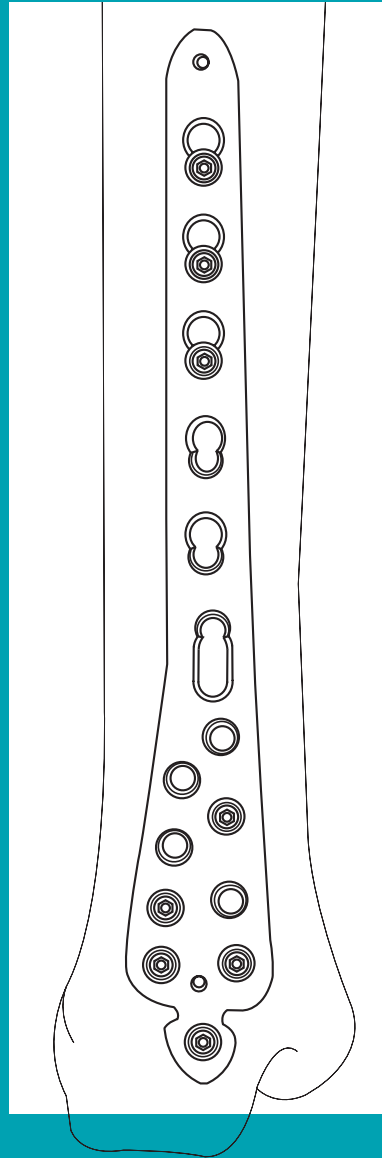


LCP Distal Tibia Plate

Surgical Technique



LCP
Locking
Compression
Plate



SYNTHES[®]

Original Instruments and Implants of the
Association for the Study of Internal Fixation –
AO/ASIF

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Image intensifier control

Warning

This description is not sufficient for immediate application of the instrumentation. Instruction by a surgeon experienced in handling this instrumentation is highly recommended.

Indications

-
- Extra-articular and simple intra-articular distal tibial fractures
 - Distal tibial fractures, percutaneous or reducible by limited arthrotomy
 - Distal tibial fracture extending into the diaphyseal area

Implants/Instruments

Plates

- LCP Distal Tibia Plate, 4-hole shaft, right (X39.900)
- LCP Distal Tibia Plate, 4-hole shaft, left (X39.901)
- LCP Distal Tibia Plate, 6-hole shaft, right (X39.904)
- LCP Distal Tibia Plate, 6-hole shaft, left (X39.905)
- LCP Distal Tibia Plate, 8-hole shaft, right (X39.908)
- LCP Distal Tibia Plate, 8-hole shaft, left (X39.909)
- LCP Distal Tibia Plate, 10-hole shaft, right (X39.912)
- LCP Distal Tibia Plate, 10-hole shaft, left (X39.913)



LCP locking screws

- LCP Locking Screw \varnothing 3.5 mm, self-tapping (X13.010–060)
- LCP Locking Screw Stardrive[®] \varnothing 3.5 mm, self-tapping (X12.101–124)



Standard screw

- Cortex Screw \varnothing 3.5 mm, self-tapping (X04.810–860)



Bending instruments

- Bending Pin for LCP Plates 3.5, with thread (329.916)
- Bending Pliers for Plates (391.963)



Note: The required LCP standard instruments and the required small fragment instruments are not listed.

Surgical technique

1

Reduce fracture



Reduce the fragments anatomically and fix temporarily using Kirschner wires.

2

Insert bone graft (optional)



