, large Hudson, 10.3 mm	AR-9095-02-RU
Lag screw tap, cannulated, large Hudson, 10.5 mm (optional)	AR-9095-03

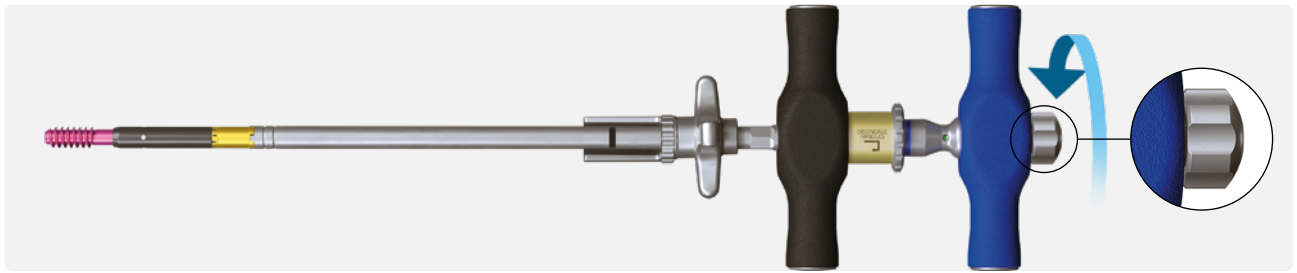


6

Screw the **lag screw capturing rod** onto the lag screw with the desired length. Slide the **lag screw inserter** over the **lag screw capturing rod** and rotate the inserter until the “castle” pieces and hex driver mate with the lag screw. A green line centered in the window in the blue handle can be used to ensure proper alignment.

(1) Lag screw capturing rod	AR-9095-66
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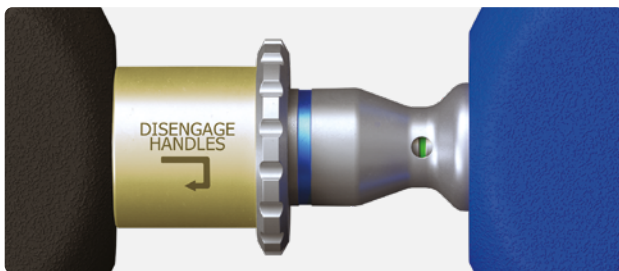
Lag Screw Inserter Assembly	
(2) Lag screw inserter (blue T-handle)	AR-9095-58
(3) Lag screw locking tool (black T-handle)	AR-9095-57
(4) Compression sleeve, lag screw inserter	AR-9095-56



Screw the **lag screw capturing rod nut** onto the rear of the assembly. **Do NOT use the ball hex driver for this step. Hand-tighten ONLY!**

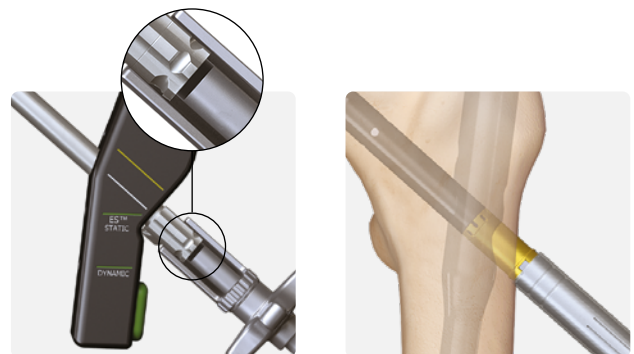
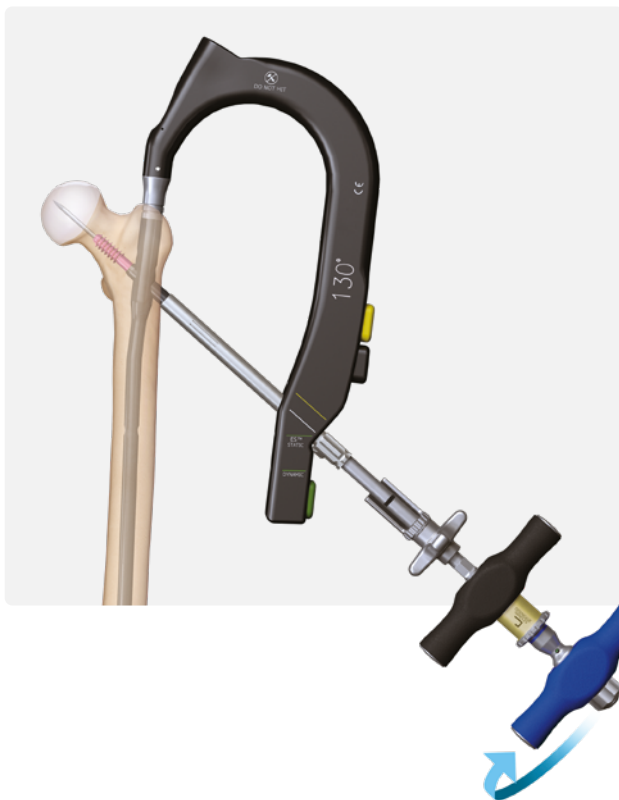
Lag screw capturing rod nut

AR-9095-49



7

The gold ring should be set forward showing the blue ring to prepare for lag screw insertion. If the black ring is showing, pull back and rotate the knob clockwise.

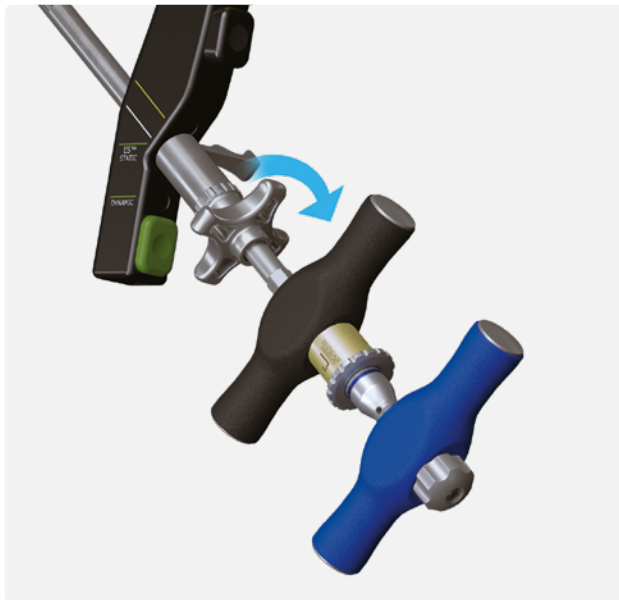


8

Insert the lag screw over the **3.2 mm lag screw guide pin** through the **lag screw sheath** to the desired depth using the blue handle. When the black laser marking on the inserter reaches the sheath, the lag screw has exited the other end of the sheath.

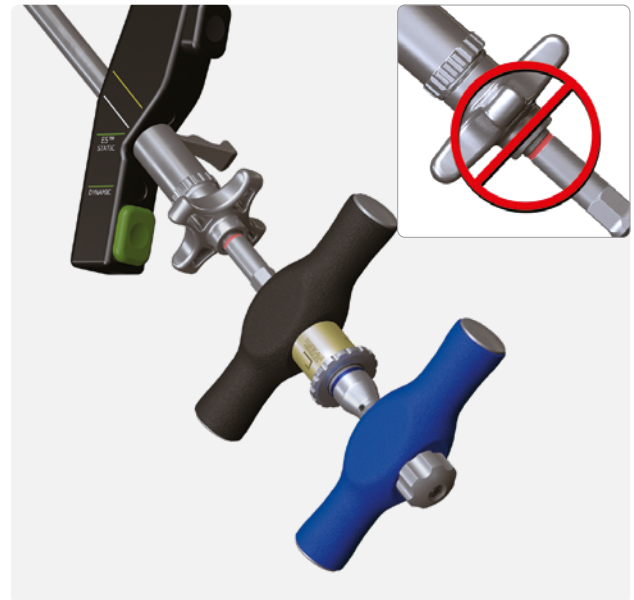
Note: If intraoperative compression is planned, countersink the lag screw to provide enough travel for the lag screw to lock into the nail.

Note: The left threaded lag screw is implanted by turning the handle counterclockwise.



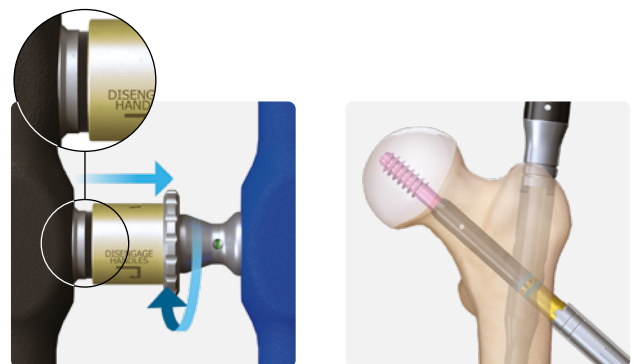
9

Push the **compression sleeve** towards the targeting arm and rotate clockwise until it makes contact. If intraoperative compression is desired, continue rotating the compression sleeve clockwise until compression is achieved.



The mechanism will stop advancing and spin in place showing a red line when the lag screw is too lateral and can no longer be locked. If this occurs, the lag screw should be inserted further into the head and the compression knob used again.

