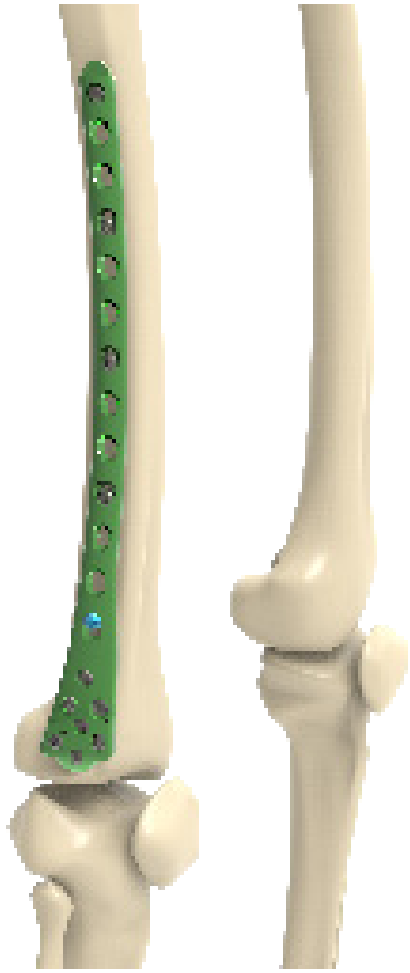
austofix Large Fragment

5.0, 6.5mm L&C Plates

Surgical Technique



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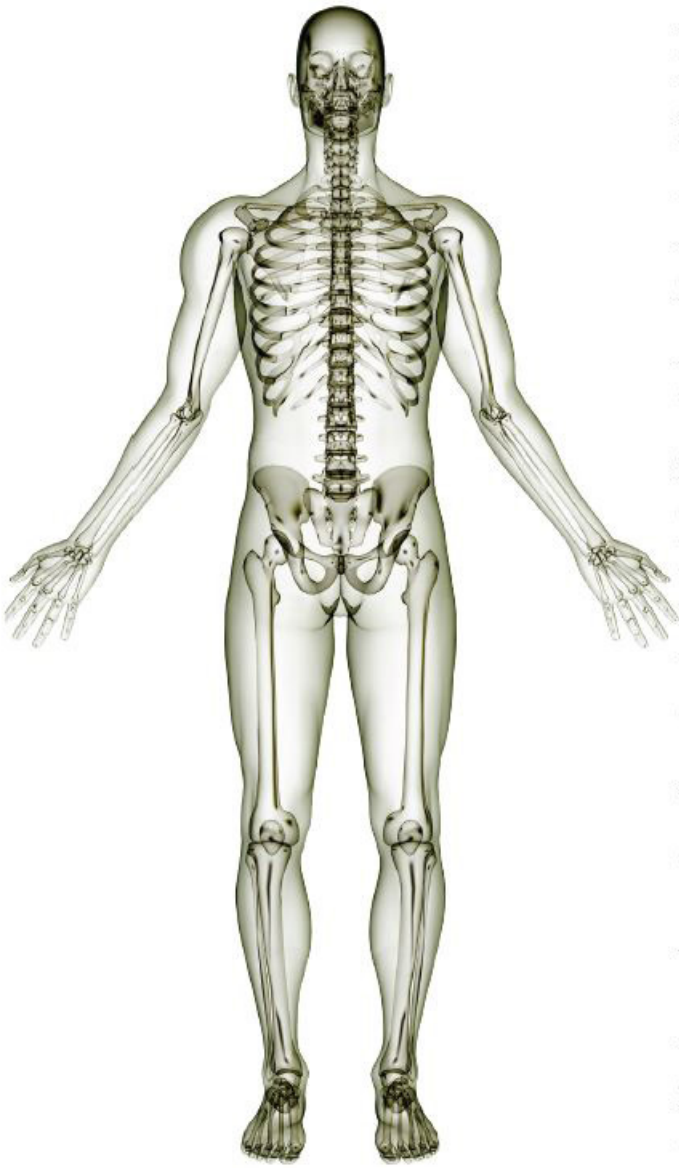


Austofix is a leading manufacturer and designer of orthopaedic trauma medical devices with a particular focus on innovation, excellence and patient safety. Austofix has the expertise and experience in developing a new device from concept to a fully commercialised product with regulatory approval for world-wide distribution.

Throughout its 20+ years Austofix has gathered a team of world-class research and development specialists. Together with orthopaedic surgeons, our specialists identify emerging techniques and innovations in the field of orthopaedic trauma and develop world-class solutions.

Austofix is now one of Australia's key contributors to the world-wide medical technology industry. By focusing on specific market needs we can leverage our staff expertise to develop effective solutions and successfully compete on the world stage.

We understand that accidents don't wait to happen, so we ensure that our equipment and devices are ready when needed. With a dedicated 24 hour, seven day a week customer service and sales team, Austofix products are ready when you are.

With our focus on trauma we understand the specific needs of trauma surgeons. Our product specialists actively support the surgeon by being on call to support procedures and offer advice.

Austofix products and innovations assist the surgeon in performing accurate, efficient and safe procedures that result in better health outcomes for the patient.

The measurement of our success is seen through our excellent clinical results and positive surgeon feedback. We understand the need for efficiency during operations and that this is key in improving patient outcomes. Our products and tools are designed to minimise time spent in theatre. Furthermore, all clinical feedback of our products is promptly addressed to ensure product refinements reflect all surgical concerns.

For further information, updates and contact details visit austofix.com.au and follow us on LinkedIn.

Disclaimer

This document is intended to be read by experienced orthopaedic surgeons familiar with plate fixation.

This document is intended as the recommended procedure for using the Large Fragment L&C Plates system. It offers guidance only. Each surgeon should consider the particular needs of the patient and make appropriate adjustments where necessary.

For further advice please contact your local Austofix representative.

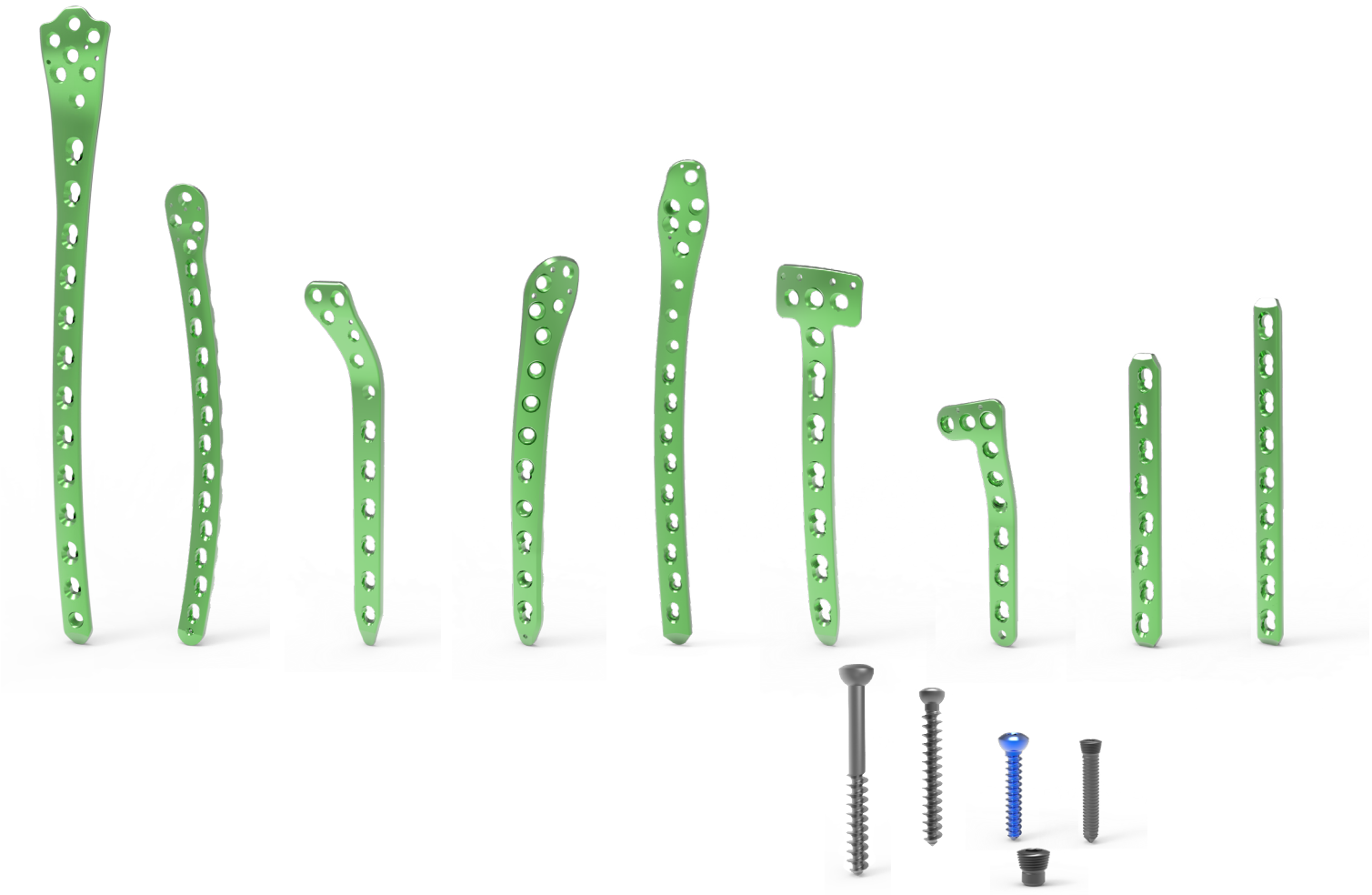
austofix Large Fragment
5.0, 6.5mm L&C Plates

The Austofix Large Fragment System provides surgeons with a complete fixation solution for the many complex fracture patterns found in the lower limbs.

The Large Fragment System is a modern and extensive collection of plates and screws, providing surgeons with an effective array of flexible surgical solutions.

The titanium plates and screws incorporate significant design advantages, facilitating surgical accuracy and efficiency and delivering better patient outcomes.

Austofix understands the importance of proven, high quality medical devices and instruments. The Large Fragment system adheres to these principles and will provide the surgeon with a comprehensive lower limb fixation solution.



Implant Features

Combi Hole

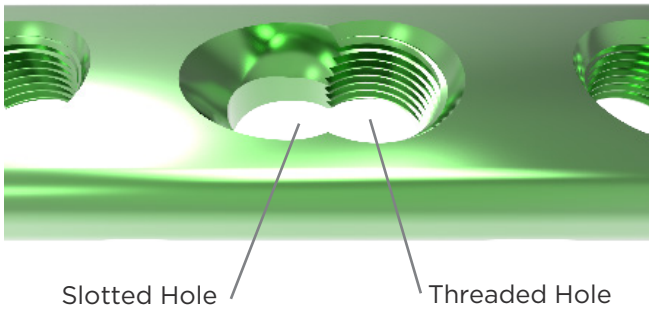
The Combi Hole allows for a range of plate fixation options. The holes accommodate both Compression and Locking screws.

Slotted Hole - Cortex Screws/Cancellous Screws

Cortex or Cancellous Screws used in the slotted hole for plate-to-bone compression increases stability.