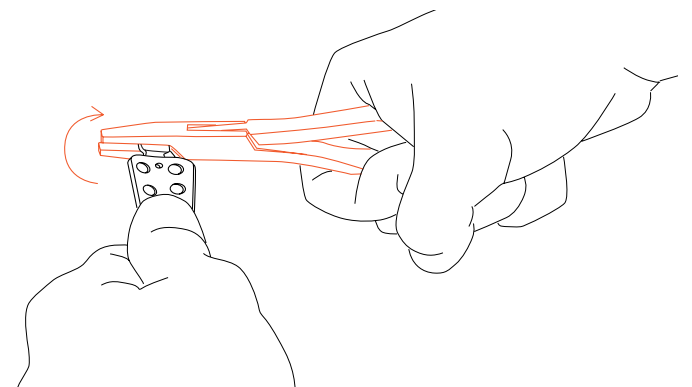
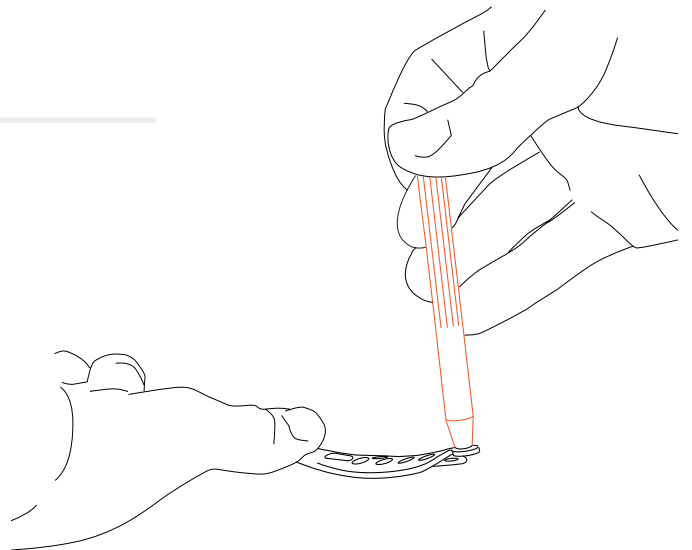
Fill any metaphyseal bone defect with an autogenous bone graft or bone substitute.

3

Bend or cut off the distal tab

Bend the distal tab on the plate using the Bending Pins (329.916) or Bending Pliers (391.963). Alternatively, cut off the distal tab using the Cutting Pliers for Plates (391.931).

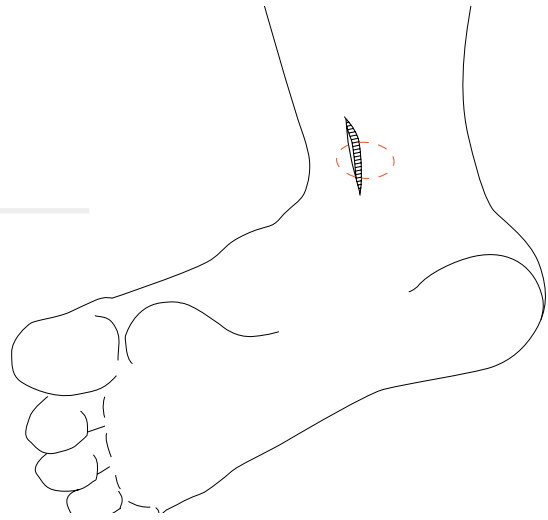
Note: Do not repeatedly bend the distal tab back and forth.



4

Insert plate

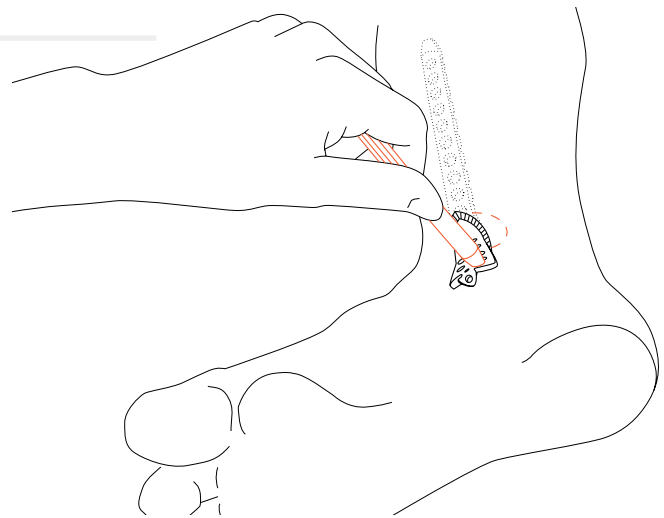
For the minimal invasive insertion of the plate onto the medial tibia, make a single incision and carefully push the plate under the soft tissue. Perform stab incisions for the insertion of the screws in the shaft area.



5

Position and provisionally fix plate

Position the plate onto the bone and fix provisionally with Kirschner wires. Before inserting the first LCP locking screw, ensure that the plate shows good provisional fixation, otherwise the plate may rotate during screw locking and cause soft tissue damage.



6

Determine screw type and diameter

Select LCP locking screws \varnothing 3.5 mm or cortex screws \varnothing 3.5 mm.

If cortex and LCP locking screws are both used in one plate, the cortex screws must be inserted first. This ensures that the plate is compressed against the bone before the LCP locking screws are inserted.

Alternative

The following screws may also be used:

- LCP Locking Screws \varnothing 2.7 mm (X02.920–960)
- LCP Locking Screws Stardrive® \varnothing 2.7 mm (X03.920–960)
- Cortex Screws \varnothing 2.7 mm (X02.820–860)
- Cancellous Bone Screws \varnothing 4.0 mm (X07.040–060)

Note: For reasons of stability, only use the LCP locking screws \varnothing 2.7 mm and the cortex screws \varnothing 2.7 mm in the distal section of the plate (round threaded holes).

