

Large Fragments 5.0 LOCKING PLATE SYSTEM



Surgical Technique



Locking and Cortex Screws

Limited Contact Profile

Manufactured in Titanium Ti6Al4V-ELI

Approved by



5.0 Locking Plate System
Large Fragments
Code 08090001



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IMPORTANT:

- ▶ This device has not been evaluated for safety and compatibility in the MR environment
- ▶ This device has not been tested for heating or migration in the MR environment



Introduction

Manufactured in titanium Ti6Al4V-ELI

Condylar Buttress Locking Plate

- ▶ Available for left and right femurs
- ▶ All plate is Low contact. Design reduces plate to-bone contact, limiting vascular trauma
- ▶ 7 distal holes for 5.0 locking screws .
- ▶ Proximal holes with 5 to 13 combination locking/compression holes
- ▶ The plate holes accept 5.0 mm locking screws in the threaded portion and 4.5 mm cortex screws in the compression portion
- ▶ 3 distal holes for 2.0 mm Kirschner wires
- ▶ "Tapered end" for submuscular plate insertion, improving tissue viability

Indications

Buttressing of multifragmentary distal femur fractures, supracondylar fractures, intra-articular and extra-articular condylar fractures, malunions and nonunions of the distal femur and periprosthetic fractures.





Introduction

Manufactured in titanium Ti6Al4V-ELI

Proximal Tibia Locking Plate

- ▶ Limited contact profile. Design reduces plate to-bone contact, limiting vascular trauma
- ▶ 5 proximal holes for 5.0mm locking screws
- ▶ Available for left and right tibias
- ▶ Plate with 5 to 13 combination locking/compression holes
- ▶ Distal holes accept 5.0 mm locking screws in the threaded portion and 4.5 mm cortex screws in the compression portion
- ▶ 1 proximal hole for 2.0 mm Kirschner wires
- ▶ "Tapered end" for submuscular plate insertion, improving tissue viability.

Indications

Indicated for the stabilization of the proximal tibia fractures. These can be: proximal diaphyseal fractures, metaphyseal fractures and Periprosthetic fractures.



Large Fragments 5.0 Locking Plate System



Introduction

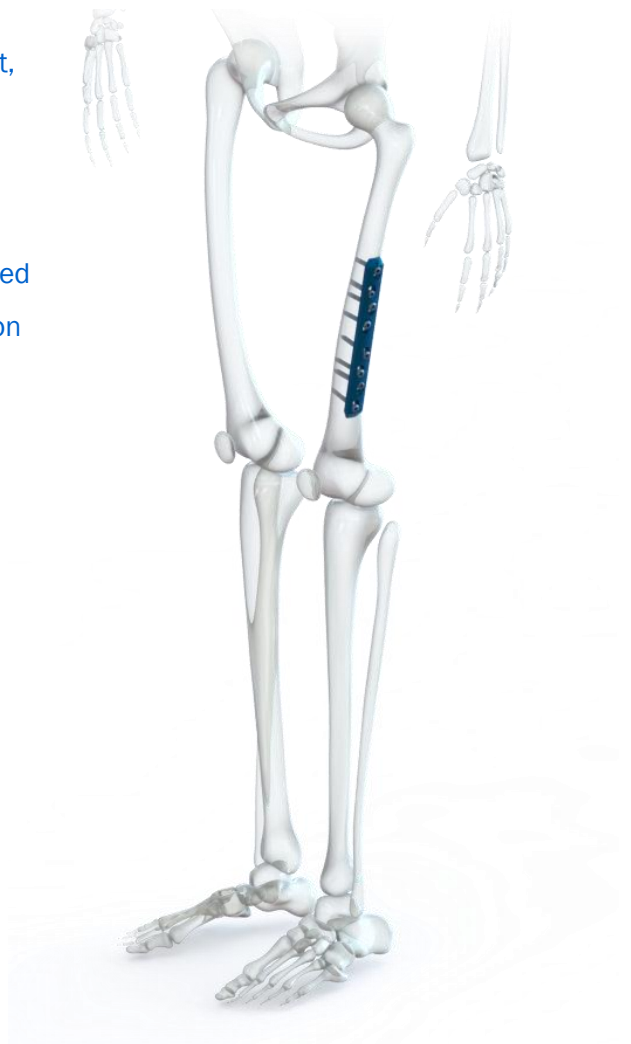
Manufactured in titanium Ti6Al4V-ELI

Broad/Heavy Locking Plate

- ▶ Plate with 5 to 16 combination locking/compression holes
- ▶ Holes in both ends for 2.0 mm Kirschner wires
- ▶ Limited contact Profile. Design reduces plate to-bone contact, limiting vascular trauma
- ▶ "Tapered end" for sub muscular plate insertion, improving tissue viability.
- ▶ The plate holes accept 5.0 mm locking screws in the threaded portion and 4.5 mm cortex screws in the compression portion

Indications

Indicated for extra-articular and simple intra-articular femur bone fractures diaphyseal fractures of the femur.





General Surgical Technique

Screw Insertion

All plates holes accept 5.0 mm locking screws in the threaded portion and 4.5 mm cortex screws in the compression portion

If a combination of locking and cortex screws is planned, a cortex screw should be used first to pull the plate to the bone.

If a locking screw is used first, care should be taken to ensure that the plate is held securely to the bone to keep the plate from rotating off the bone as the screw is locked into the plate. Plates have holes for 2.0 mm Kirschner wires to secure them.



4.5 Cortex Screw



5.0 Locking Screw

IMPORTANT:

A power drilling machine or drill bit handle is not provided with the instruments. Surgeon may use preferred instrument.

Large Fragments 5.0 Locking Plate System



General Surgical Technique

1 Insert cortex screws

Instruments:

