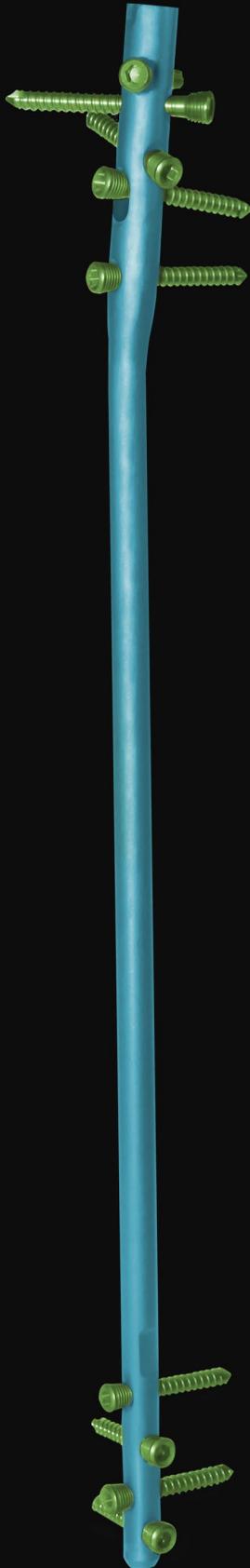


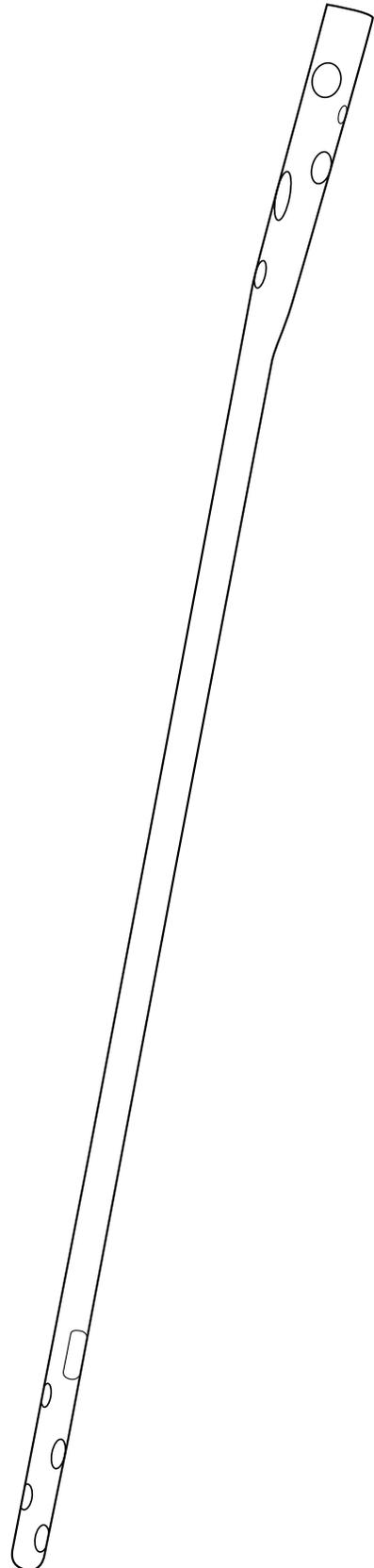
## SURGICAL TECHNIQUE

# Intralock Tibial Intramedullary Nail



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## TECHNOLOGICAL ADVANTAGES

The Intralock tibial intramedullary nail allows stable intramedullary fixation for the reduction of most tibia shaft, proximal and distal tibial fractures.

It was created to facilitate the reduction of complex fractures, thus allowing an early and active rehabilitation, thus generating an optimal recovery.

It is designed to adapt to the intramedullary canal of the tibia, thus obtaining anatomical reduction of the fracture.

The system consists of a series of cannulated nails manufactured in **Ti6Al4V ELI** titanium, allowing the use of up to five proximal and four distal locking bolts, as well as one cover screw. It provides stable fixation by incorporating 2 oblique locking holes in the proximal and distal nail.