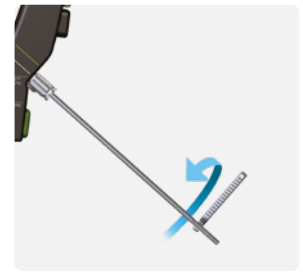
Note: If planning for compression, choose a shorter lag screw and countersink the lateral edge of the lag screw prior to the compression step.



10

Pull back on the gold knob and turn counterclockwise to engage the black handle. The black ring will now be showing.

To lock the telescoping lag screw / solid locking lag screw, hold the blue lag screw insertion handle stationary and turn the black locking T-handle clockwise until the torque limiter clicks.



Pull out the inserter assembly and unscrew the **lag screw capturing rod** by hand or with the **lag screw capturing rod wrench**.

Lag screw capturing rod wrench

AR-9095-37

11

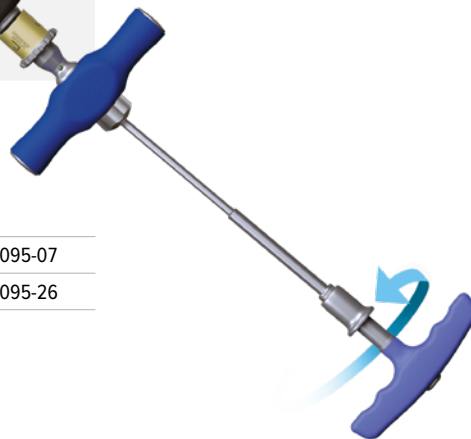
Unscrew the **lag screw capturing rod nut** by hand or with the **ball hex driver**.

Ball hex driver

AR-9095-07

T-handle, comfort, cannulated, large Hudson

AR-9095-26



12

To allow postoperative compression in the telescoping lag screw, remove the activation sleeve by inserting the **activation tool** through the sheath into the lag screw and turning counterclockwise. The activation sleeve will retain to the tip of the activation tool once disengaged from the lag screw.

Remove the **lag screw sheath**.

Note: If postoperative compression is not desired, leave the activation sleeve within the lag screw.

Activation tool, sterile

AR-9095-46S

Palm handle, $\frac{3}{16}$ square, quick connect

AR-9095-28



Anti-Rotation Screw Insertion (Optional)



If there is rotational instability during insertion of the lag screw, a **5.0 mm anti-rotation screw** may be used to prevent rotation of the femoral head. Place the **anti-rotation screw triple-sleeve** assembly into the anti-rotation hole in the targeting arm while depressing the yellow button. Extend the incision as needed. Remove the **anti-rotation obturator** and drill with the **5 mm calibrated step drill**.

Anti-Rotation Screw Triple-Sleeve Assembly

Anti-rotation and distal sheath, locking	AR-9095-16
Obturator, trocar tip, for 5 mm anti-rotation drill guide	AR-9095-71
Anti-rotation drill guide, locking, 5 mm	AR-9095-53
Step drill, calibrated, 5 mm × 330 mm, sterile	AR-9095-42S

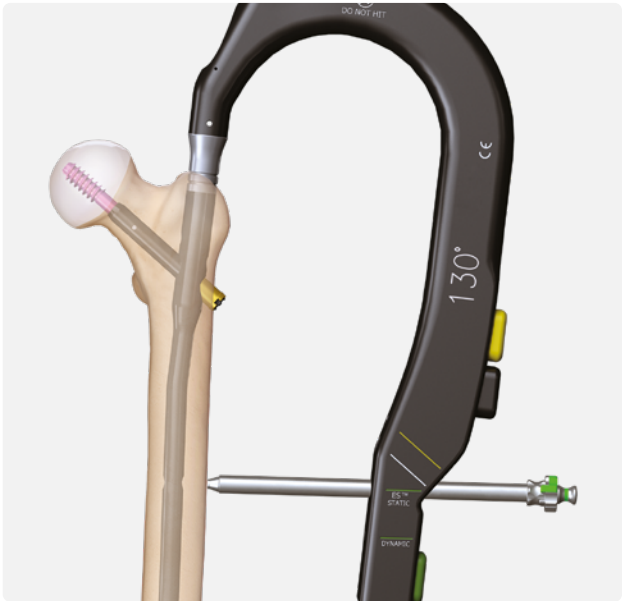


Remove the **anti-rotation drill guide** from the sheath and insert the desired length **5.0 mm anti-rotation screw** using the **3.5 mm hex driver**.

It is recommended to use an anti-rotational screw at least 10 mm shorter than the lag screw.

Screwdriver, hex, long, 3.5 mm	AR-9095-05
Screwdriver handle, cannulated, large Hudson	AR-9095-25
Optional Alternatives	
Power screwdriver, hex, 5 mm	AR-9097-12
Power capturing rod, 5 mm	AR-9097-13
Power screw driver, hex, short, 5 mm	AR-9097-14
Power capturing rod, short, 5 mm	AR-9097-15

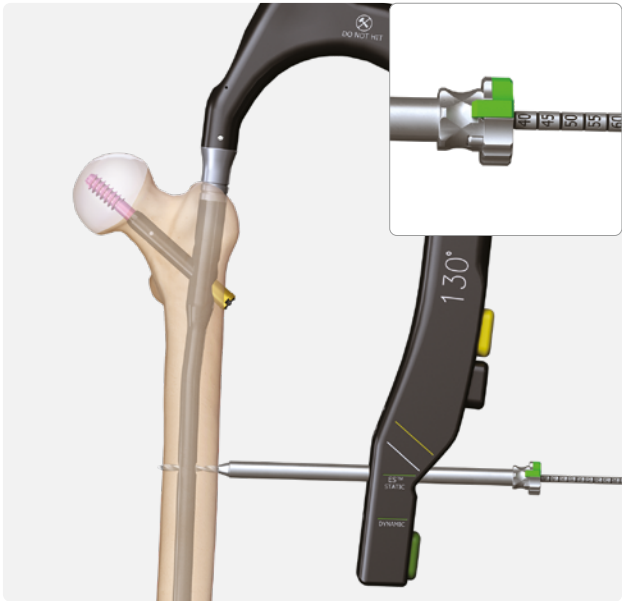
Distal Locking



13

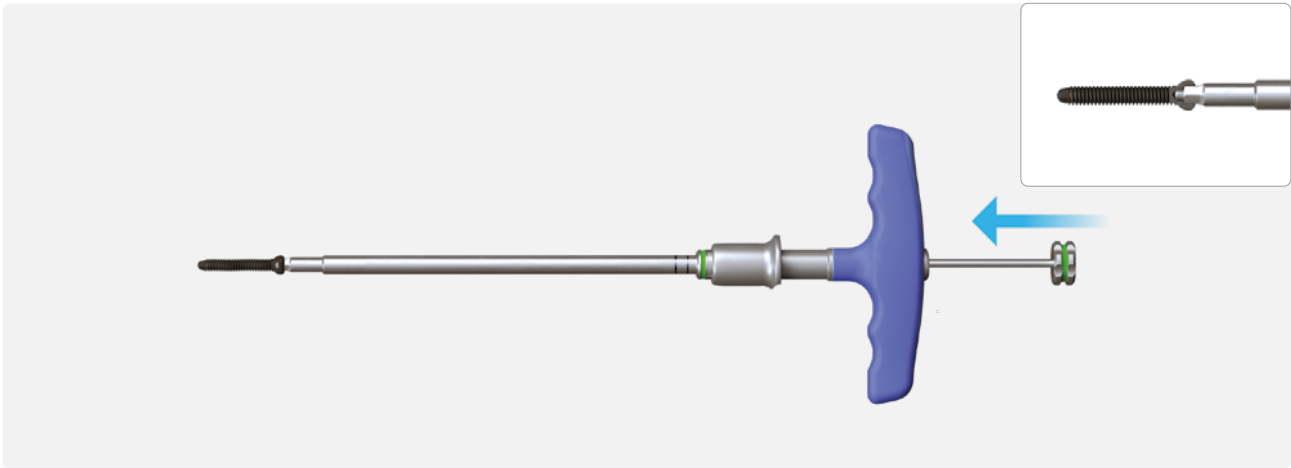
For the ES and short nails, distal locking is accomplished using the targeting arm. Place the **distal screw triple-sleeve** assembly through the appropriate distal hole while depressing the green button on the targeting arm and mark the skin.

Distal Screw Triple-Sleeve Assembly	
Anti-rotation and distal sheath, locking	AR-9095-16
Distal drill guide, locking, 4 mm	AR-9095-62
Obturator, trocar tip, for 4 mm drill guide	AR-9095-72



Make the incision and place the distal screw triple-sleeve assembly to the lateral cortex of the bone. Remove the **distal drill guide obturator**. Drill bicortically using the **4 mm calibrated drill bit** and measure off of the drill bit.

