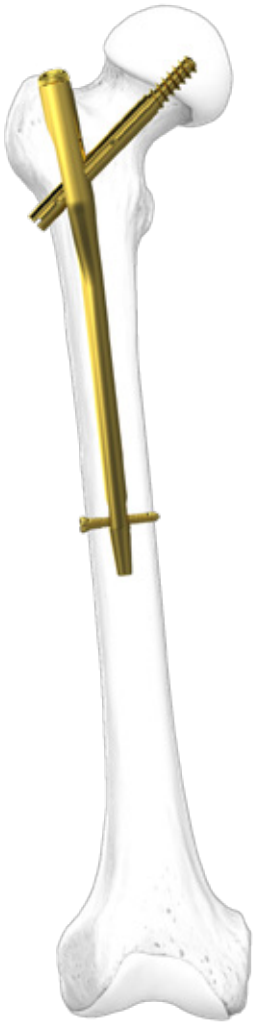
Operative technique

Eba One
SINGLE LAG SCREW
NAILING SYSTEM

Single Lag Screw nailing system



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Surgeons must always decide on the best approach to follow according to their clinical judgement and the patient's needs. Citieffe does not dispense medical advice and recommends that surgeons be trained in the use of any particular product before using it in surgery. The information presented is intended to demonstrate the extent of Citieffe product offerings.

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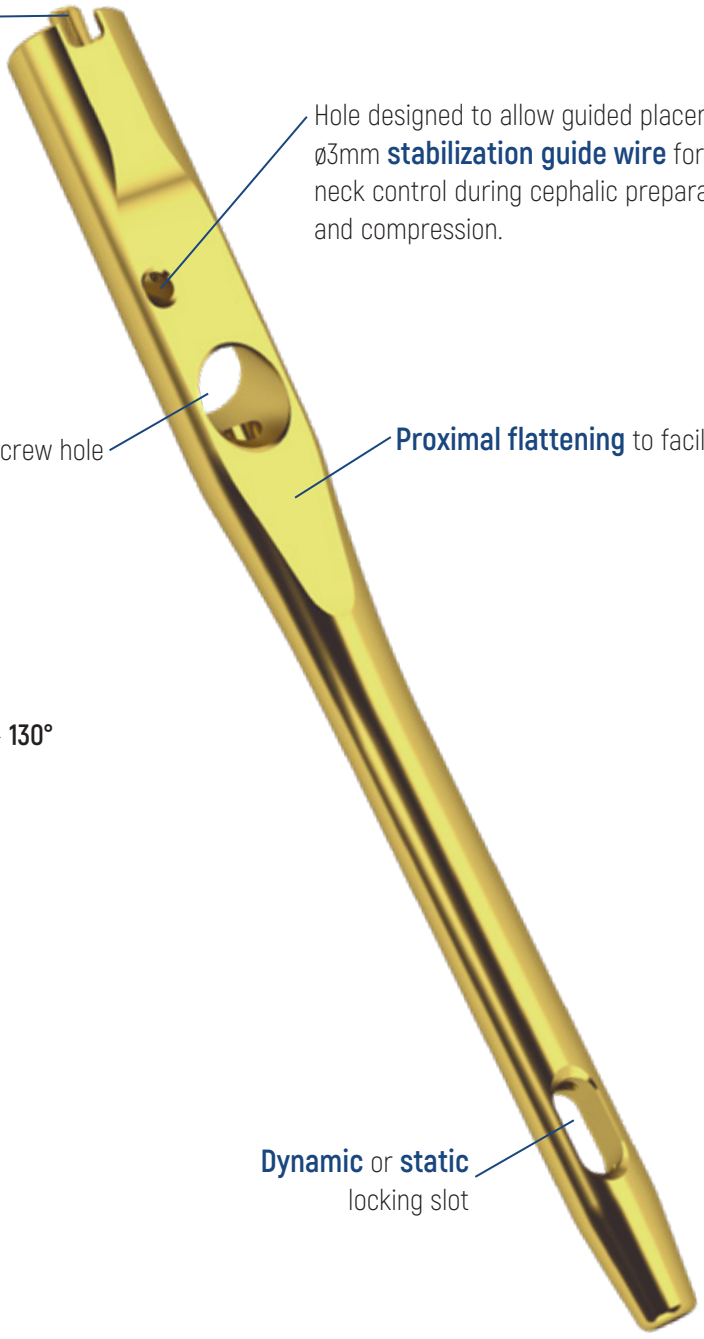
CONTENTS

PRODUCT DESCRIPTION

TITANIUM STERILE

Single lag screw nailing system for the treatment of proximal femural fractures, available in the standard (short), medium and long version.

Eba One standard (short) nail

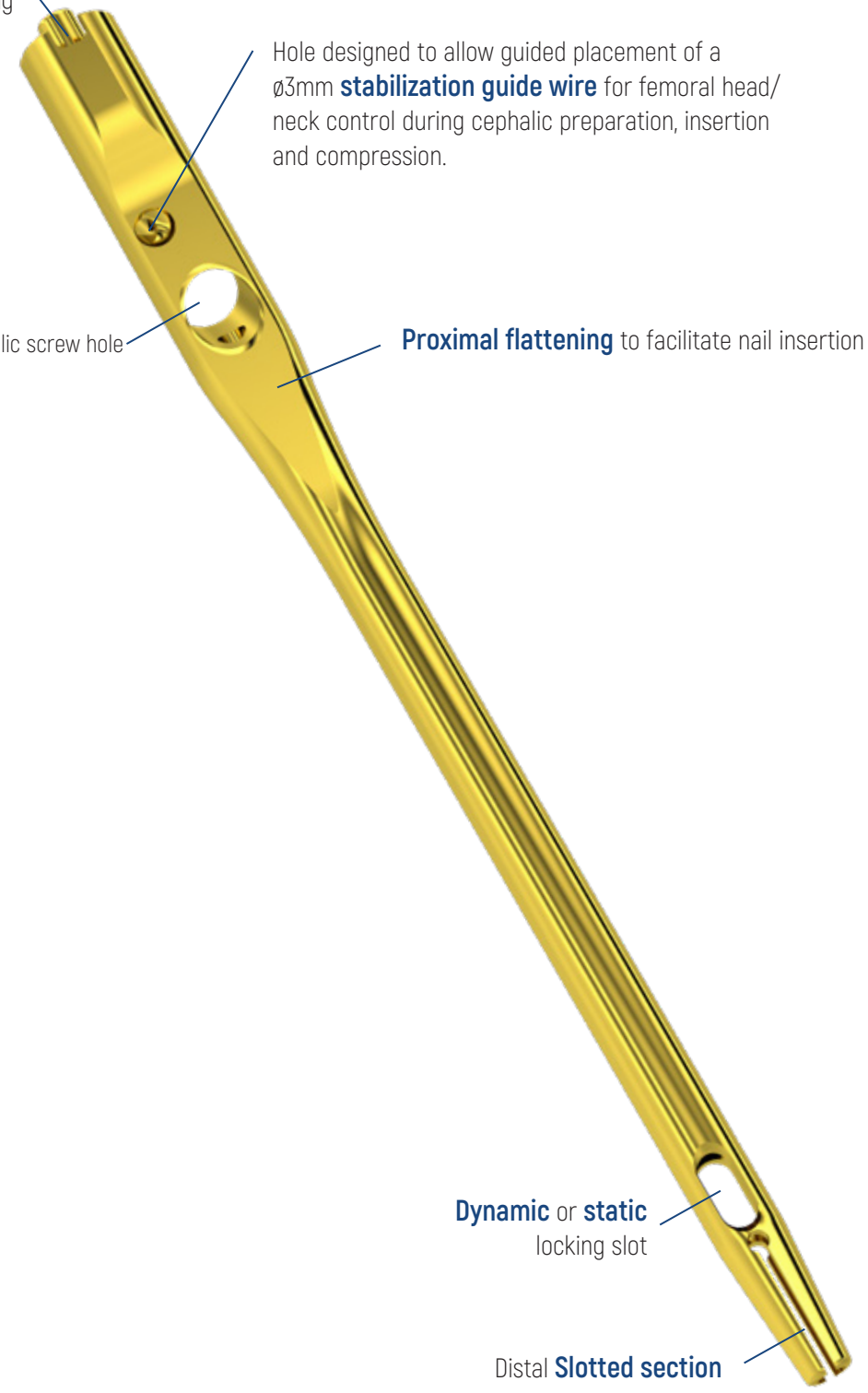


- Titanium ASTM F136 alloy
- Cervical-diaphyseal angle **120°** - **125°** - **130°**
- Metaphyseal angle **5°**
- Proximal diameter **15.5mm**
- Distal diameter **10, 11mm**
- Length **170mm**

**When using the 2.5 mm guide wire with olive, no wire exchange is needed removing additional steps.*

TITANIUM STERILE

Eba One medium nail



- Titanium ASTM F136 alloy
- Cervical-diaphyseal angle **130°**
- Metaphyseal angle **5°**
- Proximal diameter **15.8mm**
- Distal diameter **10, 11mm**
- Length **230mm**

**When using the 2.5 mm guide wire with olive, no wire exchange is needed removing additional steps.*

TITANIUM STERILE

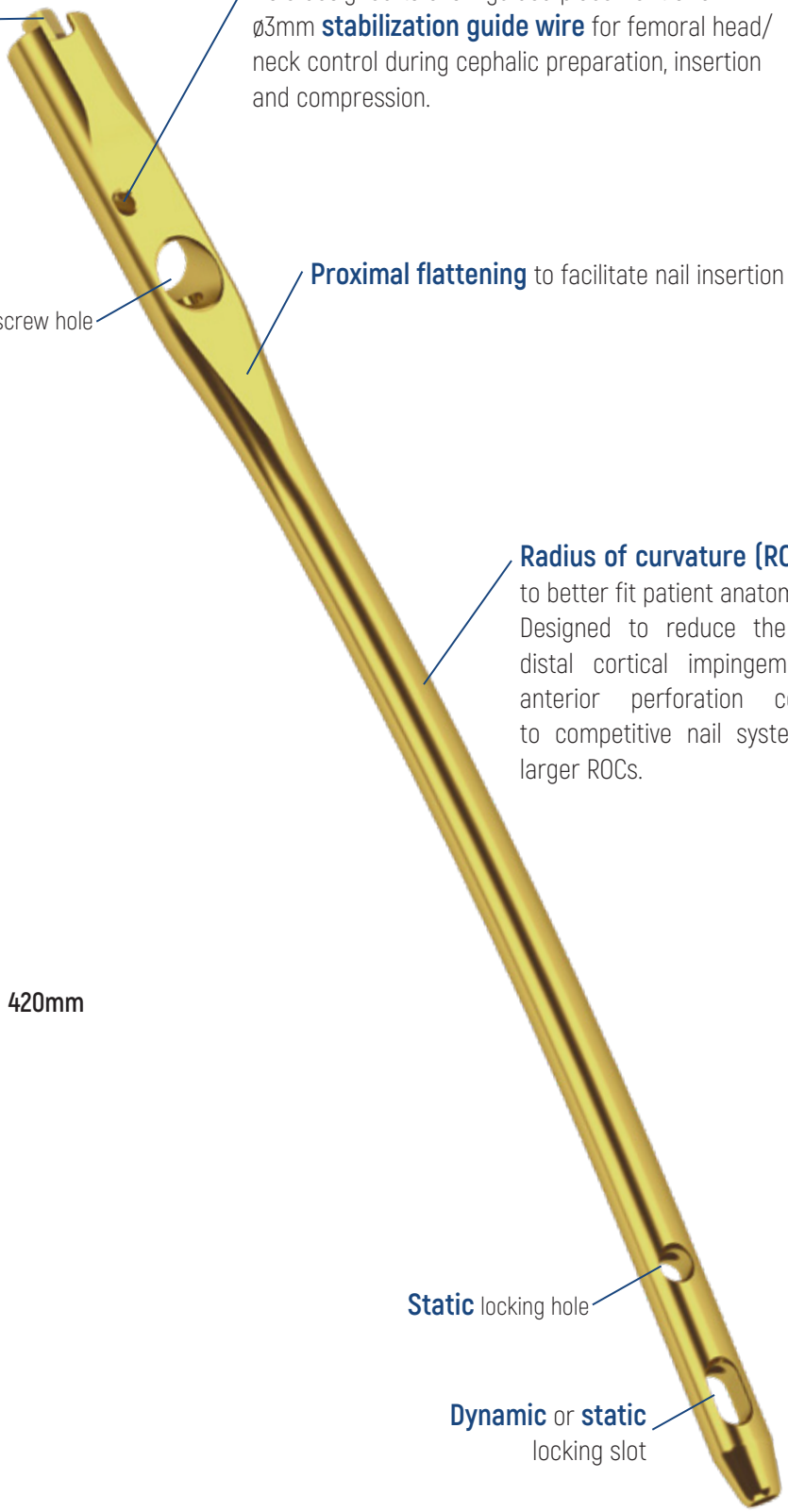
Eba One long nail

Integrated cannulated* set screw for anti-rotation locking

Hole designed to allow guided placement of a ø3mm **stabilization guide wire** for femoral head/ neck control during cephalic preparation, insertion and compression.

Proximal flattening to facilitate nail insertion

Cephalic screw hole



Radius of curvature (ROC) 1.0m to better fit patient anatomy. Designed to reduce the risk of distal cortical impingement and anterior perforation compared to competitive nail systems with larger ROCs.

- Titanium ASTM F136 alloy
- Cervical-diaphyseal angle **130°**
- Metaphyseal angle **5°**
- Proximal diameter **15.8mm**
- Distal diameter **10, 11, 12, 13mm**
- Available lengths: **from 280mm to 420mm** with 20mm increments
- Proximal anterversion of **10°**

Static locking hole

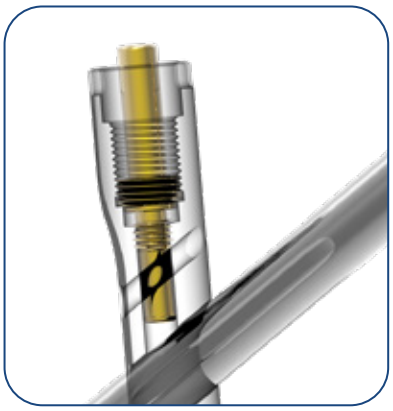
Dynamic or **static** locking slot

**When using the 2.5 mm guide wire with olive, no wire exchange is needed removing additional steps.*

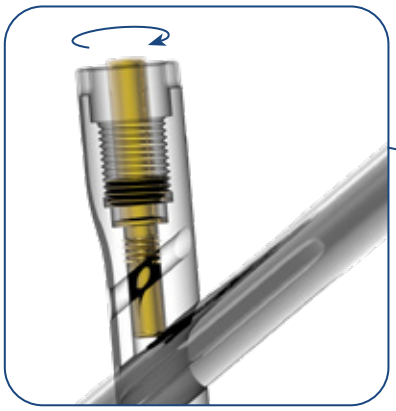
Integrated cannulated set screw

Eba One features an integrated cephalic screw antirotation system that prevents the rotation and the medial migration of the cephalic screw.

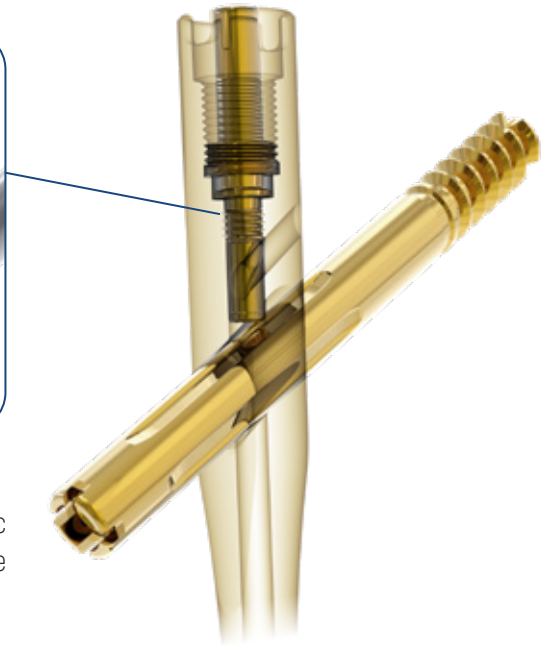
The **set screw is cannulated and integrated** into the nail (not removable). When it's locked, it prevents the cephalic screw from rotating while allowing it to slide.
Through the cannulated set screw you can insert a 3mm guide wire or a 2.5mm guide wire with olive..
Eba One nails are supplied with the integrated cannulated set screw in the OPEN position.