It has 3 exclusive and innovative locking options, combined with the bone locking screws with threaded head, thus increasing the stability of the proximal fragment, an option that facilitates its use in metaphyseal tibial fractures as well as two locking options State-of-the-art lateral media that allows primary compression or controlled secondary dynamization, improving stability in combination with locking bolts. Thus facilitating open or closed reduction, reducing surgical time and tissue damage, compared to other techniques of treatment.

## SPECIFICATIONS

### INTRALOCK TIBIAL INTRAMEDULLARY NAIL

Diameter 8.5, 9.5, 10.5, and 11.5mm

Length 255mm to 465mm

For reaming and non-reaming techniques, which allow insertion of the nail over the guide wire.

### INTRALOCK TIBIAL INTRAMEDULLARY NAIL 8.5 mm

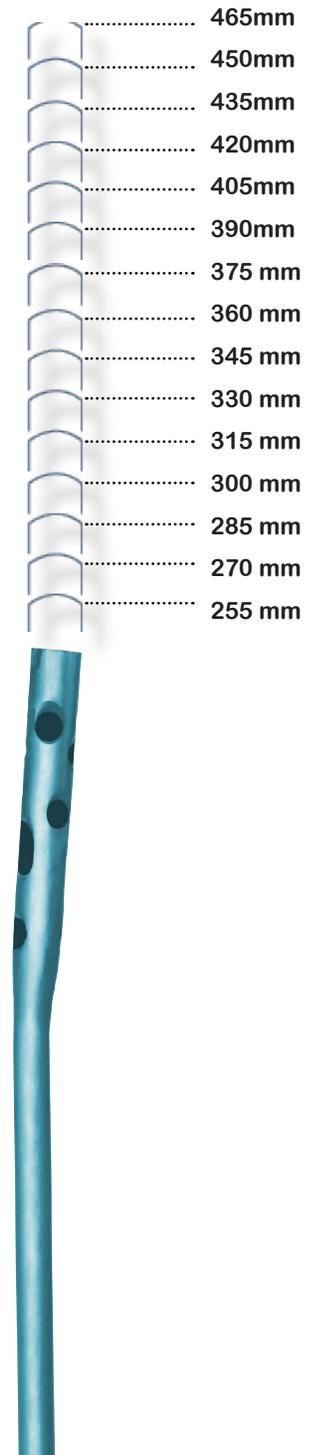
|          |                 |
|----------|-----------------|
| 163.255* | 8.5 mm X 255 mm |
| 163.270* | 8.5 mm X 270 mm |
| 163.285* | 8.5 mm X 285 mm |
| 163.300* | 8.5 mm X 300 mm |
| 163.315* | 8.5 mm X 315 mm |
| 163.330* | 8.5 mm X 330 mm |
| 163.345* | 8.5 mm X 345 mm |
| 163.360* | 8.5 mm X 360 mm |
| 163.375* | 8.5 mm X 375 mm |
| 163.390  | 8.5 mm X 390 mm |
| 163.405  | 8.5 mm X 405 mm |
| 163.420  | 8.5 mm X 420 mm |
| 163.435  | 8.5 mm X 435 mm |
| 163.450  | 8.5 mm X 450 mm |
| 163.465  | 8.5 mm X 465 mm |

\* Contained in the standard implant set.

### INTRALOCK TIBIAL INTRAMEDULLARY NAIL 9.5 mm

|          |                 |
|----------|-----------------|
| 162.255* | 9.5 mm X 255 mm |
| 162.270* | 9.5 mm X 270 mm |
| 162.285* | 9.5 mm X 285 mm |
| 162.300* | 9.5 mm X 300 mm |
| 162.315* | 9.5 mm X 315 mm |
| 162.330* | 9.5 mm X 330 mm |
| 162.345* | 9.5 mm X 345 mm |
| 162.360* | 9.5 mm X 360 mm |
| 162.375* | 9.5 mm X 375 mm |
| 162.390  | 9.5 mm X 390 mm |
| 162.405  | 9.5 mm X 405 mm |
| 162.420  | 9.5 mm X 420 mm |
| 162.435  | 9.5 mm X 435 mm |
| 162.450  | 9.5 mm X 450 mm |
| 162.465  | 9.5 mm X 465 mm |

\* Contained in the standard implant set.