7

Predrill screw holes

a. When predrilling for **standard screws** with the Universal Drill Guide (323.260 or 323.360) and the matching bit, predrill the screw hole neutrally (1) or off-centre (2).

Use the following bits:

For cortex screw \varnothing 3.5 mm and cancellous bone screw \varnothing 4.0 mm (alternative): Drill Bit \varnothing 2.5 mm (310.230 or 310.250)

For cortex screw \varnothing 2.7 mm (alternative): Drill Bit \varnothing 2.0 mm (310.190 or 310.210)

Note: When using a cortex screw \varnothing 3.5 mm or 2.7 mm (alternative) as a lag screw, predrill the cortex of the nearby fragment with a larger bit (Drill Bit \varnothing 3.5 mm [310.350] for cortex screw \varnothing 3.5 mm and Drill Bit \varnothing 2.7 mm [310.260] for cortex screw \varnothing 2.7 mm).

b. When predrilling for **LCP locking screws**, screw the LCP Drill Sleeve for LCP locking screws \varnothing 3.5 mm (323.027) or \varnothing 2.7 mm (312.922) into the desired threaded hole until the sleeve is fully gripped by the thread.

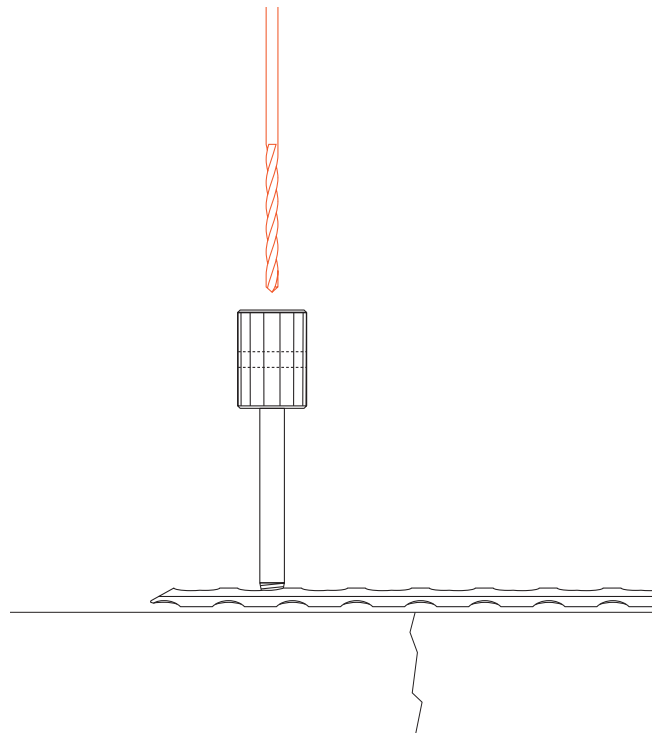
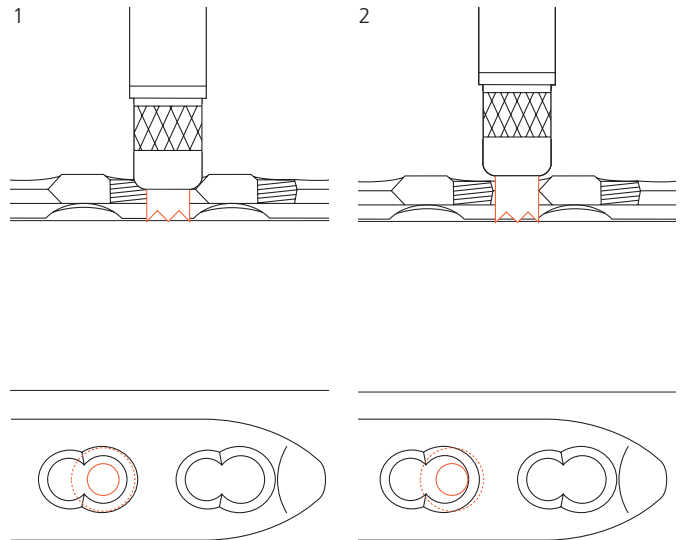
The LCP drill sleeve ensures that the LCP locking screw is locked in the plate in the correct alignment. Angular stability is reduced if the LCP locking screws are inserted obliquely.