Calibrated drill, AO style, 4 mm × 280 mm, sterile	AR-9095-44S
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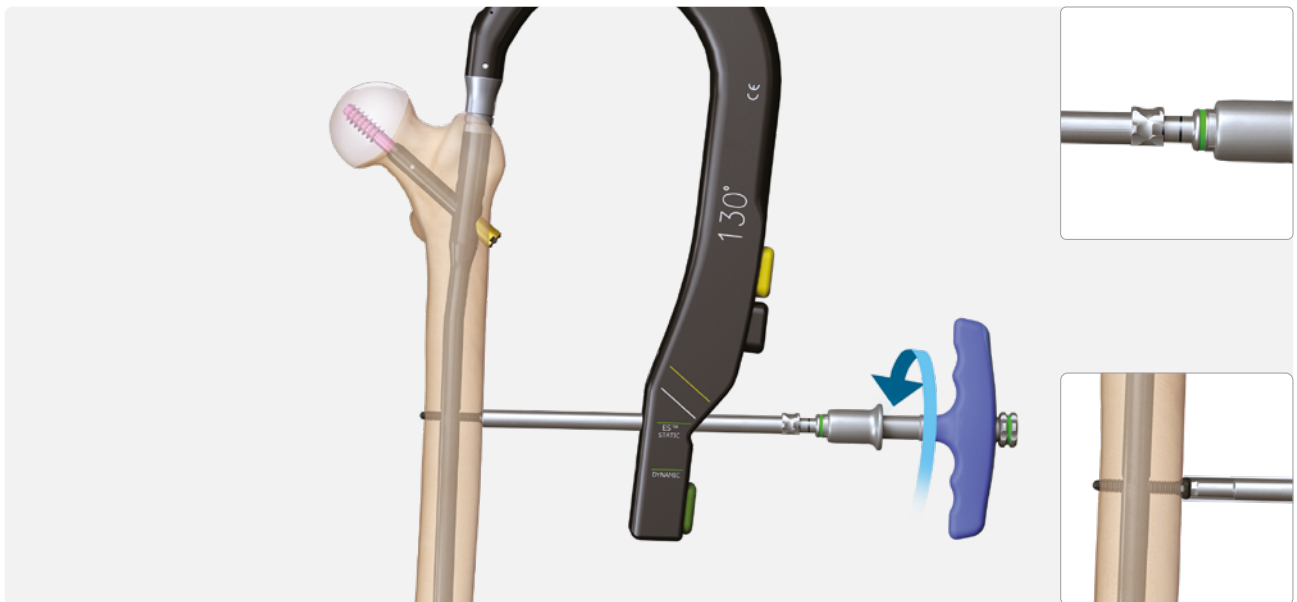


14

Assemble the **5 mm captured cortical screw** onto the **5 mm cannulated hex driver** and **T-handle** and then screw the **screw capturing rod** into the head of the 5 mm screw.

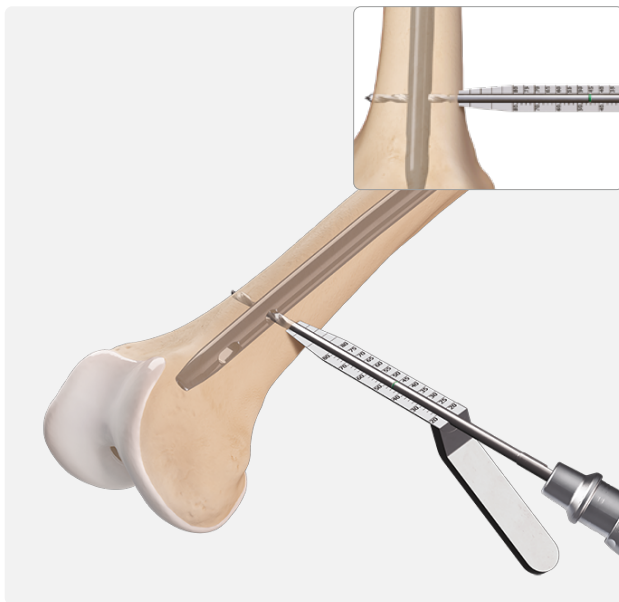
Depending on preference, a **straight screwdriver handle** with its own capturing rod is also available.

Screwdriver, hex, cannulated, 5 mm	AR-9095-06
T-handle, comfort, cannulated, large Hudson	AR-9095-26
Screw capturing rod, short, for T-handle	AR-9095-23



15a

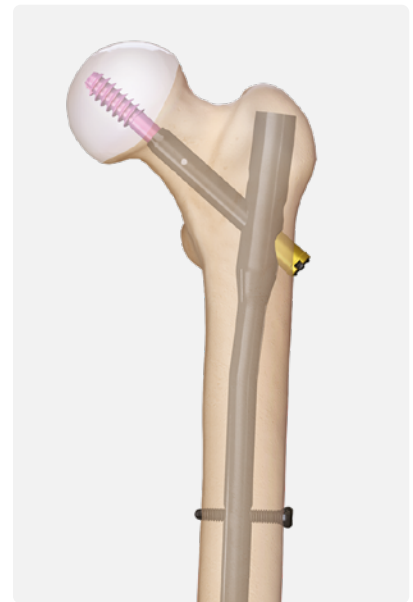
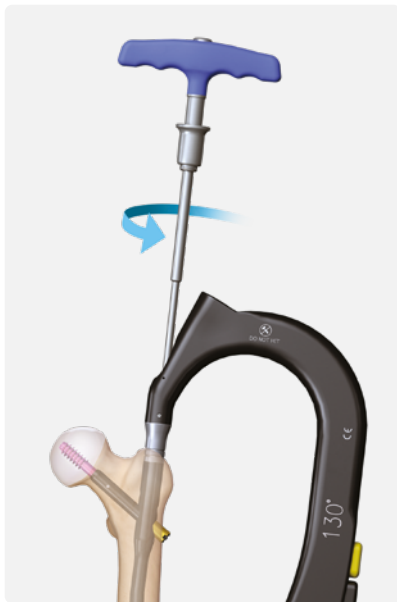
Remove the **distal drill guide** and insert the 5 mm screw through the sheath using the captured hex driver. When the first laser mark reaches the sheath, the bottom of the screw head has reached the other end of the sheath. Unscrew the capturing rod in the hex driver and remove the driver assembly.



15b

For the long nail, distal locking is accomplished using the perfect circles technique and confirming the screw length with the calibrated line on the **4 mm short drill bit** with the **extended distal depth gauge** or **hook-tip depth gauge**.

Drill, AO style, short, 4 mm × 165 mm, sterile	AR-9095-43S
Depth gauge, extended, distal	AR-9095-68
Depth gauge, hook-tip	AR-9095-19
Screw sheath depth gauge (optional)	AR-9099-06



16

To remove the jig, use the ball hex driver to unscrew the locking bolt through the top hole or the impactor pad attachment hole.

Ball hex driver	AR-9095-07
T-handle, comfort, cannulated, large Hudson	AR-9095-26

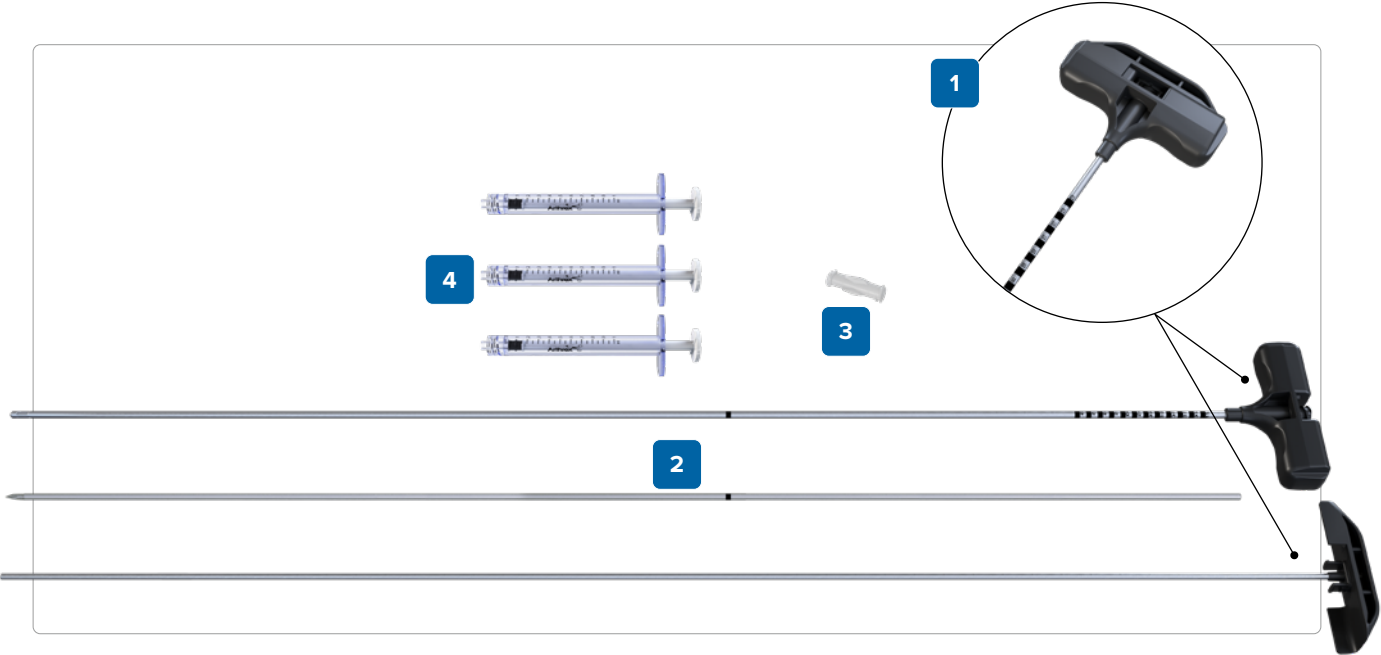
End Cap (optional)

An end cap can be used to protect the proximal threads of the nail and/or increase the proximal height of the nail. Choose the proper end cap based on the depth of countersink of the nail—flush, 5 mm, or 10 mm. Using the **end cap hex driver (large Hudson) with the straight handle** and corresponding **capturing rod**, implant the appropriate end cap into the proximal end of the nail.