OPEN position
It enables the free insertion of the cephalic screw.

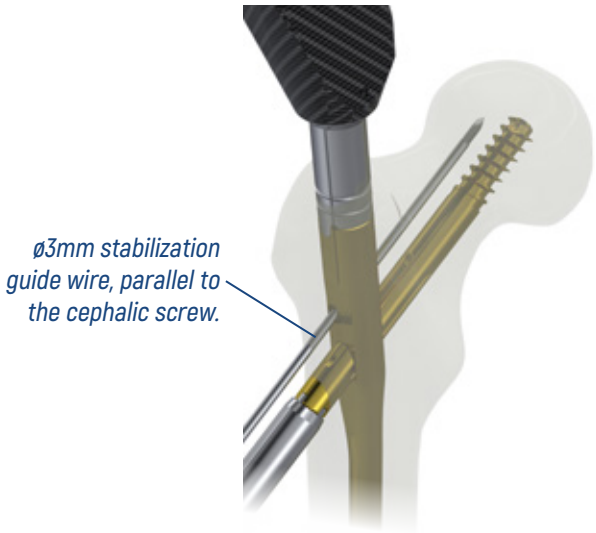


CLOSED position (fully seated)
It enables the sliding of the cephalic screw, in order to allow fracture compaction.



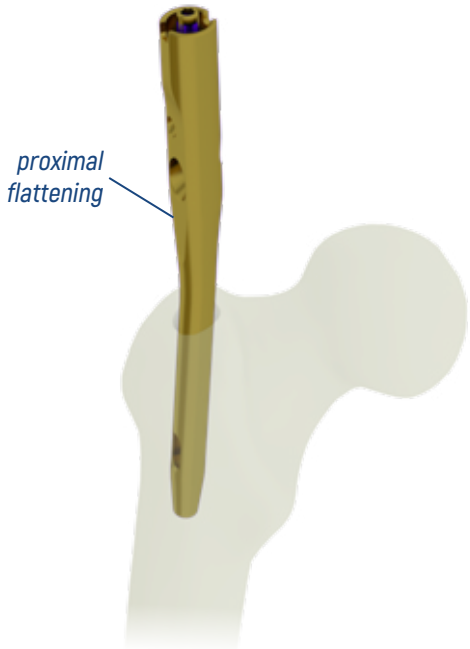
Hole for stabilization guide wire, ø3mm

The Eba One nail features a hole for the insertion of a ø3mm stabilization guide wire, through the Eba One targeting device.
The guide wire is positioned parallel to the cephalic screw stabilizing the femoral head and neck during preparation, insertion and compression steps.



Proximal flattening

The lateral proximal flattening facilitates the insertion of the nail



Screws and end caps

TITANIUM STERILE

Both screws and end caps have a built-in threaded retention system.
All screws and end caps use the same 5mm hexagon screwdriver.

Cephalic screw ø10.5mm

- Titanium alloy
- Self-tapping
- ø3mm cannulated
- Available lengths: from 70mm to 130mm with 5mm increments
- Screw shaft with 4 grooves allowing lateral sliding only.

Static Cephalic screw ø10.5mm

- Titanium alloy
- Self-tapping
- ø3mm cannulated
- Available lengths: from 70mm to 130mm with 5mm increments
- Screw shaft with 4 grooves that prevent both rotation and lateral sliding, permitting a full static locking.

Cortical screw ø5.2mm

TITANIUM STERILE

- Titanium alloy
- Self-tapping
- Proximal screw build up for enhanced stability
- Self retaining threaded head
- Hexagon 5mm
- Low profile head
- Available lengths:
  - from 22.5mm to 110mm with 2.5mm increments (up to 55mm)
  - 5mm increments (up to 110mm)

Cortical screw characteristics:

A Increased core diameter

B Proximal part of the screw built up for enhanced stability

End cap

- Titanium alloy
- 3 available sizes for nail length increment of: 7mm, 12mm, 17mm
- Hexagon 5mm
- To prevent bone in-growth
- To increase nail length

INDICATIONS

The **Eba One standard (short)** trochanteric nail is indicated for the treatment of:

- stable and unstable intertrochanteric fractures;
- pertrochanteric fractures;
- mal-unions;
- non-unions.

The **Eba One medium** trochanteric nail is indicated for the treatment of:

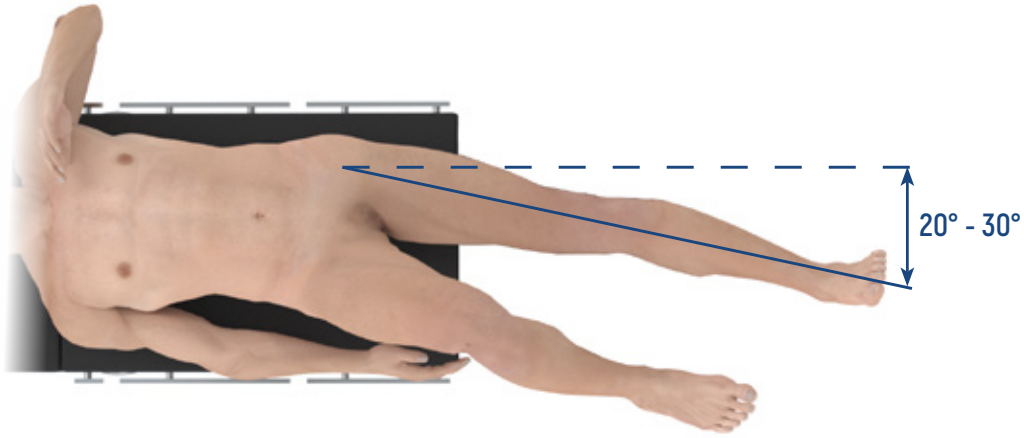
- pertrochanteric and subtrochanteric fractures with extension of the fracture line from 1 up to 4 cm below the lesser trochanter.

The **Eba One long** trochanteric nail is indicated for the treatment of:

- pertrochanteric and subtrochanteric fractures with extension of the fracture lines to the diaphysis;
- pertrochanteric and subtrochanteric fractures with diaphyseal fracture (bifocal fractures);
- pathological fractures;
- mal-unions;
- non-unions.

OPERATIVE TECHNIQUE

Patient positioning

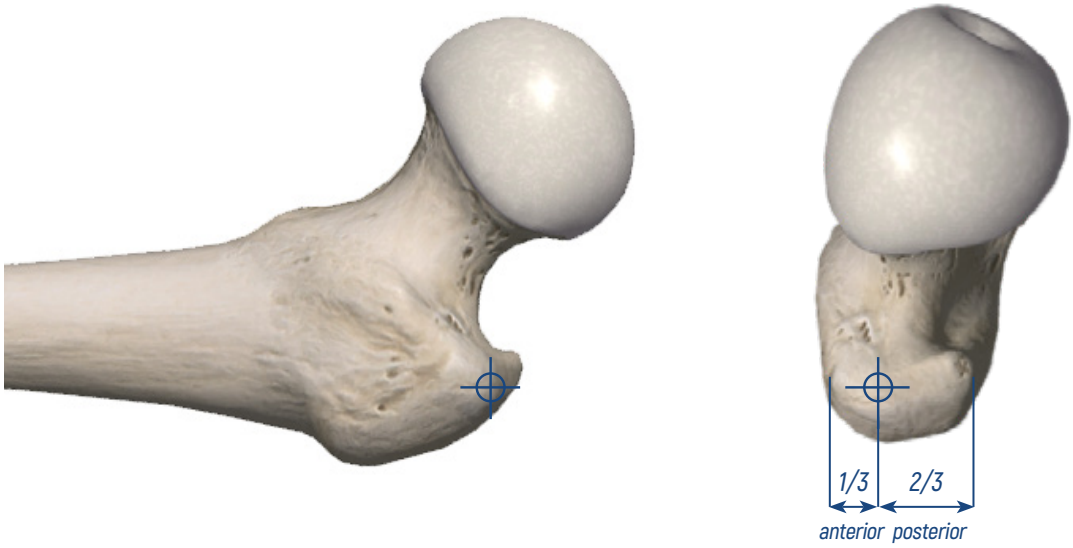


Place the patient in a supine position on the radiolucent operating table, with the limb to be treated under skeletal traction.

Flex the contralateral hip and knee by 90°.
Adduct the limb to be treated by 20° - 30° to facilitate surgical approach and avoid hindering the use of the image intensifier.

Once fracture reduction has been obtained, proceed with synthesis, select the correct implant and the optimal nail angle with x-ray in anterior-posterior view.

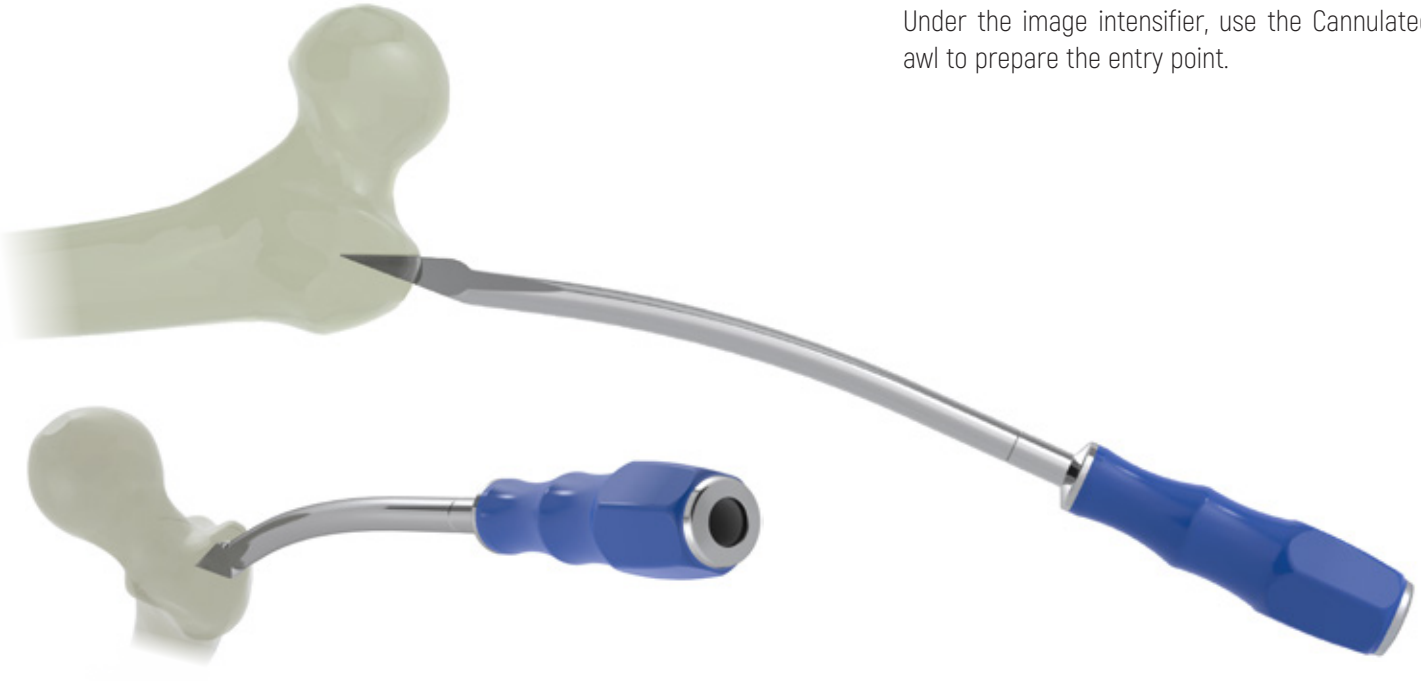
Incision and entry point



Under normal circumstances, the incision can be made starting 2cm proximally from the tip of the greater trochanter with a proximal extension of about 3-4cm.

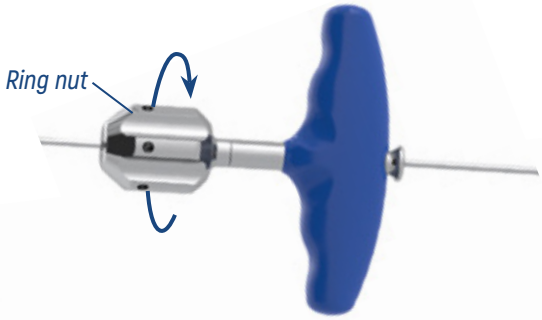
However, a different incision can be chosen if required by the patient's anatomy.
The correct entry point is located at the junction of the anterior third and posterior two-thirds of the tip of the greater trochanter and on the tip itself.

Opening the cortex



Under the image intensifier, use the Cannulated awl to prepare the entry point.

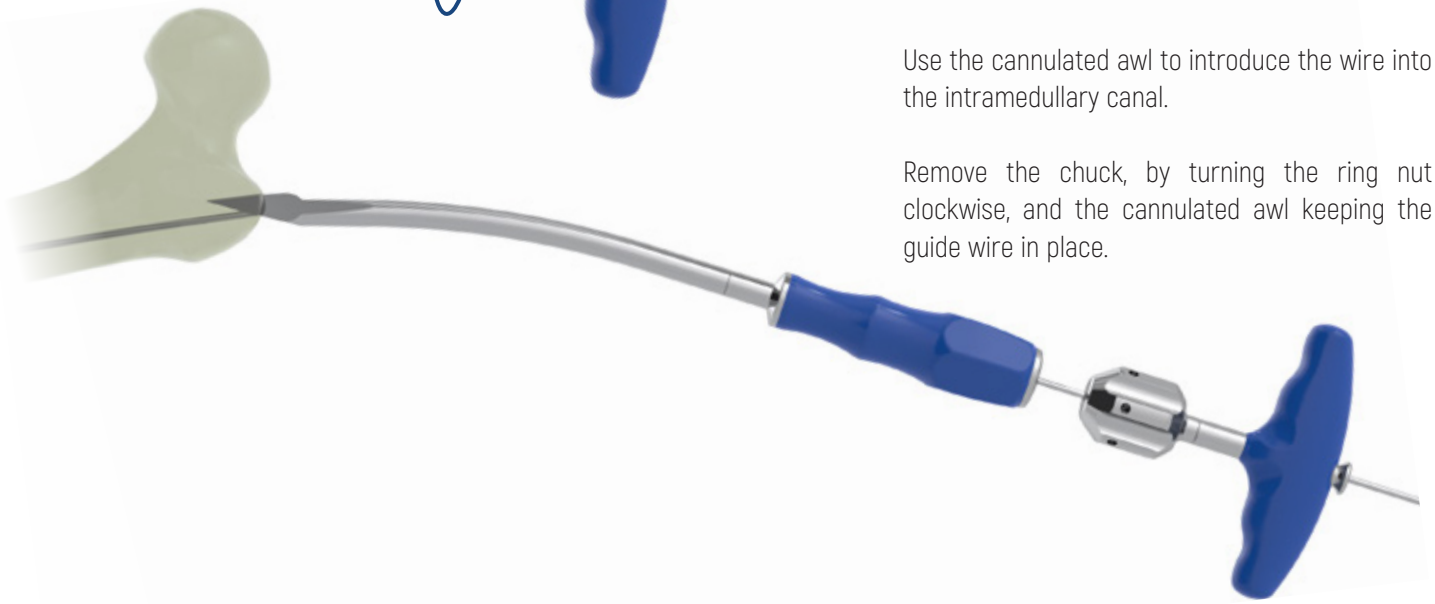
Guide wire insertion



Insert the Guide wire with olive ø2.5x800mm into the Chuck for ø2.5-3mm wire and turn the ring nut anticlockwise to lock the wire in place.

Use the cannulated awl to introduce the wire into the intramedullary canal.

Remove the chuck, by turning the ring nut clockwise, and the cannulated awl keeping the guide wire in place.