Threaded Hole - Locking Screws

Locking screws link with the threads in the Threaded Hole, keeping the screw at a fixed angle.



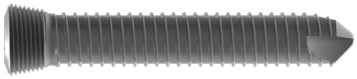
Tapered End

Tapered end assists in submuscular plate insertion and helps to minimise tissue trauma.

Screws

Self-Tapping Locking Screw

- Self-Tapping
- Reduced Screw Backout
- Unicortical or Bicortical Fixation in Metaphysis
- Precise Screw Length Measurement Required

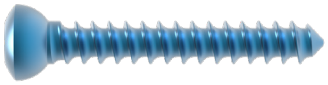


Self-Drilling / Self-Tapping Locking Screw

- Self-Drilling
- Self-Tapping
- Reduced Screw Backout
- Unicortical Fixation in Diaphysis

Cortex (Cortical) Screw

- Dynamic compression
- Compression



Cancellous Screw

- Dynamic Compression
- Interfragmentary compression (Partially Threaded)
- Compression

Periprosthetic Screw

- Self-Tapping
- For Periprosthetic Fractures

Spacer

- Reduce Plate-To-Bone Contact
- Minimises Disruption of Periosteal Blood Supply

Plate Features

Anatomical Fit

» Tapered end assists in submuscular plate insertion and helps to minimise tissue trauma

» Rounded Plate & Screw construct minimises the risk of soft tissue irritation

» Plate can be contoured with Plate Benders (113100008) for a more suitable fit

Plate Fixation & Dynamic Compression

» Multiple points of fixation for superior angular stability

» Combi-Holes along shaft of the Plate allow Locking Screws and dynamic compression using Cortex and Cancellous screws

» Gliding Combi-Holes* with elongated slotted holes facilitate plate repositioning and axial compression flexibility

» Provides stable fracture fixation while preserving vascular supply to accelerate bone healing

» Limited-contact shaft design

» Plate shaft has increased thickness for additional strength

» Locking Holes provide flexibility in Locking Screw fixation for multiple fracture patterns

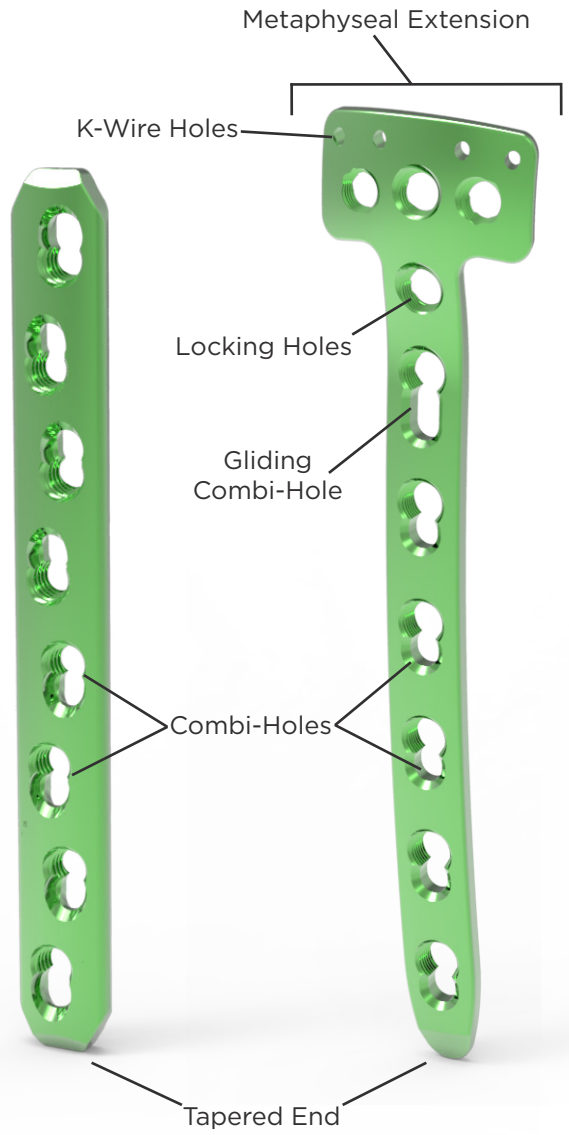
Clinical Indications

» Designed to address simple and complex fractures of long bones, in particular the femur, tibia, humerus, and pelvis.

» Can be utilised for fixation of nonunions, malunions, and osteotomies

» T-Plates indicated for extra-articular metaphyseal fractures extending into the shaft

***Note:** Gliding Combi-Holes found on the 3.5/4.5 Metaphysis Plate and the Proximal Middle Tibial Locking Plate



L&C Proximal Femoral Locking Plate Features

» Locking Holes within proximal extension provide flexibility in Locking Screw fixation for multiple fracture patterns

» Bidirectional Dynamic Compression hole allows for neutral or eccentric Cortex/Cancellous Screw positioning for proximal or distal compression

» K-Wire holes assist in preliminary plate alignment and fixation

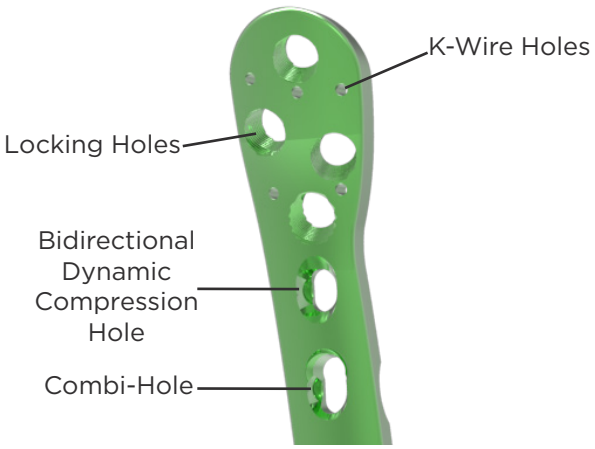


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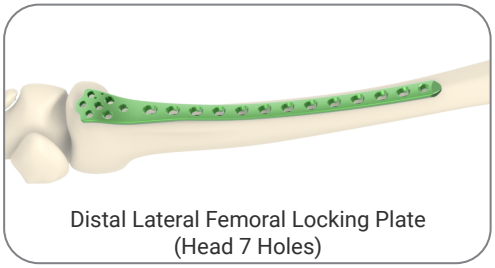
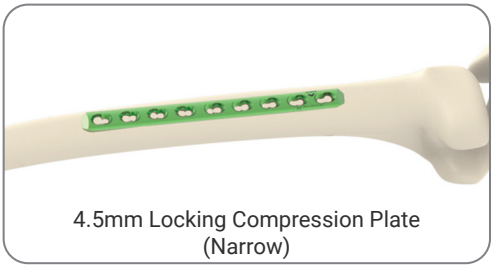
Plate Range

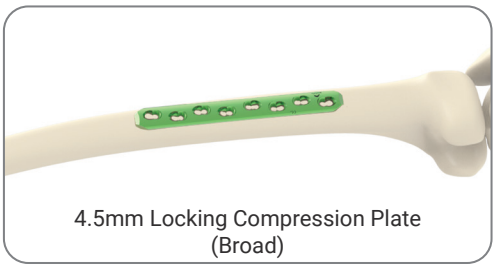
This surgical technique applies to the following locking compression plates. Plate selection is determined by surgeon.



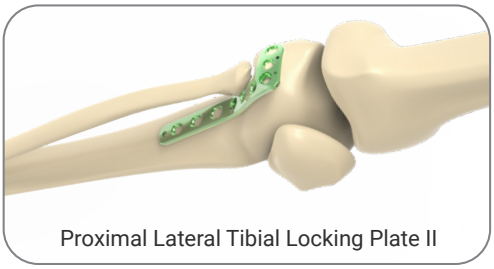
Distal Lateral Femoral Locking Plate
(Head 7 Holes)



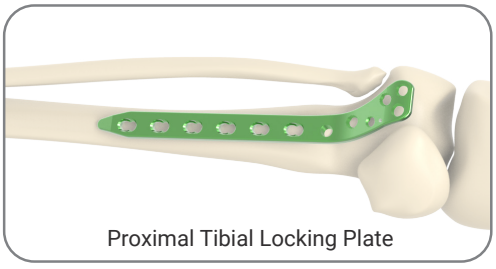
4.5mm Locking Compression Plate
(Narrow)



4.5mm Locking Compression Plate
(Broad)

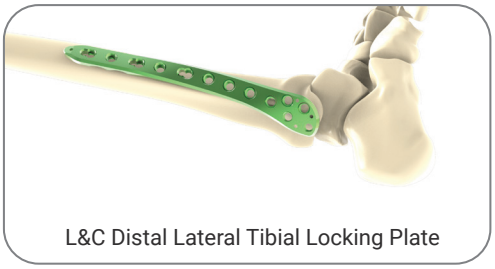


Proximal Lateral Tibial Locking Plate II

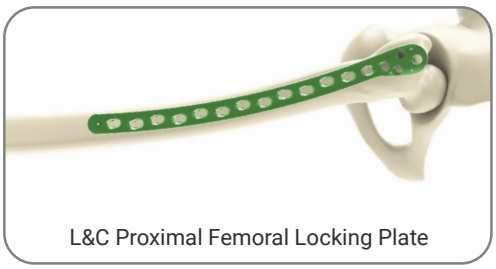


Proximal Tibial Locking Plate

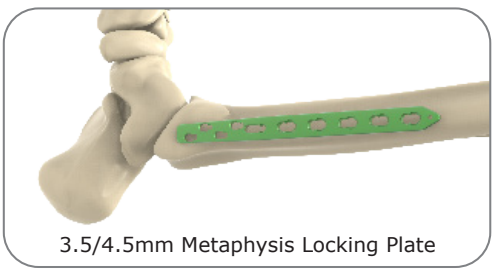
L&C Proximal Middle Tibial Locking Plate



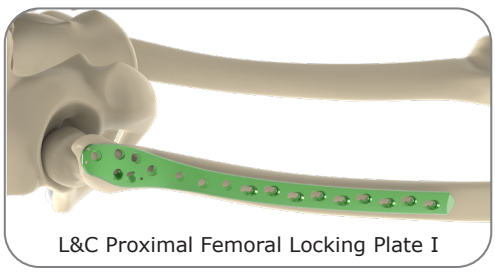
L&C Distal Lateral Tibial Locking Plate



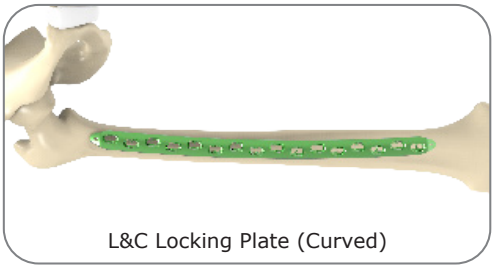
L&C Proximal Femoral Locking Plate



3.5/4.5mm Metaphysis Locking Plate



L&C Proximal Femoral Locking Plate I



L&C Locking Plate (Curved)

Surgical Technique

Plate Selection

Select the appropriate Plate to treat the fracture. To determine the length required, the Plate can be contoured to mould to the bone.