End cap hex driver, cannulated, large Hudson	AR-9095-08
Screwdriver handle, cannulated, large Hudson	AR-9095-25
Screw capturing rod, straight handle, long	AR-9095-24

Biologic Augmentation

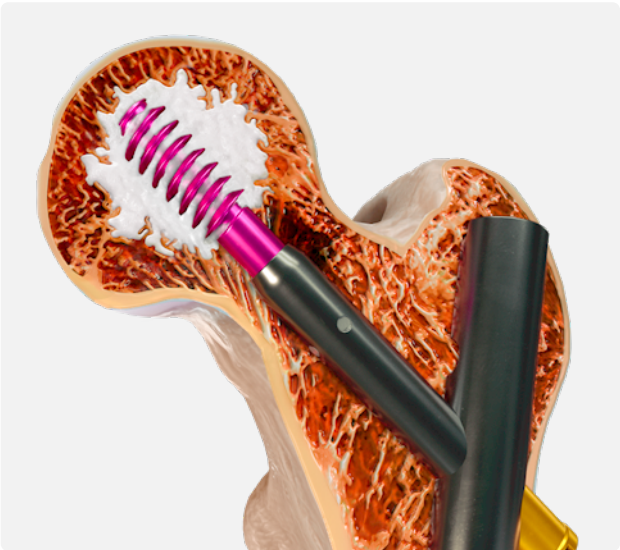
The Arthrex trochanteric nail augmentation system enables streamlined delivery of bone graft substitute around the lag screw within the trochanteric nail construct.



Picture	Qty.	Description
1	1	Delivery cannula, 3.2 mm
2	1	Guide pin, 3.2 mm
3	1	Female-to-female Luer
4	3	Syringe, 1 mL

The system is able to deliver a variety of flowable bone grafts, such as INNOTERE Paste-CPC.

INNOTERE Paste-CPC represents the latest generation of bone substitutes.¹ It is a ready-to-use, self-setting, injectable, biodegradable bone void filler that is indicated for filling critical-sized defects after trauma, an elective intervention, or a reconstruction. It consists of synthetically manufactured calcium phosphates. The final material after the self-setting process is microcrystalline, calcium-deficient hydroxyapatite, the major constituent of bone tissue.



- > Ready to use—no mixing
- > Self-setting in a moist environment—no time constraints
- > Biomaterial—same chemical composition as bone mineral
- > Structural support—compressive strength (~45 MPa)

Reference

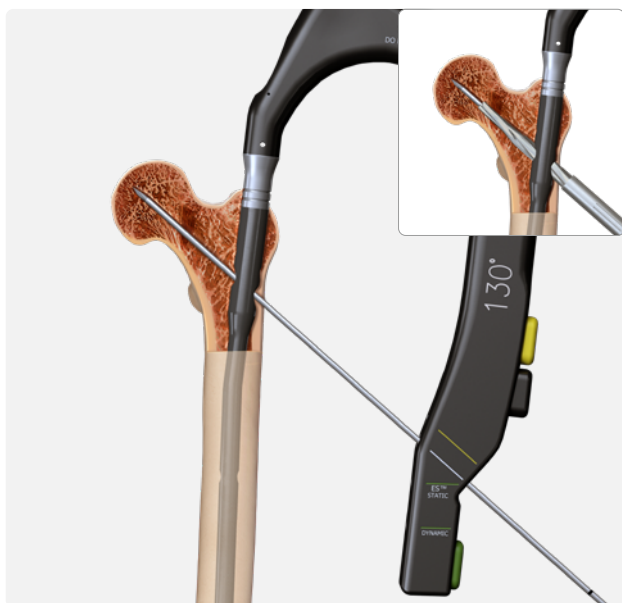
- Heinemann S, Rössler S, Lemm M, Ruhnow M, Nies B. Properties of injectable ready-to-use calcium phosphate cement based on water-immiscible liquid. *Acta Biomater.* 2013;9(4):6199-6207. doi:10.1016/j.actbio.2012.12.017

Preoperative Planning

Before the case, it is important to determine whether bone graft augmentation will be performed. If so, the longer guide pin from the augmentation kit must be selected.



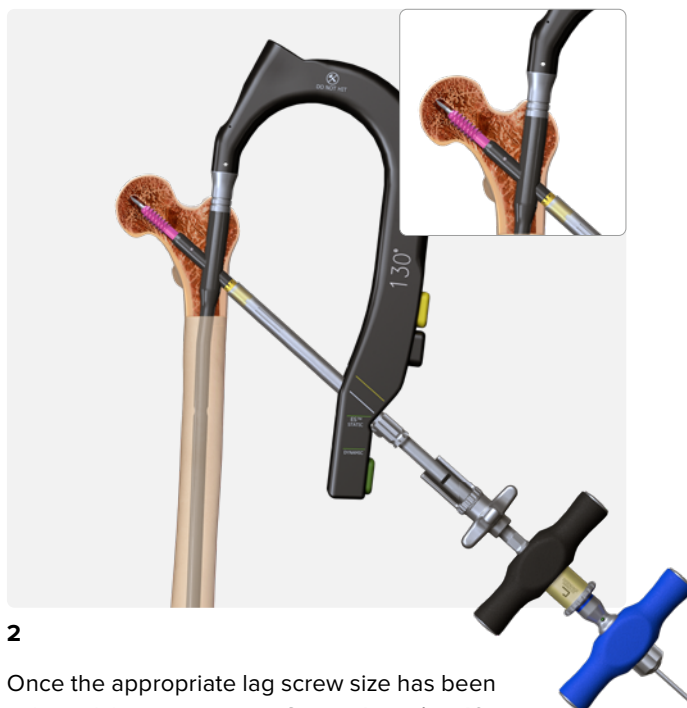
Surgical Technique



1

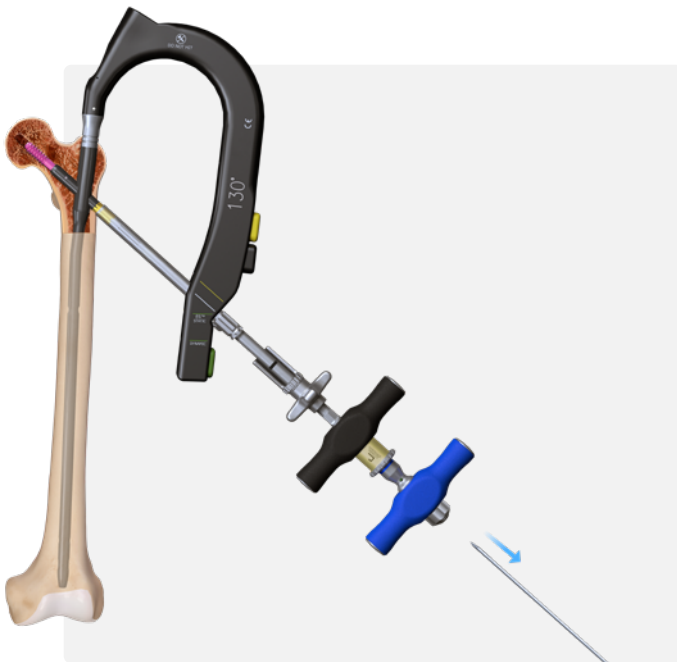
After nail placement, insert the 3.2 mm guide pin from the augmentation system into the femoral head using a pin driver through the pin guide. Then follow the standard steps for measuring reaming depth and determining lag screw length, along with the usual reaming procedure.