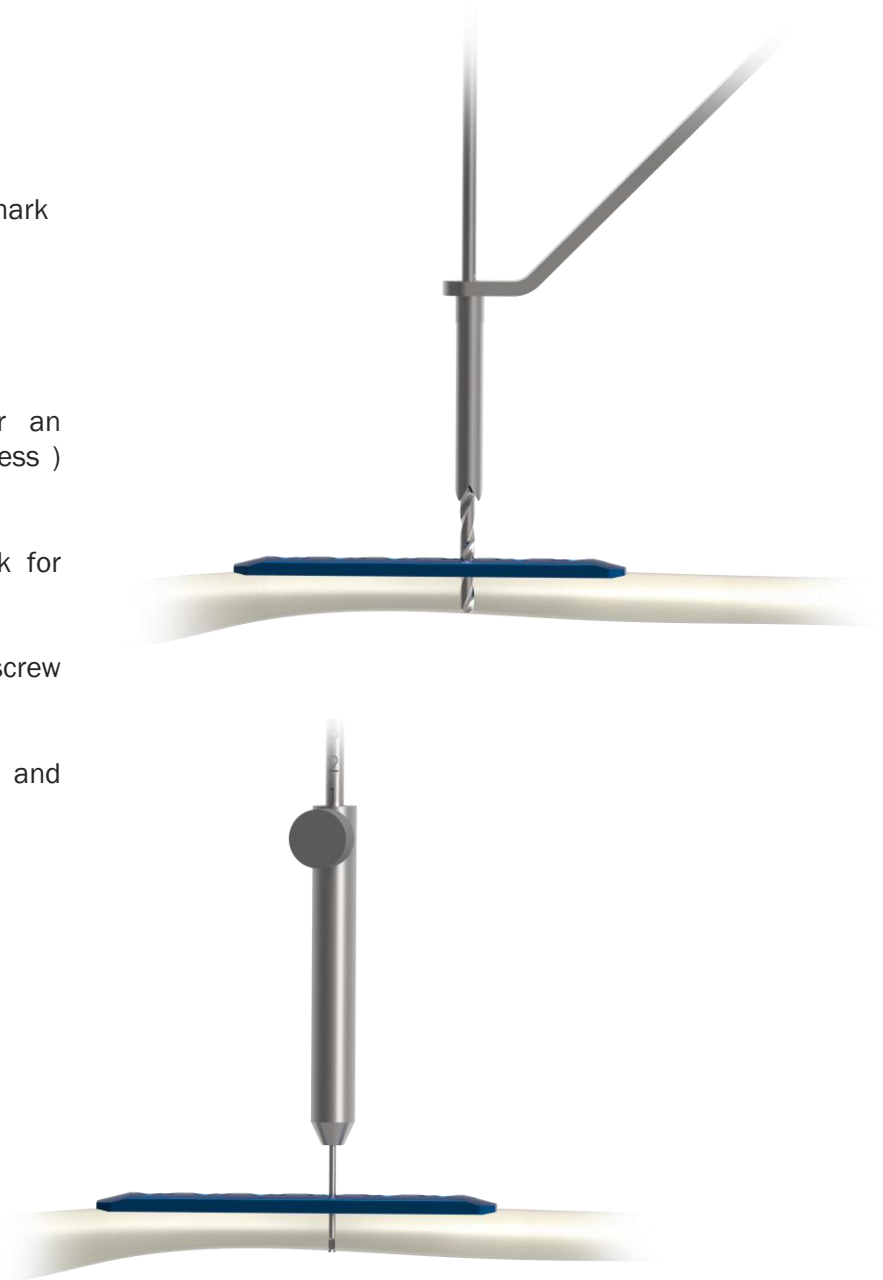
07013105	3.5 mm Drill Bit, with depth mark
07023104	Solid Screwdriver
07080114	Large Depth Gauge
07031105	3.5/4.5 Double Drill Guide

Use the 3.5/4.5 Double Drill Guide for an eccentric (compression) or neutral (buttress) insertion of cortex screws.

Use the 3.5 mm drill bit with depth mark for 4.5mm screws to drill to the desired depth.

Use the depth gauge to measure for screw lengths.

Use a StarDrive screwdriver for all 2.4mm and 2.7mm cortex screws.





General Surgical Technique

2

Insert locking screws

Screw the threaded 5.0mm drill guide for 5.0mm screws into a locking hole until it is fully seated.

Use the 4.0mm drill bit depth mark for 5.0mm screws to drill to the desired depth.

Determine screw length

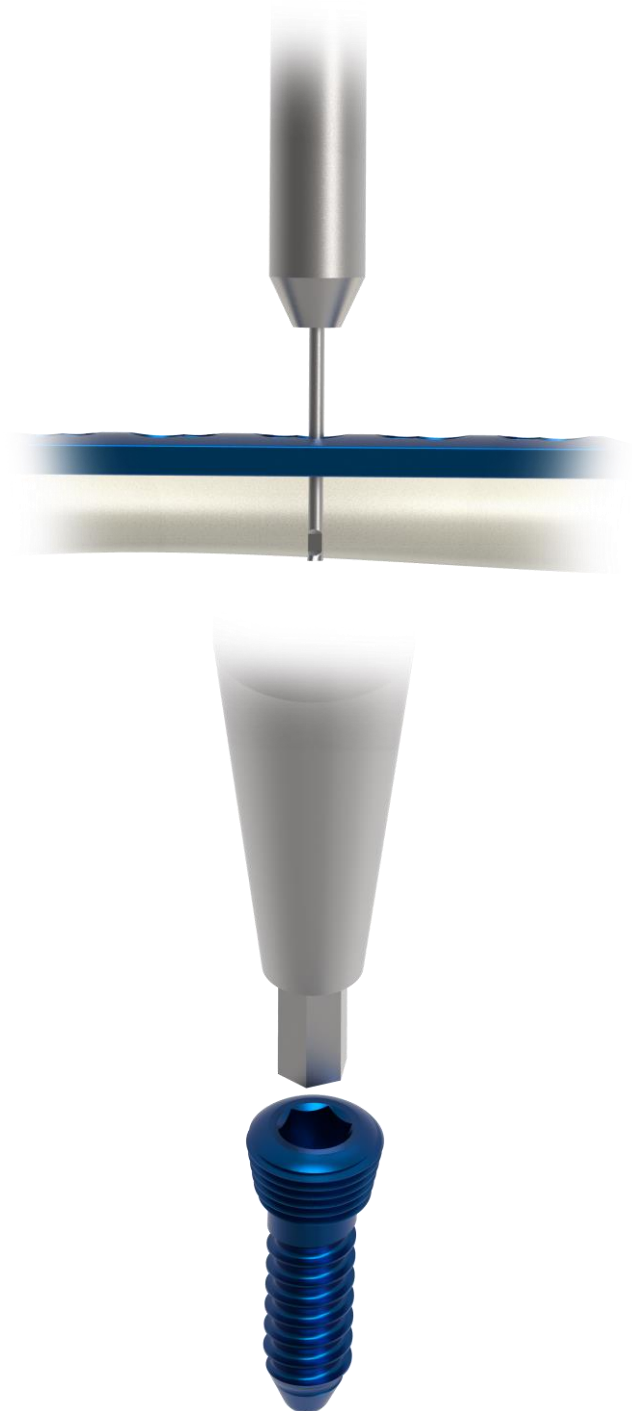
Remove the drill guide

Use the depth gauge to measure the screw length

Insert screw

Insert locking screws manually with a T8 StarDrive screwdriver.