INSTRUMENTS REQUIRED

EBA-5315
Cannulated awl

EBA-5345
Chuck for ø2.5-3mm wire

EBA-5304
Guide wire with olive ø2.5x800mm STERILE

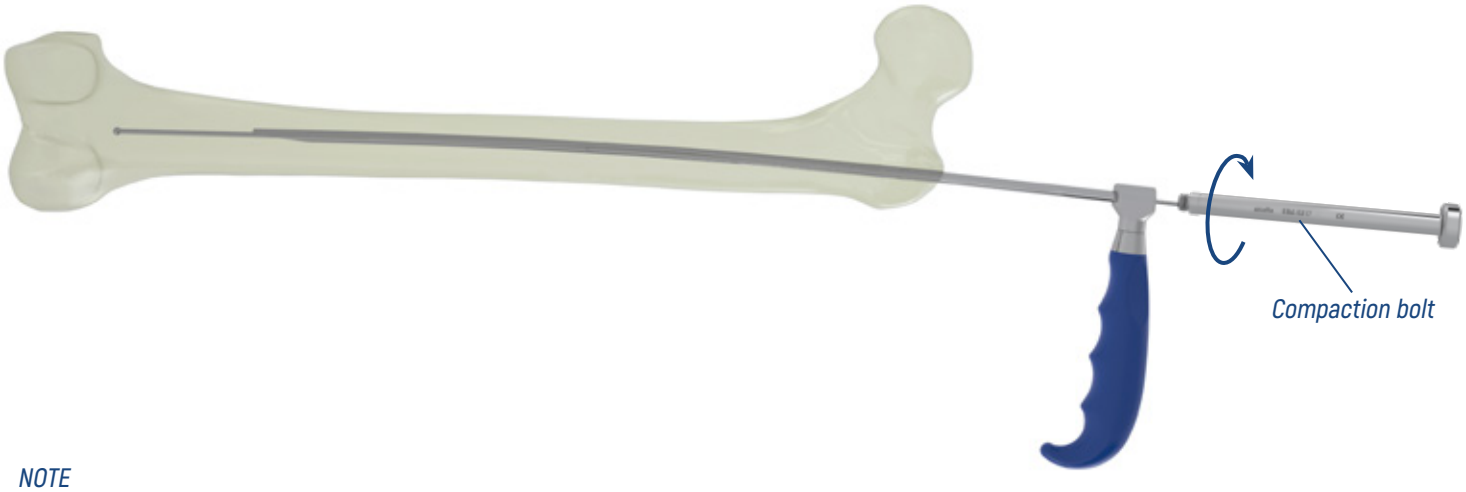
or

EBA-5233
Nails ruler kit with Guide wire with olive ø2.5x800mm

Fracture alignment (Eba One long)

If necessary, use the Fracture alignment guide wire exchange tool to facilitate fracture reduction and the insertion of the guide wire into the correct position.

Insert the Guide wire with olive ø2.5x800mm into the intramedullary canal.



NOTE

- *When using a 2.5mm guide wire with olive (EBA-5304 or EBA-5233) no wire exchange is needed.*
- *When using a 3mm guide wire with olive (DT030002), at the end of the reaming procedure, insert the fracture alignment guide wire exchange tool to replace the guide wire with olive with the guide wire ø3x800mm (EBA-5302).*

If the fracture alignment tool gets stuck, remove it using the Compaction Bolt and Slotted Hammer.

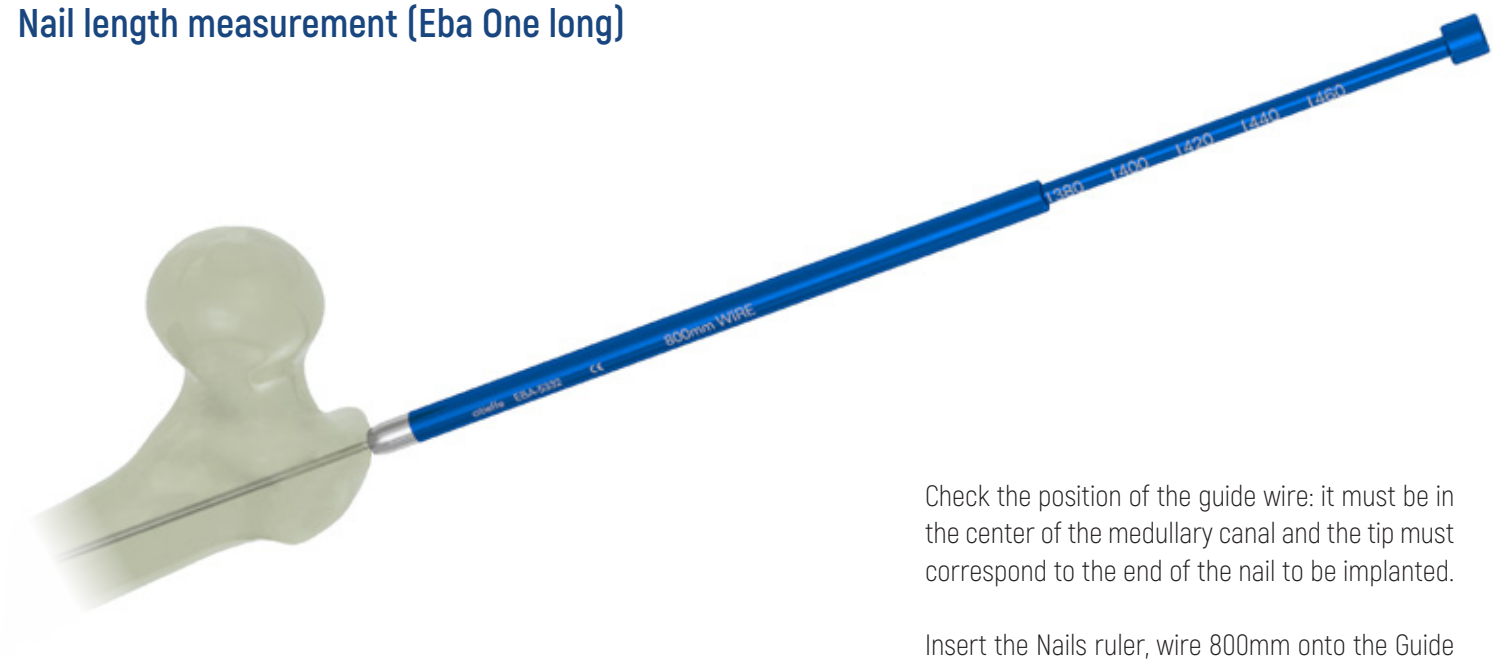
INSTRUMENTS REQUIRED

EBA-5316
Fracture alignment guide wire exchange tool

EBA-5317
Compaction bolt

DT030080
Slotted hammer

Nail length measurement (Eba One long)



Check the position of the guide wire: it must be in the center of the medullary canal and the tip must correspond to the end of the nail to be implanted.

Insert the Nails ruler, wire 800mm onto the Guide wire and bring it into contact with the cortex at the tip of the greater trochanter.

A)

A) Make sure that the end of the Guide wire is aligned with the end of the nails ruler (the wire must be visible through the slot).

B)

B) Read the length of the nail directly on the nails ruler marker.

The image corresponds to the 380mm nail length

NOTE
For intermediate readings, it is advisable to use the shorter nail.

Ream the canal progressively using 0.5mm increments. It is suggested to ream 1.5 - 2mm greater than the nail selected to implant.

NOTE
The reamining must be perfomed with a low speed drill.

INSTRUMENTS REQUIRED

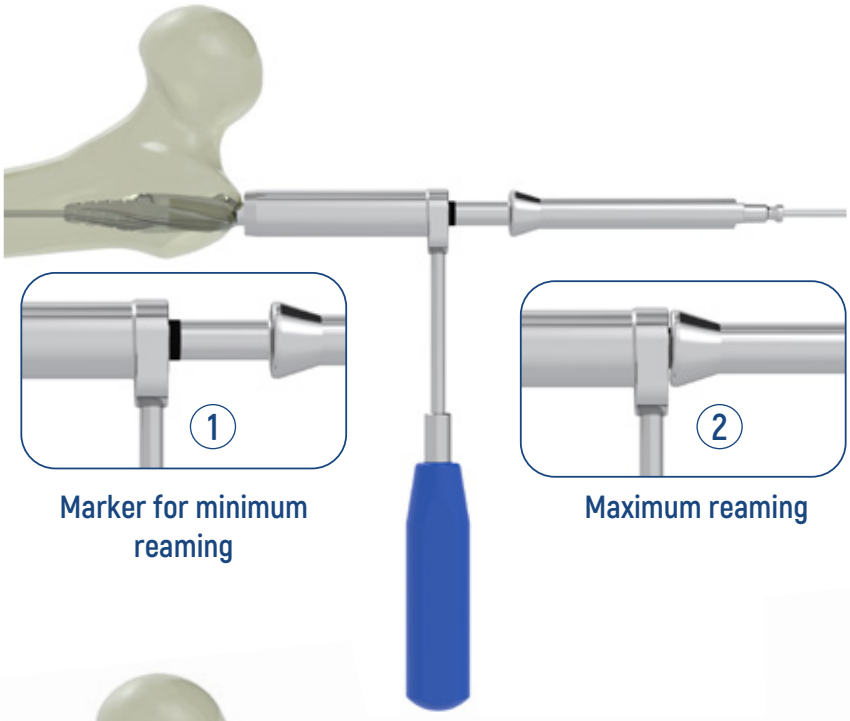
EBA-5332
Nails ruler, wire 800mm

or

EBA-5233
Nails ruler kit with Guide wire with olive ø2.5x800mm
STERILE

Proximal reaming of the medullary canal

All power tools mentioned in the surgical technique must be used with a low speed drill.
The steps described below refer to all Eba One nails: standard (short), medium and long. The nail represented in the figures is the standard one.



Marker for minimum reaming

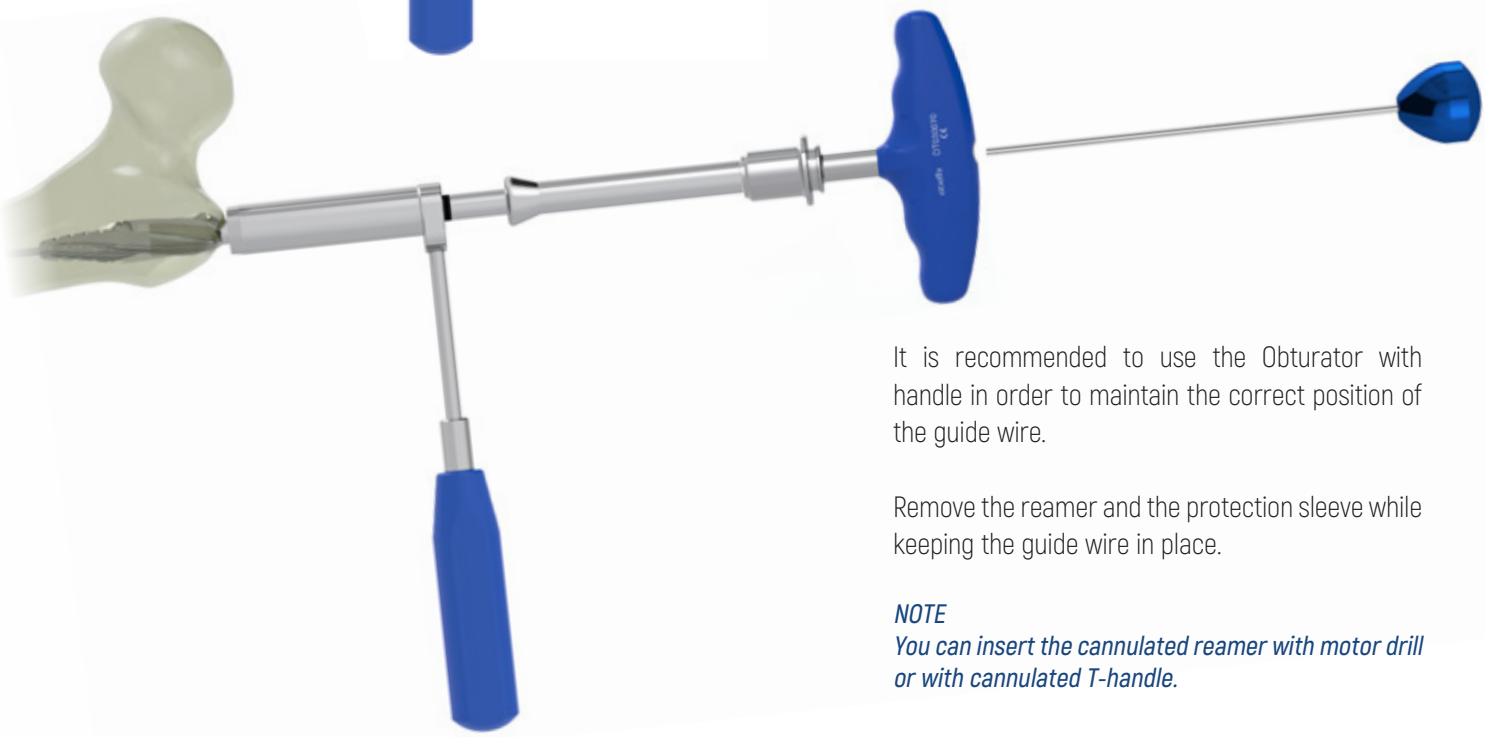
Maximum reaming

Insert the Tissue protection sleeve until it is in contact with the bone.

Insert the Cannulated reamer, ø16mm through the guide wire into the intramedullary canal.

Proceed with the proximal reaming monitoring its progression inside the intramedullary canal.

The marker on the reamer indicates the minimum reaming to be made (1).
The maximum reaming is obtained once the reamer comes into contact with the protection sleeve (2).
.



It is recommended to use the Obturator with handle in order to maintain the correct position of the guide wire.

Remove the reamer and the protection sleeve while keeping the guide wire in place.

NOTE
You can insert the cannulated reamer with motor drill or with cannulated T-handle.

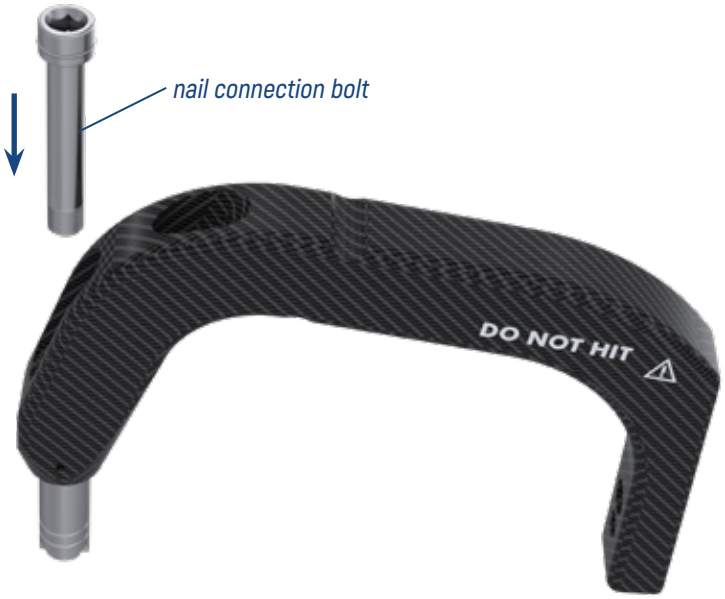
INSTRUMENTS REQUIRED

EBA-5322
Tissue protection sleeve

EBA-5275
Cannulated reamer, ø16mm

DT030090
Obturator with handle

Nail-inserter assembly



Insert the Nail connection bolt, into the dedicated hole of the Eba One carbon targeting arm.

Select the Eba One nail that best matches the patient's cervical-diaphyseal angle.

Ensure that the reference markers –visible on both the targeting arm and the nail– are properly aligned, and that the positioning tabs of the targeting arm are correctly inserted into the corresponding slots on the proximal part of the nail.

Connect the chosen nail to the targeting arm and tighten the locking bolt using the Allen T-wrench, 8mm long.

