



Surgical Technique

JIN Type Tibia Nail

INTRODUCTION

This interlocking nail system is the result of long term experience in medullary nailing. This nail can be used for open tibial shaft fractures and closed tibial shaft fractures. This tibial nail offer unbeatable versality in the treatment specialy for traumatic, pathologic, nonunion and reconstructive surgery and makes possible treating of fractures within a range of 60% of the tibial length.



JIN Type -Tibia Nail

Ø Dia	Length	Stainless Steel	Titanium
8mm	240mm	1294-8-240	TI-1294-8-240
8mm	260mm	1294-8-260	TI-1294-8-260
8mm	280mm	1294-8-280	TI-1294-8-280
8mm	300mm	1294-8-300	TI-1294-8-300
8mm	320mm	1294-8-320	TI-1294-8-320
8mm	340mm	1294-8-340	TI-1294-8-340
8mm	360mm	1294-8-360	TI-1294-8-360
8mm	380mm	1294-8-380	TI-1294-8-380
9mm	240mm	1294-9-240	TI-1294-9-240
9mm	260mm	1294-9-260	TI-1294-9-260
9mm	280mm	1294-9-280	TI-1294-9-280
9mm	300mm	1294-9-300	TI-1294-9-300
9mm	320mm	1294-9-320	TI-1294-9-320
9mm	340mm	1294-9-340	TI-1294-9-340
9mm	360mm	1294-9-360	TI-1294-9-360
9mm	380mm	1294-9-380	TI-1294-9-380
10mm	240mm	1294-10-240	TI-1294-10-240
10mm	260mm	1294-10-260	TI-1294-10-260
10mm	280mm	1294-10-280	TI-1294-10-280
10mm	300mm	1294-10-300	TI-1294-10-300
10mm	320mm	1294-10-320	TI-1294-10-320
10mm	340mm	1294-10-340	TI-1294-10-340
10mm	360mm	1294-10-360	TI-1294-10-360
10mm	380mm	1294-10-380	TI-1294-10-380
11mm	240mm	1294-11-240	TI-1294-11-240
11mm	260mm	1294-11-260	TI-1294-11-260
11mm	280mm	1294-11-280	TI-1294-11-280
11mm	300mm	1294-11-300	TI-1294-11-300
11mm	320mm	1294-11-320	TI-1294-11-320
11mm	340mm	1294-11-340	TI-1294-11-340
11mm	360mm	1294-11-360	TI-1294-11-360
11mm	380mm	1294-11-380	TI-1294-11-380
12mm	240mm	1294-12-240	TI-1294-12-240
12mm	260mm	1294-12-260	TI-1294-12-260
12mm	280mm	1294-12-280	TI-1294-12-280
12mm	300mm	1294-12-300	TI-1294-12-300
12mm	320mm	1294-12-320	TI-1294-12-320
12mm	340mm	1294-12-340	TI-1294-12-340
12mm	360mm	1294-12-360	TI-1294-12-360
12mm	380mm	1294-12-380	TI-1294-12-380



Stainless Steel

Titanium

End Cap For JIN Type - Tibia Nail

Stainless Steel	Titanium
1294-001	TI-1294-001



Ø4.5mm Locking Bolt, Self-Tapping, For JIN Type - Tibia Nail

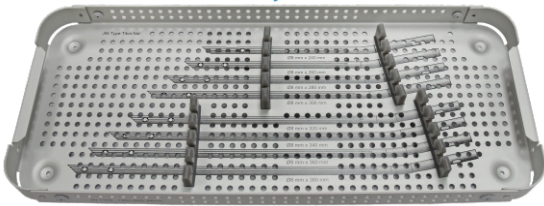
Length	Stainless Steel	Titanium
20mm	1294-4.5-20	TI-1294-4.5-20
25mm	1294-4.5-25	TI-1294-4.5-25
30mm	1294-4.5-30	TI-1294-4.5-30
35mm	1294-4.5-35	TI-1294-4.5-35
40mm	1294-4.5-40	TI-1294-4.5-40
45mm	1294-4.5-45	TI-1294-4.5-45
50mm	1294-4.5-50	TI-1294-4.5-50
55mm	1294-4.5-55	TI-1294-4.5-55
60mm	1294-4.5-60	TI-1294-4.5-60
65mm	1294-4.5-65	TI-1294-4.5-65
70mm	1294-4.5-70	TI-1294-4.5-70
75mm	1294-4.5-75	TI-1294-4.5-75
80mm	1294-4.5-80	TI-1294-4.5-80