Carefully tighten the locking screw. Excessive force is not necessary to lock the screw to the plate.





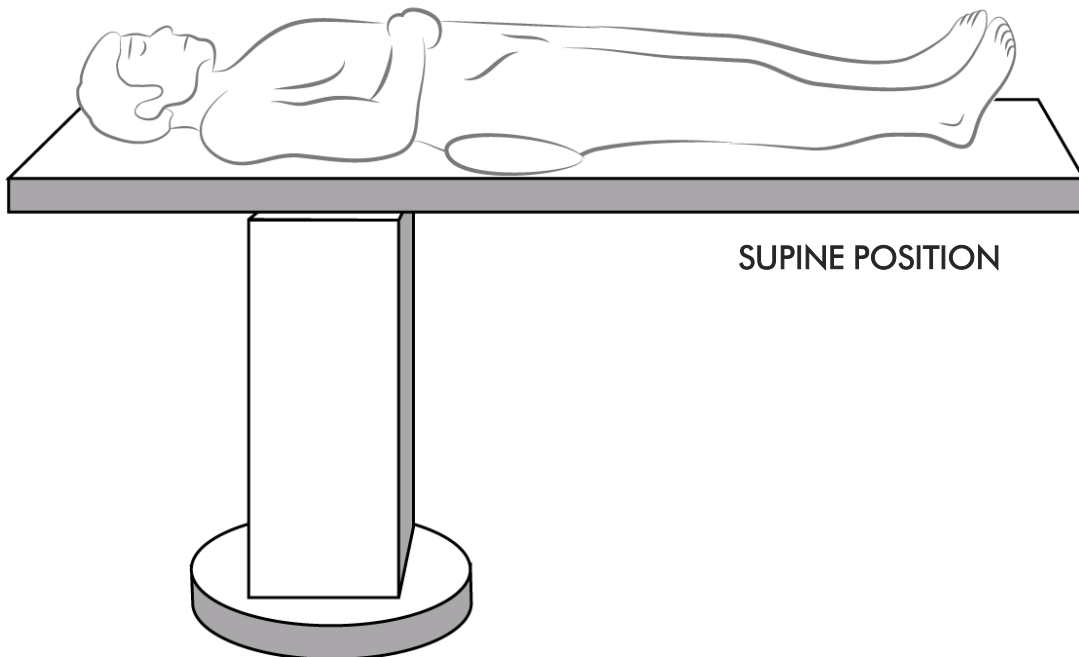
General Surgical Technique

Position Patient

Complete de preoperative radiographic assessment and prepare the preoperative plan. Determine plate length and instruments to be used.

Position the patient supine on a radiolucent operating table. Viewing the bone under fluoroscopy in both the lateral and AP views is necessary.

Make an incision according to the fracture site and pattern





Condylar Buttress Locking Plate

Reduce fracture and position plate

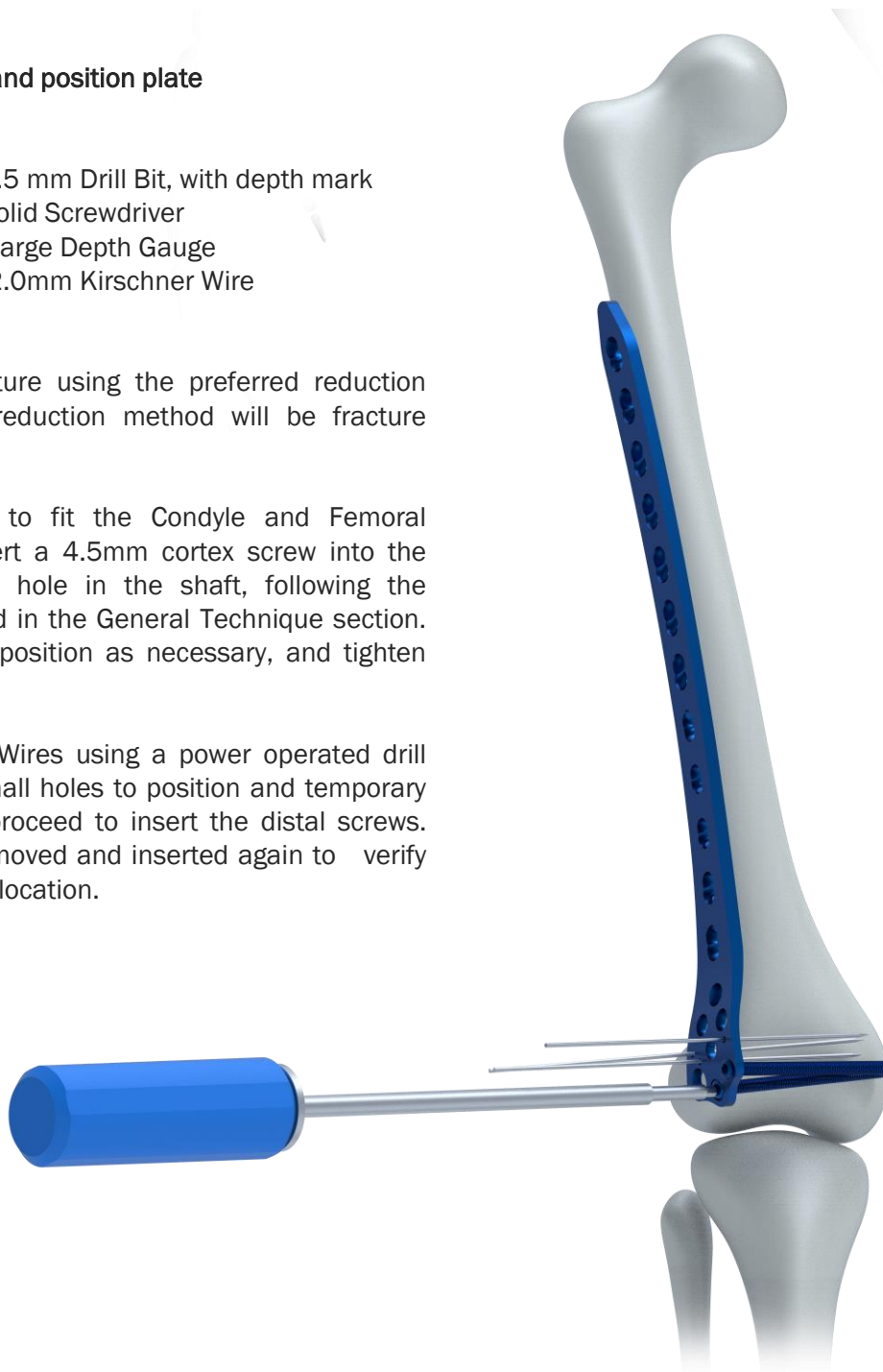
Instruments

07013105	3.5 mm Drill Bit, with depth mark
07023104	Solid Screwdriver
07080114	Large Depth Gauge
01014104	2.0mm Kirschner Wire

Reduce the fracture using the preferred reduction technique. The reduction method will be fracture specific.