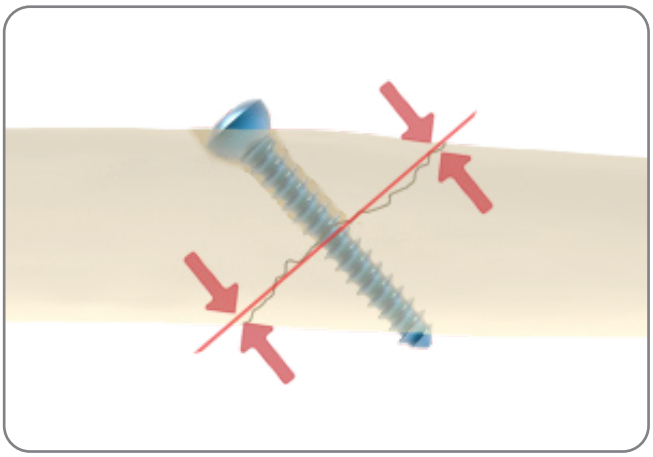
Reduce the Fracture

Perform an appropriate incision to treat the fracture. Reduce the fracture using the image intensifier, K-Wires* (113210001) and/or Reduction Forceps (112100011/3).

***Note:** 2.0mm (522015) and 2.5mm (113210001) K-Wires are available for fracture reduction.

Reduction Using Lag Screws

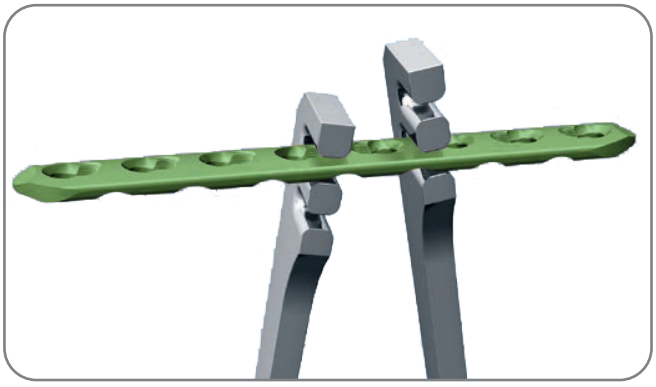
Depending on the fracture pattern, independent lag Screws may be required before the Plate is fixed. 4.5mm Cortex Screws should be used as lag Screws.



1. Reduce the fracture and use the 4.5mm Drill Bit (113100003) with the 4.5mm sleeve of the Universal 3.2/4.5mm Drill Guide (113100014) to drill perpendicularly to and not beyond the fracture line.
2. Use the 3.2mm slot of the Universal 3.2/6.5mm Drill Guide (113100015) to drill the far cortex using the 3.2mm Drill (113100002).
3. The Countersink (113100020) should then be used to improve bone load transfer.
4. Measurement for Screw length can then be obtained using the Depth Gauge (113100007).
5. Insert Ø4.5mm Cortex Screw of appropriate length to provide interfragmentary compression.

Contouring

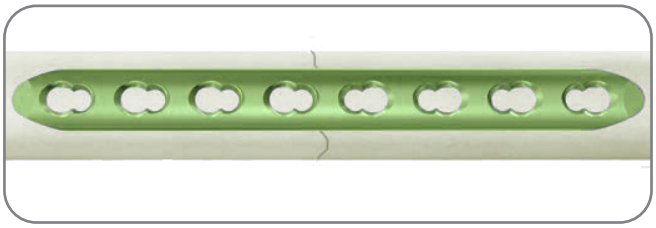
If contouring is required, make sure to place the Plate Benders (113100008) on two consecutive holes to avoid distortion of the Threaded Holes. Bending Templates (Large: 113100010/Small: 113100011) are included if desired.



Note: Do NOT bend the plate beyond what is required to contour with the bone. Reverse bending, over bending, using the incorrect instrumentation for bending or bending at the level of the holes may lead to plate failure.

Position the Plate

Place the selected Plate on the fractured bone and in a suitable position. If axial dynamic compression will be used ensure the middle of the plate is above the line of the fracture. The plate can be temporarily held in place using plate holding forceps. The Drill Guide (113100012/4/5) can also be used to aid in positioning the plate on the bone.



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Pre-Drilling

Determine whether Cortex Screws, Cancellous Screws or Locking Screws will be used. A combination may be used.

Note: Following plate positioning, a preliminary Cortex Screw should be inserted first to pull the plate to the bone. The Screw should be inserted through the slotted hole of a Combi-Hole close to the fracture line, or in the presence of Gliding Combi-Holes, through the elongated slotted hole.

Note: If a Locking Screw is used first, care should be taken to ensure that the plate is securely held to the bone to avoid spinning of the plate about the bone as the Locking Screw is tightened to the plate.

Use the table to determine which combination of Drill/Drill Sleeve is required for the desired screw.

Screw	4.5mm Cortex	6.5mm Cancellous	5.0mm Locking*	6.5mm Locking
Drill	Ø3.2mm Drill (113100002)	Ø3.2mm Drill (113100002)	Ø4.3mm Drill (113200003)	Ø5.8mm Drill (113210002)
Drill Sleeve/ Guide	Ø3.2mm Drill Guide (113100014)	Ø3.2mm Drill Guide (113100014)	Ø4.3mm Threaded Drill Sleeve (113200002)	Ø5.8mm Threaded Drill Sleeve (113210004)
Tapping	Self-Tapping Optional Tap (113100006)	Tap (113100005)	Self-Tapping	Self-Tapping
Driver	Hex (113100001)	Hex (113100001)	Star (113200009)	Star (113200009)
Torque Limiter	-	-	Torque Limiter 4.5Nm (113200038)	Torque Limiter 4.5Nm (113200038)

*__Note:__ 5.0mm Self-Drilling/Self-Tapping Locking Screws are also used.

Important: The 3.5/4.5 Metaphysis Plate (4153-00-XXXXX) requires the Small Frag Instrument Set (SET-INS-SML). Please refer to the Small Frag Surgical Technique for information regarding the instruments required to insert 3.5mm Cortex Screws, 4.0mm Cancellous Screws and 3.5mm Locking Screws.

Drill Guides

The Large Frag Instrument Set contains four different drill guides. Please follow the guide below to ensure the drill guides are used appropriately.

Drill Guide, Double 3.2mm (113100012)

The Double 3.2mm Drill Guide is only used with plates with limited contact features and bidirectional **Dynamic Compression Holes**. The sleeve tips are designed to seat precisely within the hole to allow accurate drilling through the plate for the following Cortex or Cancellous Screw positions:

Neutral

- The **green** drill guide is used
- Screw acts as an anchor for the plate to the bone
- The arrow on the green drill guide should face **towards** the fracture line

Buttress

- The **green** drill guide is used
- Helps maintain anatomical length when fractures have become displaced under axial load
- The arrow on the green drill guide should face **away** from the fracture line

Compression

- The **gold** drill guide is used for eccentric Screw positioning
- Used to compress the bone fragments together
- The arrow on the gold drill guide should face **towards** the fracture line

Drill Guide, Universal 3.2/6.5mm (113100015)

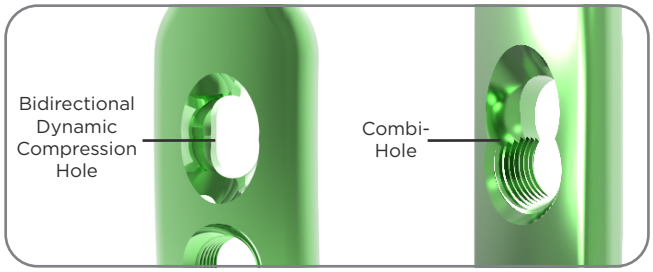
The Double Drill Sleeve is a standard drill sleeve used predominantly for inserting Screws outside of the plate to capture fragments. The larger diameter drill sleeve can additionally be used as a tap sleeve.

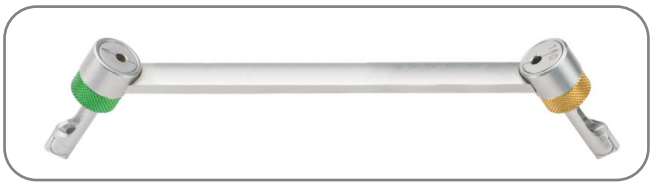
Drill Guide, Universal 3.2/4.5mm (113100014)

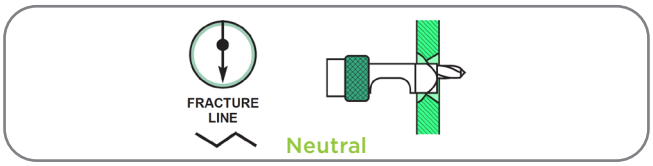
The Universal Drill Guide can be used for insertion of Cortex and Cancellous Screws (**not** Locking Screws) through all holes including **Combi-Holes** found in the Large Fragment plating range. The spring-loaded tip allows for greater control over Screw angle within the plate hole. The drill guide also contains a larger diameter tap sleeve if tapping is required. Please refer to the Drilling section (page 11) for more information on using this drill guide.

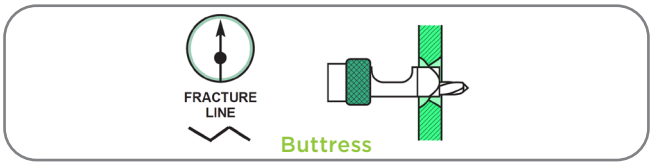
Drill Sleeve, Threaded 4.3mm (Short: 113200002) (Long: 113200036) & Drill Sleeve, Cannulated 5.8mm (113210004)

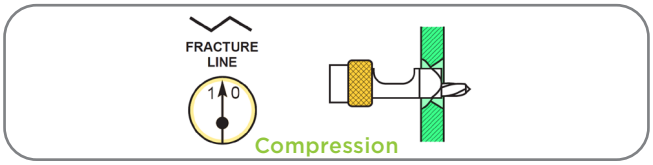
The Threaded Drill Sleeves are used within the threaded portion of the **Combi-Holes** and the threaded **Locking Holes** for perpendicular insertion of Locking Screws for angular stability.

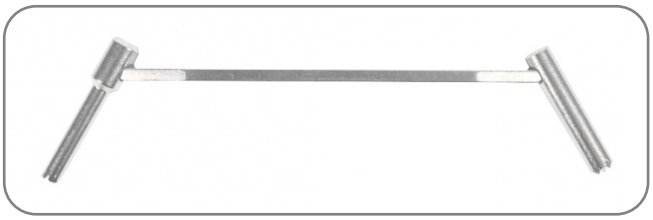


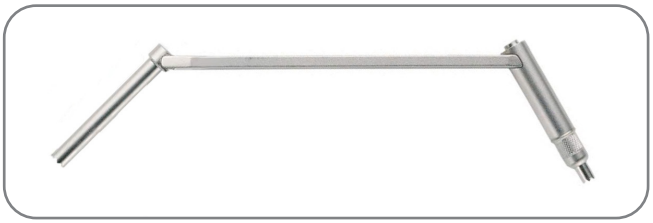












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Drilling

Using the Universal Drill Guide 3.2/4.5mm

Neutral Screw Position

Advance the spring-loaded Universal Drill Guide 3.2/4.5mm (113100014) through the Dynamic Compression slot of the plate. Press the Drill Guide against the bone, allowing the inner sleeve to retract. This will guide the rounded end of the outer sleeve to the Neutral drilling position.