1-016 Implant Box for JIN Type -Tibia Nail



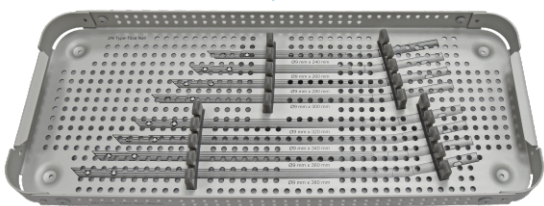
Tray 1



Dia	Length	Qty
Ø8mm	240mm to 380mm	1 pcs

Stainless Steel or Titanium Implants can be placed as per requirement

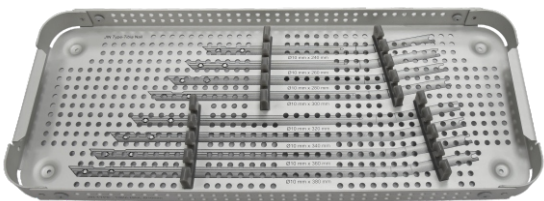
Tray 2



Dia	Length	Qty
Ø9mm	240mm to 380mm	1 pcs

Stainless Steel or Titanium Implants can be placed as per requirement

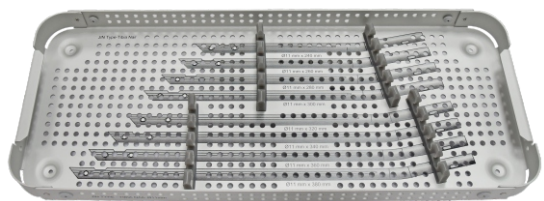
Tray 3



Dia	Length	Qty
Ø10mm	240mm to 380mm	1 pcs

Stainless Steel or Titanium Implants can be placed as per requirement

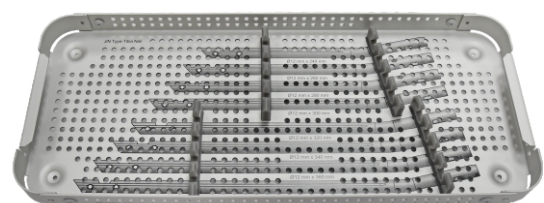
Tray 4



Dia	Length	Qty
Ø11mm	240mm to 380mm	1 pcs

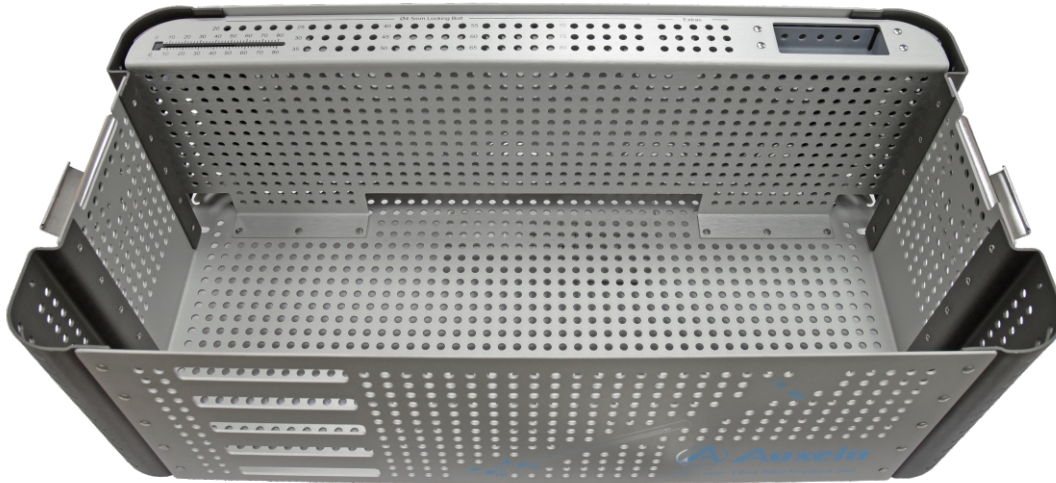
Stainless Steel or Titanium Implants can be placed as per requirement

Tray 5



Dia	Length	Qty
Ø12 mm	240mm to 380mm	1 pcs

Stainless Steel or Titanium Implants can be placed as per requirement



Ø4.5mm Locking Bolt, Self-Tapping, For JIN Type - Tibia Nail

Dia	Length	Qty
Ø4.5mm	20mm to 80mm	5pcs

*Stainless Steel or Titanium Implants
can be placed as per requirement*

End Caps For JIN Type - Tibia Nail

Qty
2pcs

*Stainless Steel or Titanium Implants
can be placed as per requirement*

INS-1294-01 Drill Sleeve 8/4mm for Drill Bit Ø4mm - JIN Type - Tibia Nail



INS-1294-02 Protection Sleeve 10/8.2mm for Drill Bit Ø4mm - JIN Type - Tibia Nail