INSTRUMENTS REQUIRED

EBA-5375
Nail connection bolt, Eba One carbon targeting arm

EBA-5375
Eba One carbon targeting arm

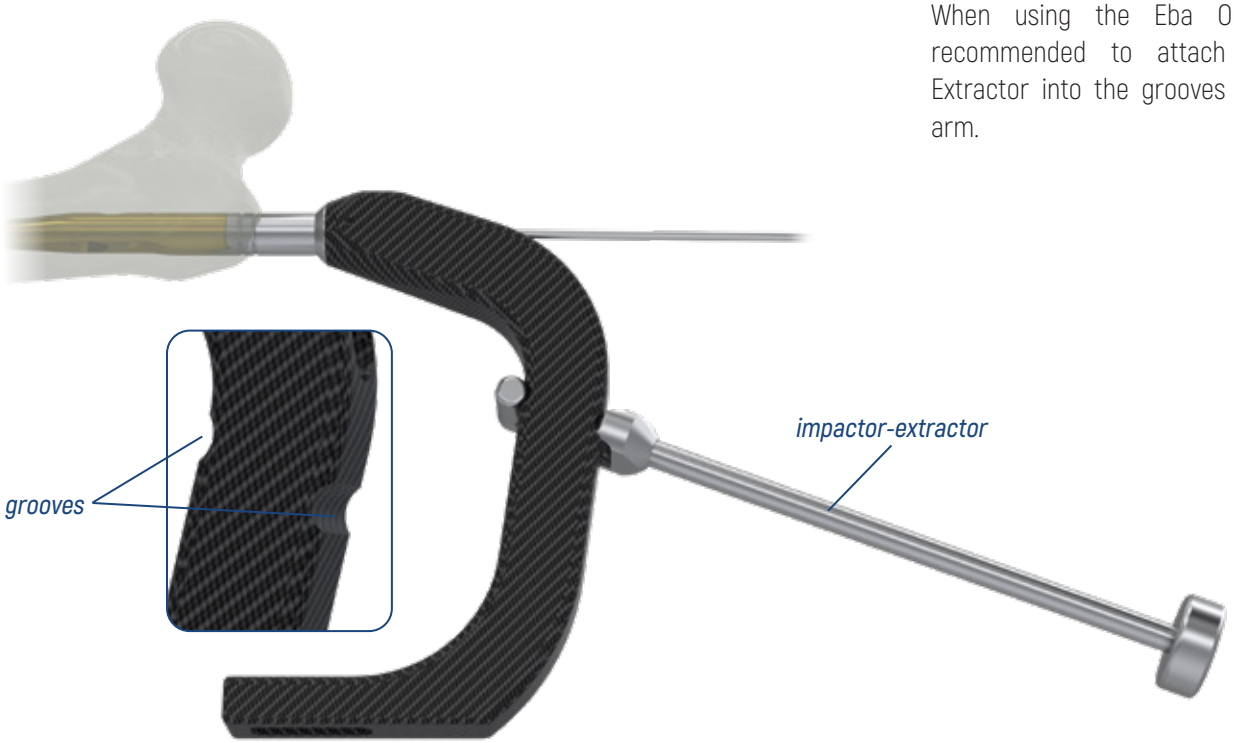
EBA-5351
Allen T-wrench, 8mm long

Nail insertion

Manually insert the Eba One nail over the guide wire.

Under image intensifier, check the correct nail depth and antiversion.

Remove the guide wire.



When using the Eba One Long, it is recommended to attach the Impactor-Extractor into the grooves of the targeting arm.

INSTRUMENTS REQUIRED

EBA-5366
Impactor-extractor for targeting arm EBA-5375

Eba One targeting device assembly

The steps described below refer to Eba One standard (short) nail with a 130° cervical-diaphyseal angle. Follow the same steps also for Eba One medium and long nails.

Attach the appropriate Eba One targeting device –corresponding to the cervical-diaphyseal angle of the implanted nail (120°,125°,130°)– to the targeting arm.

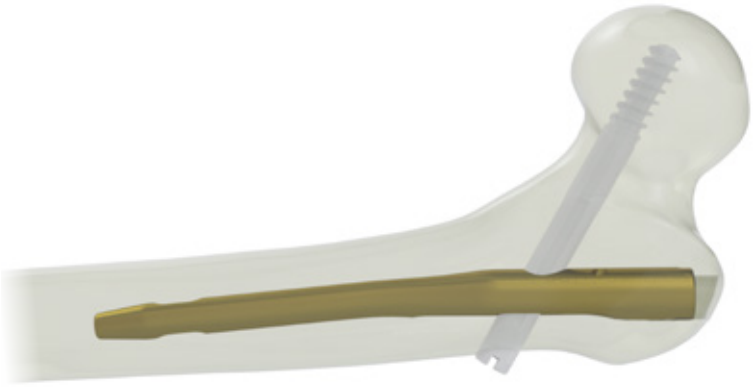
NOTE:
Eba One medium and Eba One Long nails are available only with 130° angle.

Screw the golden knob to lock it.

INSTRUMENTS REQUIRED

EBA-5373
Eba One targeting device 130°

Nail depth monitoring



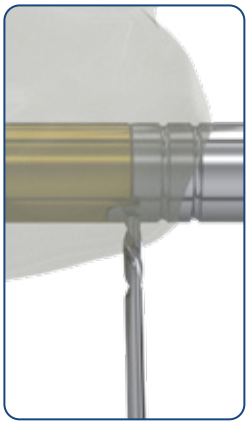
Nail depth is monitored under fluoroscopy (A/P and lateral views).
A ruler placed on the screen along the axis of the cephalic screw provides a visual reference to estimate its final position and adjust nail depth accordingly.

A/P view

Lateral view

It's possible to verify the correct nail depth introducing a K. wire into the dedicated hole of the targeting arm.

The tip of the K. wire indicates the proximal extremity of the nail.



INSTRUMENTS REQUIRED

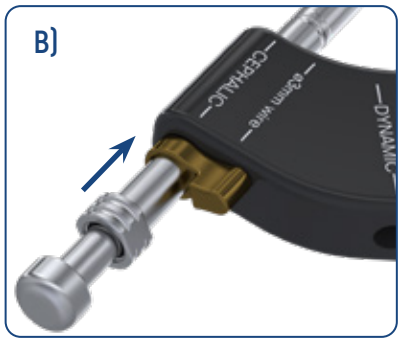
66975N
Guide wire, threaded trocar tip
ø3x410mm STERILE

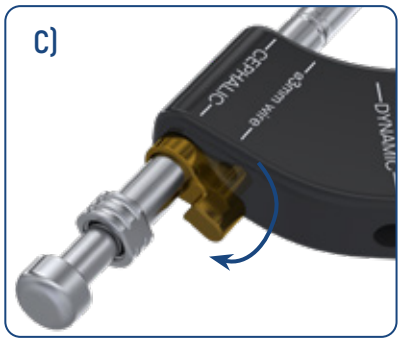
Cannula and trocar insertion

A) Insert the Soft tissue cephalic trocar into the Cephalic cannula.

To locate the incision point, introduce the trocar with the cannula into the slot labelled "CEPHALIC" on the Eba One targeting device until it comes into contact with skin. Make the incision at the where the trocar aligns with the skin.
Then, carefully advance the soft tissue cephalic trocar down to the bone.

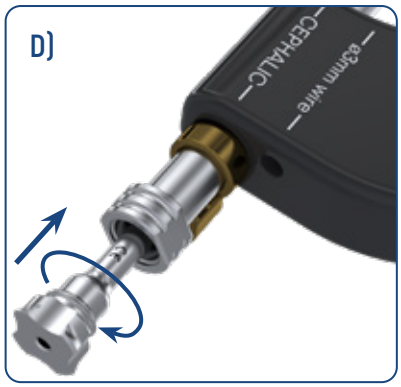
Once the cephalic cannula is in position, adjust its gold lever parallel to the targeting device.





B) Slide the cephalic cannula over the trocar to make contact with the bone.
Push the locking lever down into the recess of the targeting device.

C) Rotate the lever clockwise **to lock the cannula position**.



D) Disengage the soft tissue cephalic trocar from the cephalic cannula.
Slide the cephalic trocar through the cephalic cannula and lock it by turning clockwise.

INSTRUMENTS REQUIRED

EBA-5320
Cephalic cannula

EBA-5395
Soft tissue cephalic trocar

EBA-5325
Cephalic trocar

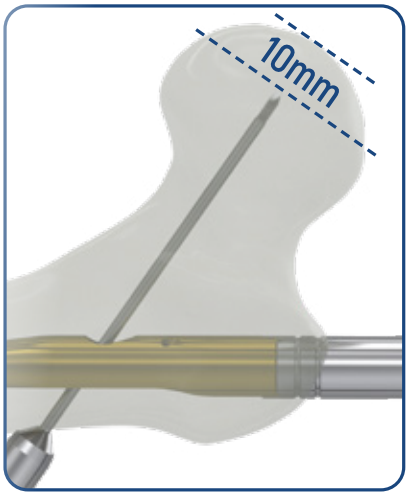
Guide wire insertion for the cephalic screw

Drill a Guide wire, threaded trocar tip ø3x410mm through the cephalic trocar, making sure that it is positioned 10mm from the subchondral bone.

The guide wire should be positioned so that the cephalic screw lies either at the center or just below the center of the femoral head on the A/P view, and at the mid-center on the lateral view.

NOTE
To ensure accurate length measurement, verify that the cephalic trocar is down to bone.

A/P view



Lateral view

INSTRUMENTS REQUIRED

66975N
Guide wire, threaded trocar tip
ø3x410mm STERILE

ø3mm stabilization guide wire insertion

To guarantee the rotational stability of the head of the femur, a stabilization guide wire ø3x410mm can be introduced into the dedicate hole in the nail.

Insert the Obturator into the Trocar for stabilization wire.

To locate the incision point, introduce the trocar with the obturator into the hole labelled "ø3mm wire" on the targeting device until it comes into contact with the skin.

At the point of contact, make an incision and slide the obturator with trocar down to the bone.

While keeping the obturator in contact with the bone, slide the trocar medially until it also meets the bone.

Then remove the obturator.

Proceed to insert 3mm stabilization guide wire: the tip must go beyond the fracture line.

INSTRUMENTS REQUIRED

EBA-5396
Trocar for stabilization wire

EBA-5397
Obturator

66975N
Guide wire, threaded trocar tip
ø3x410mm STERILE

Cephalic screw measurement

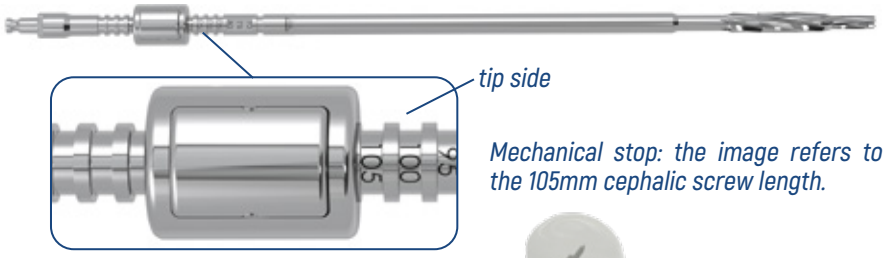
The image refers to the 105mm cephalic screw length

Place the Cephalic Screw ruler onto the guide wire, ensuring the end marked with the arrow touches the trocar.

Read the screw length on the graduated scale where it aligns with the end of the guide wire.

Unscrew and remove the cephalic trocar.

Preparation for cephalic screw insertion



tip side

Mechanical stop: the image refers to the 105mm cephalic screw length.

Use the Cephalic drill to prepare the cavity for the cephalic screw.

Set the mechanical stop at measured length.

Fit the cephalic drill onto the guide wire and use the image intensifier to make sure the guide wire doesn't advance medially.

Ream until the mechanical stop on the drill reaches the cannula.

Remove the cephalic drill using the obturator with handle to maintain the correct guide wire position.

NOTE
You must ream the full measured length to ensure complete seating of the cephalic screw.

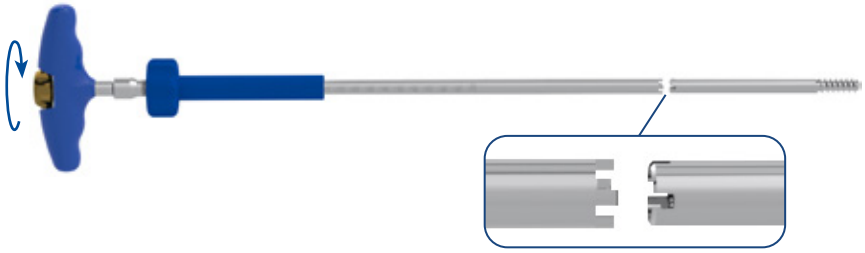
INSTRUMENTS REQUIRED

EBA-5270
Cephalic drill

EBA-5330
Cephalic screw ruler

DT030090
Obturator with handle

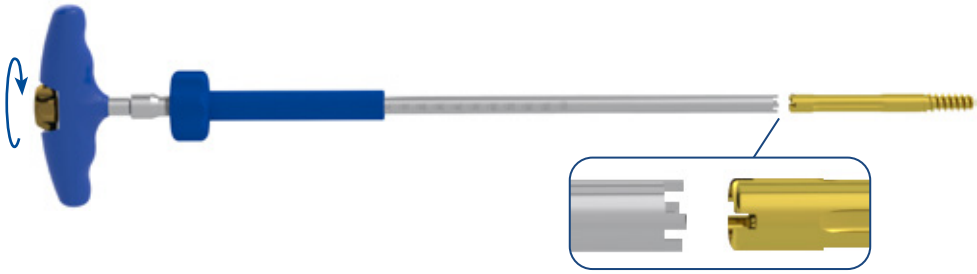
Cephalic screw tapping (OPTIONAL)



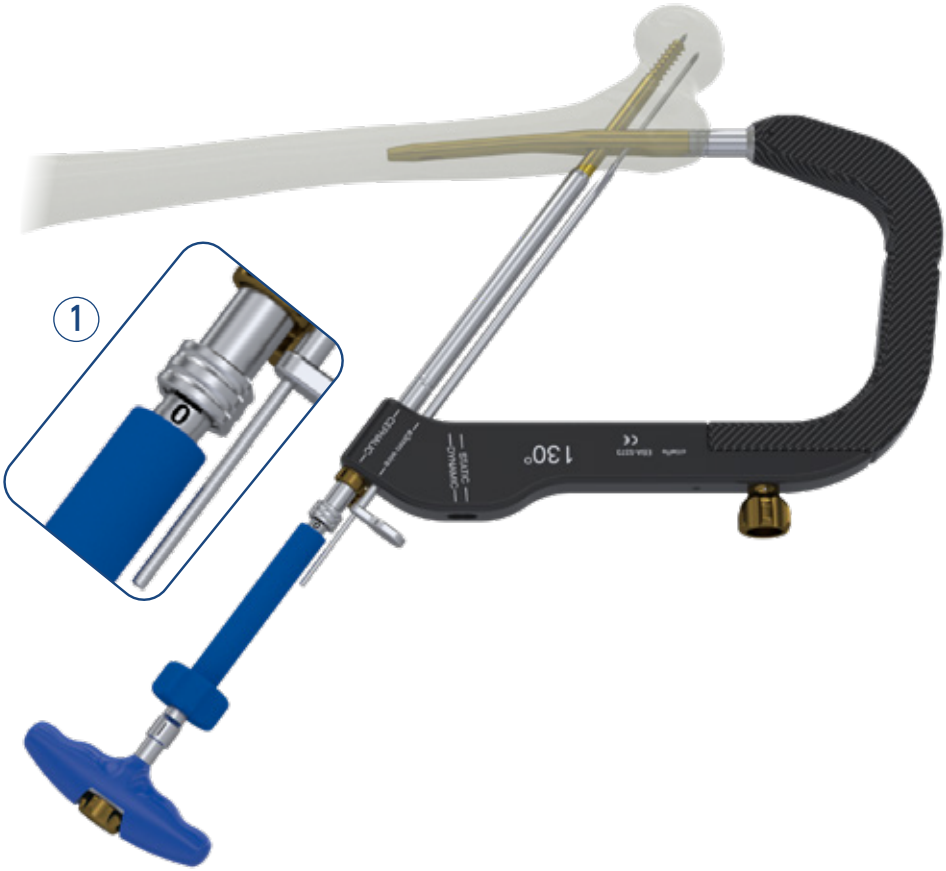
When the bone structure is solid it is advisable to tap for the cephalic screw until it is 20mm from the tip of the guide wire, in order to facilitate the insertion of the cephalic screw.

Attach the tap to the cephalic screwdriver and secure it by manually tightening the golden knob clockwise.
Tap the hole of the cephalic screw using the image intensifier.

Cephalic screw insertion



Select the appropriate cephalic screw and attach it to the cephalic screwdriver.
Ensure that the screwdriver tabs are properly aligned with the slots on the screw, then manually tighten the golden knob by turning it clockwise.



Insert the cephalic screw on the guide wire and screw it until the "0" marker on the screwdriver reaches the edge of the cannula (1).

NOTE
Prior to inserting the cephalic screw and under x-ray make sure that the cephalic cannula is fully in contact with the bone and securely locked.