Dynamic Screw Position

Place the inner sleeve of the Universal Drill Guide 3.2/4.5mm (113100014) against the edge of the Dynamic Compression slot of the plate. Without exerting pressure on the Drill Guide, the inner sleeve will remain in the Dynamic position. Dynamic Compression will occur once the Cortex/Cancellous Screws are tightened (page 13).

Locking Screw Position

Insert the Drill Sleeve into threaded hole.

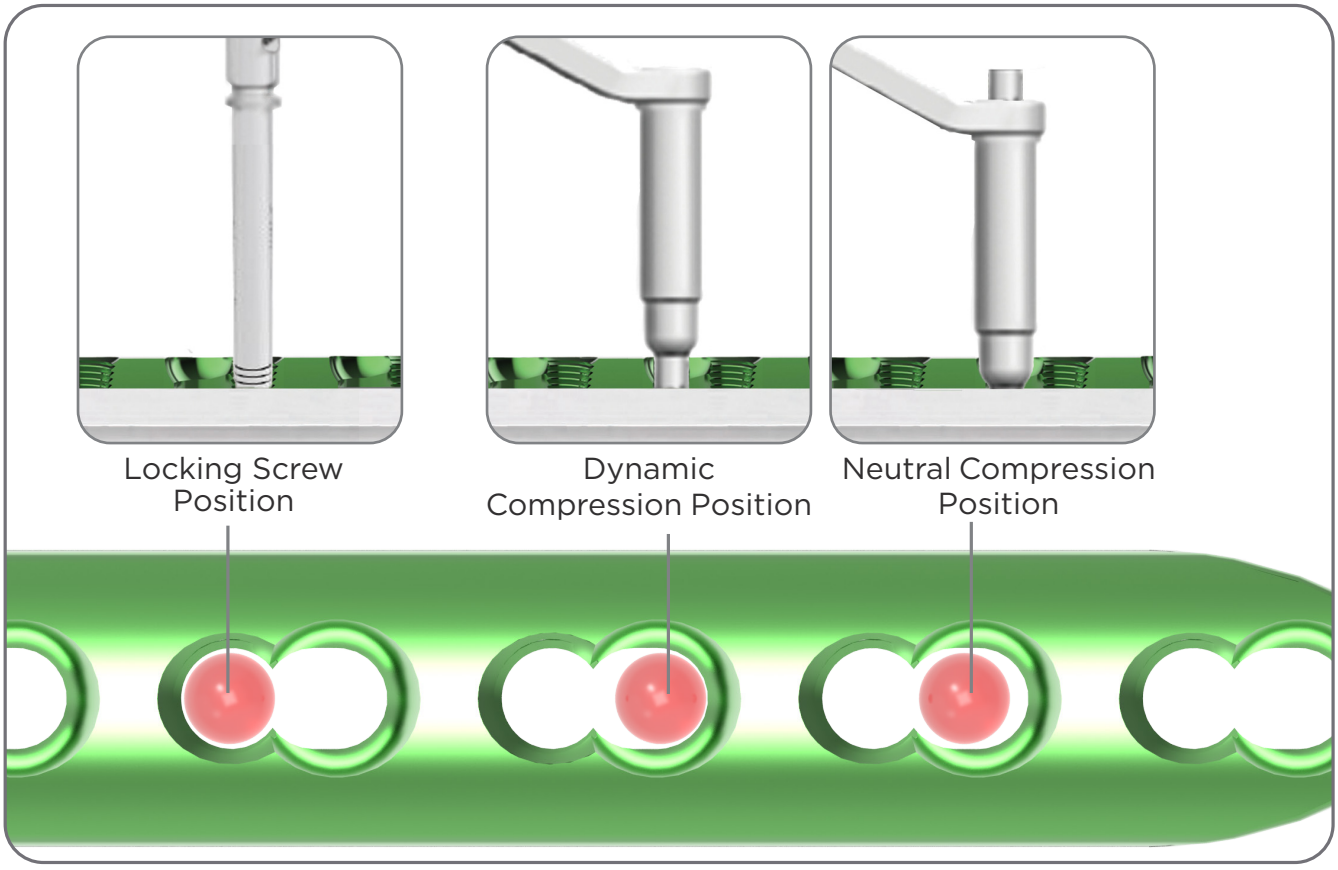
- 5.0mm Locking Screws - Drill Sleeve, Threaded 4.3mm (Short: 113200002/Long: 113200036)
- 6.5mm Locking Screws - Drill Sleeve, Cannulated 5.8mm (113210004)

For metaphyseal Plates, Ø2.5mm K-Wires (113210001) are available to check alignment and length of Locking Screws under an image intensifier. See 'Determine Screw Length' on page 12.

Carefully drill the Locking Screw hole using an appropriate drill bit.

- 5.0mm Locking Screws - Ø4.3mm Drill (113200003)
- 6.5mm Locking Screws - Ø5.8mm Drill (113210002)

Note: For further information on Locking Screw and Spacer see pages 14-15.



Determine Screw Length

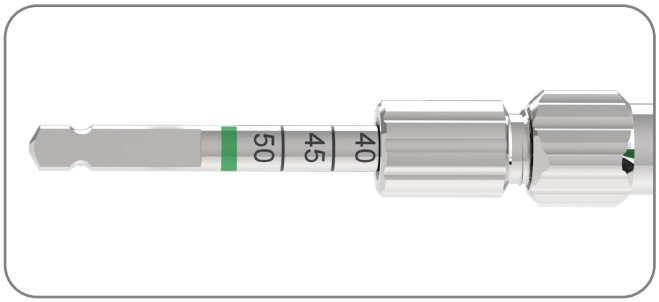
Calibrated Drill Bit (Locking Screws)

Locking Screw length can be determined by reading the depth measurement directly from the calibrated Drill:

Screw	5.0mm Locking	6.5mm Locking
Drill	Ø4.3mm Drill (113200003)	Ø5.8mm Drill (113210002)
Drill Sleeve/ Guide	Ø4.3mm Threaded Drill Sleeve (113200002)	Ø5.8mm Threaded Drill Sleeve (113210004)

Note: When drilling close to the subchondral bone, use image intensification to verify the final position.

Warning: Take care not to drill through the joint surface.



Note: The Ø4.3mm instruments have a **green** laser marking for easy identification.

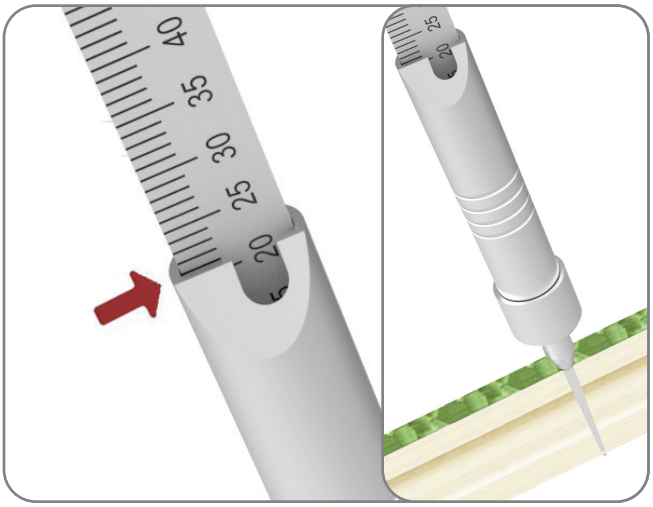
Depth Gauge (Cortex/Cancellous Screws)

The Depth Gauge (113100007) is required to determine Cortex and Cancellous Screw length. The Depth Gauge can be inserted directly into the hole in the bone. Measurements marked on the Depth Gauge are used to determine the Screw length.

Insert the hook of the Depth Gauge to engage the far Cortex of the bone.

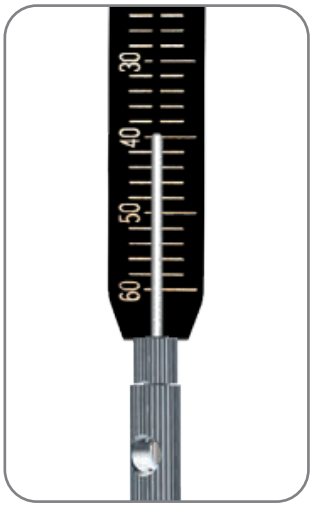
Read the measurements from the barrel of the Depth Gauge. If the measurement is between graduations choose the smaller Screw length.

Note: The Depth Gauge can also be used as an alternative to determining Locking Screw length.



Direct Measuring Device for Ø6.5mm Locking Screws

Thread the 5.8mm Drill Sleeve (113210004) into the plate and insert the Guide for Ø2.5mm K-Wire (113210005) into the Drill Sleeve. Insert Ø2.5mm K-Wire (113210001) to the desired depth. Ø6.5mm Locking Screw length can be determined by sliding the Direct Measuring Device (113200005) over the K-Wire down to the Guide for Ø2.5mm K-Wire and reading the measurement directly from the Direct Measuring Device. Use image intensifier to check alignment and length. Once length has been obtained, remove the Direct Measuring Device, Ø2.5mm K-Wire and Guide for Ø2.5mm K-Wire.



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Tapping

A thread may need to be tapped depending on Screw Selection. Check the table on page 9 to determine if tapping is required.

Screw Selection

Select the appropriate Screw with the assembled Driver Tip and Handle.

Note: Use the table on page 9 to determine which Driver and Handle to use.

Cortex/Cancellous Screws

Neutral Screw Position

Use the Hex Screwdriver (113100001) to insert Cortex/Cancellous Screw to appropriate depth.

Alternatively, a Power Screwdriver with Quick Coupling (114110015) can be used.

Dynamic Screw Position

Use the Hex Screwdriver (113100001) or Power Screwdriver with Quick Coupling (114110015) to insert Cortex/Cancellous Screw to appropriate depth. The Holding Sleeve Ø8.0mm (114400007) can be used to assist in Screw insertion. Ensure Dynamic Compression has been achieved.