**INTRALOCK TIBIAL  
INTRAMEDULLARY NAIL 10.5 mm**

|         |                  |
|---------|------------------|
| 220.255 | 10.5 mm X 255 mm |
| 220.270 | 10.5 mm X 270 mm |
| 220.285 | 10.5 mm X 285 mm |
| 220.300 | 10.5 mm X 300 mm |
| 220.315 | 10.5 mm X 315 mm |
| 220.330 | 10.5 mm X 330 mm |
| 220.345 | 10.5 mm X 345 mm |
| 220.360 | 10.5 mm X 360 mm |
| 220.375 | 10.5 mm X 375 mm |
| 220.390 | 10.5 mm X 390 mm |
| 220.405 | 10.5 mm X 405 mm |
| 220.420 | 10.5 mm X 420 mm |
| 220.435 | 10.5 mm X 435 mm |
| 220.450 | 10.5 mm X 450 mm |
| 220.465 | 10.5 mm X 465 mm |

**INTRALOCK TIBIAL  
INTRAMEDULLARY NAIL 11.5 mm**

|         |                  |
|---------|------------------|
| 221.255 | 11.5 mm X 255 mm |
| 221.270 | 11.5 mm X 270 mm |
| 221.285 | 11.5 mm X 285 mm |
| 221.300 | 11.5 mm X 300 mm |
| 221.315 | 11.5 mm X 315 mm |
| 221.330 | 11.5 mm X 330 mm |
| 221.345 | 11.5 mm X 345 mm |
| 221.360 | 11.5 mm X 360 mm |
| 221.375 | 11.5 mm X 375 mm |
| 221.390 | 11.5 mm X 390 mm |
| 221.405 | 11.5 mm X 405 mm |
| 221.420 | 11.5 mm X 420 mm |
| 221.435 | 11.5 mm X 435 mm |
| 221.450 | 11.5 mm X 450 mm |
| 221.465 | 11.5 mm X 465 mm |

**4.5mm LOCKING SCREW  
FOR INTRALOCK INTRAMEDULLARY NAIL**

|         |                 |
|---------|-----------------|
| 166.15  | 4.5 mm X 15 mm  |
| 166.20  | 4.5 mm X 20 mm  |
| 166.25  | 4.5 mm X 25 mm  |
| 166.30  | 4.5 mm X 30 mm  |
| 166.35  | 4.5 mm X 35 mm  |
| 166.40  | 4.5 mm X 40 mm  |
| 166.45  | 4.5 mm X 45 mm  |
| 166.50  | 4.5 mm X 50 mm  |
| 166.55  | 4.5 mm X 55 mm  |
| 166.60  | 4.5 mm X 60 mm  |
| 166.65  | 4.5 mm X 65 mm  |
| 166.70  | 4.5 mm X 70 mm  |
| 166.75  | 4.5 mm X 75 mm  |
| 166.80  | 4.5 mm X 80 mm  |
| 166.85  | 4.5 mm X 85 mm  |
| 166.90  | 4.5 mm X 90 mm  |
| 166.95  | 4.5 mm X 95 mm  |
| 166.100 | 4.5 mm X 100 mm |



**END CAP FOR TIBIAL INTRAMEDULLARY NAIL**

**CODE**  
169.11



## SURGICAL INDICATIONS

Traufix intramedullary nails are indicated for diaphysary fractures, proximal metaphysary fractures, and distal metaphysary fractures of the tibia.