Note: After reaming, confirm that the 3.2 mm guide pin has not perforated the femoral head. **If perforation has occurred, do not proceed with augmentation, and complete the remaining procedural steps without the addition of any bone graft.**



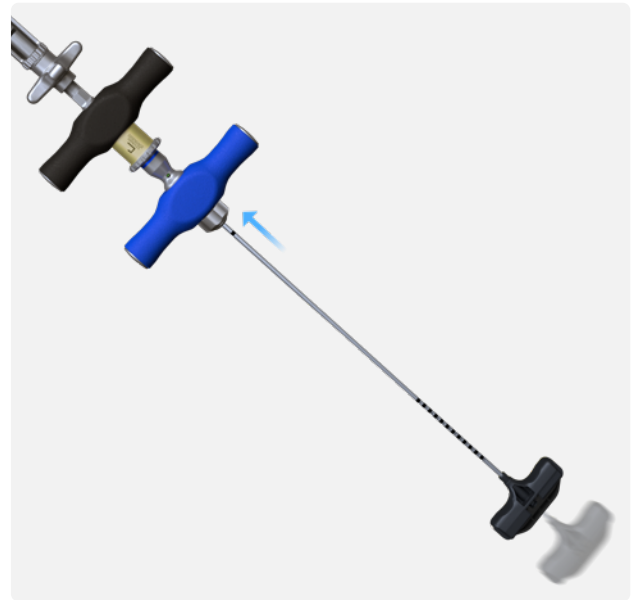
2

Once the appropriate lag screw size has been selected, begin insertion. **Stop advancing 10 mm before the final insertion point.**



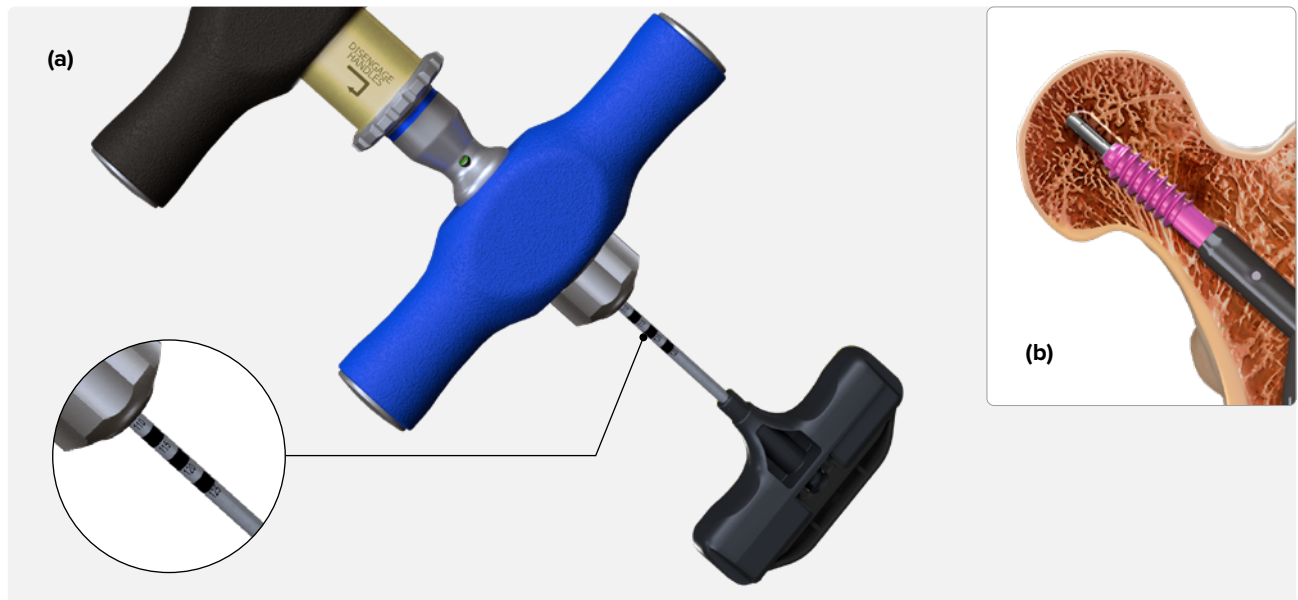
3

Remove the guide pin from the inserter handle.



4

Insert the delivery cannula from the augmentation kit through the blue handle.

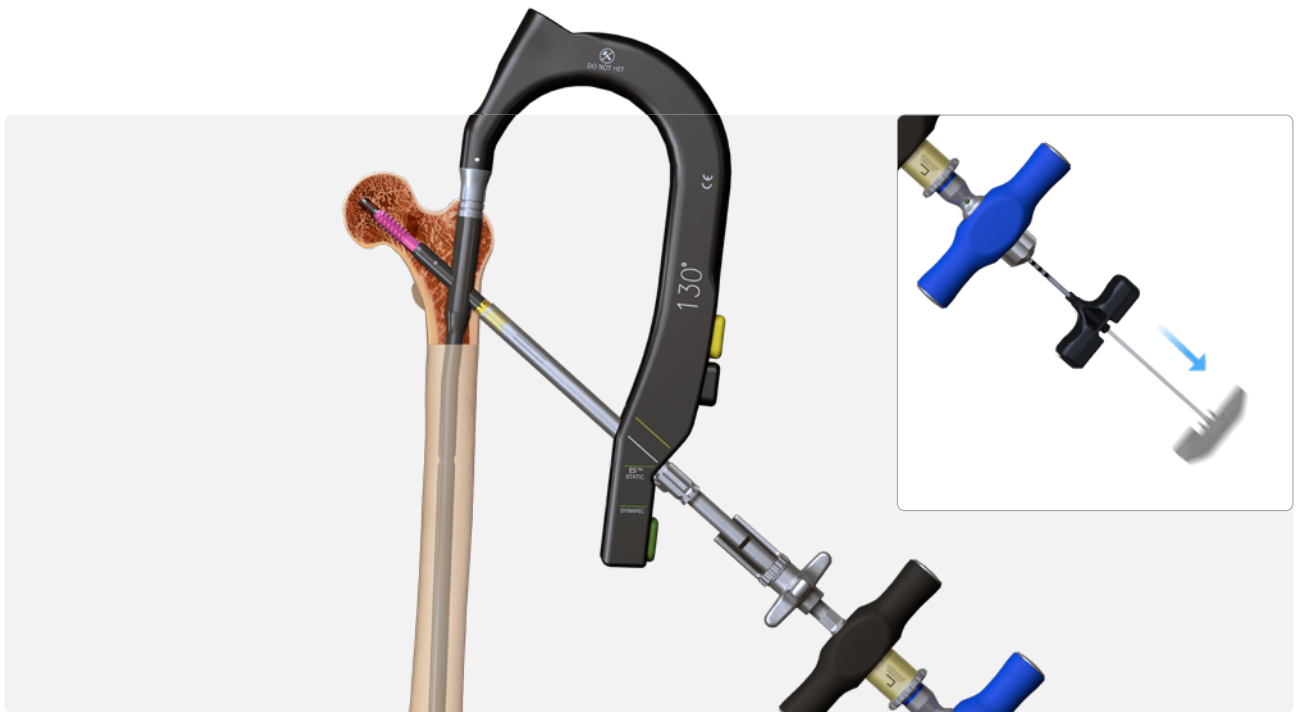


5

Match the cannula measurement mark to the selected lag screw size **(a)**.

This will determine the injection depth **(b)**, which is 10 mm past the tip of the lag screw. Therefore, the cannula tip will protrude 10 mm beyond the incompletely inserted lag screw. This position must be confirmed with fluoroscopy before proceeding with the injection.

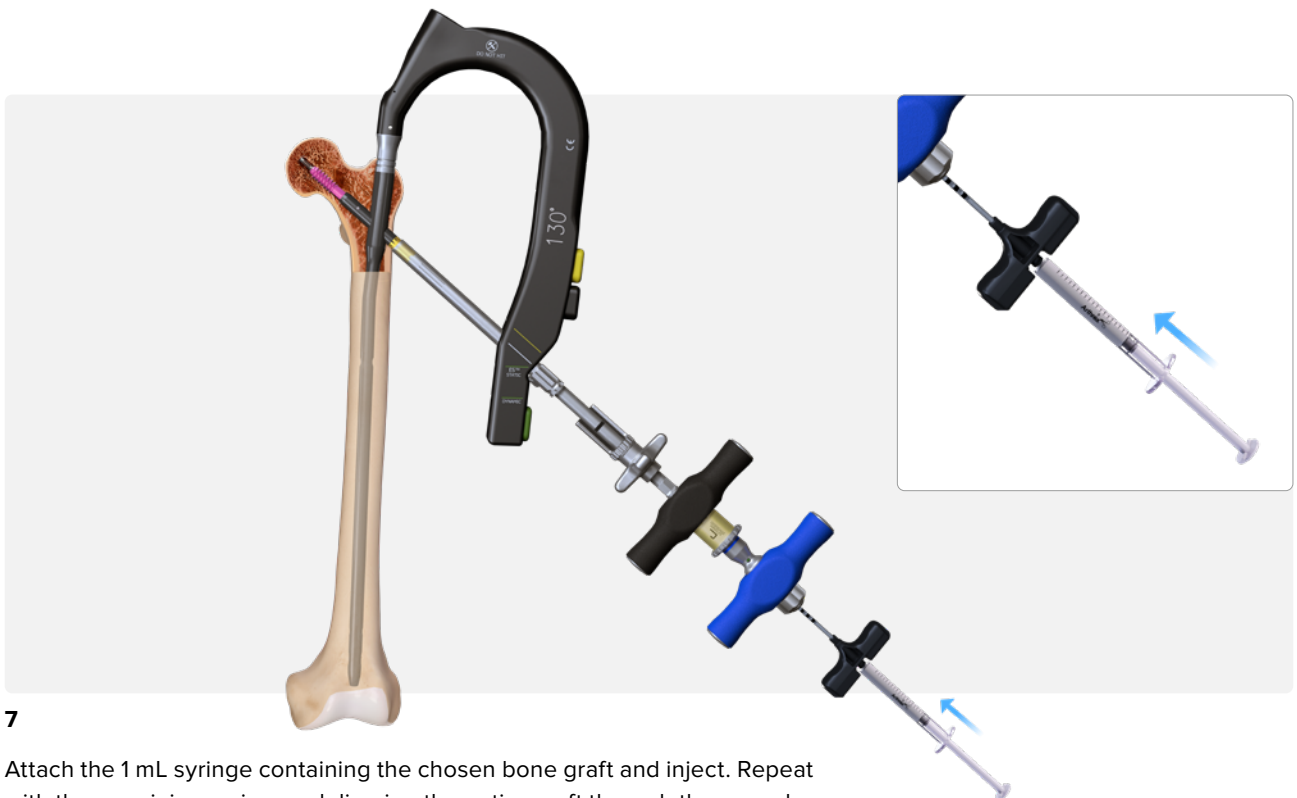
Example: If a 100 mm lag screw is selected, the “100” mark on the delivery cannula should be seen at the top of the handle.