Partially Threaded vs Fully Threaded Cancellous Screws

Partially Threaded

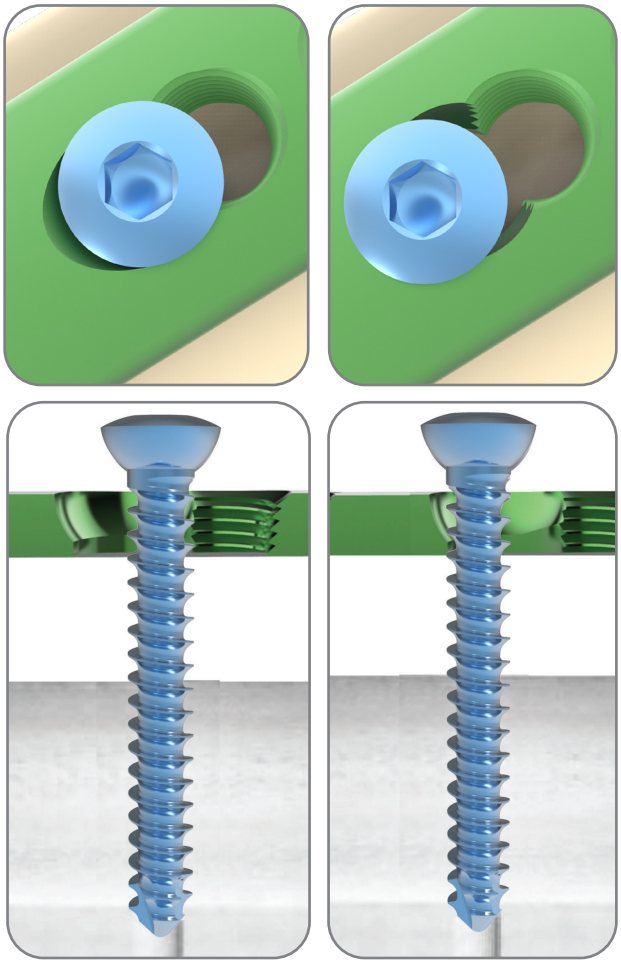
- Used to compress the Plate to the bone and can be used to provide interfragmentary compression

Fully Threaded

- Used to compress the Plate to the bone

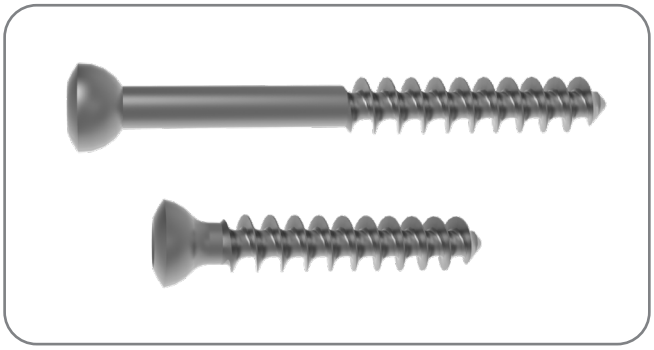
Note: A Countersink (113100020) is available if Screws are being used to capture fragments outside of the Plate.

Note: If a combination of Cortex and Locking Screws are to be used then the Cortex Screw should be inserted first to generate interfragmentary compression.



Neutral Screw Position

Dynamic Compression Position



Locking Screw Insertion

Locking Position

Before the insertion of the Locking Screw ensure the fracture is reduced as this cannot be done after the screw has been inserted.

Ensure the desired Screw is concentric to the Plate's threaded hole (Figure a). Insert the Screw and tighten with the 4.5Nm Torque Limiter Screwdriver (113200038). Screw it down until the threaded screw head engages and is secure to the plate.

Warning: If using power to insert Locking Screws, always use a torque limiting attachment. This reduces the risk of the threads stripping from the head of the screw. The Star T25 Screwdriver Shaft (113200010) can be used for insertion using power.

If a Locking Screw is used first ensure the Plate is securely held to the bone to avoid the plate moving.

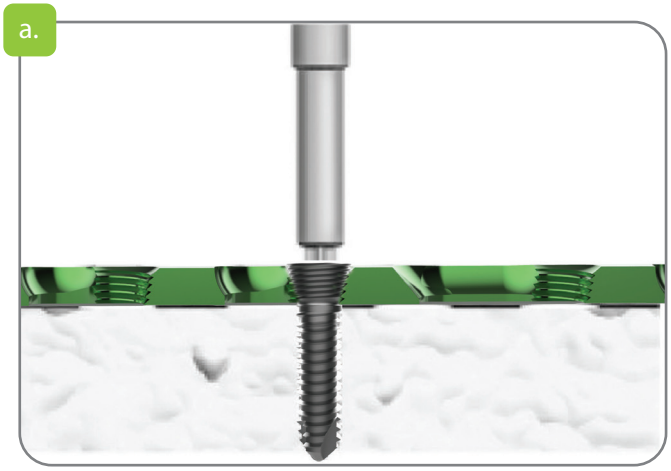
Depending on the clinical requirements, no compression or dynamic compression will be generated.

The number of Screws and Screw insertion configuration is to be determined by the surgeon.

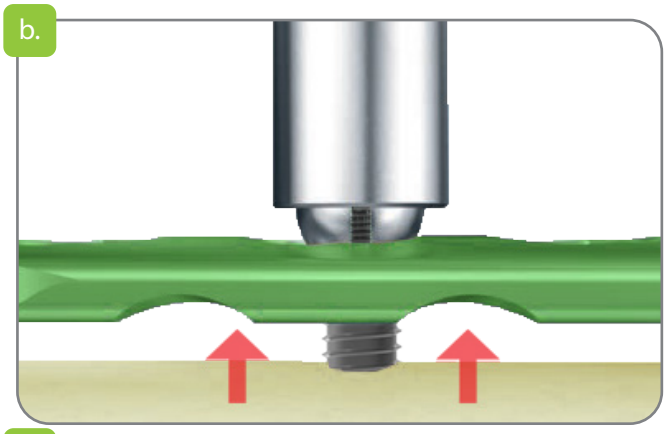
The Holding Sleeve 6.3mm (113200011) can be used to ensure the threaded head does not engage into the Plate prematurely.

Push the Sleeve over the Screw head. Then tighten the Screw this will press the plate onto the bone (Figure b). If a gap between the plate and bone is desired a Spacer should be used. Release the Holding Sleeve to engage the threaded head into the plate (Figure c).

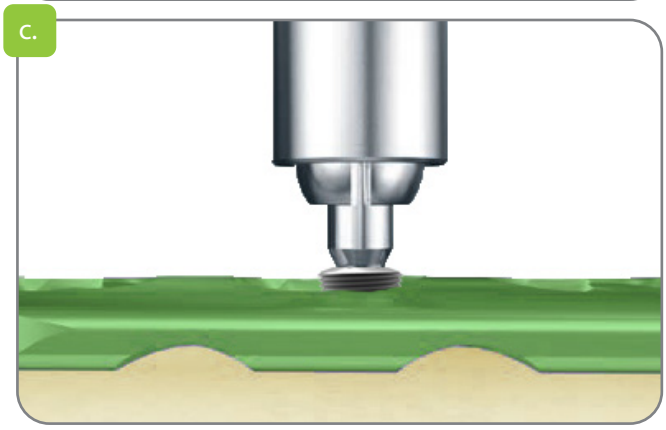
a.



b.



c.

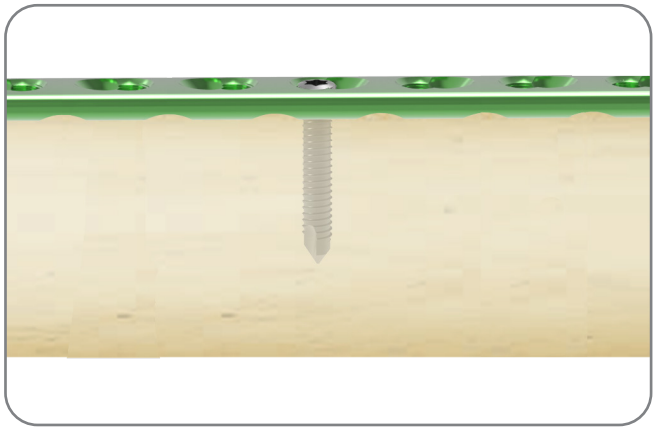


Self-Drilling / Self-Tapping Locking Screw Insertion

These Screws are to be used in regions of the diaphysis where a precise measurement of Screw length is not required.

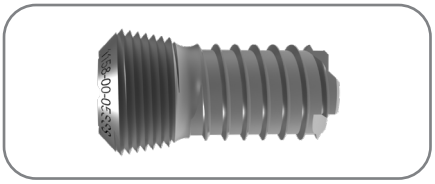
Note: Self-Drilling / Self-Tapping Locking Screws are only to be inserted unicortically.

Warning: Bicortical fixation of these Screws can cause damage to the far cortex and surrounding soft tissue.



Periprosthetic Screws

Blunt tip self-tapping Periprosthetic Screws are used to provide unicortical fixation of fractures when the patient presents with an intramedullary implant.



Spacer

If minimal contact between the plate and bone is desired, an L&C spacer can be inserted using a Hex Driver (113100001/114110015). The spacer ensures a distance of 2mm between the plate and bone when the screws are later inserted. The spacer can be removed after setting the locking screws.

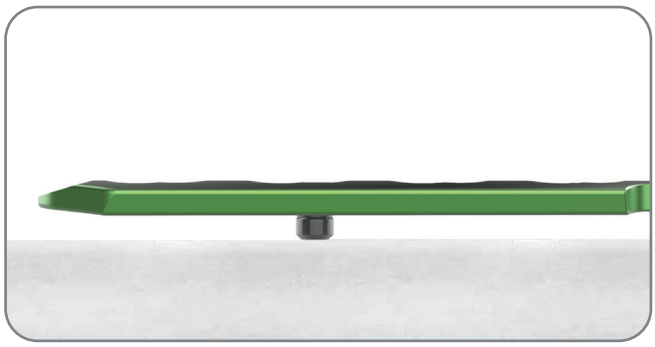
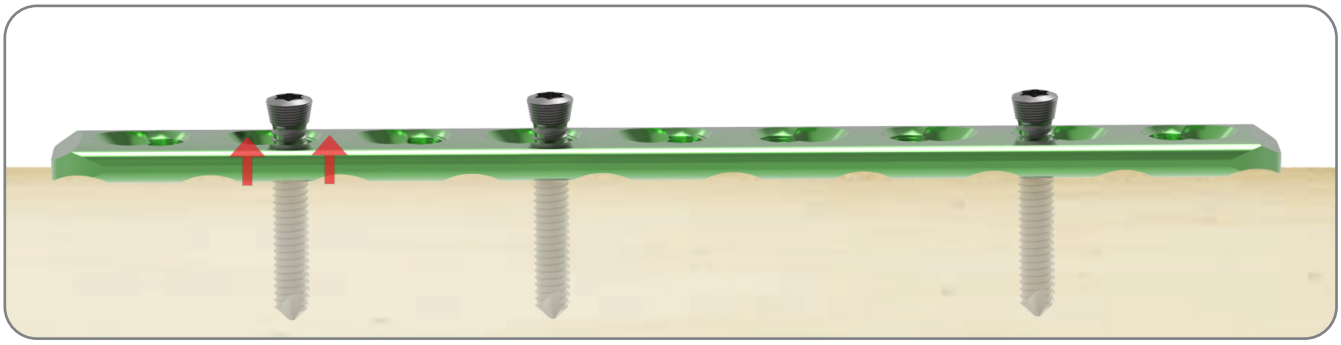


Plate Removal

To remove the plate, unlock all the Screws first using the appropriate Hex (113100001) or Star (113200009) Screwdriver for Cortex/Cancellous Screws and Locking Screws respectively. Remove the Screws from the bone. This method prevents the simultaneous rotation of the plate when unlocking the final locking Screw.

Note: The Easyout (113200004) can be used with the T-Handle with Quick Coupling (112100024) or a Power Drill if there are difficulties in the removal of Screws.