Apply the plate to fit the Condyle and Femoral Surface and insert a 4.5mm cortex screw into the most distal long hole in the shaft, following the method described in the General Technique section. Adjust the plate position as necessary, and tighten the screw.

Insert Kirschner Wires using a power operated drill into the distal small holes to position and temporary fix the plate to proceed to insert the distal screws. Wires may be removed and inserted again to verify plate and screws location.



Large Fragments 5.0 Locking Plate System



Insert Distal Screws

Instruments

07013107	4.0 mm Drill Bit, with depth mark
07022107	5.0 StarDrive Screwdriver with torque
07080114	Large Depth Gauge
07032104	5.0mm Drill Guide

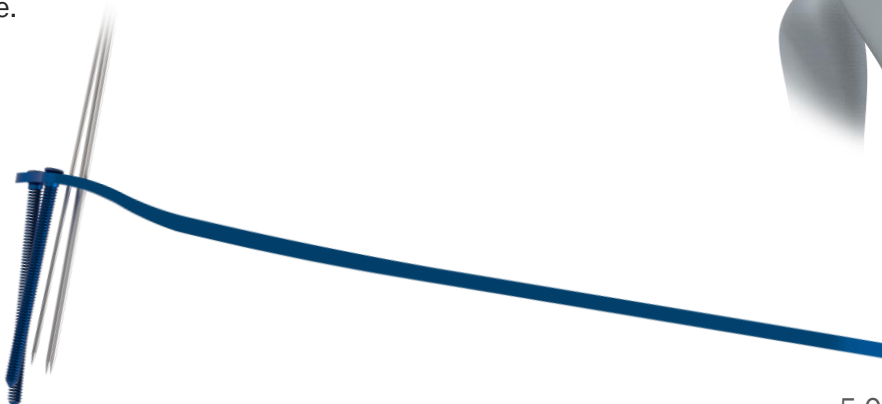
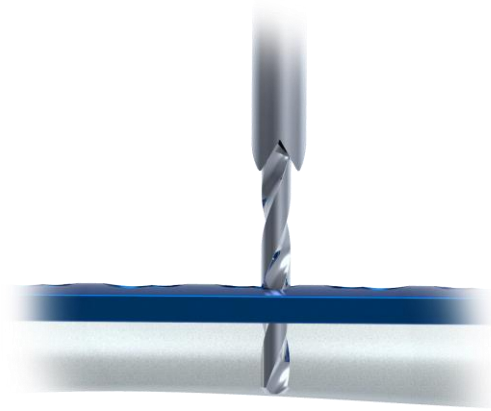
The order of screw insertion in the shaft and metaphysis may vary depending on fracture pattern and reduction technique.

Insert the 5.0mm drill guide with measuring into one of the distal plate holes. Ensure that the guide is firmly seated in the hole.

Drill with the 4.0mm drill bit and measure screw length with the depth gauge, then insert a 5.0mm locking screw using a TB StarDrive screwdriver. Repeat this procedure for the remaining distal holes that will be filled.

Verify plate and distal screw location with a kirschner Wire before inserting multiple screws.

Use the small holes in the distal plate to insert the wires. Remove kirschner wires when distal screw insertion is complete.



Large Fragments 5.0 Locking Plate System

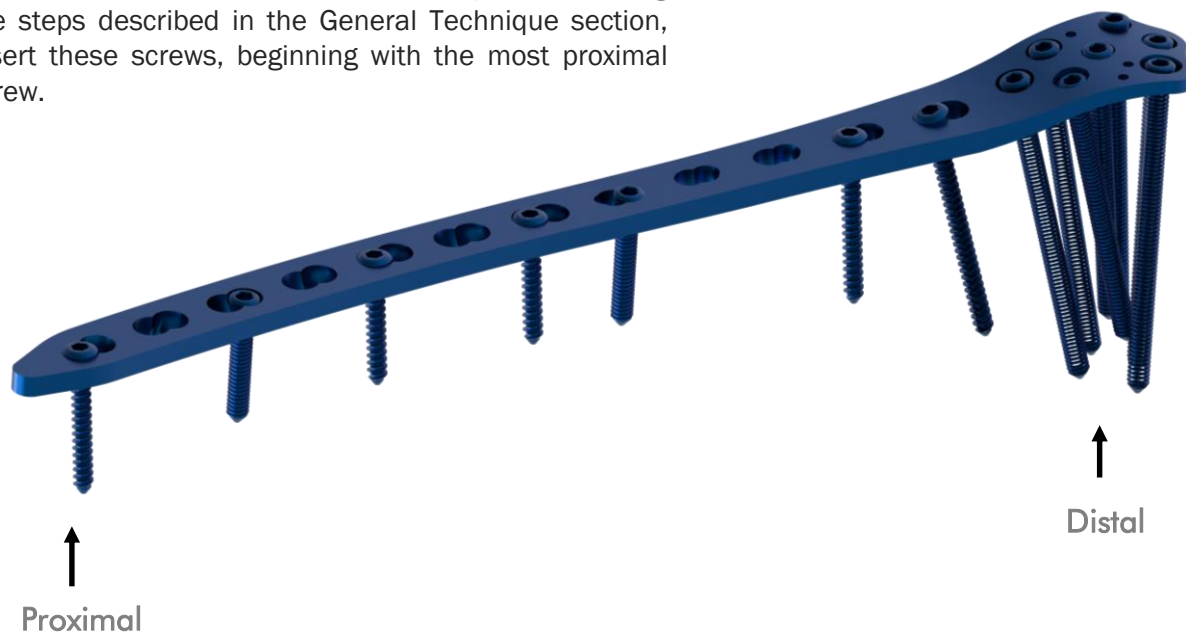


Insert remaining proximal screws

Instruments

07013105	3.5 mm Drill Bit, with depth mark
07013107	4.0 mm Drill Bit, with depth mark
07023104	Solid Screwdriver
07022107	5.0 StarDrive Screwdriver with torque
07080114	Large Depth Gauge
07031105	3.5/4.5 Double Drill Guide

Determine where the 5.0mm locking or 4.5 mm cortex screws will be used in the shaft of the plate. Following the steps described in the General Technique section, insert these screws, beginning with the most proximal screw.