Note: Do not bend the plate with the drill sleeve as this may damage the sleeve. Predrill the screw hole with a suitable bit.

Use the following drill bits:

For LCP locking screw \varnothing 3.5 mm: Drill Bit \varnothing 2.8 mm (310.284)

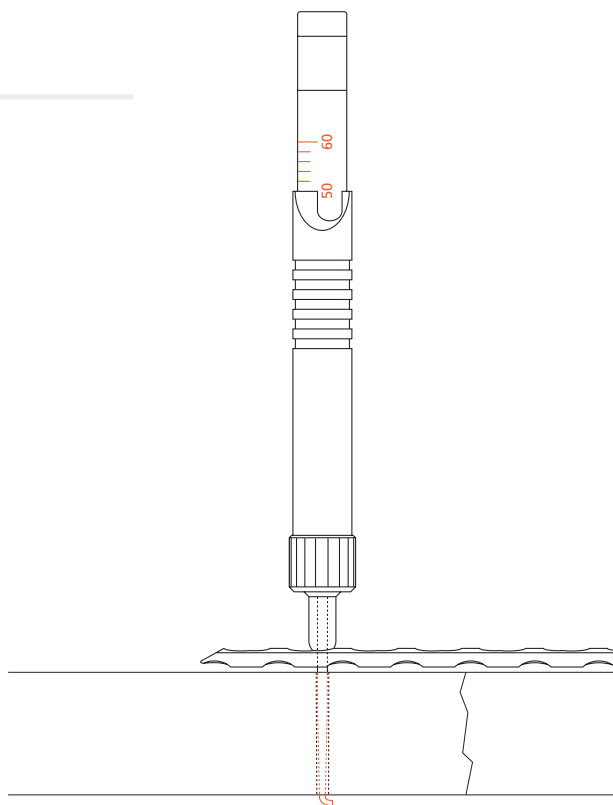
For LCP locking screw \varnothing 2.7 mm: Drill Bit \varnothing 2.0 mm (310.190 or 310.210)



8

Determine screw length

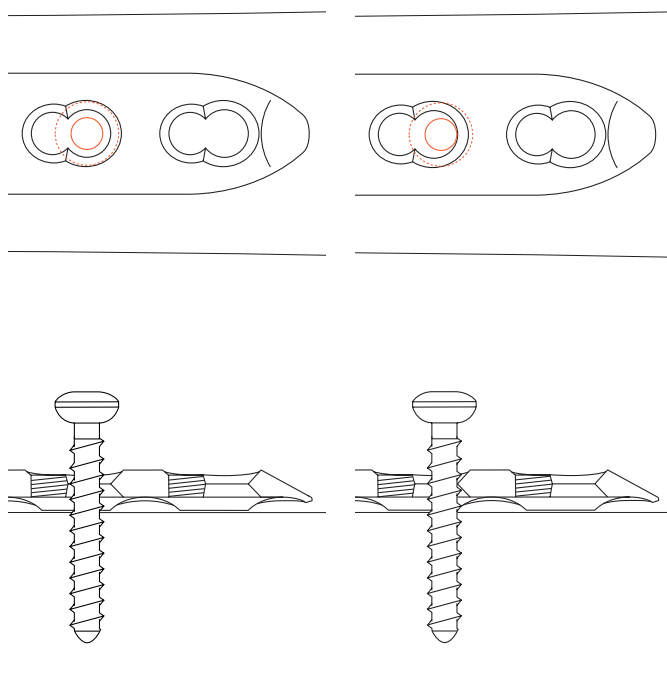
Determine the screw length with the Depth Gauge (319.010).



9

Insert standard screws

Insert the cortex screws with the small, hexagonal Screwdriver \varnothing 2.5 mm (314.020).



10

Insert LCP locking screws

a. To insert the LCP locking screws **mechanically**, attach the Torque Limiter 1.5 Nm (511.770) to the power tool unit (Compact Air Drive 511.701 or Power Drive 530.100). Insert the Hexagonal Screwdriver Shaft (314.030) or the Screwdriver Shaft Stardrive 3.5 (314.116) into the torque limiter. Pick up the LCP locking screw and insert it into the plate hole. To insert the screw, start the power tool unit slowly, increase the speed and then reduce again before the screw is fully tightened. The torque is automatically limited and a clearly audible click signifies that the maximum level has been reached. Stop the power tool unit immediately and disconnect from the screw.