Implants - Plates

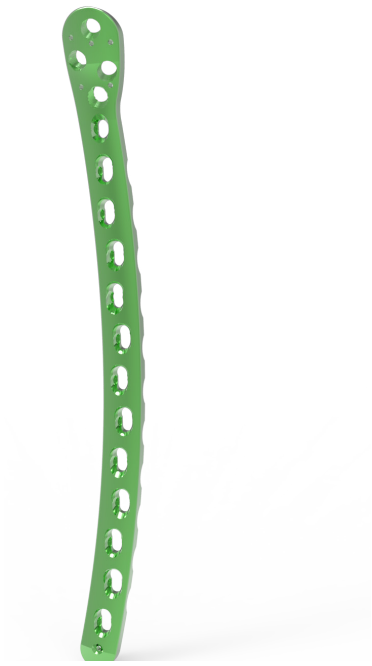
Femoral

L&C Proximal Femoral Locking Plate		
Product Code	Number of Holes	Left/Right
3154-00-04139L	4	L
3154-00-06175L	6	L
3154-00-08211L	8	L
3154-00-10247L	10	L
3154-00-12283L	12	L
3154-00-04139R	4	R
3154-00-06175R	6	R
3154-00-08211R	8	R
3154-00-10247R	10	R
3154-00-12283R	12	R

Compatible Screw: 4.5mm Cortex Screw, 6.5mm Cancellous Screw, 5.0mm Locking Screw, 6.5mm Locking Screw, 5.0mm Spacer

Compatible K-Wire: 2.0mm

Sterile	Non-Sterile

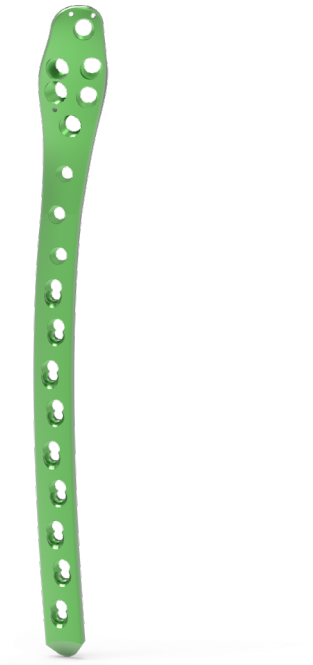


L&C Proximal Femoral Locking Plate I		
Product Code	Number of Holes	Left/Right
3172-00-02099L	2	L
3172-00-04144L	4	L
3172-00-06180L	6	L
3172-00-09234L	9	L
3172-00-12288L	12	L
3172-00-02099R	2	R
3172-00-04144R	4	R
3172-00-06180R	6	R
3172-00-09234R	9	R
3172-00-12288R	12	R

Compatible Screw: 4.5mm Cortex Screw, 6.5mm Cancellous Screw, 5.0mm Locking Screw, 6.5mm Locking Screw, 5.0mm Spacer

Compatible K-Wire: 2.0mm

Sterile	Non-Sterile



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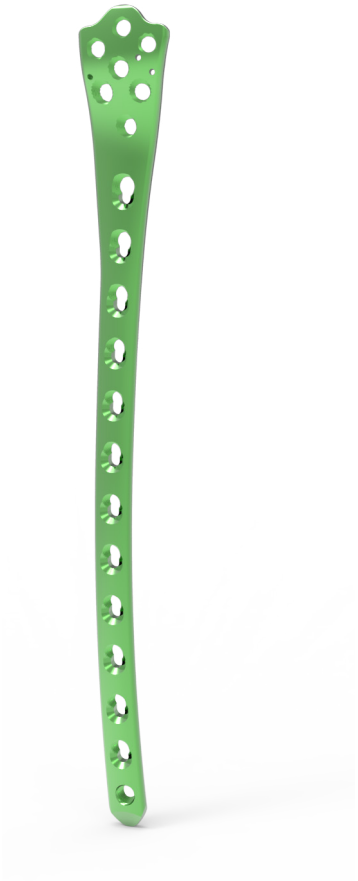
Distal Lateral Femoral Locking Plate		
Product Code	Number of Holes	Left/Right
3002-01-05158L	5	L
3002-01-07198L	7	L
3002-01-09238L	9	L
3002-01-11278L	11	L
3002-01-13318L	13	L
3002-01-05158R	5	R
3002-01-07198R	7	R
3002-01-09238R	9	R
3002-01-11278R	11	R
3002-01-13318R	13	R

Compatible Screw: 4.5mm Cortex Screw, 6.5mm Cancellous Screw, 5.0mm Locking Screw

Compatible K-Wire: 2.0mm

Sterile	Non-Sterile



Tibial

Distal Lateral Tibial Locking Plate		
Product Code	Number of Holes	Left/Right
4006-01-05117L	5	L
4006-01-07150L	7	L
4006-01-09182L	9	L
4006-01-11214L	11	L
4006-01-13261L	13	L
4006-01-05117R	5	R
4006-01-07150R	7	R
4006-01-09182R	9	R
4006-01-11214R	11	R
4006-01-13261R	13	R

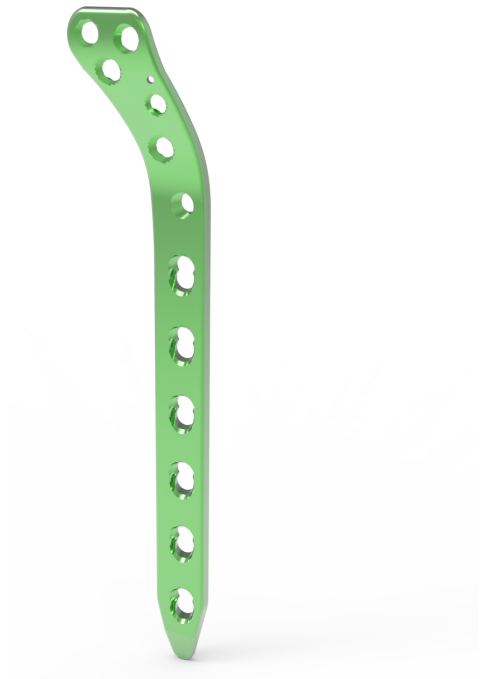
Compatible Screw: 4.5mm Cortex Screw, 6.5mm Cancellous Screw, 5.0mm Locking Screw
Compatible K-Wire: 2.5mm

Sterile | **Non-Sterile**

Proximal Tibial Locking Plate		
Product Code	Number of Holes	Left/Right
4004-01-05150L	5	L
4004-01-07190L	7	L
4004-01-09230L	9	L
4004-01-11270L	11	L
4004-01-13310L	13	L
4004-01-05150R	5	R
4004-01-07190R	7	R
4004-01-09230R	9	R
4004-01-11270R	11	R
4004-01-13310R	13	R

Compatible Screw: 4.5mm Cortex Screw, 6.5mm Cancellous Screw, 5.0mm Locking Screw, 5.0mm Spacer
Compatible K-Wire: 2.0mm

Sterile | **Non-Sterile**



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Proximal Lateral Tibial Locking Plate II		
Product Code	Number of Holes	Left/Right
4155-00-04082L	4	L
4155-00-05100L	5	L
4155-00-06118L	6	L
4155-00-07136L	7	L
4155-00-08154L	8	L
4155-00-09172L	9	L
4155-00-10190L	10	L
4155-00-12226L	12	L
4155-00-14262L	14	L
4155-00-04082R	4	R
4155-00-05100R	5	R
4155-00-06118R	6	R
4155-00-07136R	7	R
4155-00-08154R	8	R
4155-00-09172R	9	R
4155-00-10190R	10	R
4155-00-12226R	12	R
4155-00-14262R	14	R

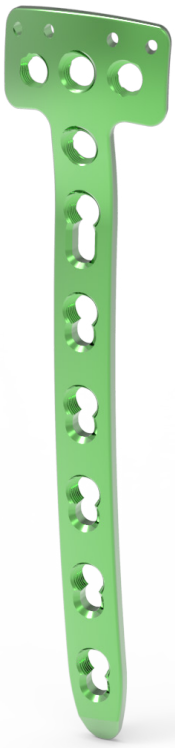
Compatible Screw: 4.5mm Cortex Screw, 6.5mm Cancellous Screw, 5.0mm Locking Screw
Compatible K-Wire: 2.0mm

Sterile	Non-Sterile

Proximal Middle Tibial Locking Plate		
Product Code	Number of Holes	Left/Right
4156-00-04106L	4	L
4156-00-06142L	6	L
4156-00-08178L	8	L
4156-00-10214L	10	L
4156-00-04106R	4	R
4156-00-06142R	6	R
4156-00-08178R	8	R
4156-00-10214R	10	R

Compatible Screw: 4.5mm Cortex Screw, 6.5mm Cancellous Screw, 5.0mm Locking Screw
Compatible K-Wire: 2.0mm

Sterile	Non-Sterile

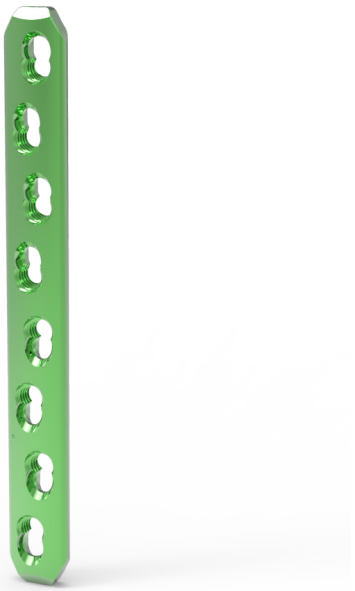


Standard

4.5 Locking Compression Plate (Broad)	
Product Code	Number of Holes
4151-00-05098	5
4151-00-06116	6
4151-00-07134	7
4151-00-08152	8
4151-00-09170	9
4151-00-10188	10
4151-00-11206	11
4151-00-12224	12
4151-00-13242	13
4151-00-14260	14
4151-00-15278	15
4151-00-16296	16
4151-00-17314	17
4151-00-18332	18

Compatible Screw: 4.5mm Cortex Screw, 6.5mm Cancellous Screw, 5.0mm Locking Screw

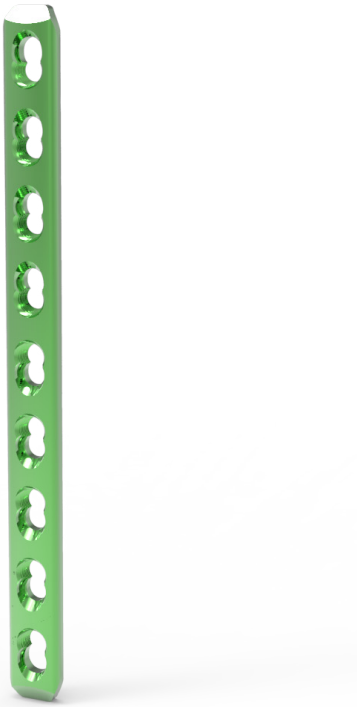
Sterile	Non-Sterile



4.5 Locking Compression Plate (Narrow)	
Product Code	Number of Holes
4152-00-05098	5
4152-00-06116	6
4152-00-07134	7
4152-00-08152	8
4152-00-09170	9
4152-00-10188	10
4152-00-11206	11
4152-00-12224	12
4152-00-13242	13
4152-00-14260	14
4152-00-15278	15
4152-00-16296	16