6

Remove the inner trocar from the delivery cannula.

Note: Before proceeding with augmentation, it is essential to confirm that the femoral head has not been inadvertently perforated by the guide wire or cannula during the previous steps. If perforation of the femoral head has occurred, augmentation should not be completed.



7

Attach the 1 mL syringe containing the chosen bone graft and inject. Repeat with the remaining syringes, delivering the entire graft through the cannula.

Alternatively, a 3 mL syringe with INNOTERE Paste-CPC can be used, but must be transferred into the 3 separate 1 mL syringes (included in the kit) prior to injection.



8

Insert the inner trocar to deliver all the graft to the surrounding bone under fluoroscopic guidance. Fenestrations at the tip of the cannula ensure the graft is delivered uniformly around the entire periphery.



9

With the delivery cannula inside the inserter handle, advance the lag screw through the bone void filler until it reaches the appropriate tip-apex position. The bone void filler encases the screw threads and flows into the surrounding bone.



10

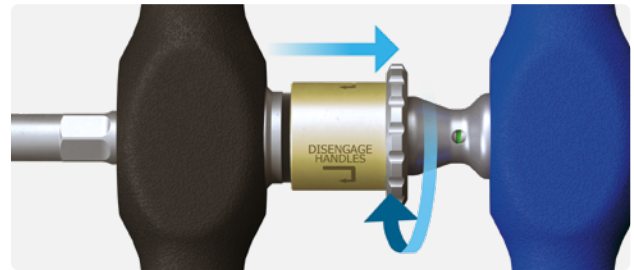
Complete the standard remaining steps for lag screw activation (optional), anti-rotation screw insertion (optional), and jig removal.

Removal Technique

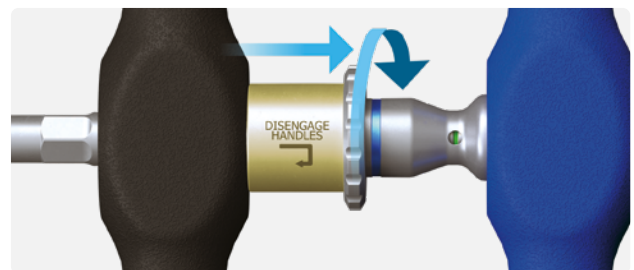
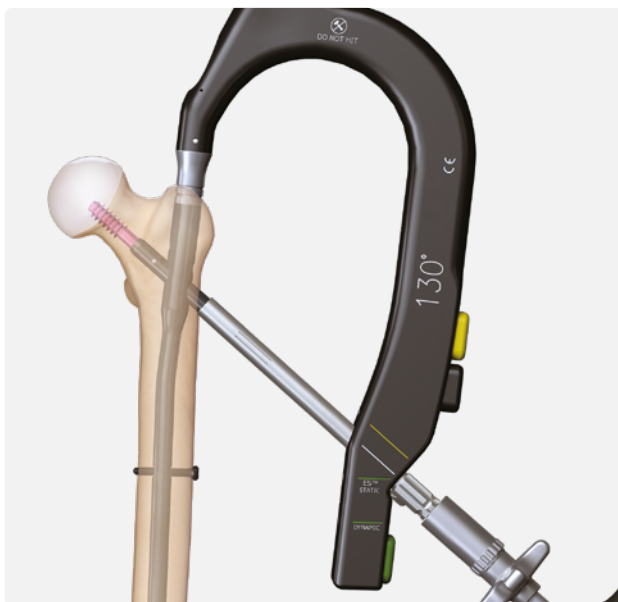
Lag Screw Loosening and Removal



See lag screw inserter assembly on page 15.

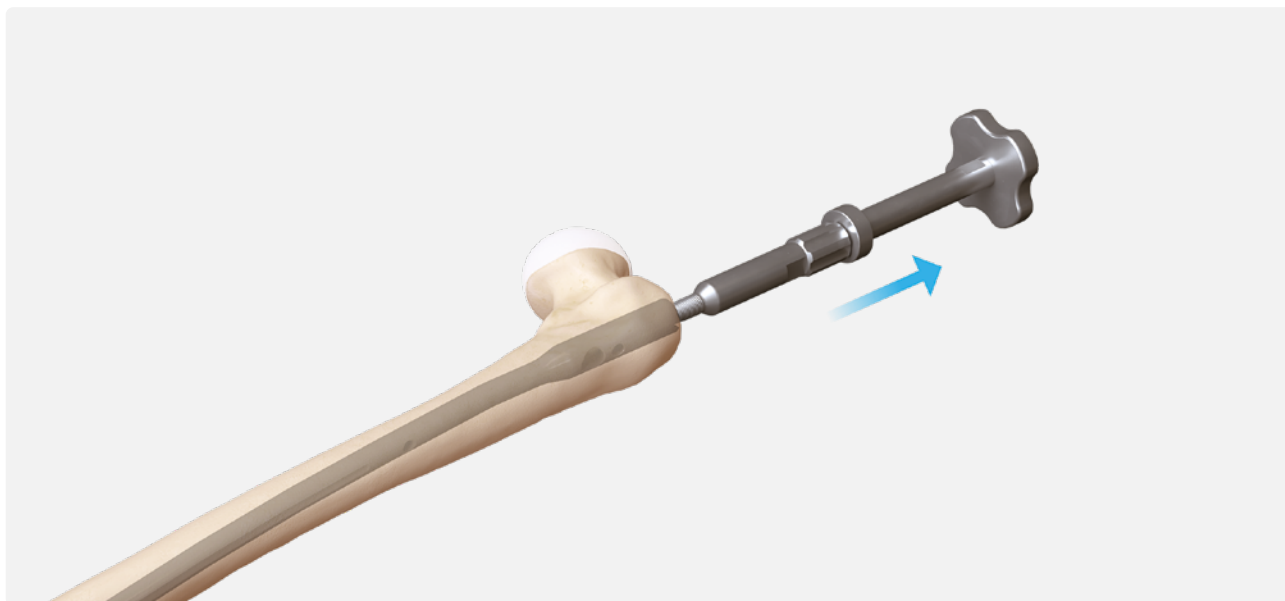


Pull back on the gold knob and turn counterclockwise so the black ring is showing. Hold the blue insertion handle stationary and turn the black locking T-handle counterclockwise until the locking ring is loosened.



The gold knob should be pulled back and turned clockwise so the blue ring is visible. The lag screw can then be removed by turning the blue T-handle counterclockwise.

Nail Removal



To extract the nail, remove the end cap if present and attach the extraction bolt. Remove the lag screw as shown in the previous section (jig not required), along with the anti-rotation screw (if present) and the cortical locking screw(s) using the instruments previously outlined.

Attach the impactor pad to the extraction bolt and then apply backward blows with a mallet.

Extractor bolt	AR-9095-32
Extractor bolt, sterile (optional)	AR-9095-32S
Impactor pad	AR-9095-31
Slotted mallet	AR-9097-38