Use the image intensifier to check the final position of the cephalic screw.

NOTE
To make a static locking of the cephalic screw, use the dedicated Static cephalic screw (color code: blue) instead of the traditional one (color code: yellow).

See the addendum of this operative technique on page 40.

INSTRUMENTS REQUIRED

EBA-5341
Cephalic screwdriver

EBA-5360
Cephalic screw tap

Cephalic screwdriver correct position

Parallel to targeting device

Perpendicular to targeting device

The handle of the cephalic screwdriver must be **parallel** or **perpendicular** to the Eba One targeting device in order to ensure that the integrated locking set screw can be inserted into one of the 4 grooves on the cephalic screw.

There are 4 markers on the screwdriver to help find the right handle position. (1).

Fracture compression/apposition

The cephalic screwdriver can be used to perform fracture compression or apposition:

- bring the compression wheel in contact with the cephalic cannula by turning it clockwise;
- using the image intensifier, continue turning it clockwise until the desired compression is achieved.

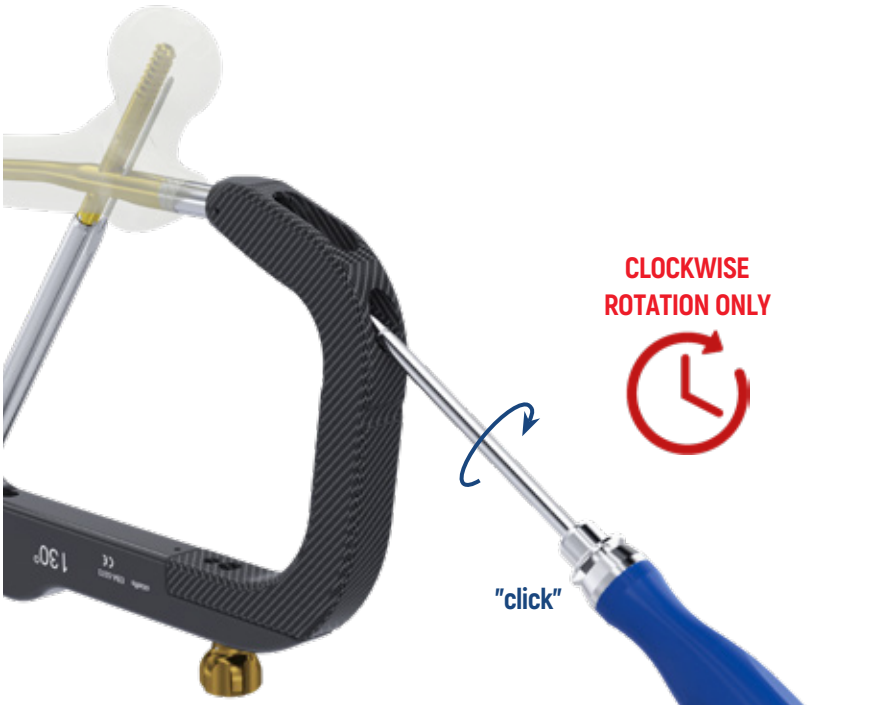
NOTE

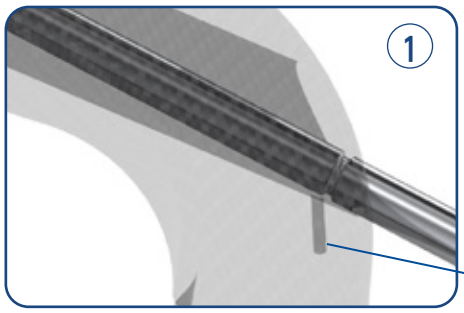
- *The device permits a compression up to 10mm.*
- *Compression can also be performed after the set screw is locked (see next step), but only when using the dynamic cephalic screw. If the static cephalic screw is used, compression has to be performed before the set screw is locked.*

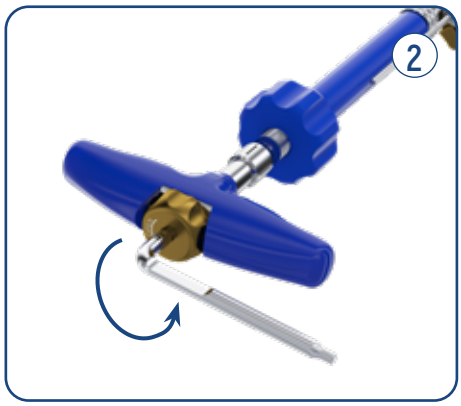
INSTRUMENTS REQUIRED

EBA-5341
Cephalic screwdriver

Rotation locking of the cephalic screw







The integrated locking set screw in the Eba One nail has two pre-set positions: **OPEN** or **CLOSED**.

After verifying the correct position of the screwdriver to ensure proper locking of integrated set screw, assemble the 3.5mm cardanic screwdriver shaft with the 4Nm torque handle.

Insert it through the lateral hole of the nail targeting arm, then start turning it clockwise until the torque limiter is engaged.

At this point, an audible 'click' should be heard. Then, perform a visual check under X-ray to ensure that the groove on the screwdriver shaft aligns with the radiopaque marker inside the carbon guide (1).

NOTE
In order to correctly perform the Xray visual check, make sure that the cardanic screwdriver shaft is laying on the lateral portion of the lateral insertion hole on the guide.

Remove the cardanic screwdriver shaft and the torque handle.
Remove the cephalic screwdriver by loosening the golden knob and then remove the guide wire.

NOTE (2)
Either the allen wrench 5mm or screwdriver, 5mm can be used to loosen the golden knob on the handle of the screwdriver.

Remove the stabilization guide wire and the stabilization wire trocar.

Position the cephalic cannula lever parallel to the guide and remove the cannula.

INSTRUMENTS REQUIRED

EBA-5348
Cardanic screwdriver long shaft, 3.5mm

12.130-RAL5010
4Nm torque limiter silicone handle

F4-0100
Allen wrench, 5mm

EBA ONE STANDARD (SHORT) DISTAL LOCKING

Distal locking options

Dynamic locking

Static locking

The Eba One targeting device allows dynamic or static distal locking.

Dynamic locking: insert the Diaphyseal cannula with the Diaphyseal trocar, cannulated ø4.2mm into the "DYNAMIC" hole on the Eba One targeting device until it reaches the skin.

Static locking: insert the diaphyseal cannula with the Diaphyseal trocar, cannulated ø4.2mm into the "STATIC" hole on the Eba One targeting device, until it reaches the skin.

Perform a small incision at the tip of the diaphyseal trocar and then insert the cannula with the trocar through the soft tissue until it reaches the lateral cortex.

INSTRUMENTS REQUIRED

EBA-5321
Diaphyseal cannula

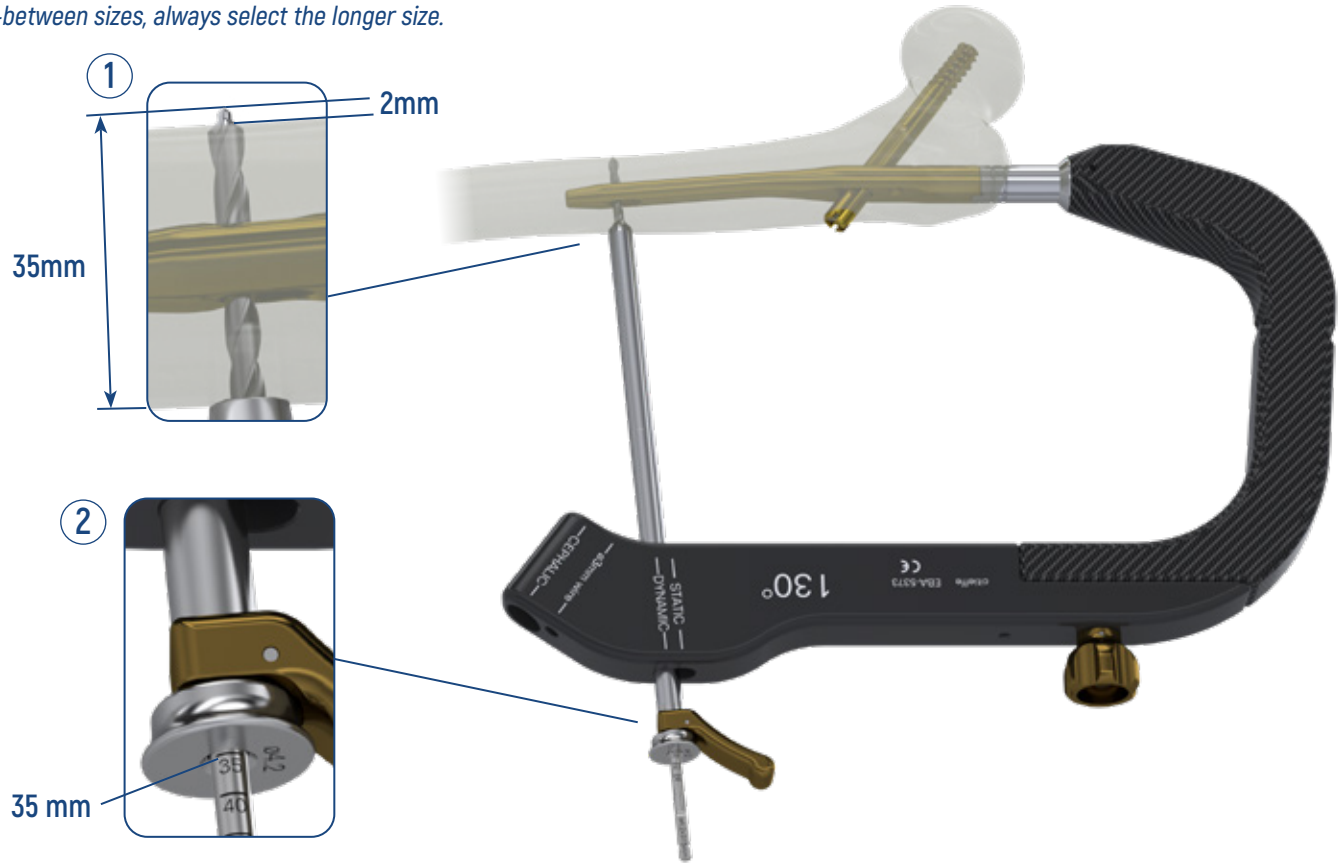
EBA-5329
Diaphyseal trocar, cannulated ø4.2mm

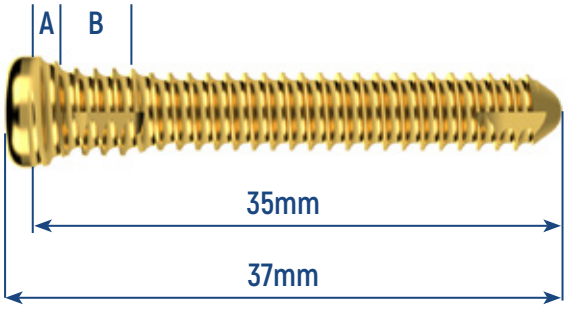
Distal screw preparation and measurement

Make sure that the trocar is in contact with the lateral cortex.
Insert the Graduated drill bit ø4.2mm into the diaphyseal trocar and drill both cortices: the tip must go beyond the second cortex of at least 2mm ①.

While ensuring that the trocar is in full contact with the bone, read the length of the distal locking screw directly from the drill bit shaft at the edge of the trocar ②.
Remove the drill bit and the cannulated trocar.

NOTE
When in-between sizes, always select the longer size.





Example: code EBA-582030 (Cortical screw ø5.2mm L.35mm)

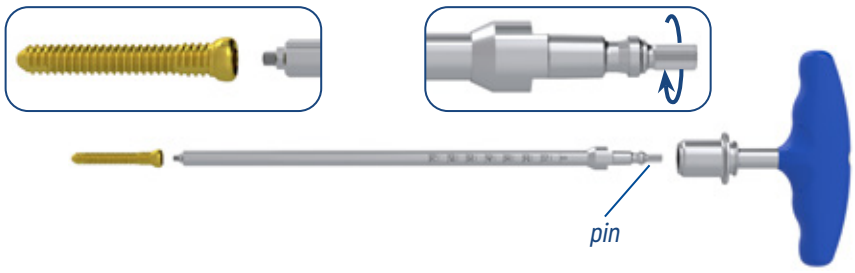
A Approximately 2mm length with increased core diameter.

B Increased resistance will be felt during screw insertion due to proximal screw self-tapping build up (0.5mm) for enhanced stability (approximately 4mm length).

INSTRUMENTS REQUIRED

EBA-5297
Graduated drill bit ø4.2x315mm
STERILE

Distal screw insertion



Select the correct cortical screw ø5.2mm.

Position the screw on the Screwdriver, 5mm Hudson coupling, XL and assembly it manually rotating the pin clockwise.

Connect the Cannulated T-handle on the screwdriver.

Insert the distal screw until the "0" mark on the screwdriver reaches the edge of the cannula: **Increased resistance will be felt during screw insertion due to the proximal screw's self-tapping thread buildup (0.5mm) designed for enhanced stability over approximately 4mm of length.**

Remove the cannulated T-handle.

Loosen the pin of the screwdriver with the Allen wrench, 2.5mm and remove the screwdriver.

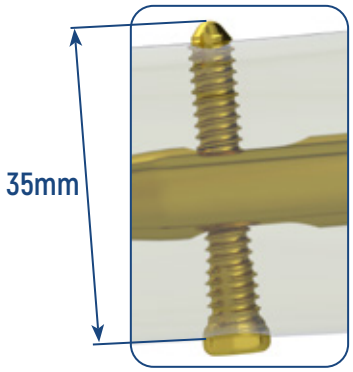


Image of the final and correct position of the cortical screw.

INSTRUMENTS REQUIRED

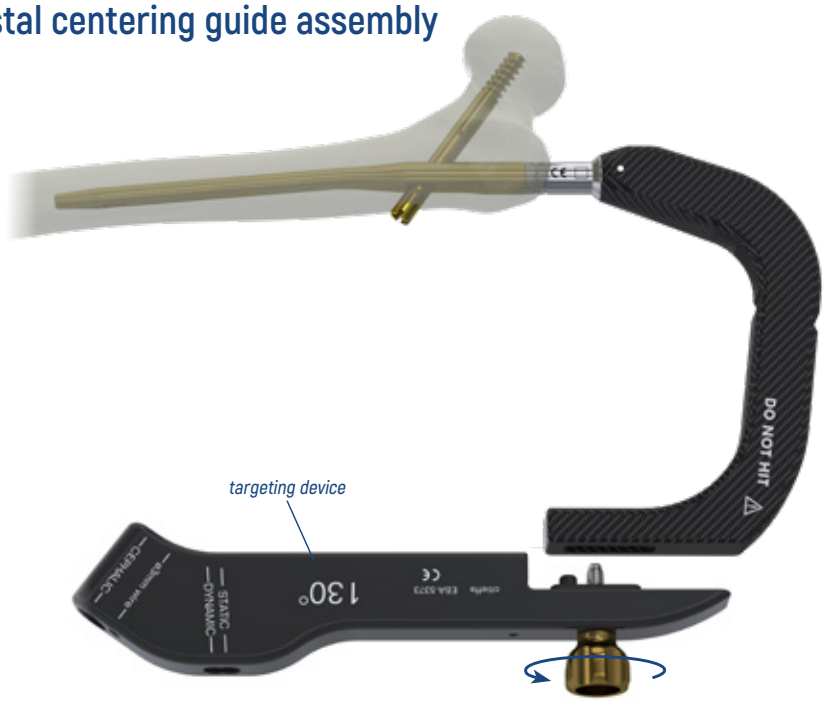
GH5156
Screwdriver, 5mm Hudson coupling, XL

DT030070
Cannulated T-handle with Hudson coupling

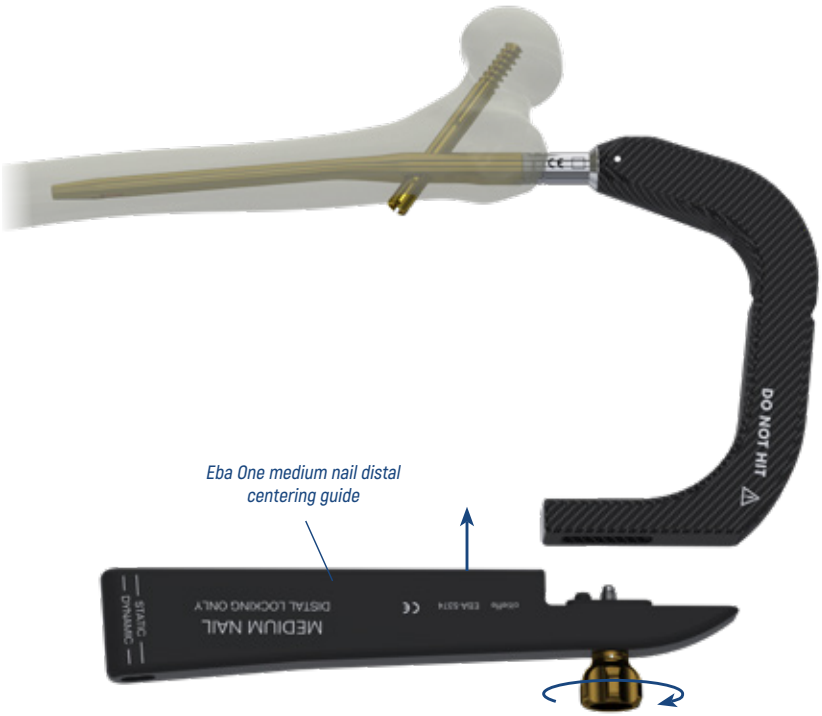
970025
Allen wrench, 2.5mm

EBA ONE MEDIUM DISTAL LOCKING

Distal centering guide assembly



Unscrew the golden knob to detach the Eba One targeting device from the targeting arm.