Large Fragments
5.0 Locking Plate System



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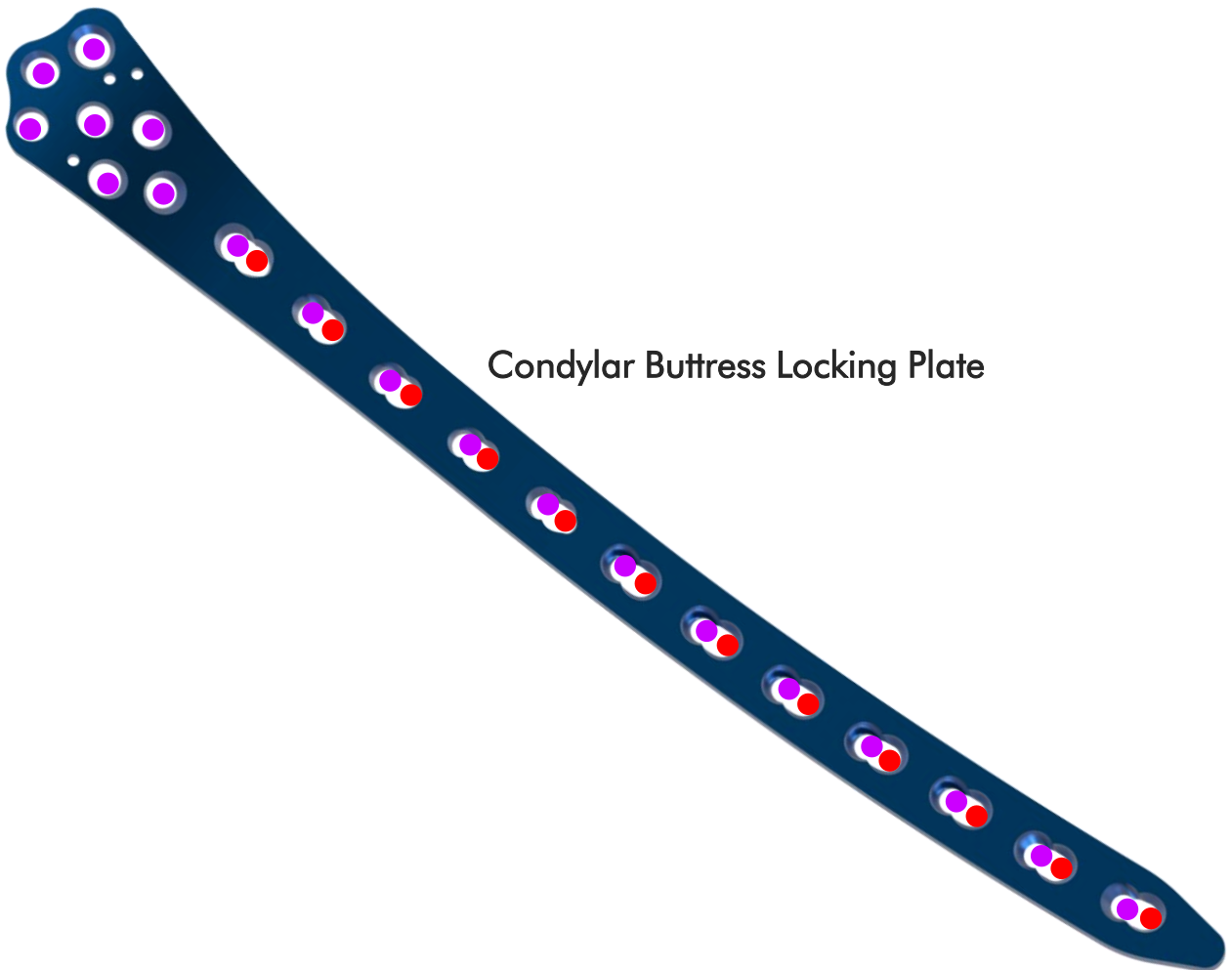
Stardrive Self-tapping Locking Screw

Self-tapping Cortex Screw



● Ø 5.0 mm

● Ø 4.5 mm



Condylar Buttress Locking Plate



Proximal Tibia Locking Plate

Reduce fracture and position plate

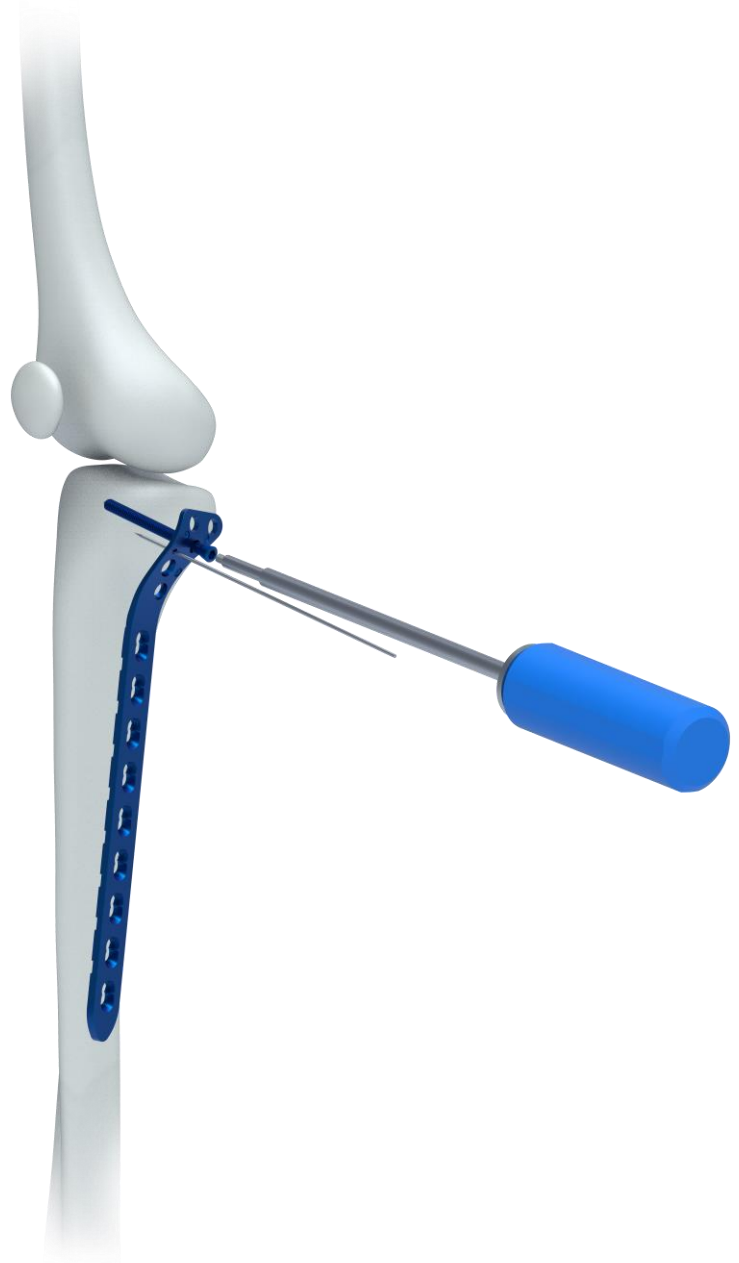
Instruments

07013105	3.5 mm Drill Bit, with depth mark
07023104	Solid Screwdriver
07080114	Large Depth Gauge
01014104	2.0mm Kirschner Wire

Reduce the fracture using the preferred reduction technique. The reduction method will be fracture specific.