INS-1294-03 Drill Sleeve 8/5.3mm for Drill Bit Ø5.2mm - JIN Type - Tibia Nail



INS-1294-04 Trocar Ø8mm for JIN Type - Tibia Nail



Reamer Head

Code	Dia	Code	Dia
INS-1294-05	Ø11mm	INS-1294-11	Ø8mm
INS-1294-06	Ø10.5mm	7-021-04	Ø13mm
INS-1294-07	Ø10mm	7-021-05	Ø12.5mm
INS-1294-08	Ø9.5mm	7-021-06	Ø12mm
INS-1294-09	Ø9mm	7-021-07	Ø11.5mm
INS-1294-10	Ø8.5mm		



INS-1294-13 Stopper for Drill Bit Ø4mm - JIN Type - Tibia Nail



INS-1294-14 Flexible Reaming Shaft for Reamer Head Ø8mm to 13mm, for JIN Type - Tibia Nail



INS-1294-15 Ø5.2mm T-Handle Drill Bit with Flat End for JIN Type - Tibia Nail



INS-1294-17 Cannulated Awl for JIN Type - Tibia Nail



INS-1294-18 Right Angle Locking Device Ø4mm for JIN Type - Tibia Nail



INS-1294-19 Drill Bit Plain Shank/ Jacob Chuck End Ø4.0mm x Length 300mm, for JIN Type - Tibia Nail



INS-1294-20 Depth Gauge measuring upto 90mm for JIN Type - Tibia Nail



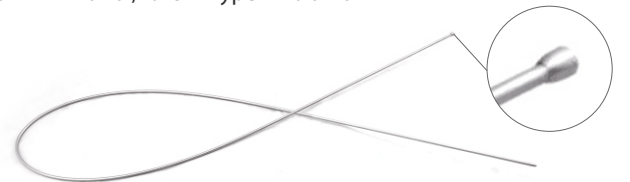
INS-1294-21 Hexagonal Screwdriver With T-Handle, Hex 3.5mm, for JIN Type - Tibia Nail



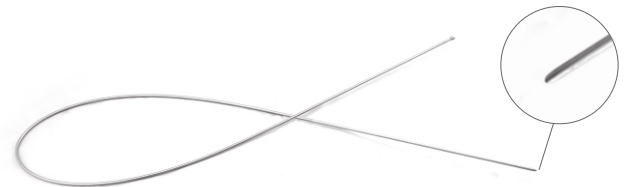
INS-1294-22 Drill Bit Plain Shank/ Jacob Chuck End Ø5.2mm x Length 250mm, for JIN Type - Tibia Nail



INS-1294-23 Guide Wire with Ball Tip Ø2.5/3.65mm x Length 1000mm - Nitinol, for JIN Type - Tibia Nail



7-021-09 Guide Wire without Ball Tip Ø2.5mm x Length 1000mm - Nitinol, for JIN Type - Tibia Nail



INS-1294-25 Wrench 12mm for JIN Type - Tibia Nail



INS-1294-26 Allen Key, Hex 3mm for JIN Type - Tibia Nail



INS-1294-27 Proximal Targeting Arm for JIN Type - Tibia Nail



INS-1294-28 Distal Targeting Arm for JIN Type - Tibia Nail



INS-1294-29 Insertion Handle for JIN Type - Tibia Nail



INS-1294-30 Positioning Block for Positioning Rod - JIN Type - Tibia Nail



INS-1294-31 Bolt for Distal Targeting Arm - JIN Type - Tibia Nail



INS-1294-12 Bolt for Proximal Targeting Arm & Distal Targeting Device - JIN Type - Tibia Nail



INS-1294-32 Positioning Rod, Ø5mm for JIN Type - Tibia Nail



INS-1294-33 Allen Key, Hex 5mm for JIN Type - Tibia Nail



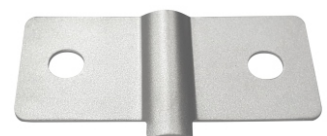
INS-1294-34 Extraction Rod with Ram for JIN Type - Tibia Nail