The Intralock tibial intramedullary nail is a good option for the treatment of tibia fractures in its different segments, which can be used in simple and complex strokes since its locking system offers great stability for the reduction of fractures.

The ideal segment for the Intralock centromedullary nailing system is found in the diaphysis of the tibia, since we have an adequate distal and proximal locking system, which prevents axial rotation of the nail, thus ensuring the reduction of the fracture in a very safe way in most strokes.

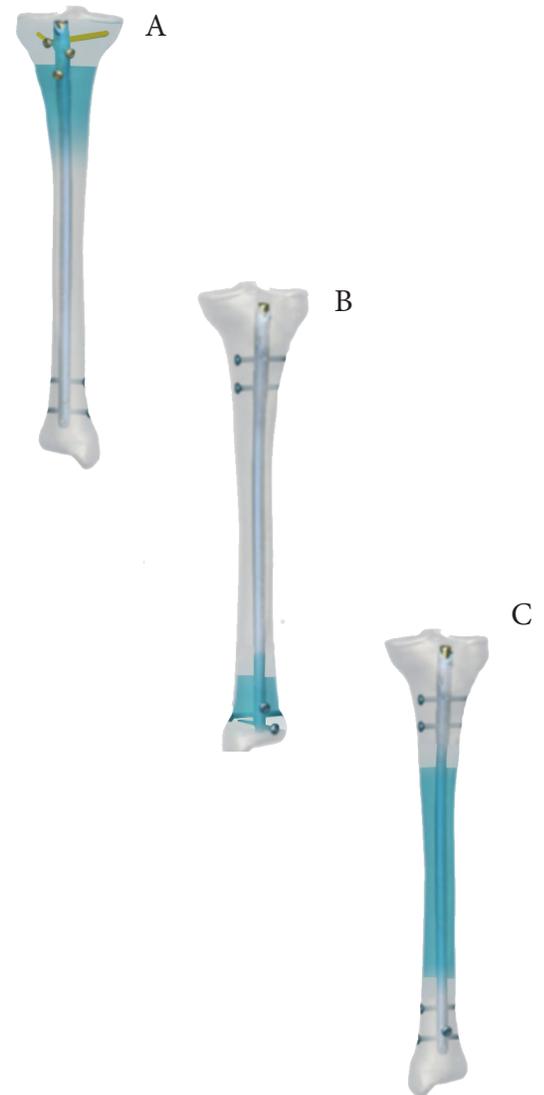
In proximal tibial metaphysis fractures, it is essential to assess that the joint area is not involved.

Since in these cases, the system will not be able to provide the required stability, if the fracture line is in the metaphysary region the result we can obtain will be satisfactory, since the proximal locking system has two cross screws that offer greater stability in this type of fracture.

Note: Fractures of the proximal tibia with associated diaphysary fractures require special evaluation by the surgeon.

In the case of metaphysary fractures of the distal tibia, it is necessary to assess that the joint region is not involved.

The Intralock system is an excellent fixation system in this type of non-articular metaphysary fractures, since it has two distal screws placed on the medial side and optionally we have the opportunity to attach two anteroposterior screws that secure the fragment, stabilizing it in an adequate way.



## GENERAL CONTRAINDICATIONS

- Systemic inflammatory response syndrome (to be assessed by the surgeon)
- Blood Poisoning
- Osteomyelitis
- Patient unable to comply with postoperative care
- Hypersensitivity to materials (titanium)

## DESCRIPTION OF THE SURGICAL TECHNIQUE

### Patient Preparation

Completing the radiographic evaluation as well as the pre-operation planning is recommended.

Radio diagnostic studies should be used to estimate the approximate diameter and length of the nail.

Place the patient supine on the radiolucent operating table. Make sure that the knee of the injured limb can be flexed at least 90°. Optionally position the image intensifier so that visualization of the tibia, including the articular surface proximally and distally, as well as in the anteroposterior and lateral views, is possible.