Ordering Information

Trochanteric Nail System

Instruments	
Obturator, 3.6 mm	AR-9095-04
Awl T-handle, curved, cannulated, silicone, blue	AR-9095-50
Entry reamer, cannulated, large Hudson, 16.5 mm	AR-9095-01-RU
Lag screw drill, cannulated, large Hudson, 10.3 mm	AR-9095-02-RU
Lag screw tap, cannulated, large Hudson, 10.5 mm	AR-9095-03
Adjustable stop assembly	AR-9095-51
Pin guide, soft-tissue protector, 3.2 mm	AR-9095-10
Pin guide, locking, 3.2 mm	AR-9095-52
Anti-rotation drill guide, locking assembly, 5 mm	AR-9095-53
Distal drill guide, locking assembly, 4 mm	AR-9095-62
Screwdriver handle, cannulated, silicone, Hudson	AR-9095-25
T-Handle, cannulated, silicone, large Hudson	AR-9095-26
Quick connect, cannulated, silicone, large Hudson, female/J-Hall	AR-9095-27
Screwdriver, hex, long, 3.5 mm	AR-9095-05
Screwdriver, hex, cannulated, 5 mm	AR-9095-06
Driver, ball hex, large Hudson	AR-9095-07
Driver, end cap, hex, cannulated, large Hudson	AR-9095-08
Screw capturing rod, short, for T-handle	AR-9095-23
Screw capturing rod, long, for straight handle	AR-9095-24
Guide wire gripper	AR-9095-54
Palm handle, 3/16 square, quick connect	AR-9095-28
Lag screw depth gauge	AR-9095-73
Guide wire depth gauge, for trochanteric/femoral nail	AR-9095-14
Depth gauge, extended, distal	AR-9095-68
Hook tip depth gauge, for trochanteric nail	AR-9095-19
Obturator, trocar-tip pin guide, 3.2 mm	AR-9095-70
Lag screw sheath, with handle	AR-9095-20
Obturator, trocar-tip anti-rotation drill guide, 5 mm	AR-9095-71
Anti-rotation and distal sheath, locking	AR-9095-16
Obturator, trocar-tip drill guide, distal, 4 mm	AR-9095-72
Soft tissue protector, Hudson, quick connect	AR-9095-21
Reduction tool	AR-9095-29
Ball spike	AR-9095-30
Impactor pad	AR-9095-31
Lag screw removal tool	AR-9095-59
Lag screw extraction tool, capturing rod	AR-9095-35
Lag screw extraction tool, capturing rod nut	AR-9095-36
Radiolucent targeting arm, 125° trochanteric nail	AR-9095-60
Radiolucent targeting arm, 130° trochanteric nail	AR-9095-61
Locking bolt, radiolucent insertion guide	AR-9095-55
Lag screw tap, left, cannulated, large Hudson, 10.5 mm	AR-9095-38
Lag screw inserter, trochanteric nail	AR-9095-58
Lag screw locking tool	AR-9095-57
Compression sleeve, lag screw inserter	AR-9095-56
Lag screw capturing rod	AR-9095-66
Lag screw capturing rod nut	AR-9095-49
Lag screw capturing rod wrench	AR-9095-37
Trochanteric nail instrument tray 1	AR-9095C-01
Trochanteric nail instrument tray 2	AR-9095C-02

Slotted mallet	AR-9097-38
Extractor bolt	AR-9095-32
Power hex driver, 5 mm	AR-9097-12
Power capturing rod, 5 mm	AR-9097-13
Power hex driver, short, 5 mm	AR-9097-14
Power capturing rod, short, 5 mm	AR-9097-15
Screw sheath depth gauge	AR-9099-06
Reamers	
Flexible reamer shaft	AR-9095R-01
Flexible reamer head, modular, 9 mm	AR-9095R-090
Flexible reamer head, modular, 9.5 mm	AR-9095R-095
Flexible reamer head, modular, 10 mm	AR-9095R-100
Flexible reamer head, modular, 10.5 mm	AR-9095R-105
Flexible reamer head, modular, 11 mm	AR-9095R-110
Flexible reamer head, modular, 11.5 mm	AR-9095R-115
Flexible reamer head, modular, 12 mm	AR-9095R-120
Flexible reamer head, modular, 12.5 mm	AR-9095R-125
Flexible reamer head, modular, 13 mm	AR-9095R-130
Flexible reamer head, modular, 13.5 mm	AR-9095R-135
Flexible reamer head, modular, 4 mm	AR-9095R-140
Flexible reamer head, modular, 14.5 mm	AR-9095R-145
Flexible reamer head, modular, 15 mm	AR-9095R-150
Flexible reamer head, modular, 15.5 mm	AR-9095R-155
Flexible reamer head, modular, 16.5 mm	AR-9095R-165
Monobloc reamer, front-cutting, 8 mm	AR-9095FR-080
Flexible reamer head, modular, front-cutting, 9 mm	AR-9095FR-090
Flexible reamer head, modular, front-cutting, 9.5 mm	AR-9095FR-095
Flexible reamer head, modular, front-cutting, 10 mm	AR-9095FR-100
Flexible reamer head, modular, front-cutting, 10.5 mm	AR-9095FR-105
Flexible reamer head, modular, front-cutting, 11 mm	AR-9095FR-110
Flexible reamer head, modular, front-cutting, 11.5 mm	AR-9095FR-115
Flexible reamer head, modular, front-cutting, 12 mm	AR-9095FR-120
Flexible reamer head, modular, front-cutting, 12.5 mm	AR-9095FR-125
Lower extremity reamer case	AR-9095C-03
Disposables	
Extractor bolt, sterile	AR-9095-32S
Guide pin, 3.2 mm × 381 mm, sterile	AR-9095-41S
Step drill, calibrated, 5 mm × 330 mm, sterile	AR-9095-42S
Drill, AO style, 4 mm × 165 mm, sterile	AR-9095-43S
Drill, calibrated, AO, 4 mm × 280 mm, sterile	AR-9095-44S
Cortical tap, large Hudson, 5 mm, sterile	AR-9095-45S
Activation tool, sterile	AR-9095-46S
Ball nose guide wire, 2.5 mm × 900 mm, sterile	AR-9095-74S
Anti-rotation bar, short, sterile	AR-9095-67S
Anti-rotation bar, long, sterile	AR-9095-67LS

Long Trochanteric Nails		
Trochanteric nail, left, 10 mm × 30 cm × 125°	AR-9094-10-3025L	
Trochanteric nail, left, 10 mm × 33 cm × 125°	AR-9094-10-3325L	
Trochanteric nail, left, 10 mm × 36 cm × 125°	AR-9094-10-3625L	
Trochanteric nail, left, 10 mm × 39 cm × 125°	AR-9094-10-3925L	
Trochanteric nail, left, 10 mm × 42 cm × 125°	AR-9094-10-4225L	
Trochanteric nail, left, 10 mm × 45 cm × 125°	AR-9094-10-4525L	
Trochanteric nail, right, 10 mm × 30 cm × 125°	AR-9094-10-3025R	
Trochanteric nail, right, 10 mm × 33 cm × 125°	AR-9094-10-3325R	
Trochanteric nail, right, 10 mm × 36 cm × 125°	AR-9094-10-3625R	
Trochanteric nail, right, 10 mm × 39 cm × 125°	AR-9094-10-3925R	
Trochanteric nail, right, 10 mm × 42 cm × 125°	AR-9094-10-4225R	
Trochanteric nail, right, 10 mm × 45 cm × 125°	AR-9094-10-4525R	
Trochanteric nail, left, 10 mm × 30 cm × 130°	AR-9094-10-3030L	
Trochanteric nail, left, 10 mm × 33 cm × 130°	AR-9094-10-3330L	
Trochanteric nail, left, 10 mm × 36 cm × 130°	AR-9094-10-3630L	
Trochanteric nail, left, 10 mm × 39 cm × 130°	AR-9094-10-3930L	
Trochanteric nail, left, 10 mm × 42 cm × 130°	AR-9094-10-4230L	
Trochanteric nail, left, 10 mm × 45 cm × 130°	AR-9094-10-4530L	
Trochanteric nail, right, 10 mm × 30 cm × 130°	AR-9094-10-3030R	
Trochanteric nail, right, 10 mm × 33 cm × 130°	AR-9094-10-3330R	
Trochanteric nail, right, 10 mm × 36 cm × 130°	AR-9094-10-3630R	
Trochanteric nail, right, 10 mm × 39 cm × 130°	AR-9094-10-3930R	
Trochanteric nail, right, 10 mm × 42 cm × 130°	AR-9094-10-4230R	
Trochanteric nail, right, 10 mm × 45 cm × 130°	AR-9094-10-4530R	
Trochanteric nail, left, 11 mm × 30 cm × 125°	AR-9094-11-3025L	
Trochanteric nail, left, 11 mm × 33 cm × 125°	AR-9094-11-3325L	
Trochanteric nail, left, 11 mm × 36 cm × 125°	AR-9094-11-3625L	
Trochanteric nail, left, 11 mm × 39 cm × 125°	AR-9094-11-3925L	
Trochanteric nail, left, 11 mm × 42 cm × 125°	AR-9094-11-4225L	
Trochanteric nail, left, 11 mm × 45 cm × 125°	AR-9094-11-4525L	
Trochanteric nail, right, 11 mm × 30 cm × 125°	AR-9094-11-3025R	
Trochanteric nail, right, 11 mm × 33 cm × 125°	AR-9094-11-3325R	
Trochanteric nail, right, 11 mm × 36 cm × 125°	AR-9094-11-3625R	
Trochanteric nail, right, 11 mm × 39 cm × 125°	AR-9094-11-3925R	
Trochanteric nail, right, 11 mm × 42 cm × 125°	AR-9094-11-4225R	
Trochanteric nail, right, 11 mm × 45 cm × 125°	AR-9094-11-4525R	
Trochanteric nail, left, 11 mm × 30 cm × 130°	AR-9094-11-3030L	
Trochanteric nail, left, 11 mm × 33 cm × 130°	AR-9094-11-3330L	
Trochanteric nail, left, 11 mm × 36 cm × 130°	AR-9094-11-3630L	
Trochanteric nail, left, 11 mm × 39 cm × 130°	AR-9094-11-3930L	
Trochanteric nail, left, 11 mm × 42 cm × 130°	AR-9094-11-4230L	
Trochanteric nail, left, 11 mm × 45 cm × 130°	AR-9094-11-4530L	
Trochanteric nail, right, 11 mm × 30 cm × 130°	AR-9094-11-3030R	
Trochanteric nail, right, 11 mm × 33 cm × 130°	AR-9094-11-3330R	
Trochanteric nail, right, 11 mm × 36 cm × 130°	AR-9094-11-3630R	
Trochanteric nail, right, 11 mm × 39 cm × 130°	AR-9094-11-3930R	
Trochanteric nail, right, 11 mm × 42 cm × 130°	AR-9094-11-4230R	
Trochanteric nail, right, 11 mm × 45 cm × 130°	AR-9094-11-4530R	