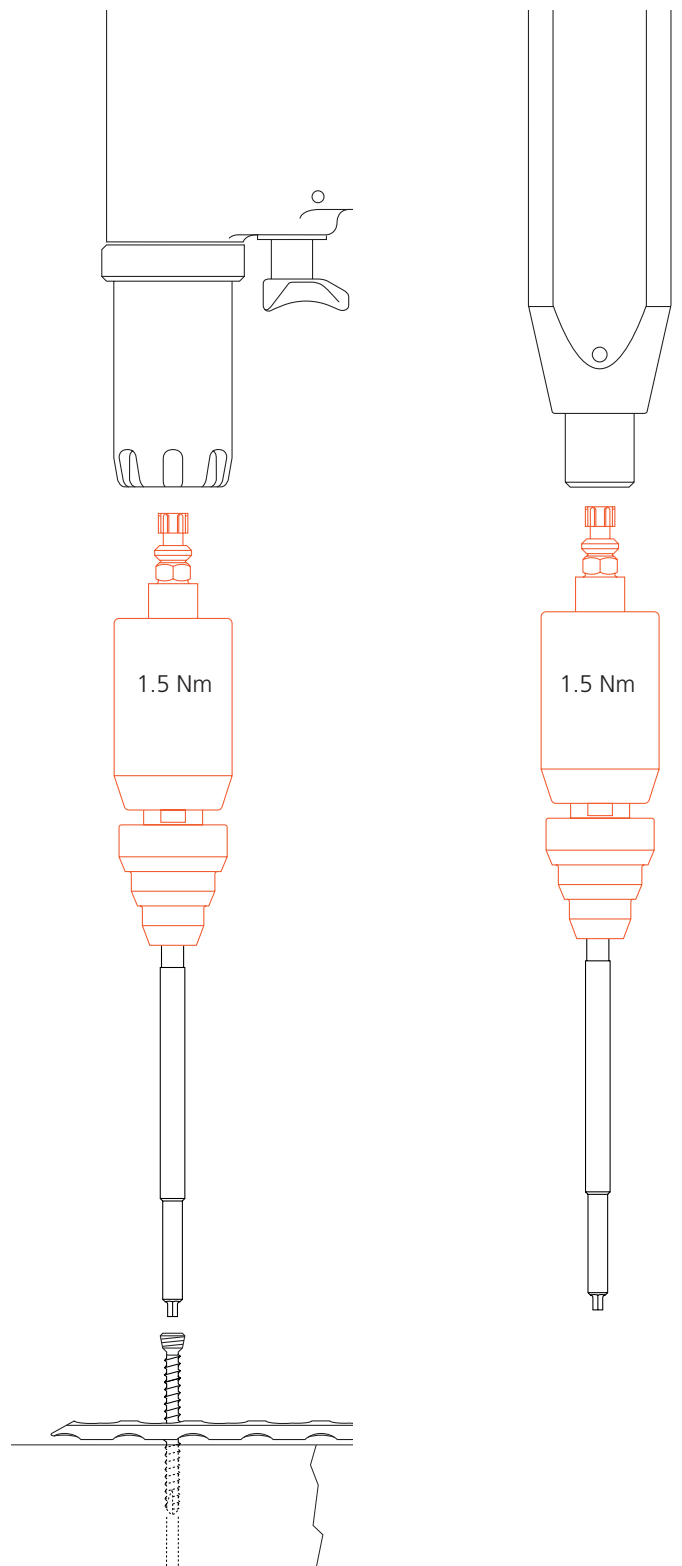
Note: Do not lock the screw at full speed as this risks damaging the hexagonal or Stardrive recess, making implant removal more difficult.

Ensure that adequate cooling is provided when inserting fairly long screws into thick cortical bone.

With porous bone there is a risk that the LCP locking screw will fail to follow the predrilled hole, resulting in a slightly oblique hole during mechanical insertion of the screw with subsequent partial loss of angular stability. In case of porous bone, manual locking (with the handle for torque limiter) of the screws is recommended to ensure better guidance through the predrilled hole.

b. To insert the LCP locking screws **manually**, attach the torque limiter 1.5 Nm to the Handle for Torque Limiter (397.705) and insert the screwdriver shaft.

Lock the LCP locking screws in the plate.



Implant removal

To remove the plate, first unlock all screws before removing them definitively in a second step, otherwise the plate may rotate while the last screw is being removed and cause soft tissue damage.

If the screws cannot be removed with the screwdriver (e.g. if the hexagonal or Stardrive recess of the locking screws is damaged or if the screws are stuck in the plate), insert the conical Extraction Screw (309.521) with left-handed thread in the screw head using the T-handle with Quick Coupling (311.440) and loosen the locking screw by turning counterclockwise.