INS-1294-35 Extraction Handle for JIN Type - Tibia Nail



INS-1294-36 Tissue Protector for JIN Type - Tibia Nail



INS-1294-37 Distal Targeting Device for Length 240mm to 380mm - JIN Type - Tibia Nail



INS-1294-38 Nail Holding Bolt for JIN Type - Tibia Nail



INS-1294-39 Ø4.5mm Tap with T-Handle for JIN Type - Tibia Nail



INS-1294-40 T-Handle For Flexible Reaming Shaft for JIN Type - Tibia Nail



INS-1294-41 Guide Wire Introducer for JIN Type - Tibia Nail



7-021-01 Radiographic Ruler for JIN-Type Tibia Nail



7-021-02 Reduction Device for JIN Type - Tibia Nail



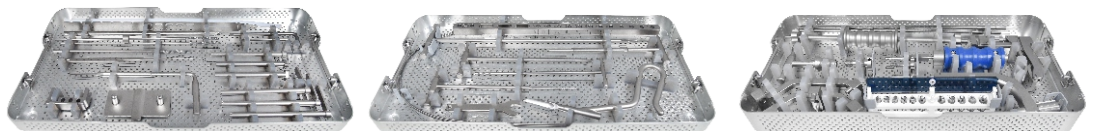
7-021-03 Plastic Exchange Tube for JIN-Type Tibia Nail



7-021-08 Guide Wire with Threaded Tip, Ø3.2mm x Thread Length 12mm x Length 300mm



INS-1294T Instrument Trays For JIN Type - Tibia Nailing Instrument Set

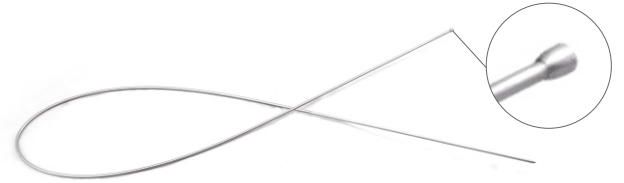


INS-1294B Container For JIN Type - Tibia Nailing Instrument Set

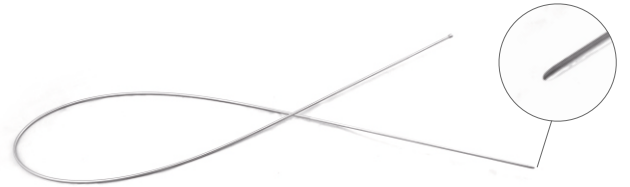


Optional Instruments

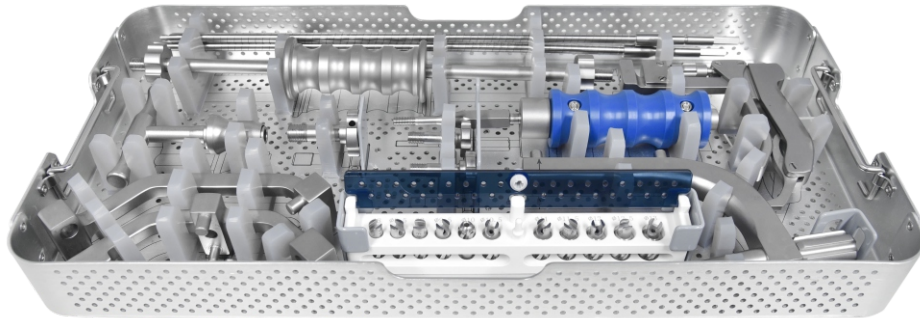
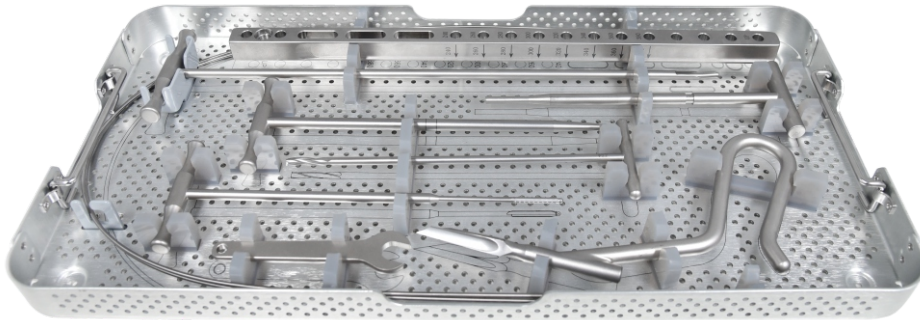
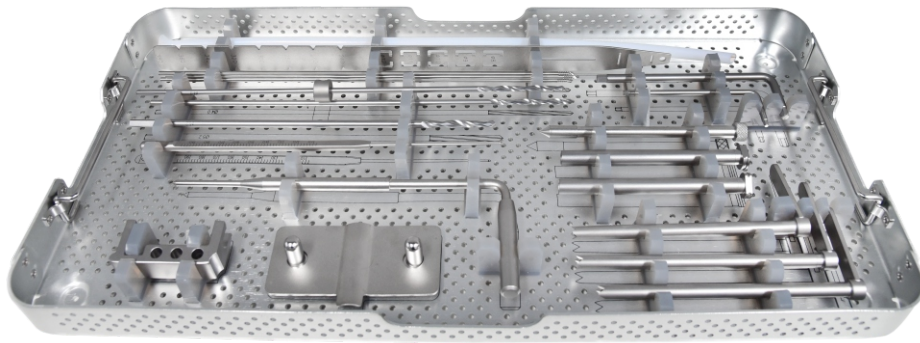
INS-1294-23S Guide Wire with Ball Tip $\text{Ø}2.5/3.65\text{mm}$ x Length 1000mm - Stainless Steel, for JIN Type - Tibia Nail