Connect the Eba One medium nail distal centering guide to the targeting arm.

Screw the golden knob.

INSTRUMENTS REQUIRED

EBA-5374
Eba One medium nail distal centering guide

Distal locking options

Dynamic locking

Static locking

The Eba One medium nail distal centering guide allows dynamic or static distal locking.

Dynamic locking: insert the Diaphyseal cannula with the Diaphyseal trocar, cannulated ø4.2mm into the "DYNAMIC" hole on the Eba One targeting device until it reaches the skin.

Static locking: insert the diaphyseal cannula with the Diaphyseal trocar, cannulated ø4.2mm into the "STATIC" hole on the Eba One targeting device until it reaches the skin.

Perform a small incision at the tip of the diaphyseal trocar then insert the cannula with the trocar through the soft tissue until it reaches the lateral cortex.

INSTRUMENTS REQUIRED

EBA-5321
Diaphyseal cannula

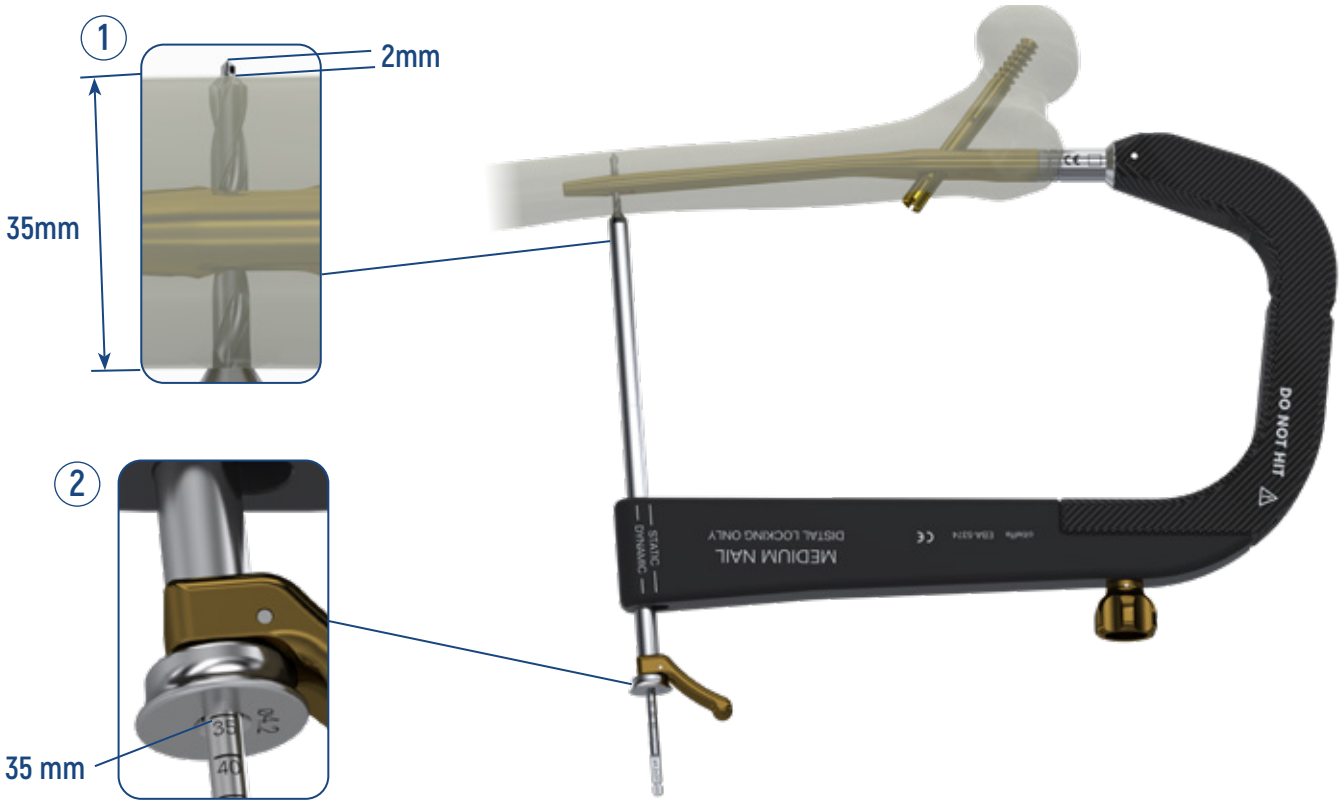
EBA-5329
Diaphyseal trocar, cannulated ø4.2mm

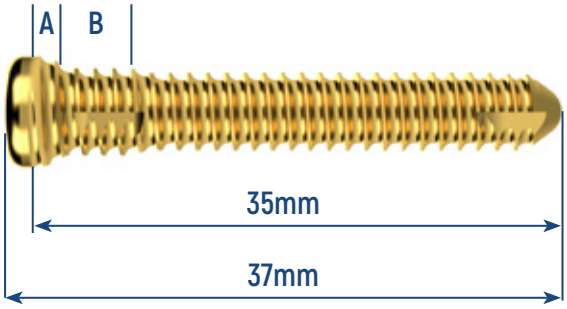
Distal screw preparation and measurement

Make sure that the trocar is in contact with the lateral cortex.
Insert the Graduated drill bit ø4.2mm into the diaphyseal trocar and drill both cortices: the tip must go beyond the second cortex of at least 2mm ①.

While ensuring that the trocar is in full contact with the bone, read the length of the distal locking screw directly from the drill bit shaft at the edge of the trocar ②.
Remove the drill bit and the cannulated trocar.

NOTE
When in-between sizes, always select the longer size.





Example: code EBA-582030 (Cortical screw ø5.2mm L.35mm)

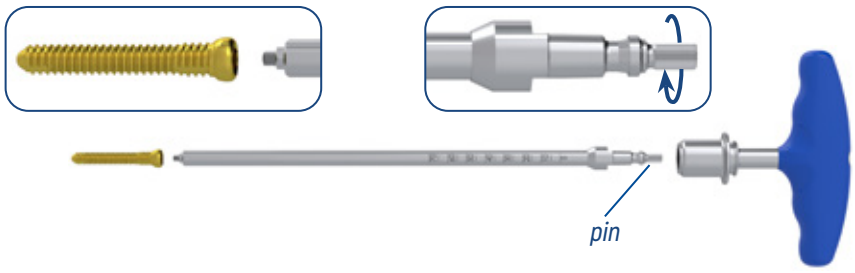
A Approximately 2mm length with increased core diameter.

B Increased resistance will be felt during screw insertion due to proximal screw self-tapping build up (0.5mm) for enhanced stability (approximately 4mm length).

INSTRUMENTS REQUIRED

EBA-5297
Graduated drill bit ø4.2x315mm
STERILE

Distal screw insertion



Select the correct cortical screw ø5.2mm.

Position the screw on the Screwdriver, 5mm Hudson coupling, XL and assembly it manually rotating the pin clockwise.

Connect the Cannulated T-handle on the screwdriver.

Insert the distal screw until the "0" mark on the screwdriver reaches the edge of the cannula: **Increased resistance will be felt during screw insertion due to the proximal screw's self-tapping thread buildup (0.5mm) designed for enhanced stability over approximately 4mm of length.**

Remove the cannulated T-handle.

Loosen the pin of the screwdriver with the Allen wrench, 2.5mm and remove the screwdriver.

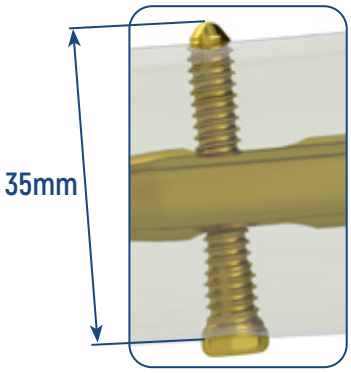


Image of the final and correct position of the cortical screw.

INSTRUMENTS REQUIRED

GH5156
Screwdriver, 5mm Hudson coupling, XL

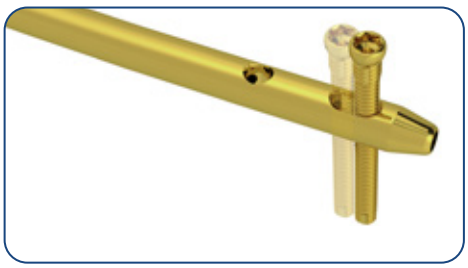
DT030070
Cannulated T-handle with Hudson coupling

970025
Allen wrench, 2.5mm

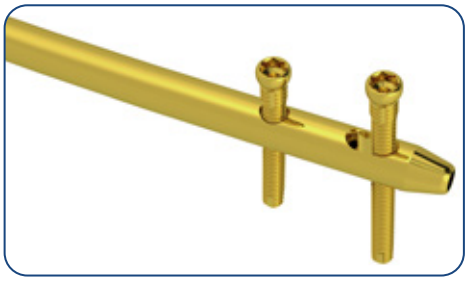
EBA ONE LONG DISTAL LOCKING

The Eba One long nail offers three different types of distal locking:

STATIC
Screw position: proximal hole



DYNAMIC
Screw position: distal slot



STATIC-DYNAMIC
Screws position: proximal hole and distal slot

It is possible to insert the distal screw with the "Free-hand" technique;

EBA ONE LONG DISTAL LOCKING - "FREE-HAND" TECHNIQUE

Preparation of distal locking

Under X-Ray control, check the reduction, correct the alignment of the fragments and the length of the limb before performing distal locking with the free-hand technique.

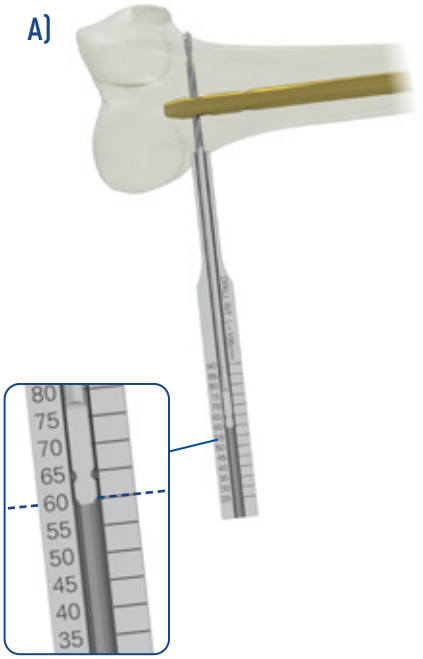
Drill bi-cortical using the Drill bit, ø4x195mm.

Under X-Ray control, make sure the drill bit passes through the nail holes both on anterior-posterior and medial-lateral axis.

NOTE
It is suggested to start with the most distal hole.

Distal screw length measurement

A)



B)

A) Insert the Cortical screw ruler on the drill bit until touching the cortex.
The end of the drill bit on the screw ruler, shows the length of the screw to be used.
Remove the drill bit

B) If you use the Screws depth gauge, remove the drill bit.
Insert the gauge into the hole making sure that the external sleeve comes into contact with the bone and the tip hooks the second cortex. Read the length of the screw directly on the depth gauge scale.

NOTE
When in-between sizes, always select the longer size.

The images refers to the 60mm screw size

INSTRUMENTS REQUIRED

DT03016A
Drill bit, ø4x195mm STERILE

EBA-5331
Cortical screw ruler

or

DT030061
Screws depth gauge

First distal screw insertion

Select the correct cortical screw ø5.2mm.

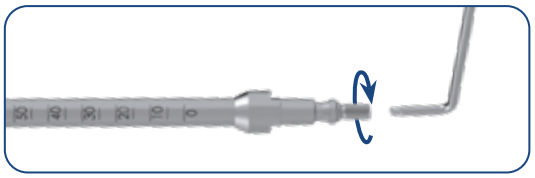
Position the screw on the Screwdriver, 5mm Hudson coupling, XL and assembly it manually rotating the pin clockwise.

Connect the Cannulated T-handle on the screwdriver.

Insert the first distal screw.

Remove the drill bit.

NOTE
The allen wrench can be used to loosen the pin located on the screwdriver.



Second distal screw insertion

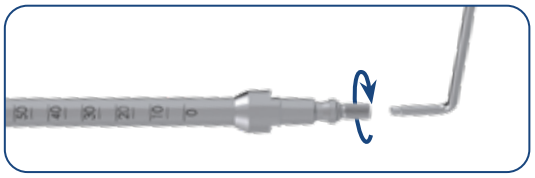
Select the correct cortical screw ø5.2mm.

Position the screw on the Screwdriver, 5mm Hudson coupling, XL and assembly it manually rotating the pin clockwise.

Connect the Cannulated T-handle on the screwdriver.

Insert the second distal screw.

NOTE
The allen wrench can be used to loosen the pin located on the screwdriver.



INSTRUMENTS REQUIRED

GH5156
Screwdriver, 5mm Hudson coupling, XL

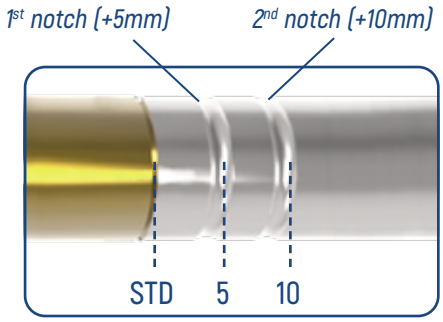
DT030070
Cannulated T-handle, Hudson coupling

970025
Allen wrench, 2.5mm

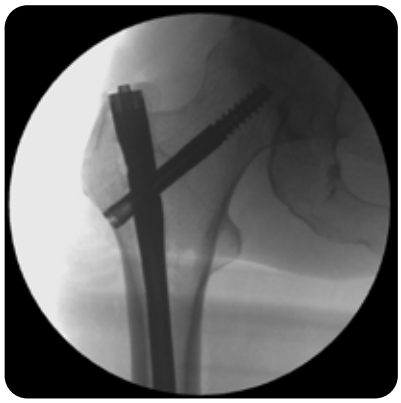
TARGETING DEVICE REMOVAL

Before removing the targeting arm take note of reference notch on the nail inserter to aid in Eba One end cap selection.

Remove the targeting arm by loosening the connection screw using the Allen T-wrench, 8mm long.



Check the closure of the locking screw



Opened Set screw

Closed Set screw

Use the image intensifier to check the correct position of the integrated locking set screw:
When in the CLOSED position, the upper edge must be at the level of the nail's proximal tip and not visible. Please refer to the images on the left.