Apply the plate to fit the Tibia Surface and insert a 4.5mm cortex screw into the most proximal long hole in the shaft, following the method described in the General Technique section. Adjust the plate position as necessary, and tighten the screw.

Insert Kirschner Wires using a power operated drill into the proximal small hole to position and temporary fix the plate to proceed to insert the distal screws. Wires may be removed and inserted again to verify plate and screws location.





Insert Proximal Screws

Instruments

07012104	2.0 mm Drill Bit, with depth mark
07012106	2.7 mm Drill Bit, with depth mark
07022106	3.5 StarDrive Screwdriver with torque
07080113	Short Depth Gauge
07032108	2.7mm Drill Guide
07032103	3.5mm Drill Guide

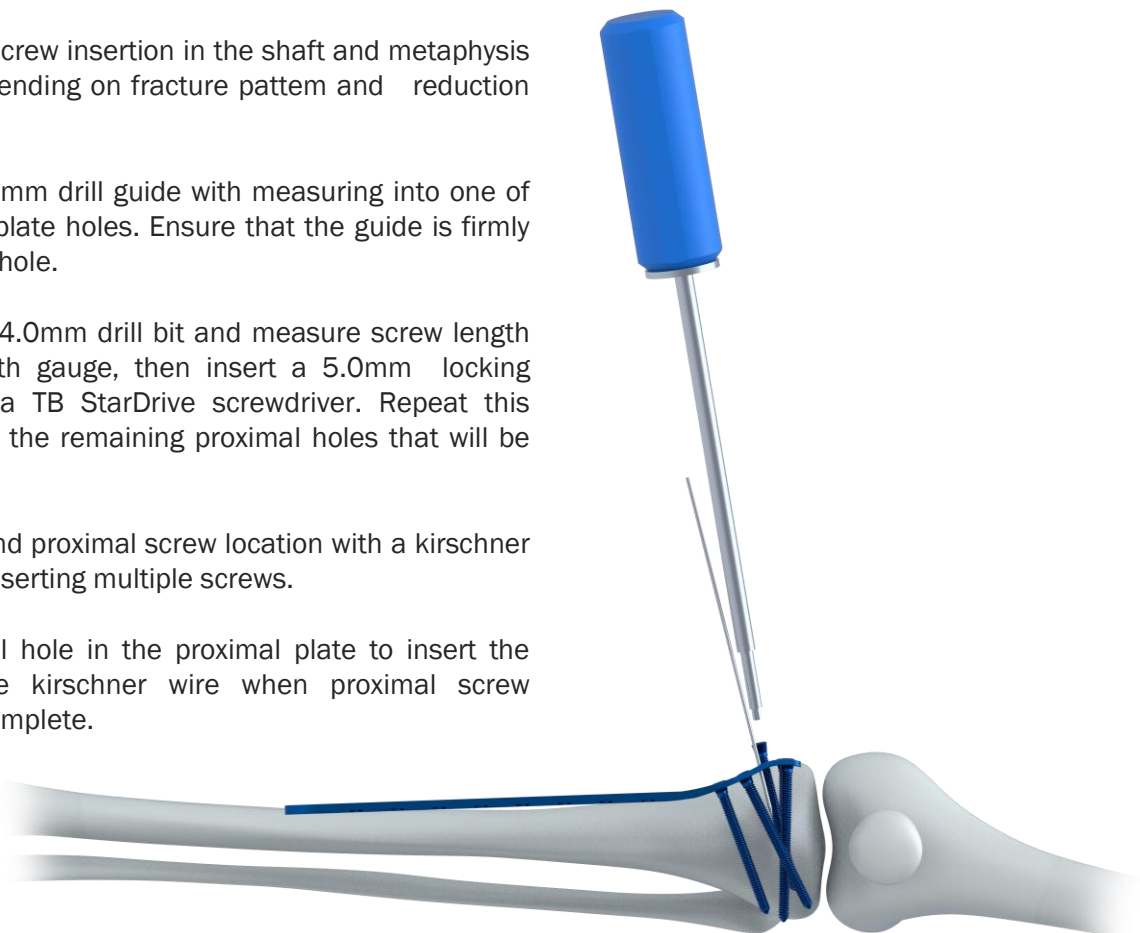
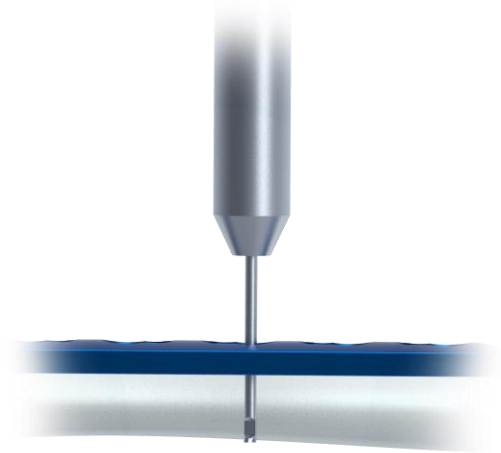
The order of screw insertion in the shaft and metaphysis may vary depending on fracture pattern and reduction technique.

Insert the 5.0mm drill guide with measuring into one of the proximal plate holes. Ensure that the guide is firmly seated in the hole.

Drill with the 4.0mm drill bit and measure screw length with the depth gauge, then insert a 5.0mm locking screw using a TB StarDrive screwdriver. Repeat this procedure for the remaining proximal holes that will be filled.

Verify plate and proximal screw location with a kirschner Wire before inserting multiple screws.

Use the small hole in the proximal plate to insert the wire. Remove kirschner wire when proximal screw insertion is complete.



Large Fragments 5.0 Locking Plate System



Insert remaining distal screws

Instruments

07013105	3.5 mm Drill Bit, with depth mark
07013108	4.5 mm Drill Bit, with depth mark
07022107	5.0 StarDrive Screwdriver with torque
07023104	Solid Screwdriver
07080114	Large Depth Gauge
07031105	3.5/4.5 Double Drill Guide

Determine where the 5.0mm locking or 4.5mm cortex screws will be used in the shaft of the plate. Following the steps described in the General Technique section, insert these screws, beginning with the most distal screw.