7-021-09S Guide Wire without Ball Tip $\text{Ø}2.5\text{mm}$ x Length 1000mm - Stainless Steel, for JIN Type - Tibia Nail



INS-1294 JIN Type - Tibia Nailing Instrument Set



INS-1294 JIN Type - Tibia Nailing Instrument Set

Code	Set Consisting of	Units
INS-1294-01	Drill Sleeve 8/4mm for Drill Bit Ø4mm - JIN Type - Tibia Nail	2
INS-1294-02	Protection Sleeve 10/8.2mm for Drill Bit Ø4mm - JIN Type - Tibia Nail	2
INS-1294-03	Drill Sleeve 8/5.3mm for Drill Bit Ø5.2mm - JIN Type - Tibia Nail	1
INS-1294-04	Trocar Ø8mm for JIN Type - Tibia Nail	1
INS-1294-05	Reamer Head Ø11.0mm for JIN Type - Tibia Nail	1
INS-1294-06	Reamer Head Ø10.5mm for JIN Type - Tibia Nail	1
INS-1294-07	Reamer Head Ø10.0mm for JIN Type - Tibia Nail	1
INS-1294-08	Reamer Head Ø9.5mm for JIN Type - Tibia Nail	1
INS-1294-09	Reamer Head Ø9.0mm for JIN Type - Tibia Nail	1
INS-1294-10	Reamer Head Ø8.5mm for JIN Type - Tibia Nail	1
INS-1294-11	Reamer Head Ø8.0mm for JIN Type - Tibia Nail	1
7-021-04	Reamer Head Ø13.0mm for JIN Type - Tibia Nail	1
7-021-05	Reamer Head Ø12.5mm for JIN Type - Tibia Nail	1
7-021-06	Reamer Head Ø12.0mm for JIN Type - Tibia Nail	1
7-021-07	Reamer Head Ø11.5mm for JIN Type - Tibia Nail	1
INS-1294-13	Stopper for Drill Bit Ø4mm - JIN Type - Tibia Nail	1
INS-1294-14	Flexible Reaming Shaft for Reamer Head Ø8mm to 13mm, for JIN Type - Tibia Nail	2
INS-1294-15	Ø5.2mm T-Handle Drill Bit with Flat End for JIN Type - Tibia Nail	1
INS-1294-17	Cannulated Awl for JIN Type - Tibia Nail	1
INS-1294-18	Right Angle Locking Device Ø4mm for JIN Type - Tibia Nail	1
INS-1294-19	Drill Bit Plain Shank/ Jacob Chuck End Ø4.0mm x Length 300mm, for JIN Type - Tibia Nail	2
INS-1294-20	Depth Gauge measuring upto 90mm for JIN Type - Tibia Nail	1
INS-1294-21	Hexagonal Screwdriver With T-Handle, Hex 3.5mm, for JIN Type - Tibia Nail	1
INS-1294-22	Drill Bit Plain Shank/ Jacob Chuck End Ø5.2mm x Length 250mm, for JIN Type - Tibia Nail	1
INS-1294-23	Guide Wire with Ball Tip Ø2.5/3.65mm x Length 1000mm - Nitinol, for JIN Type - Tibia Nail	1
7-021-09	Guide Wire without Ball Tip Ø2.5mm x Length 1000mm - Nitinol, for JIN Type - Tibia Nail	1
INS-1294-25	Wrench 12mm for JIN Type - Tibia Nail	1
INS-1294-26	Allen Key, Hex 3mm for JIN Type - Tibia Nail	1
INS-1294-27	Proximal Targeting Arm for JIN Type - Tibia Nail	1
INS-1294-28	Distal Targeting Arm for JIN Type - Tibia Nail	1
INS-1294-29	Insertion Handle for JIN Type - Tibia Nail	1
INS-1294-30	Positioning Block for Positioning Rod - JIN Type - Tibia Nail	1
INS-1294-31	Bolt for Distal Targeting Arm - JIN Type - Tibia Nail	1
INS-1294-12	Bolt for Proximal Targeting Arm & Distal Targeting Device - JIN Type - Tibia Nail	2
INS-1294-32	Positioning Rod, Ø5mm for JIN Type - Tibia Nail	1