Long Trochanteric Nails (Special Order)		
Trochanteric nail, left, 12.5 mm × 30 cm × 130°	AR-9094-12-3030L	
Trochanteric nail, left, 12.5 mm × 33 cm × 130°	AR-9094-12-3330L	
Trochanteric nail, left, 12.5 mm × 36 cm × 130°	AR-9094-12-3630L	
Trochanteric nail, left, 12.5 mm × 39 cm × 130°	AR-9094-12-3930L	
Trochanteric nail, left, 12.5 mm × 42 cm × 130°	AR-9094-12-4230L	
Trochanteric nail, left, 12.5 mm × 45 cm × 130°	AR-9094-12-4530L	
Trochanteric nail, right, 12.5 mm × 30 cm × 130°	AR-9094-12-3030R	
Trochanteric nail, right, 12.5 mm × 33 cm × 130°	AR-9094-12-3330R	
Trochanteric nail, right, 12.5 mm × 36 cm × 130°	AR-9094-12-3630R	
Trochanteric nail, right, 12.5 mm × 39 cm × 130°	AR-9094-12-3930R	
Trochanteric nail, right, 12.5 mm × 42 cm × 130°	AR-9094-12-4230R	
Trochanteric nail, right, 12.5 mm × 45 cm × 130°	AR-9094-12-4530R	
Solid Lag Screws		
Solid locking lag screw, 10.5 mm × 70 mm	AR-9094-1070	
Solid locking lag screw, 10.5 mm × 75 mm	AR-9094-1075	
Solid locking lag screw, 10.5 mm × 80 mm	AR-9094-1080	
Solid locking lag screw, 10.5 mm × 85 mm	AR-9094-1085	
Solid locking lag screw, 10.5 mm × 90 mm	AR-9094-1090	
Solid locking lag screw, 10.5 mm × 95 mm	AR-9094-1095	
Solid locking lag screw, 10.5 mm × 100 mm	AR-9094-1100	
Solid locking lag screw, 10.5 mm × 105 mm	AR-9094-1105	
Solid locking lag screw, 10.5 mm × 110 mm	AR-9094-1110	
Solid locking lag screw, 10.5 mm × 115 mm	AR-9094-1115	
Solid locking lag screw, 10.5 mm × 120 mm	AR-9094-1120	
Solid locking lag screw, 10.5 mm × 125 mm	AR-9094-1125	
Telescoping Lag Screws		
Telescoping lag screw, 10.5 mm × 80 mm	AR-9094-080	
Telescoping lag screw, 10.5 mm × 85 mm	AR-9094-085	
Telescoping lag screw, 10.5 mm × 90 mm	AR-9094-090	
Telescoping lag screw, 10.5 mm × 95 mm	AR-9094-095	
Telescoping lag screw, 10.5 mm × 100 mm	AR-9094-100	
Telescoping lag screw, 10.5 mm × 105 mm	AR-9094-105	
Telescoping lag screw, 10.5 mm × 110 mm	AR-9094-110	
Telescoping lag screw, 10.5 mm × 115 mm	AR-9094-115	
Telescoping lag screw, 10.5 mm × 120 mm	AR-9094-120	
Telescoping lag screw, 10.5 mm × 125 mm	AR-9094-125	
Telescoping Lag Screws, left		
Telescoping lag screw, left, 10.5 mm × 85 mm	AR-9094-085L	
Telescoping lag screw, left, 10.5 mm × 90 mm	AR-9094-090L	
Telescoping lag screw, left, 10.5 mm × 95 mm	AR-9094-095L	
Telescoping lag screw, left, 10.5 mm × 100 mm	AR-9094-100L	
Telescoping lag screw, left, 10.5 mm × 105 mm	AR-9094-105L	
Telescoping lag screw, left, 10.5 mm × 110 mm	AR-9094-110L	
Telescoping lag screw, left, 10.5 mm × 115 mm	AR-9094-115L	
Telescoping lag screw, left, 10.5 mm × 120 mm	AR-9094-120L	

Please note: all implants above are only available sterile packaged.

Anti-Rotation Screws		
Anti-rotation screw, cancellous, 5.0 mm × 60 mm	AR-9094AR-060	
Anti-rotation screw, cancellous, 5.0 mm × 65 mm	AR-9094AR-065	
Anti-rotation screw, cancellous, 5.0 mm × 70 mm	AR-9094AR-070	
Anti-rotation screw, cancellous, 5.0 mm × 75 mm	AR-9094AR-075	
Anti-rotation screw, cancellous, 5.0 mm × 80 mm	AR-9094AR-080	
Anti-rotation screw, cancellous, 5.0 mm × 85 mm	AR-9094AR-085	
Anti-rotation screw, cancellous, 5.0 mm × 90 mm	AR-9094AR-090	
Anti-rotation screw, cancellous, 5.0 mm × 95 mm	AR-9094AR-095	
Anti-rotation screw, cancellous, 5.0 mm × 100 mm	AR-9094AR-100	
Anti-rotation screw, cancellous, 5.0 mm × 105 mm	AR-9094AR-105	
Anti-rotation screw, cancellous, 5.0 mm × 110 mm	AR-9094AR-110	
Distal Screws		
Cortical screw, captured, 5.0 mm × 24 mm	AR-9093-50-024	
Cortical screw, captured, 5.0 mm × 26 mm	AR-9093-50-026	
Cortical screw, captured, 5.0 mm × 28 mm	AR-9093-50-028	
Cortical screw, captured, 5.0 mm × 30 mm	AR-9093-50-030	
Cortical screw, captured, 5.0 mm × 32 mm	AR-9093-50-032	
Cortical screw, captured, 5.0 mm × 34 mm	AR-9093-50-034	
Cortical screw, captured, 5.0 mm × 36 mm	AR-9093-50-036	
Cortical screw, captured, 5.0 mm × 38 mm	AR-9093-50-038	
Cortical screw, captured, 5.0 mm × 40 mm	AR-9093-50-040	
Cortical screw, captured, 5.0 mm × 42 mm	AR-9093-50-042	
Cortical screw, captured, 5.0 mm × 44 mm	AR-9093-50-044	
Cortical screw, captured, 5.0 mm × 46 mm	AR-9093-50-046	
Cortical screw, captured, 5.0 mm × 48 mm	AR-9093-50-048	
Cortical screw, captured, 5.0 mm × 50 mm	AR-9093-50-050	
Cortical screw, captured, 5.0 mm × 55 mm	AR-9093-50-055	
Cortical screw, captured, 5.0 mm × 60 mm	AR-9093-50-060	
Cortical screw, captured, 5.0 mm × 65 mm	AR-9093-50-065	
Cortical screw, captured, 5.0 mm × 70 mm	AR-9093-50-070	
Cortical screw, captured, 5.0 mm × 75 mm	AR-9093-50-075	
Cortical screw, captured, 5.0 mm × 80 mm	AR-9093-50-080	
Cortical screw, captured, 5.0 mm × 85 mm	AR-9093-50-085	
Cortical screw, captured, 5.0 mm × 90 mm	AR-9093-50-090	
Cortical screw, captured, 5.0 mm × 95 mm	AR-9093-50-095	
Cortical screw, captured, 5.0 mm × 100 mm	AR-9093-50-100	
Cortical screw, captured, 5.0 mm × 105 mm	AR-9093-50-105	
Cortical screw, captured, 5.0 mm × 110 mm	AR-9093-50-110	

End Caps		
End cap, captured, bullet tip, 1 mm	AR-9094C-01	
End cap, captured, bullet tip, 5 mm	AR-9094C-05	
End cap, captured, bullet tip, 10 mm	AR-9094C-10	
Locking end cap, 1 mm, troch nail	AR-9094CP-01	
Anti-rotation set screw	AR-9094SAR	

Optional (Biologic Augmentation)		
Arthrex trochanteric nail augmentation system	ABS-1094	
INNOTERE Paste-CPC, 1 mL	211IP1	
INNOTERE Paste-CPC, 3 × 1 mL	231IP1	
INNOTERE Paste-CPC, 3 mL	111VX2	

Please note: all implants above are only available sterile packaged.

Products advertised in this brochure / surgical technique guide may not be available in all countries. For information on availability, please contact Arthrex Customer Service or your local Arthrex representative.

This description of technique is provided as an educational tool and clinical aid to assist properly licensed medical professionals in the usage of specific Arthrex products. As part of this professional usage, the medical professional must use their professional judgment in making any final determinations in product usage and technique. In doing so, the medical professional should rely on their own training and experience, and should conduct a thorough review of pertinent medical literature and the product's directions for use. Postoperative management is patient-specific and dependent on the treating professional's assessment. Individual results will vary and not all patients will experience the same postoperative activity level or outcomes.



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