Large Fragments
5.0 Locking Plate System



Stardrive Self-tapping Locking Screw



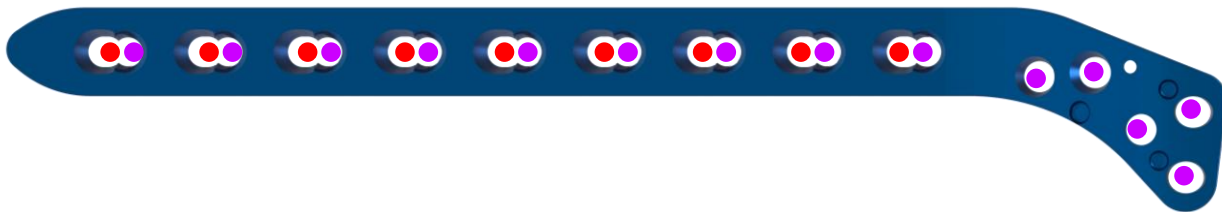
Ø 5.0 mm

Self-tapping Cortex Screw



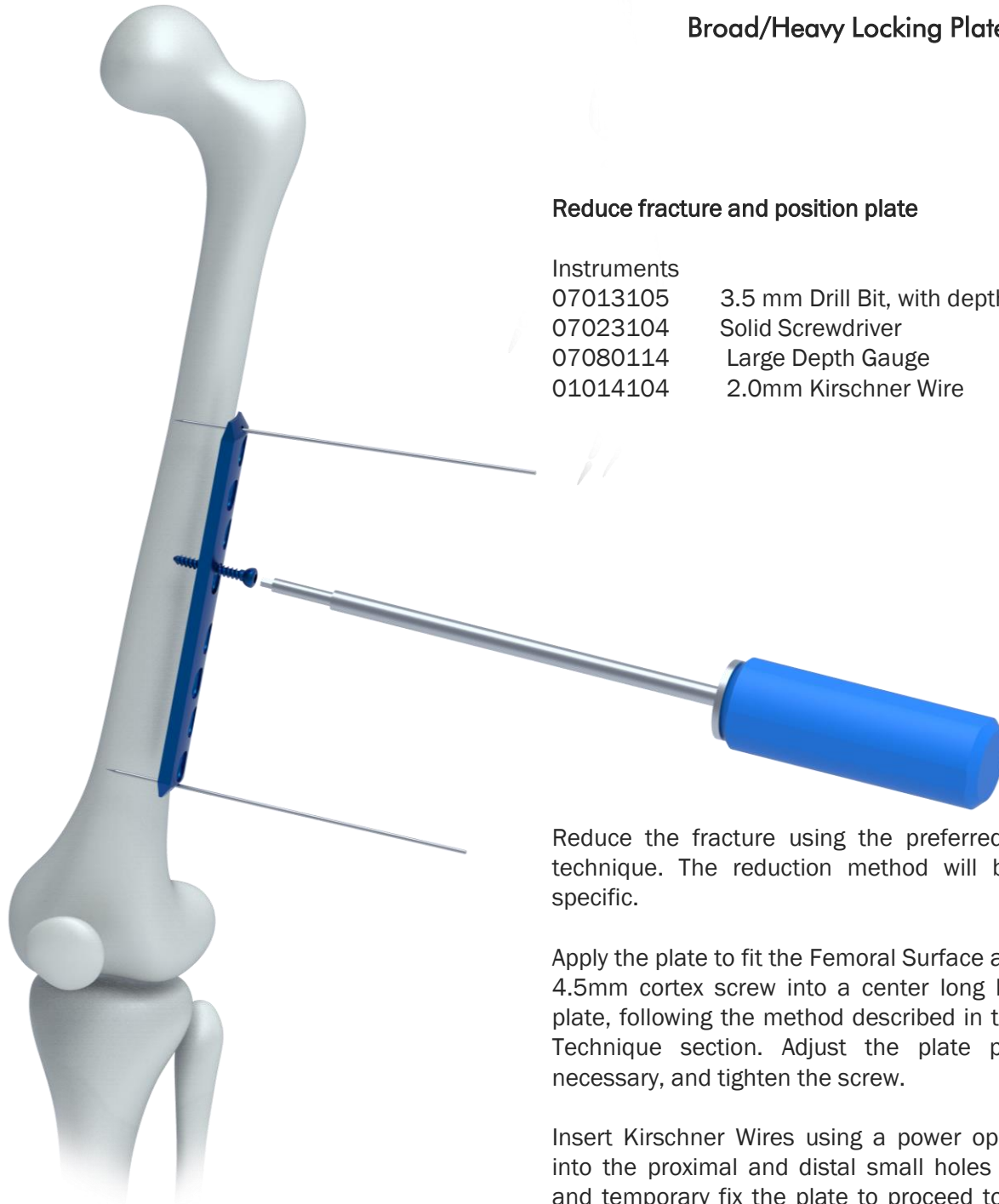
Ø 4.5 mm

Proximal Tibia Locking Plate





Broad/Heavy Locking Plate



Reduce fracture and position plate

Instruments

07013105	3.5 mm Drill Bit, with depth mark
07023104	Solid Screwdriver
07080114	Large Depth Gauge
01014104	2.0mm Kirschner Wire

Reduce the fracture using the preferred reduction technique. The reduction method will be fracture specific.

Apply the plate to fit the Femoral Surface and insert a 4.5mm cortex screw into a center long hole in the plate, following the method described in the General Technique section. Adjust the plate position as necessary, and tighten the screw.

Insert Kirschner Wires using a power operated drill into the proximal and distal small holes to position and temporary fix the plate to proceed to insert the screws. Wires may be removed and inserted again to verify plate and screws location.

Large Fragments 5.0 Locking Plate System



Insert Screws

Instruments

07013105	3.5 mm Drill Bit, with depth mark
07013107	4.0 mm Drill Bit, with depth mark
07022107	5.0 StarDrive Screwdriver with torque
07023104	Solid Screwdriver
07080114	Large Depth Gauge
07032104	5.0mm Drill Guide
07031105	3.5/4.5 Double Drill Guide

The order of screw insertion in the shaft and metaphysis may vary depending on fracture pattern and reduction technique.

Determine how many locking and cortex screws will be used and the locations.

For locking screws, insert the 5.0mm drill guide with measuring into one of plate holes. Ensure that the guide is firmly seated in the hole.