Code	Set Consisting of	Units
INS-1294-33	Allen Key, Hex 5mm for JIN Type - Tibia Nail	1
INS-1294-34	Extraction Rod with Ram for JIN Type - Tibia Nail	1
INS-1294-35	Extraction Handle for JIN Type - Tibia Nail	1
INS-1294-36	Tissue Protector for JIN Type - Tibia Nail	1
INS-1294-37	Distal Targeting Device for Length 240mm to 380mm - JIN Type - Tibia Nail	1
INS-1294-38	Nail Holding Bolt for JIN Type - Tibia Nail	1
INS-1294-39	Ø4.5mm Tap with T-Handle for JIN Type - Tibia Nail	1
INS-1294-40	T-Handle For Flexible Reaming Shaft for JIN Type - Tibia Nail	1
INS-1294-41	Guide Wire Introducer for JIN Type - Tibia Nail	1
7-021-01	Radiographic Ruler for JIN-Type Tibia Nail	1
7-021-02	Reduction Device for JIN Type - Tibia Nail	1
7-021-03	Plastic Exchange Tube for JIN-Type Tibia Nail	1
7-021-08	Guide Wire with Threaded Tip, Ø3.2mm x Thread Length 12mm x Length 300mm	3
INS-1294T	Instrument Trays For JIN Type - Tibia Nailing Instrument Set	3
INS-1294B	Container For JIN Type - Tibia Nailing Instrument Set	1

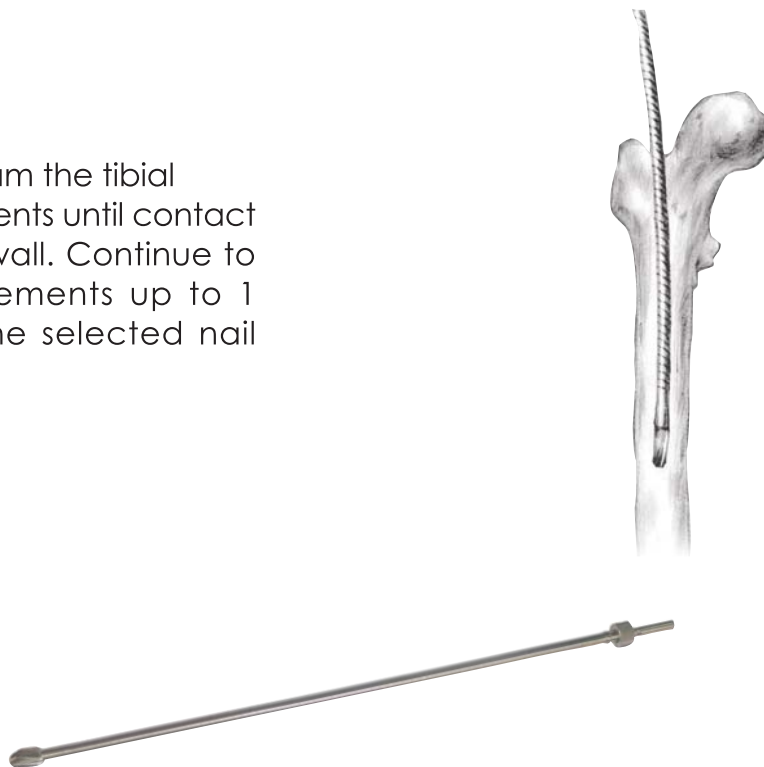
Accessing the Tibia Canal

A starting point is made either with a guide pin or an Cortical Awl based on surgeon preference. Use A/P and lateral fluoroscopic views to confirm accurate placement. For midshaft and distal tibia fractures, a central starting point in the A/P view is adequate. For more proximal fractures, however, a slightly lateral starting point is recommended to avoid proximal fragment malalignment.