Compatible Screw: 4.5mm Cortex Screw, 6.5mm Cancellous Screw, 5.0mm Locking Screw

Sterile	Non-Sterile



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3.5/4.5 Metaphysis Plate*	
Product Code	Number of Holes
4153-00-03118	3
4153-00-04136	4
4153-00-05154	5
4153-00-06172	6
4153-00-07190	7
4153-00-08208	8
4153-00-09226	9
4153-00-11262	11
4153-00-13298	13
4153-00-15334	15

Compatible Screw: 3.5mm Cortex Screw*, 4.0mm Cancellous Screw*, 3.5mm Locking Screw*, 4.5mm Cortex Screw, 6.5mm Cancellous Screw, 5.0mm Locking Screw

Compatible K-Wire: 2.5mm

Sterile	Non-Sterile

*Note: Requires Small Frag Instrument Set (SET-INS-SML)

L&C Locking Plate (Curved)	
Product Code	Number of Holes
4175-00-10193	10
4175-00-11211	11
4175-00-12229	12
4175-00-13247	13
4175-00-14265	14
4175-00-15282	15
4175-00-16300	16
4175-00-17318	17
4175-00-18336	18
4175-00-19354	19
4175-00-20372	20

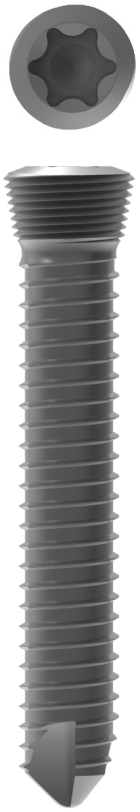
Compatible Screw: 4.5mm Cortex Screw, 6.5mm Cancellous Screw, 5.0mm Locking Screw 5.0mm Spacer

Compatible K-Wire: 2.5mm

Sterile	Non-Sterile

Implants - Screw

Locking Screw - Self-Tapping			
3.5mm*	5.0mm	6.5mm	Length
1061-00-35010	-	-	10
1061-00-35012	-	-	12
1061-00-35014	1059-00-50014	-	14
1061-00-35016	1059-00-50016	-	16
1061-00-35018	1059-00-50018	-	18
1061-00-35020	1059-00-50020	-	20
1061-00-35022	1059-00-50022	-	22
1061-00-35024	1059-00-50024	-	24
1061-00-35026	1059-00-50026	-	26
1061-00-35028	1059-00-50028	-	28
1061-00-35030	1059-00-50030	-	30
1061-00-35032	1059-00-50032	-	32
1061-00-35034	1059-00-50034	-	34
1061-00-35035	-		35
1061-00-35036	1059-00-50036	-	36
1061-00-35038	1059-00-50038	-	38
1061-00-35040	1059-00-50040	-	40
1061-00-35042	1059-00-50042	-	42
1061-00-35044	1059-00-50044	-	44
1061-00-35045	1059-00-50045	-	45
1061-00-35046	1059-00-50046	-	46
1061-00-35048	1059-00-50048	-	48
1061-00-35050	1059-00-50050	1059-00-65050	50
1061-00-35055	1059-00-50055	1059-00-65055	55
1061-00-35060	1059-00-50060	1059-00-65060	60
1061-00-35065	1059-00-50065	1059-00-65065	65
1061-00-35070	1059-00-50070	1059-00-65070	70
1061-00-35075	1059-00-50075	1059-00-65075	75
1061-00-35080	1059-00-50080	1059-00-65080	80
1061-00-35085	1059-00-50085	1059-00-65085	85
1061-00-35090	1059-00-50090	1059-00-65090	90
-	1059-00-50095	1059-00-65095	95
-	1059-00-50100	1059-00-65100	100
-	-	1059-00-65105	105
-	-	1059-00-65110	110
-	-	1059-00-65115	115
-	-	1059-00-65120	120



*__Note:__ Only compatible with the 3.5/4.5 Metaphysis Plate

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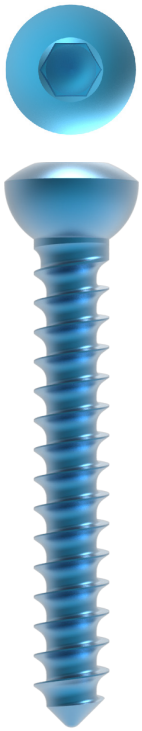
Locking Screw Self-Drilling / Self-Tapping	
5.0mm	Length
1162-00-05018	18
1162-00-05020	20
1162-00-05022	22
1162-00-05024	24
1162-00-05026	26
1162-00-05028	28
1162-00-05030	30
1162-00-05032	32
1162-00-05034	34
1162-00-05036	36
1162-00-05038	38
1162-00-05040	40
1162-00-05042	42
1162-00-05044	44
1162-00-05045	45
1162-00-05046	46
1162-00-05048	48
1162-00-05050	50
1162-00-05055	55
1162-00-05060	60
1162-00-05065	65
1162-00-05070	70
1162-00-05075	75
1162-00-05080	80
1162-00-05085	85
1162-00-05090	90
1162-00-05095	95
1162-00-05100	100

Cortex Screw - Self-tapping		
3.5mm*	4.5mm	Length
1145-00-35012	-	12
1145-00-35014	-	14
1145-00-35016	1145-00-45016	16
1145-00-35018	1145-00-45018	18
1145-00-35020	1145-00-45020	20
1145-00-35022	1145-00-45022	22
1145-00-35024	1145-00-45024	24
1145-00-35026	1145-00-45026	26
1145-00-35028	1145-00-45028	28
1145-00-35030	1145-00-45030	30
1145-00-35032	1145-00-45032	32
1145-00-35034	1145-00-45034	34
1145-00-35036	1145-00-45036	36
1145-00-35038	1145-00-45038	38
1145-00-35040	1145-00-45040	40
1145-00-35042	1145-00-45042	42
1145-00-35044	1145-00-45044	44
1145-00-35046	1145-00-45046	46
1145-00-35048	1145-00-45048	48
1145-00-35050	1145-00-45050	50
-	1145-00-45052	52
-	1145-00-45054	54
-	1145-00-45056	56
-	1145-00-45058	58
-	1145-00-45060	60

*__Note:__ Only compatible with the 3.5/4.5 Metaphysis Plate



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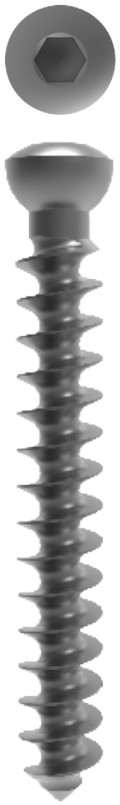
Cancellous Screw - Partial Thread		
4.0mm*	6.5mm	Length
1146-00-40020	-	20
1146-00-40022	-	22
1146-00-40024	-	24
1146-00-40026	-	26
1146-00-40028	-	28
1146-00-40030	-	30
1146-00-40032	-	32
1146-00-40034	-	34
1146-00-40036	-	36
1146-00-40038	-	38
1146-00-40040	-	40
1146-00-40042	-	42
1146-00-40044	-	44
1146-00-40046	-	46
1146-00-40048	-	48
1146-00-40050	1146-00-65050	50
1146-00-40052	-	52
1146-00-40054	-	54
-	1146-00-65055	55
1146-00-40056	-	56
1146-00-40058	-	58
1146-00-40060	1146-00-65060	60
-	1146-00-65065	65
-	1146-00-65070	70
-	1146-00-65075	75
-	1146-00-65080	80
-	1146-00-65085	85
-	1146-00-65090	90
-	1146-00-65095	95
-	1146-00-65100	100
-	1146-00-65105	105
-	1146-00-65110	110
-	1146-00-65115	115
-	1146-00-65120	120

*__Note:__ Only compatible with the 3.5/4.5 Metaphysis Plate

Cancellous Screw - Full Thread		
4.0mm*	6.5mm	Length
1147-00-40012	-	12
1147-00-40014	-	14
1147-00-40016	-	16
1147-00-40018	-	18
1147-00-40020	1147-00-65020	20
1147-00-40022	-	22
1147-00-40024	-	24
-	1147-00-65025	25
1147-00-40026	-	26
1147-00-40028	-	28
1147-00-40030	1147-00-65030	30
1147-00-40032	-	32
1147-00-40034	-	34
-	1147-00-65035	35
1147-00-40036	-	36
1147-00-40038	-	38
1147-00-40040	1147-00-65040	40
1147-00-40042	-	42
1147-00-40044	-	44
-	1147-00-65045	45
1147-00-40046	-	46
1147-00-40048	-	48
1147-00-40050	1147-00-65050	50
1147-00-40052	-	52
1147-00-40054	-	54
-	1147-00-65055	55
1147-00-40056	-	56
1147-00-40058	-	58
1147-00-40060	1147-00-65060	60
-	1147-00-65065	65
-	1147-00-65070	70
-	1147-00-65075	75
-	1147-00-65080	80
-	1147-00-65085	85
-	1147-00-65090	90
-	1147-00-65095	95
-	1147-00-65100	100
-	1147-00-65105	105
-	1147-00-65110	110
-	1147-00-65115	115
-	1147-00-65120	120



*__Note:__ Only compatible with the 3.5/4.5 Metaphysis Plate

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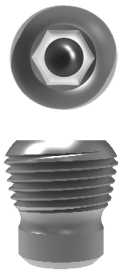
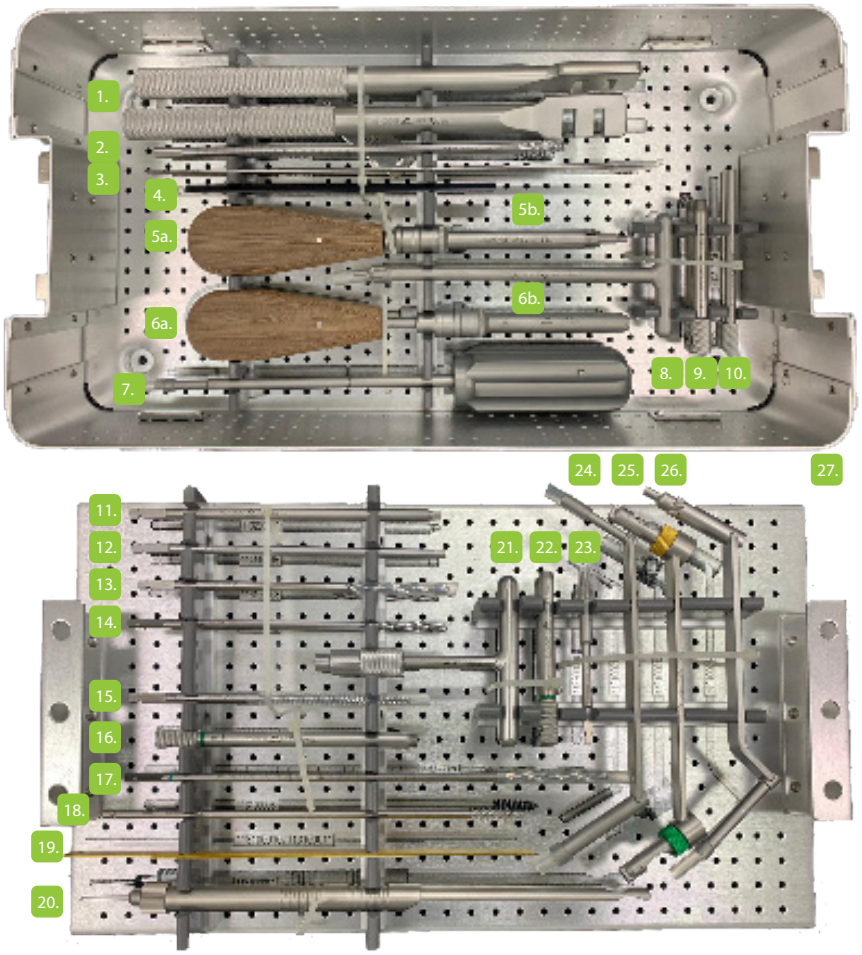
5mm Spacer	
Product Code	Length
1060-00-50002	2