### Approach

To facilitate the incision at the access site, some form of support is usually required to keep the tibia in alignment, either by means of a fracture table or an assistant.

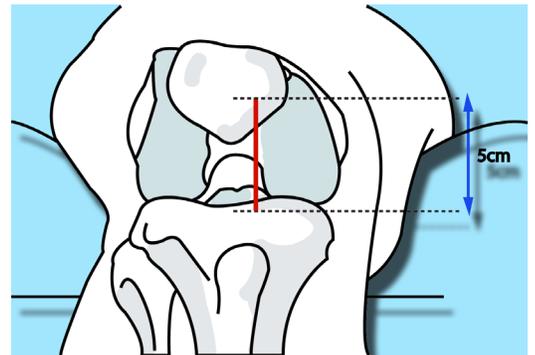
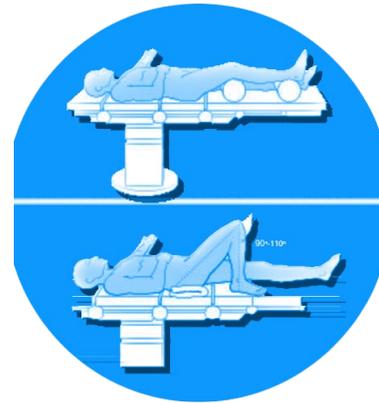
Generally, a small incision of 4 to 7 cm over the course of the infraotullian tendon is sufficient; The infraotullian tendon is incised over its midline and gently retracted to expose the nail entry site. Some authors prefer internal access to the patellar tendon so as not to injure it, so the entry point may remain eccentric, requiring radiological control to verify the correct position.

In the frontal plane, the entry point is in line with the medullary canal. In the sagittal plane, the entry point should be located just distal to the angle between the tibial plateau and the anterior tibial metaphysis.

a) Perform fracture line reduction.

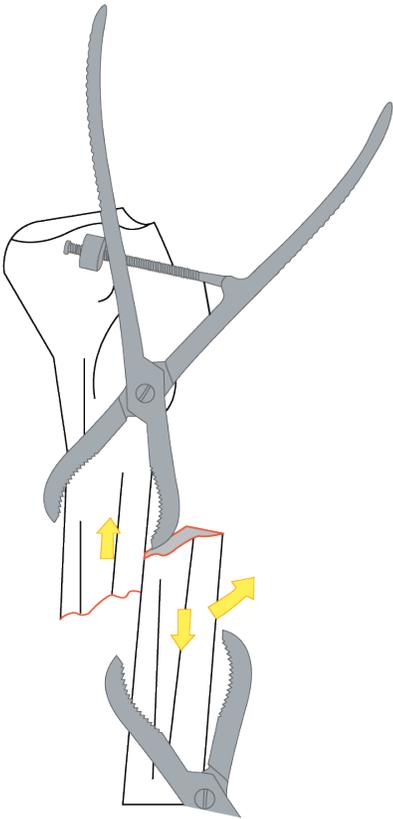
### Caution

This description of the technique is not sufficient for its immediate clinical application. Hands-on learning with an experienced surgeon is highly recommended.