Reaming

Place an Flexible Reamer over the guide wire and ream the tibial canal in 1 millimeter increments until contact is made with the cortical wall. Continue to ream in 1 millimeter increments up to 1 millimeter greater than the selected nail diameter.



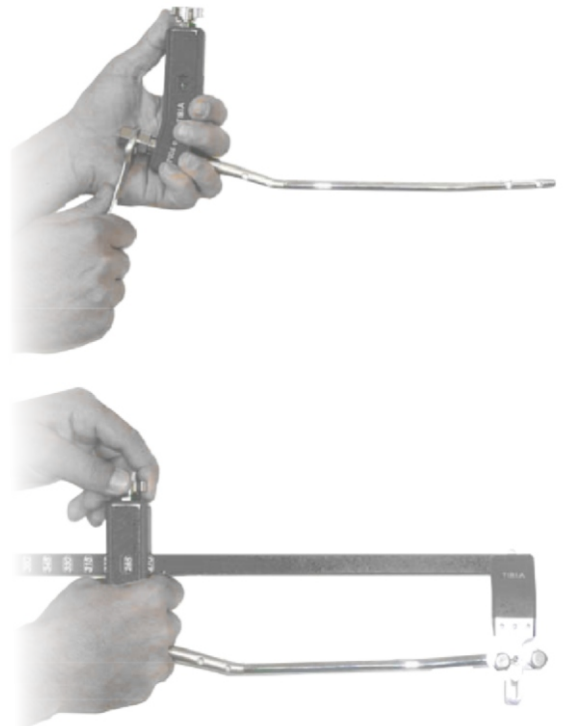
Nail Selection

The radiographic ruler is used to measure the required nail length & dia under the C-arm.

Guide Fixed

The selected nail is assembled on to the insertion handle fixed with nail holding bolt
The curvature of the nail must match the curvature of the reamed tibia.

Before Nail insertion, the proximal and the Distal targeting arm are attached to the insertion handle and checked for the hole alignment at the proximal end and the distal end of the nail.



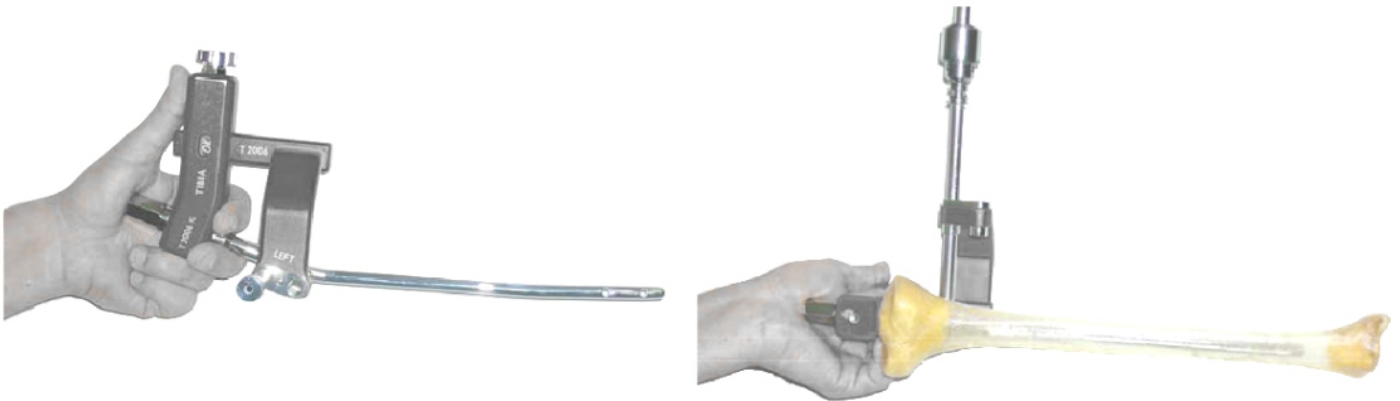
Nail Insertion

Extraction rod with ram is now attached to the insertion handle and the nail is inserted into bone with slight taps using the ram.