5mm Periprosthetic Screw	
Product Code	Length
1158-00-05014	14
1158-00-05018	18

Instruments



Instruments							
#	Code	Description	Qty	#	Code	Description	Qty
1	113100008	Plate Bender, 285mm	2	14	113100002	Drill Bit 3.2mm	1
2	113210002	Drill Bit, Cannulated 5.8mm	2	15	113100006	Tap for Ø4.5mm Cortex Screw	1
3	113210001	K-Wire Ø2.5mm	3	16	113200036	Drill Sleeve, Threaded 4.3mm (Long)	1
4	113200005	Direct Measuring Device	1	17	113200003	Drill Bit 4.3mm	2
5a.	113200009	Screwdriver 248mm (Star)	1	18	113100005	Tap for Ø6.5mm Cancellous Bone Screw	1
5b.	113200011	Holding Sleeve Ø6.3mm	1	19a.	113100010	Bending Template (Large)	1
6a.	113100001	Screwdriver 248mm (Hex)	1	19b.	113100011	Bending Template (Small)	1
6b.	114400007	Holding Sleeve Ø8.0mm	1	20	113100007	Depth Gauge for Screws 4.5/6.5mm, 110mm	1
7	113200038	Torque Limiter 4.5Nm	1	21	112100024	T-Handle with Quick Coupling, 90mm	1
8	113100020	Countersink	1	22	113200002	Drill Sleeve, Threaded 4.3mm	2
9	113210004	Drill Sleeve, Cannulated 5.8mm	2	23	113200004	Easyout	1
10	113210005	Guide for Ø2.5mm K-Wire	2	24	113100015	Drill Guide, Universal 3.2/6.5mm	1
11	113200010	Screwdriver T25 Shaft 145mm (Star)	1	25	113100012	Drill Guide, Double 3.2mm	1
12	114110015	Screwdriver with Quick Coupling 3.5 x 100mm (Hex)	1	26	113100014	Drill Guide, Universal 3.2/4.5mm	1
13	113100003	Drill Bit 4.5mm	1	27	113127000	Large Frag Instrument Tray (Empty)	1

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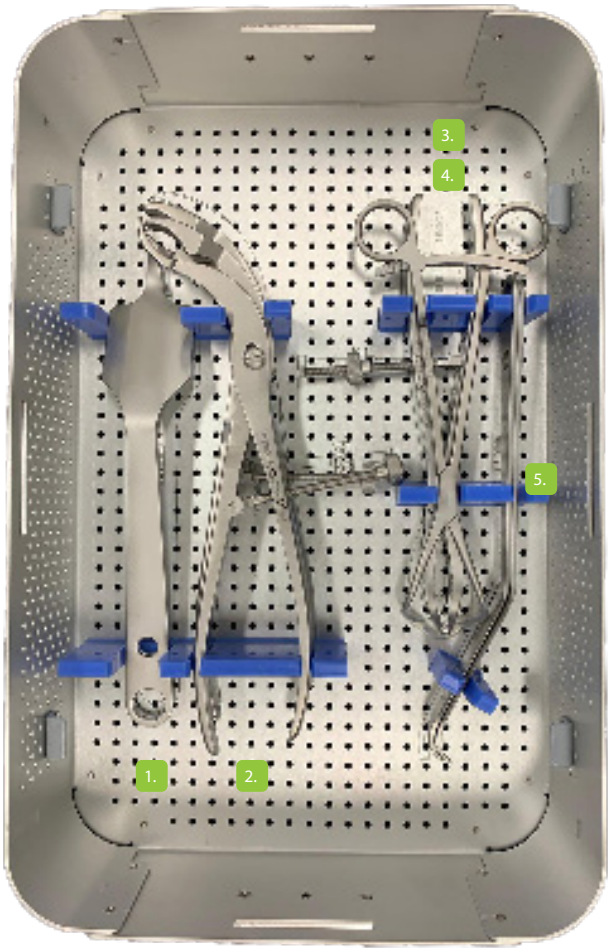
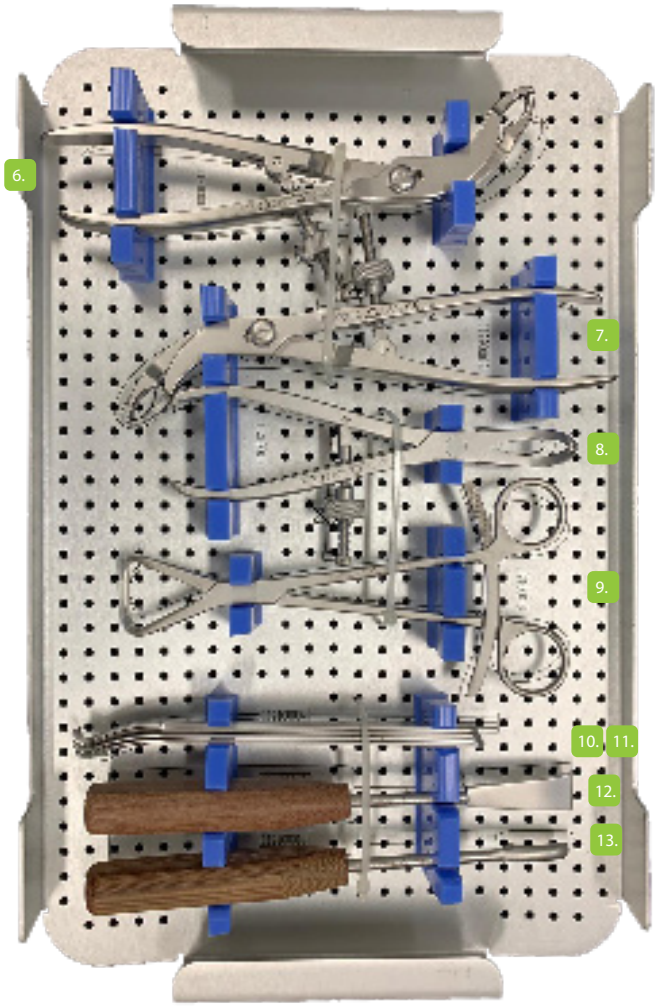
Optional Sets

Universal Trauma Set





Instruments			
#	**Code**	**Description**	**Qty**
1	113100017	Hohmann Retractor (Large) 43.5 x 267mm	2
2	113100019	Self-Centering Bone Holding Forceps (Speed Lock) 266mm	1
3	113100021	Reduction Forceps (Serrated Jaws) 220mm	2
4	113100022	Reduction Forceps (Point) 207mm	1
5.	113100018	Hohmann Retractor (Small) 16 x 267mm	1
6	112100010	Self-Centering Bone Holding Forceps (Speed Lock) 191.8mm	2
7	112200012	Self-Centering Bone Holding Forceps (Compression)	1
8	112100011	Reduction Forceps (Serrated Jaws) 158mm	1
9	112100013	Reduction Forceps (Points) 182mm	1
10	112100006	Hohmann Retractor (Large) 15.5 x 159mm	2
11	112100007	Hohmann Retractor (Small) 10.5 x 170mm	2
12	113100016	Periosteal Elevator (Large)191mm	1
13	112100012	Periosteal Elevator (Small) 190mm	1

Instrument Trays & Sets

Instrument Trays		
Code	**Description**	**Qty**
113127000	Large Frag Instrument Tray (Empty)	1
113122000	Universal Trauma Instrument Tray (Empty)	1

Instrument Set		
Code	**Description**	**Qty**
SET-INS-LGE	Full Large Frag Instrument Set	-
SET-INS-UTRA	Full Universal Trauma Instrument Set	-

Single Use Items

Recommended K-Wires		
Code	**Description**	**Qty**
113210001	2.5 x 280mm K-Wire	2
522015	2.0 x 150mm K-Wire	2

Optional K-Wires		
Code	**Description**	**Qty**
511415	1.4 x 150mm K-Wire	2
611.112	1.1 x 120mm K-Wire	2
081.010	0.8 x 100mm K-Wire	2

Drills		
Code	**Description**	**Qty**
113100002	Drill Bit 3.2mm	1
113200003	Drill Bit 4.3mm	1
113100003	Drill Bit 4.5mm	1
113210002	Drill Bit, Cannulated 5.8mm	1

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MRI Safety

Austofix has not evaluated its devices for safety and compatibility in a Magnetic Resonance (MR) environment. However, the materials used in their manufacture are known to have minimal ferromagnetism, with minimal risk to patients in strong magnetic fields.

Austofix has performed a review of published, peer-reviewed data, which confirms that only minor rises in MRI-related heating are observed from devices manufactured from the same titanium and stainless-steel materials. Trauma devices are considered unlikely to produce injury to patients, including in the worst-case 3.0T systems.

The devices and materials observed in the literature experience forces too weak to cause significant displacement; the risk being further mitigated by their implantation in bone. Risks of imaging artifacts are known to MRI operators, and can be reduced by choosing appropriate pulse sequences and optimizing scanning parameters by using a large bandwidth, small field-of-view and appropriate echo train length.

Average temperature changes have been observed in studies at 0.48°C in titanium and 0.74°C in stainless-steel. Rises in temperature in clinical situations may depend on individual patient factors. It should be recommended that patients be thoroughly monitored when undergoing MR scanning, and that impaired patient thermoregulation be considered a contraindication for MRI procedures.

Sources:

Chen CA, Chen W, Goodman SB, et al. New MR Imaging Methods for Metallic Implants in the Knee: Artifact Correction and Clinical Impact. 2011, 1121-1127.

Gill A, Shellock FG. Assessment of MRI issues at 3-Tesla for metallic surgical implants: findings applied to 61 additional skin closure staples and vessel ligation clips. J Cardiovasc Magn Reson. 2012, 14(1):3.

Shellock FG. Biomedical Implants and Devices: Assessment of Magnetic Field Interactions With a 3. 0-Tesla MR System. 2002, 721-732.

Zou Y, Chu B, Wang C, Hu Z. Evaluation of MR issues for the latest standard brands of orthopedic metal implants, Plates and screws. Eur J Radiol. 2015, 84(3):450-457.

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