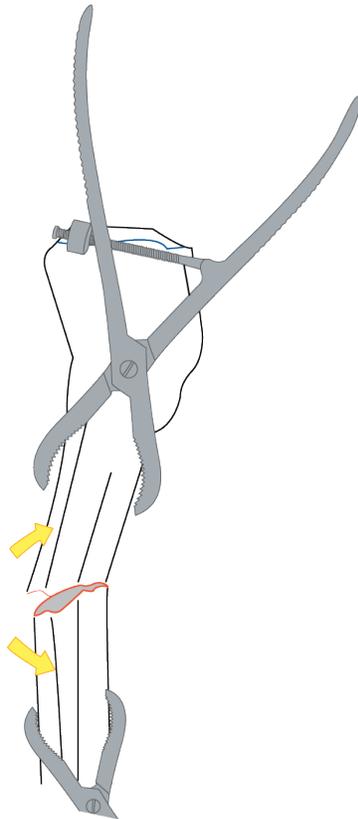


Nail length and diameter confirmation

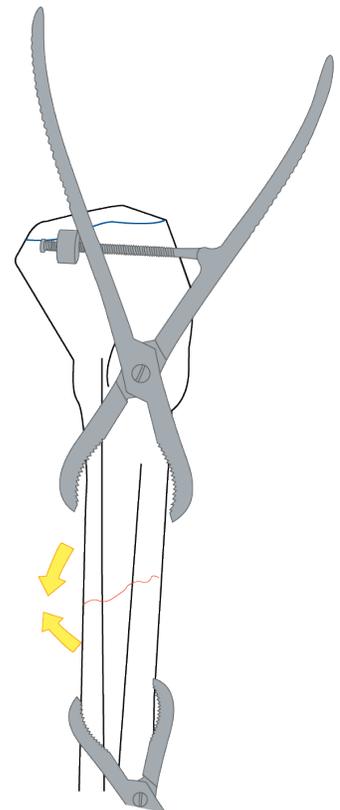
1)



2)



3)





After reduction of the leg fracture, the required nail length should be determined using the radiographic ruler for tibial nail, length 375 mm.

Position the C-arm for an AP view of the distal tibia. With long forceps, hold the strip along the leg, parallel and at the same height as the tibia. Adjust the strip until the distal tip is at the desired nail insertion depth.

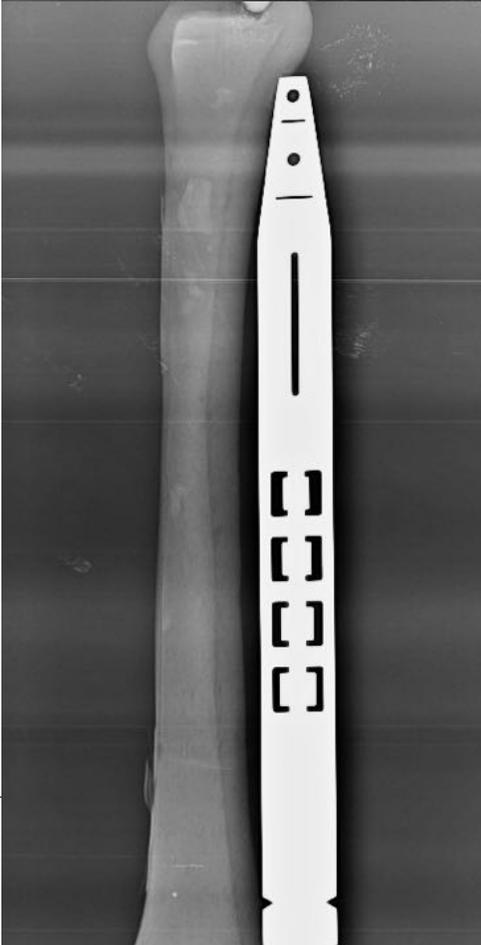
Move the C-arm toward the proximal tibia, replace the distal end of the ruler at the skin mark, and take an AP image of the proximal tibia. Read the nail length directly from the strip image, selecting the measurement at or just below the anterior edge of the tibial plateau.

Position the C-arm for an AP view of the tibia, at the level of the isthmus. Hold the ruler on the tibia so that the diameter meter is centered in the narrowest part of the medullary canal. Read the diameter measurement on the square indicator that fills the canal.

**Note:** When determining nail length, the possibility of compression or dynamization must be taken into account.

A shorter nail will be chosen if active compression is planned for the procedure.

Dynamic lock option allows 7mm offset



Calibration of the device:

1. Place nail on U-strip.



2. Assemble the distal locking strip matching the graduation of the strip to the length of the chosen nail.

1)



2)



3. Attach the 6.3mm outer sleeve and gauge using the 6.3 mm drill bit matching with the hole for the distal locking device.