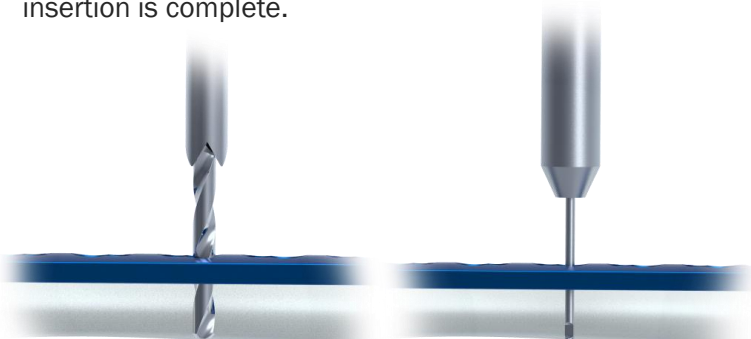
Drill with the 4.0mm drill bit and measure screw length with the depth gauge, then insert a 5.0mm locking screw using a TB StarDrive screwdriver. Repeat this procedure for the remaining holes that will be filled with locking screws

For cortex screws, follow the steps described in the General Technique section.

Verify plate and proximal screw location with a kirschner Wire before inserting multiple screws.

Use the small hole in the proximal plate to insert the wire. Remove kirschner wire when proximal screw insertion is complete.

Broad/Heavy Locking Plate



Large Fragments 5.0 Locking Plate System



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Stardrive Self-tapping Locking Screw



Ø 5.0 mm

Self-tapping Cortex Screw



Ø 4.5 mm

Broad/Heavy Locking Plate





Confirm proper joint reconstruction

Confirm proper joint reconstruction, screw placement, and screw length, using multiple radiographic views.

Close incision

Use the appropriate method for surgical closure of the incision.

Postoperative treatment

Postoperative treatment with locking compression plates does not differ from conventional internal fixation procedures.

Implant Removal

To remove locking screws, unlock all screws from the plate and then remove screws completely from the bone. This prevents rotation of the plate when removing the last locking screw.





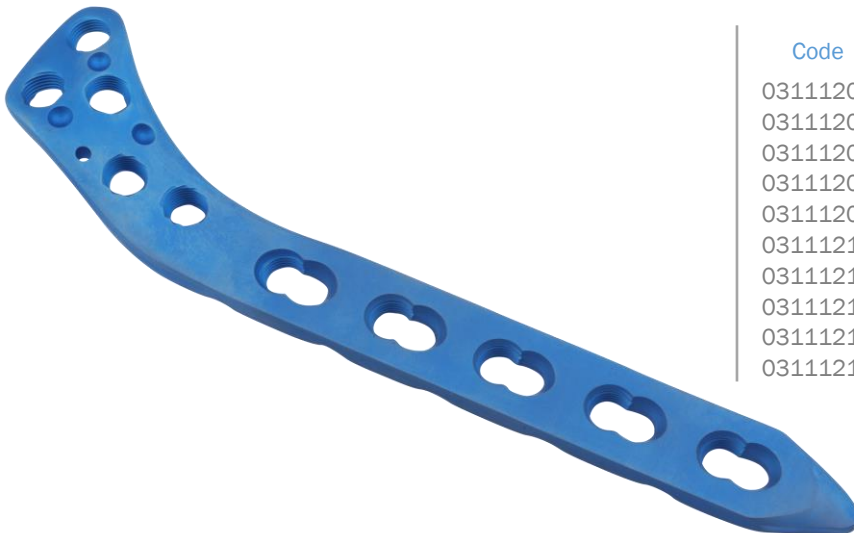
Implants

Condylar Buttress Locking Plate



Code	Side	Holes	Width
03102201	Right	5	164.8 mm
03102203	Right	7	204.90 mm
03102205	Right	9	244.9mm
03102207	Right	11	284.7mm
03102209	Right	13	324.5 mm
03102211	Left	5	164.8 mm
03102213	Left	7	204.90 mm
03102215	Left	9	244.9mm
03102217	Left	11	284.7mm
03102219	Left	13	324.5 mm

Proximal Tibia Locking Plate



Code	Side	Holes	Width
03111201	Right	5	148.54 mm
03111203	Right	7	184.54 mm
03111205	Right	9	220.54 mm
03111207	Right	11	256.54 mm
03111209	Right	13	292.54 mm
03111211	Left	5	148.54 mm
03111213	Left	7	184.54 mm
03111215	Left	9	220.54 mm
03111217	Left	11	256.54 mm
03111219	Left	13	292.54 mm

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Implants

Broad/Heavy Locking Plate



Code	Holes	Width
03033203	7	144 mm
03033204	8	162 mm
03033205	9	180 mm
03033206	10	198 mm
03033208	14	270 mm
03033209	16	306 mm

Stardrive Self-tapping Locking Screw



Ø 5.0 mm

Code	Length	Code	Length
02092201	20 mm	02092211	40 mm
02092202	22 mm	02092212	45 mm
02092203	24 mm	02092213	50 mm
02092204	26 mm	02092214	55 mm
02092205	28 mm	02092215	60 mm
02092206	30 mm	02092216	65 mm
02092207	32 mm	02092217	70 mm
02092208	34 mm	02092218	75 mm
02092209	36 mm	02092219	80 mm
02092210	38 mm		

Self-tapping Cortex Screw



Ø 4.5 mm

Code	Length	Code	Length
02071201	12 mm	02071211	32 mm
02071202	14 mm	02071212	34 mm
02071203	16 mm	02071213	36 mm
02071204	18 mm	02071214	38 mm
02071205	20 mm	02071215	40 mm
02071206	22 mm	02071216	42 mm
02071207	24 mm	02071217	44 mm
02071208	26 mm	02071218	46 mm
02071209	28 mm	02071219	48 mm
02071210	30 mm	02071220	50 mm

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Set of Instruments



Drill Bit with depth mark

3.5 mm Code 07013105
4.0 mm Code 07013107



Dobule Drill Guide

3.5/4.5 mm Code 07031105



StarDrive Screwriver with torque

5.0mm Code 07022107



Depth Gauge

Large Code 07080114



Kirschner Wire

2.0 mm Code 01013104

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Set of Instruments



Solid Screwdriver

4.5 mm Code 07023104



Hoffman Retractor

18 mm Code 07070102



Drill Guide

5.0 mm Code 07032104
6.5 mm Code 07032107



Screw Clamp

Code 07050108



Verbrugge Clamp

Large Code 07050110

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Set of Instruments



Straight Osteotome

1/4 Code 07080121



T Tap with Drill

4.5mm Code 07043104



Sterilization Box

Code 08012149



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Contact

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