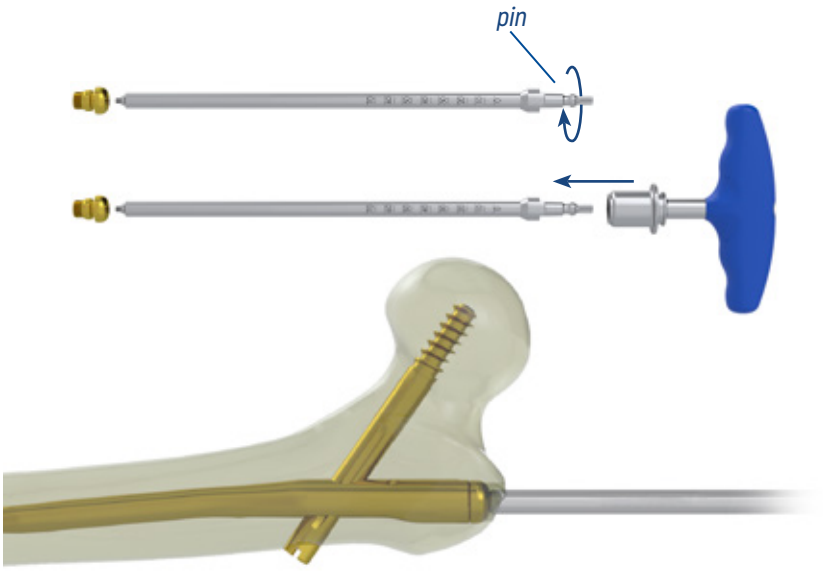
The closed position enables only the lateral sliding of the dynamic cephalic screw, allowing fracture compaction.

NOTE:
if the static cephalic screw is used, there is no lateral sliding, allowing only compaction through the device EBA-5341 before locking the set screw.

INSTRUMENTS REQUIRED

EBA-5351
Allen T-wrench, 8mm long

End cap insertion



Select the correct end cap.

Position the screw on the Screwdriver, 5mm Hudson coupling, XL and assembly it manually rotating the pin clockwise.

Connect the Cannulated T-handle on the screwdriver.

Insert the end cap.

Suture the incision using the most suitable technique.

INSTRUMENTS REQUIRED

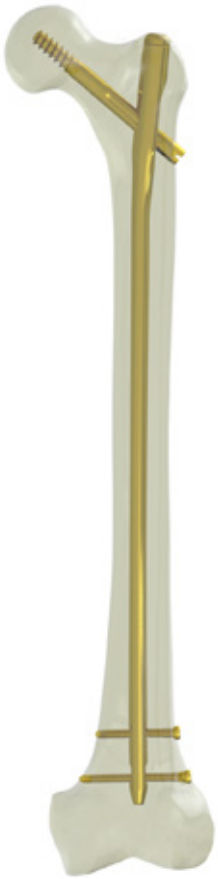
GH5156
Screwdriver, 5mm Hudson coupling, XL

DT030070
Cannulated T-handle with Hudson coupling

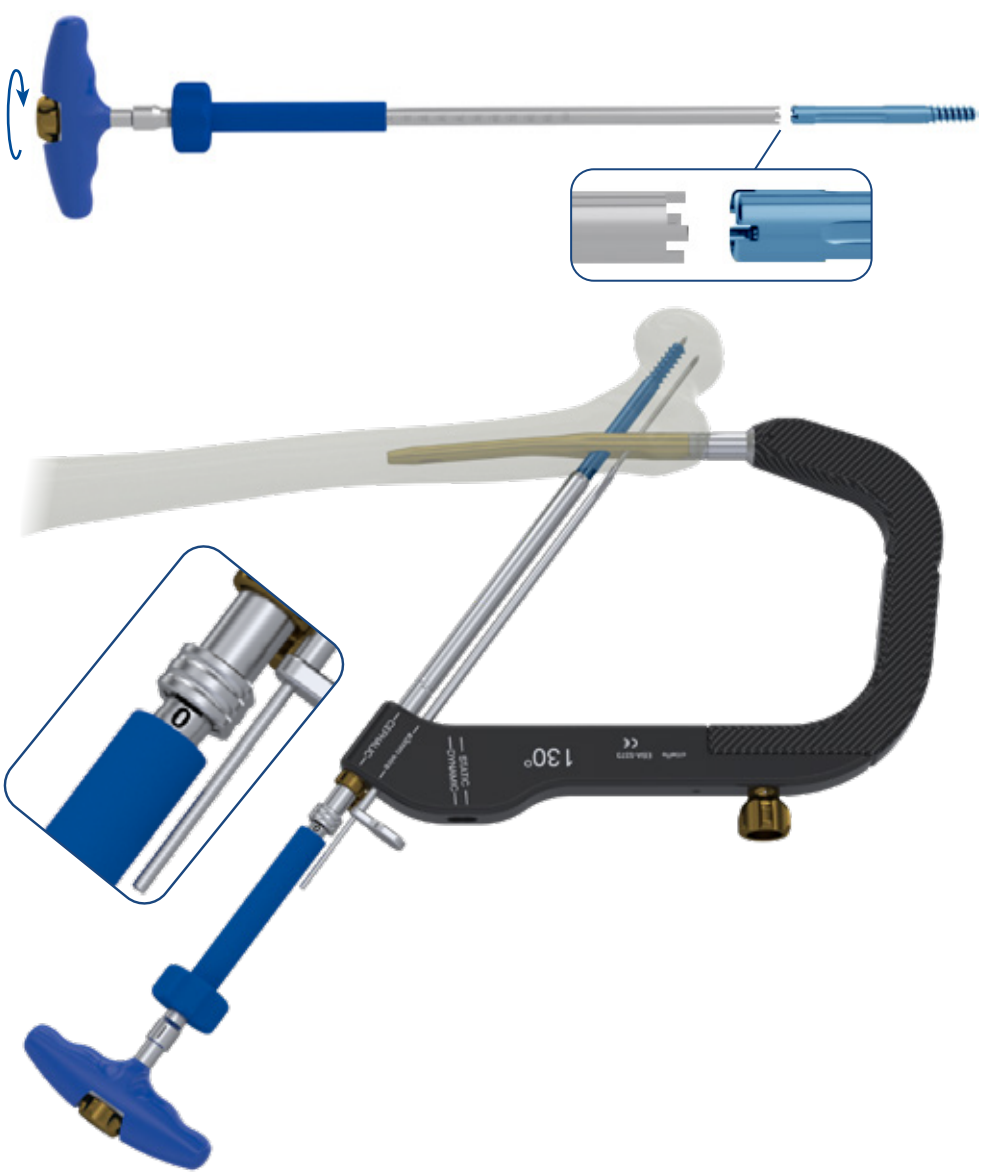
Eba One short implant

Eba One medium implant

Eba One long implant



ADDENDUM - STATIC CEPHALIC SCREW



In the presence of specific situations such as isolated sub-trochanteric fractures or prophylactic nailing, a static cephalic screw locking could be performed.
The dedicated static cephalic screw (color code: blue) is locked completely both in rotation and sliding.

NOTE:
the traditional cephalic screw (color code: yellow) can slide laterally and is locked only in rotation.

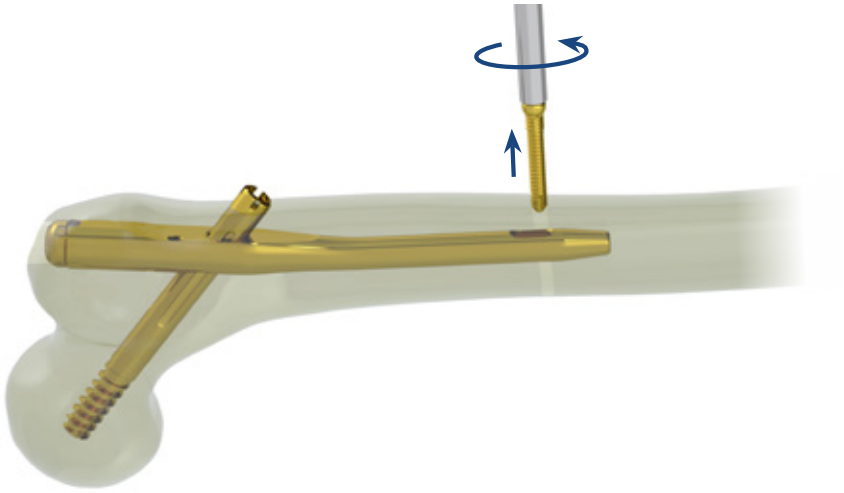
Follow the surgical steps as described on page 24.

INSTRUMENTS REQUIRED

EBA-5341
Cephalic screwdriver

IMPLANT REMOVAL

Distal screw removal



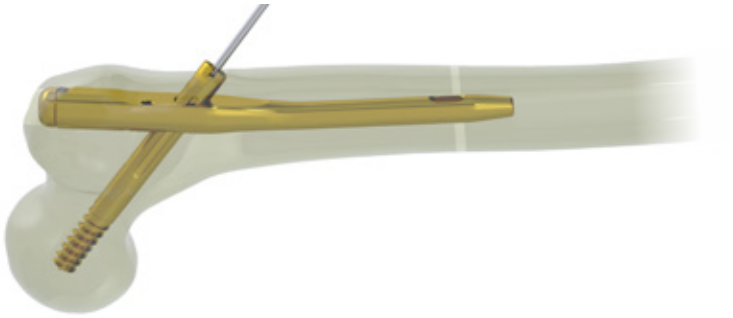
Make an incision through the old scar.

Position the Screwdriver, 5mm Hudson coupling, XL on the cortical screw and assembly it manually rotating the pin clockwise.

Connect the Cannulated T-handle on the screwdriver.

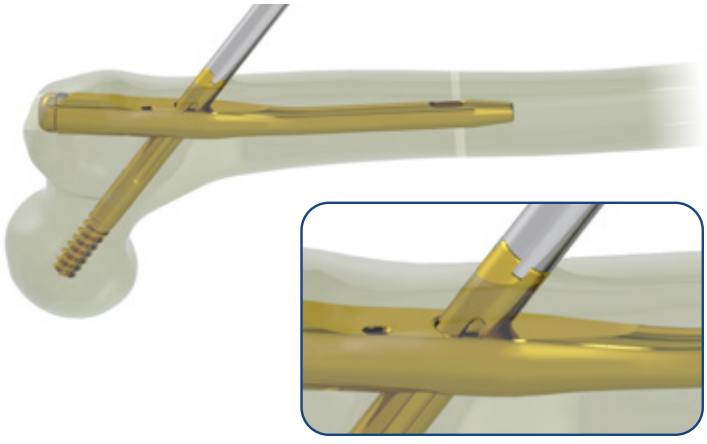
Remove the cortical screw by turning the screwdriver anti-clockwise.

Cephalic screw removal



Make an incision through the old scar below the greater trochanter to expose the outer end of the cephalic screw.

Remove any bony in-growth and insert Guide wire, threaded trocar tip ø3x410mm into the cephalic screw. Make sure to not cross the tip of the cephalic screw.



Insert the Cephalic screwdriver on the guide wire. Fit the screwdriver onto the screw and turn the golden knob to obtain the correct connection between screwdriver and screw.

NOTE
Under image intensifier verify the correct connection between screwdriver and screw.

INSTRUMENTS REQUIRED

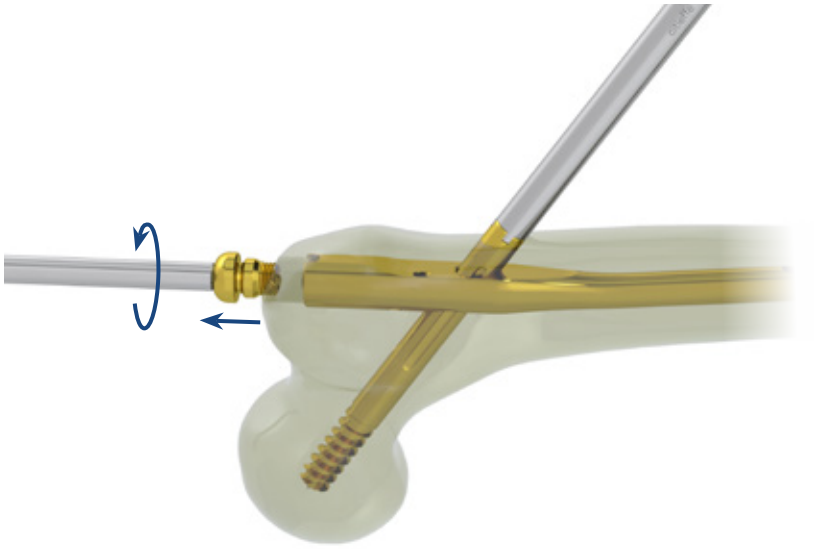
GH5156
Screwdriver, 5mm
Hudson coupling, XL

DT030070
Cannulated T-handle
with Hudson coupling

66975N
Guide wire, threaded trocar tip
ø3x410mm (STERILE)

EBA-5341
Cephalic screwdriver

End cap removal



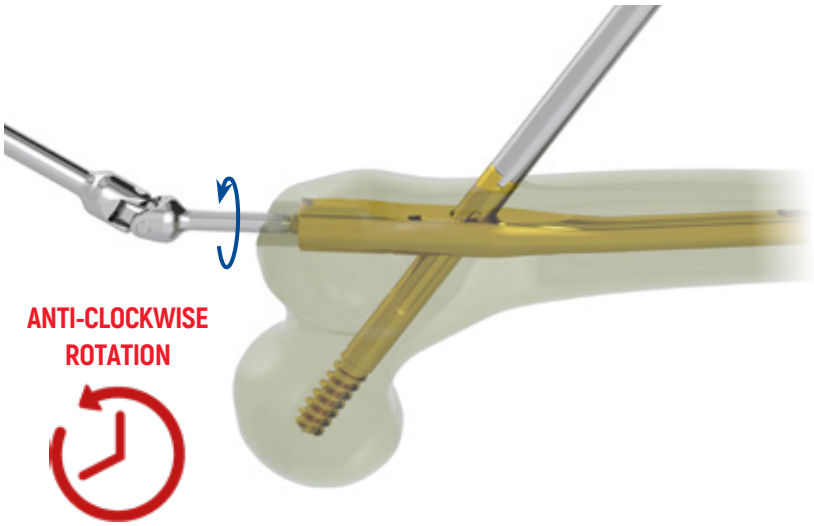
Perform an incision over the proximal end of the nail.

Remove any bony in-growth on the end cap.

Position the Screwdriver, 5mm Hudson coupling, XL on the end cap and assembly it manually rotating the pin clockwise.
Connect the Cannulated T-handle on the screwdriver.

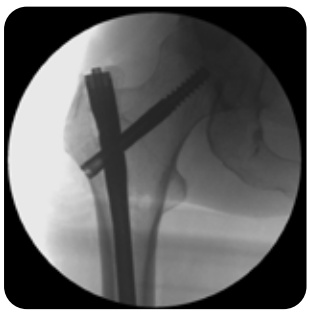
Remove the end cap by turning the screwdriver anti-clockwise.

Locking screw opening



Assemble the Cardanic screwdriver shaft, 3.5mm on the 4Nm torque handle and **make anti-clockwise rotation to set the locking screw to OPEN position.**

Check with image intensifier to make sure the integrated set screw is positioned correctly in OPEN position.
The tip of the set screw will be visible from the end of the nail.



Opened Set screw

INSTRUMENTS REQUIRED

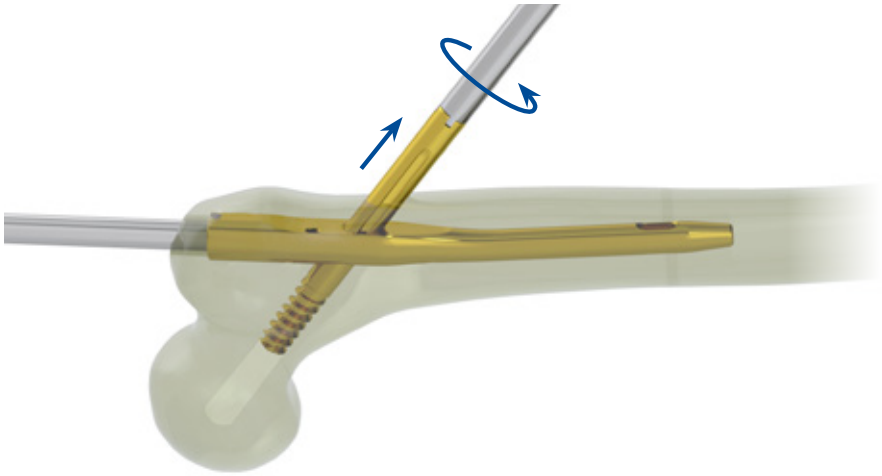
GH5156
Screwdriver, 5mm
Hudson coupling, XL

DT030070
Cannulated T-handle
with Hudson coupling

EBA-5348
Cardanic screwdriver long shaft, 3.5mm

12.130-RAL5010
4Nm torque limiter silicone
handle

Cephalic screw removal



Tighten the Eba One nails extractor into the proximal end of the nail.