1)



2)



3)



4. Remove the distal locking strip to perform the nail insertion procedure.



**Insertions steps:**

1. Insert threaded guide pin.



2. Perforation is performed with the initiator punch at the insertion site, at an angle of 10-15 degrees and rotating until 85 degrees are obtained with reference to the tibial diaphysis.

3. Remove the starter punch keeping the guide through the medullary canal.

4. With the cannulated 10mm drill bit, the insertion site is performed. Remove drill bit and guide pin.

5. Place guide with olive through the reduction guide.

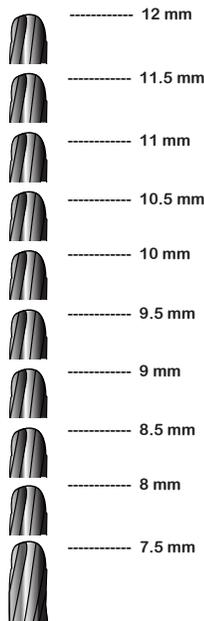
6. Preparation of the centromedullary canal is performed using the flexible interchangeable tip system (7.5mm to 12mm).



1)



2)



7. Performing reaming according to the diameter of the chosen nail:



- To place the 8.5 mm nail, reaming up to 9 mm is recommended.
- To place a 9.5mm nail, reaming up to 10mm is recommended.
- To place nail 10.5 we recommend reaming up to 11.
- To place nail 11.5 we recommend reaming up to 12.

8. The guide with olive can be exchanged for the guide without olive inside the medullary canal.

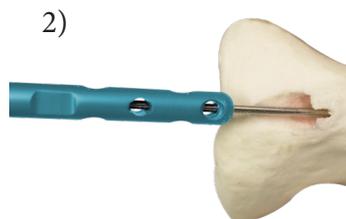


9. And place the rigid exchange guide to maintain reduction.



10. Insert the centromedullary nail into the canal by means of rotary movement, advancing the nail to the desired position according to the graduation of the strip (5 and 10 mm).

**Optional :** the impactor system can be used to facilitate insertion of the centromedullary nail in its final tract.



11. Place the graduated strip again. Place the distal locking sleeve over the calibration hole and drill the first cortex with the 6.3mm drill.

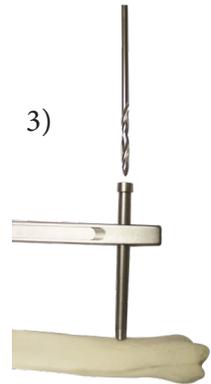
1)



2)



3)



12. Remove the strip and place the distal locking device in the hole made, rotating until a perceptible twist lock is obtained in the system.

**Note:** The direction of distal blocks is medial to lateral.

1)



2)



13. With the device locked, place the 10mm outer sleeve in the proximal hole, together with the inner sleeve 4.0 and drill both cortices with the 4.0 mm drill bit.

1)



2)



3)



14. Using the graduated length meter, verify the length of the screw, it is suggested to thread the first cortex with the 4.5mm tap.

1)



2)



3)



15. Insert the threaded head screw and repeat this step with the distal hole.

1)



2)



3)



### Distal screw lock (Optional)

In the event that additional blocking is required in the distal region according to the type of line or if greater rotational stability is required, place the strip and use the anterior distal hole.

1)



2)



Place the 10 mm outer sleeve over the distal (static) hole, as well as the 4.0 mm inner sleeve and drill both cortices with the 4.0 mm drill.

1)



2)



Using the graduated length meter, verify the length of the screw, it is suggested to thread the first cortex with the 4.5mm tap and insert the bolt.