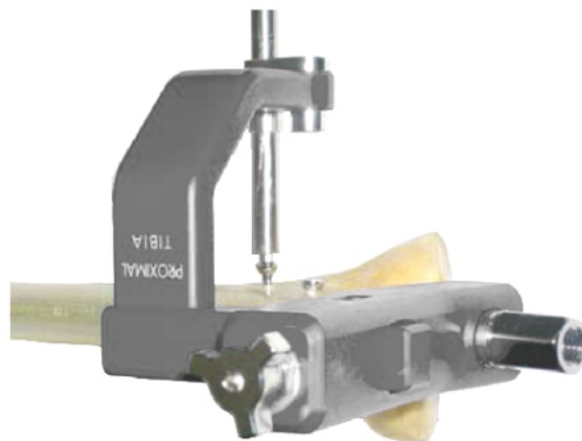


Proximal Locking

Proximal Locking: The proximal targeting arm is attached to the insertion handle. Using trocar, a skin incision is made so that the drill sleeve can be inserted.



Now, the drill sleeve 8/4mm is inserted into the proximal aiming arm holes. The 4.0mm drill bit is then used to drill the holes in the proximal tibia for insertion of Ø4.5mm Locking Bolt.



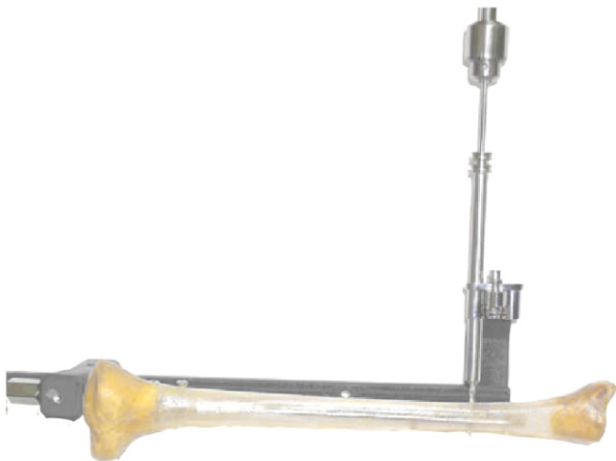
3.5mm Hex T-Handle is then used final insertion of the 4.5mm Locking bolt.

Distal Locking

Distal Locking: For Distal Locking, the Proximal Targeting arm is removed and the distal targeting device is attached to the Insertion handle.

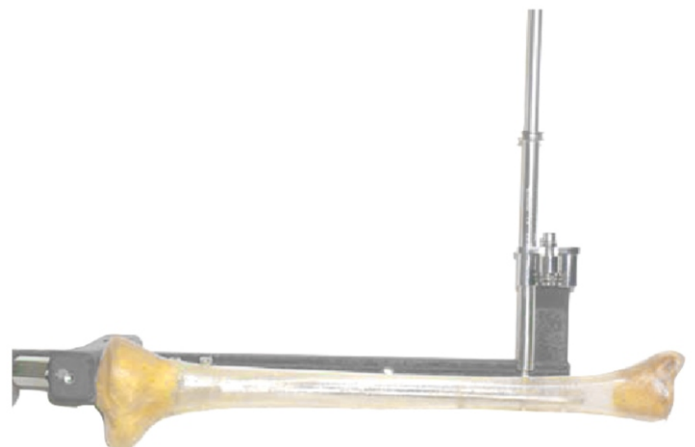
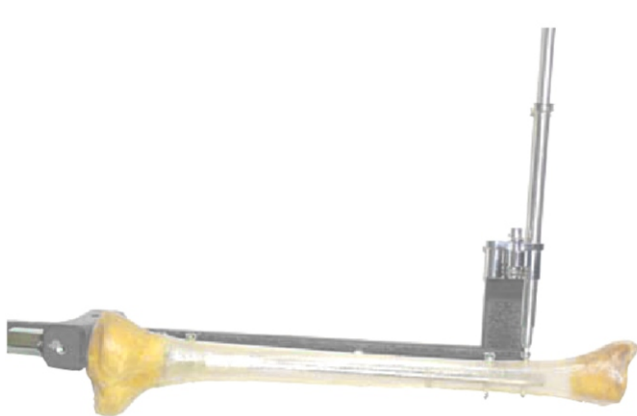


Now the distal targeting arm is attached to the distal targeting device. The drill sleeve 8/5.3mm is now inserted and used to drill a hole for positioning rod using a positioning flat drill. The positioning rod is then inserted to hold the nail in proper position for distal bolt insertion.



The 8/4mm drill sleeve is then used to guide the 4.0mm drill bit to drill the distal holes for Ø4.5mm Locking Bolt.

Finally the Hex T-Handle is then used final insertion of the 4.5mm Locking bolt.



End Cap Insertion

By mounting the Locking End Cap at the top of Tibia Nail. The procedure is finalized and ingrowth of bone is made impossible.





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