Use the cephalic screwdriver to unscrew the cephalic screw.

Remove the guide wire ø3x410mm.

Eba One nail removal

Remove the Eba One nail through the Eba One nails extractor.

If necessary, use a slotted hammer on the Eba One nails extractor to remove the nail.

INSTRUMENTS REQUIRED

EBA-5365
Eba One nails extractor

EBA-5341
Cephalic screwdriver

DT030080
Slotted hammer

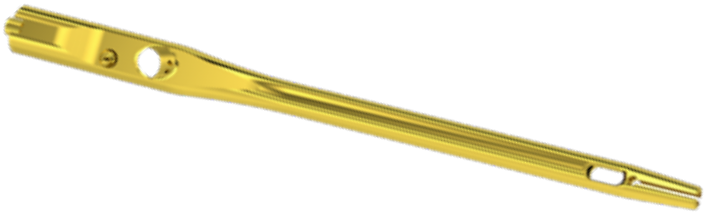
ORDERING INFORMATION

TITANIUM STERILE

Eba One standard nail - L. 170mm

ø10mm		ø11mm	
Code	Angle	Code	Angle
EBA-550017	120°	EBA-550117	120°
EBA-551017	125°	EBA-551117	125°
EBA-552017	130°	EBA-552117	130°

Eba One medium nail - L. 230mm



ø10mm		ø11mm	
Code	Angle	Code	Angle
EBA-552023	130°	EBA-552123	130°

Eba One long nail

Cannulated nail ø10mm

Code	Angle	L.
EBA-562028	130°	280mm RIGHT
EBA-562030	130°	300mm RIGHT
EBA-562032	130°	320mm RIGHT
EBA-562034	130°	340mm RIGHT
EBA-562036	130°	360mm RIGHT
EBA-562038	130°	380mm RIGHT
EBA-562040	130°	400mm RIGHT
EBA-562042	130°	420mm RIGHT

Code	Angle	L.
EBA-572028	130°	280mm LEFT
EBA-572030	130°	300mm LEFT
EBA-572032	130°	320mm LEFT
EBA-572034	130°	340mm LEFT
EBA-572036	130°	360mm LEFT
EBA-572038	130°	380mm LEFT
EBA-572040	130°	400mm LEFT
EBA-572042	130°	420mm LEFT

TITANIUM STERILE

Cannulated nail ø11mm

Code	Angle	L.
EBA-562128	130°	280mm RIGHT
EBA-562130	130°	300mm RIGHT
EBA-562132	130°	320mm RIGHT
EBA-562134	130°	340mm RIGHT
EBA-562136	130°	360mm RIGHT
EBA-562138	130°	380mm RIGHT
EBA-562140	130°	400mm RIGHT
EBA-562142	130°	420mm RIGHT

Code	Angle	L.
EBA-572128	130°	280mm LEFT
EBA-572130	130°	300mm LEFT
EBA-572132	130°	320mm LEFT
EBA-572134	130°	340mm LEFT
EBA-572136	130°	360mm LEFT
EBA-572138	130°	380mm LEFT
EBA-572140	130°	400mm LEFT
EBA-572142	130°	420mm LEFT

Cannulated nail ø12mm

Code	Angle	L.
EBA-562228	130°	280mm RIGHT
EBA-562230	130°	300mm RIGHT
EBA-562232	130°	320mm RIGHT
EBA-562234	130°	340mm RIGHT
EBA-562236	130°	360mm RIGHT
EBA-562238	130°	380mm RIGHT
EBA-562240	130°	400mm RIGHT
EBA-562242	130°	420mm RIGHT

Code	Angle	L.
EBA-572228	130°	280mm LEFT
EBA-572230	130°	300mm LEFT
EBA-572232	130°	320mm LEFT
EBA-572234	130°	340mm LEFT
EBA-572236	130°	360mm LEFT
EBA-572238	130°	380mm LEFT
EBA-572240	130°	400mm LEFT
EBA-572242	130°	420mm LEFT

Cannulated nail ø13mm

Code	Angle	L.
EBA-562328	130°	280mm RIGHT
EBA-562330	130°	300mm RIGHT
EBA-562332	130°	320mm RIGHT
EBA-562334	130°	340mm RIGHT
EBA-562336	130°	360mm RIGHT
EBA-562338	130°	380mm RIGHT
EBA-562340	130°	400mm RIGHT
EBA-562342	130°	420mm RIGHT

Code	Angle	L.
EBA-572328	130°	280mm LEFT
EBA-572330	130°	300mm LEFT
EBA-572332	130°	320mm LEFT
EBA-572334	130°	340mm LEFT
EBA-572336	130°	360mm LEFT
EBA-572338	130°	380mm LEFT
EBA-572340	130°	400mm LEFT
EBA-572342	130°	420mm LEFT

on request

TITANIUM STERILE

Cephalic screw ø10.5mm

Code	L. (mm)
EBA-580070	70
EBA-580075	75
EBA-580080	80
EBA-580085	85
EBA-580090	90
EBA-580095	95
EBA-580100	100

Code	L. (mm)
EBA-580105	105
EBA-580110	110
EBA-580115	115
EBA-580120	120
EBA-580125	125
EBA-580130	130

Static Cephalic screw ø10.5mm

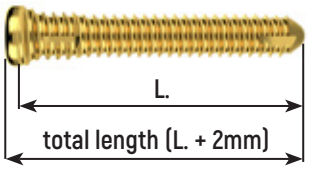
Code	L. (mm)
EBA-586070	70
EBA-586075	75
EBA-586080	80
EBA-586085	85
EBA-586090	90
EBA-586095	95
EBA-586100	100
EBA-586105	105

Code	L. (mm)
EBA-586110	110
EBA-586115	115
EBA-586120	120
EBA-586125	125
EBA-586130	130

on request

TITANIUM STERILE

Cortical screw ø5.2mm



Code	L. (mm)
EBA-582022	22.5
EBA-582025	25
EBA-582027	27.5
EBA-582030	30
EBA-582032	32.5
EBA-582035	35
EBA-582037	37.5
EBA-582040	40
EBA-582042	42.5
EBA-582045	45
EBA-582047	47.5
EBA-582050	50
EBA-582052	52.5

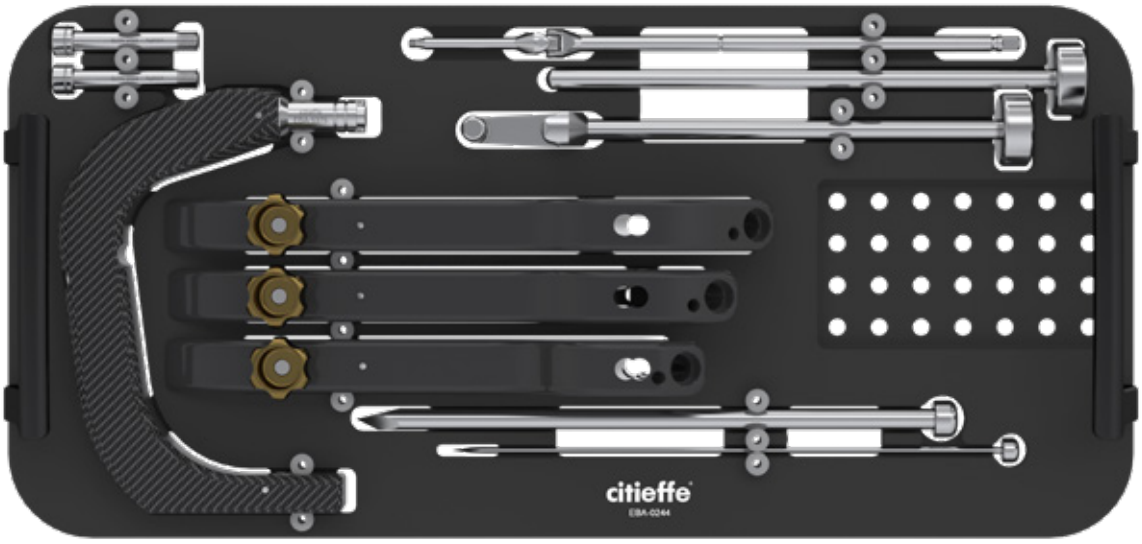
Code	L. (mm)
EBA-582055	55
EBA-582060	60
EBA-582065	65
EBA-582070	70
EBA-582075	75
EBA-582080	80
EBA-582085	85
EBA-582090	90
EBA-582095	95
EBA-582100	100
EBA-582105	105
EBA-582110	110

Eba One end cap

Code	Size	nail length increment
EBA-589000	STD	7mm
EBA-589005	5	12mm
EBA-589010	10	17mm

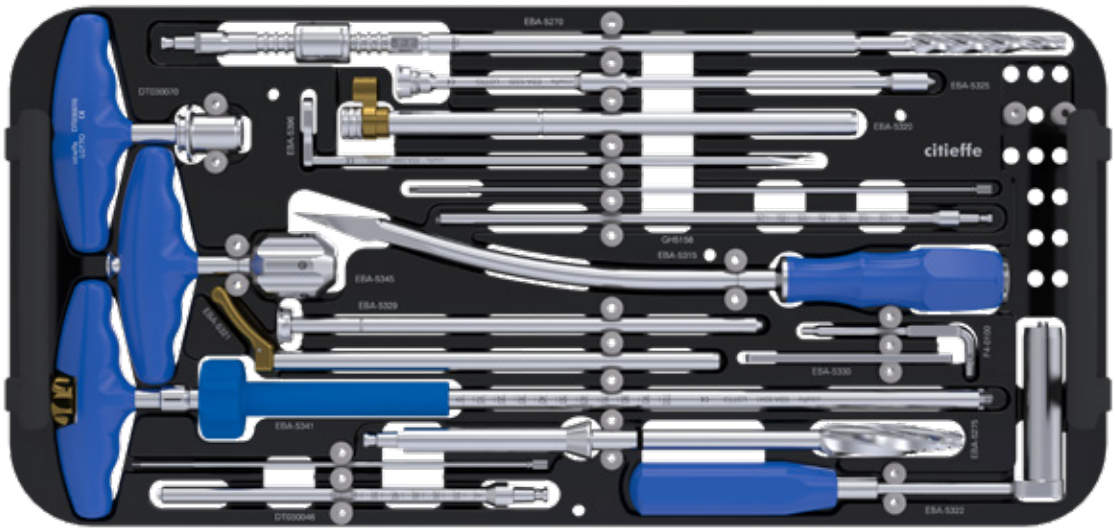
on request

Eba One proximal guide set #5



Code	Description	Q.ty
EBA-5319	Nail connection bolt, Eba One carbon targeting arm (spare part)	1
EBA-5348	Cardanic screwdriver long shaft, 3.5mm	1
EBA-5366	Impactor-extractor for targeting arm EBA-5375	1
EBA-5367	Impactor, spherical tip	1
EBA-5371	Eba One targeting device 120°	1
EBA-5372	Eba One targeting device 125°	1
EBA-5373	Eba One targeting device 130°	1
EBA-5375	Eba One carbon targeting arm (two parts)	1
EBA-5395	Soft tissue cephalic trocar	1
EBA-5397	Obturator for trocar for stabilization wire	1
EBA-0244	Eba One proximal guide set tray #5, empty	1

Eba One instrument set #6



Code	Description	Q.ty
DT030046	Screwdriver, 5mm Hudson coupling (two parts)	1
DT030070	Cannulated T-handle with Hudson coupling	1
EBA-5270	Cephalic drill	1
EBA-5275	Cannulated reamer ø16mm	1
EBA-5315	Cannulated awl	1
EBA-5320	Cephalic cannula	1
EBA-5321	Diaphyseal cannula	1
EBA-5322*	Cannula with handle	1
EBA-5325	Cephalic trocar	1
EBA-5329	Diaphyseal trocar, cannulated ø4.2mm	1
EBA-5330	Cephalic screw ruler	1
EBA-5341	Cephalic screwdriver	1
EBA-5345	Chuck for ø3mm wire	1
EBA-5396	Trocar for stabilization wire, trocar tip	1
F4-0100	Allen wrench, 5mm	1
GH5156	Screwdriver, 5mm Hudson coupling XL (two parts)	1
EBA-0245	Eba One instrument set tray #6, empty	1

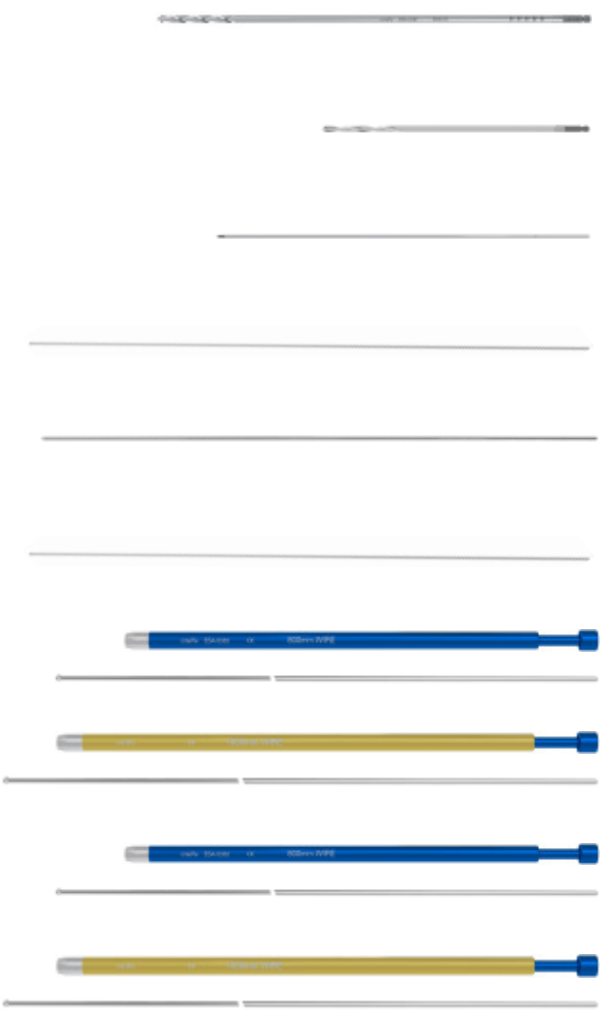
*The position of the guide wire can be corrected using the Eba-5234 multi-hole trocar (see "optional instruments" section).

Eba One long instrument set #4

Code	Description	Q.ty
970025	Allen wrench, 2.5mm	1
DT030061	Screw depth gauge	1
DT030080	Slotted hammer	1
DT030090	Obturator with handle	1
EBA-5316	Fracture alignment guide wire exchange tool	1
EBA-5317	Impaction bolt, cannulated	1
EBA-5331	Cortical screw ruler	1
EBA-5332	Nails ruler, wire 800mm	1
EBA-5351	Allen T-wrench, 8mm long	1
EBA-5360	Tap for cephalic screw	1
EBA-5365	Eba One nails extractor	1
EBA-5374	Eba One medium nail distal centering guide	1
12.130-RAL5010	4Nm torque limiter silicone handle	1
EBA-0243	Eba One long instrument set tray #4, empty	1

Sterile disposables

STERILE



Code	Description	Q.ty
EBA-5297	Graduated drill bit, ø4.2x315mm (AO coupling)	2
DT03016A	Drill bit, ø4x195mm (AO joint)	2
66975N	Guide wire, threaded trocar tip ø3x410mm	4
EBA-5304	Guide wire with olive ø2.5x800mm	2
EBA-5302	Guide wire ø3x800mm	Optional
DT030002	Guide wire with olive ø3x800mm	Optional
EBA-5233	Nails ruler kit with Guide wire with olive ø2.5x800mm	Optional
EBA-5234	Nails ruler kit with Guide wire with olive ø2.5x1000mm	Optional
EBA-5232	Nails ruler kit with Guide wire with olive ø3x800mm	Optional
EBA-5231	Nails ruler kit with Guide wire with olive ø3x1000mm	Optional
EBA-5282	Countersink for Eba One screws ø5.2mm Hudson	Optional
4047	Handle for scalpel ø8x400mm	Optional

Optional instruments

Code	Description
DT030031	Template nails length
EBA-5324*	Multihole trocar

*To be used with EBA-5322 (see "Eba One instrument set #6" section)

Eba One
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NAILING SYSTEM

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