1)



2)



3)



### Proximal Locking

Insert the screw to dynamize before locking. Place the proximal locking system in the distal holes of the U-strip for static and dynamic locking. Perform the dynamic first. Place the 10 mm outer sleeve over the distal (dynamic) hole, as well as the 4.0 mm inner sleeve and drill both cortices with the drill. 4.0mm



Screw to dynamize

1)



2)



3)

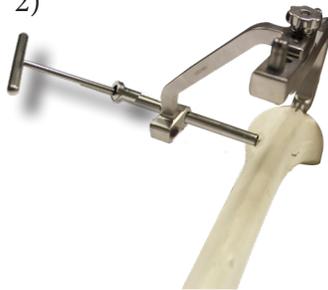


Using the graduated meter, verify the screw length, it is suggested to thread the first cortex with the 4.5mm tap and insert the selected bolt.

1)



2)



3)



Repeat this step for the proximal (static) hole.



### Proximal screw locking (Optional)

In the event that additional locking is required, depending on the type of fracture line or if greater rotational stability is required, place the proximal fixation system in the proximal holes. (2)



Place the 11 mm outer sleeve over the distal (static) hole, as well as the inner sleeve 3.2 and drill both cortices with the 3.2 graduated drill.

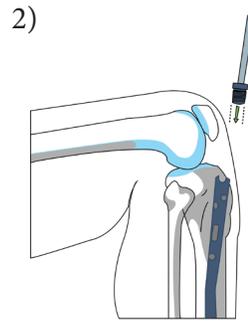
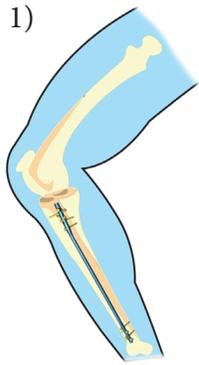


Using the length meter, check the length of the screw, and insert the chosen screw.



It also has a more distal proximal screw lock (optional).

Finally, check the stability of the nail and insert the 10mm closure plug.



## INSTRUMENTS

- 1 T-handle for quick coupling
- 1 Ø 12.5 Cannulated initiator Drill bit
- 1 Ø 6.5 T-handle with hexagonal tip
- 1 Initiator punch
- 2 Connector for nail extractor
- 1 Compression Screw
- 1 Ø 5.2 Drill bit
- 2 Ø 3.2 Graduated drill bit
- 1 Ø 3.2 Graduated drill bit with stop
- 3 Ø 3.0 threaded tip guide
- 2 Ø 4.0 Drill bit
- 1 Ø 4.0 Drill bit with stop
- 2 Flexible reamer
- 2 Nail Fastener Screw
- 1 Tissue protector
- 1 Ø 12 Drill guide
- 1 Ø 11 Open end wrench
- 1 Lock tester
- 1 Ø 5 Large Allen wrench
- 1 Ø 3 Small Allen wrench
- 1 Ruler
- 1 Ø 4 Wrench
- 1 4 and 8 Outer and inner sleeve
- 1 4 and 8 Outer and inner sleeve
- 1 Inner sleeve 5.2
- 1 Tissue Dilator (Punch) - 8.0
- 1 Thin rope distal strip screws 8.5 x 3.2 and 3.2
- 1 Depth meter 90
- 1 T-handled probe
- 1 T-handled drill bit 5
- 1 Guide wire protector
- 1 Nail fastener for SW 3.5 extraction
- 1 Hexagonal screwdriver with T-handle for bolt 4.5
- 1 Hexagonal screwdriver with T-handle 6.5
- 1 Hexagonal AO screwdriver tip for 4.5 SW3.5 bolt
- 1 Proximal locking device



- 1 Distal locking device
- 1 Distal locking device for probe
- 1 Nail extraction guide
- 2 Positioning screw
- 1 Strip with screw
- 1 Nail fastener for Extraction Set of Reaming tips 7.5 x 8.0 x 8.5 x 9.0 x 9.5 x 10 x 10.5 x 11 x 11.5 x 12
- 1 Handle for guide wire
- 1 U-locking strip
- 1 Insertion handle
- 1 Cannulated chisel



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