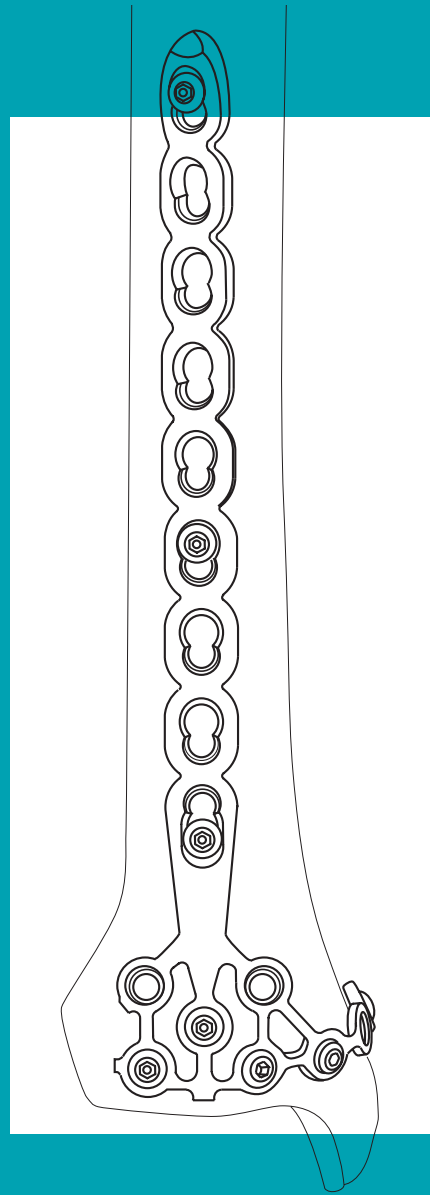


LCP Pilon Plate 2.7/3.5

Surgical Technique



LCP
Locking
Compression
Plate




SYNTHES[®]

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

Table of contents

Indications	3
Implants	4
Instruments	5
Surgical technique	6
Implant removal	12

 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

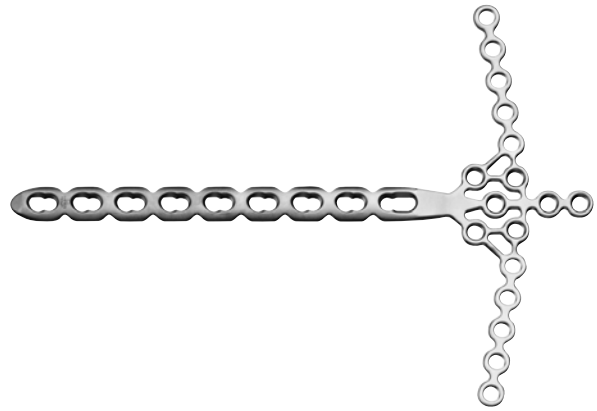
Indications

- Intra-articular fracture of the axially loaded distal tibial joint area
- Complex fractures requiring open reconstruction

Implants

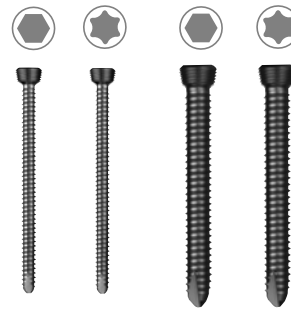
Plates

- LCP Pilon Plate 2.7/3.5, cruciform, 7-hole shaft (X40.082)
- LCP Pilon Plate 2.7/3.5, cruciform, 9-hole shaft (X40.083)



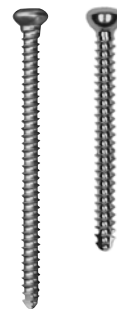
LCP locking screws

- LCP Locking Screw \varnothing 2.7 mm, self-tapping (X02.920–960)
- LCP Locking Screw Stardrive[®] \varnothing 2.7 mm, self-tapping (X03.920–960)
- 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 screws

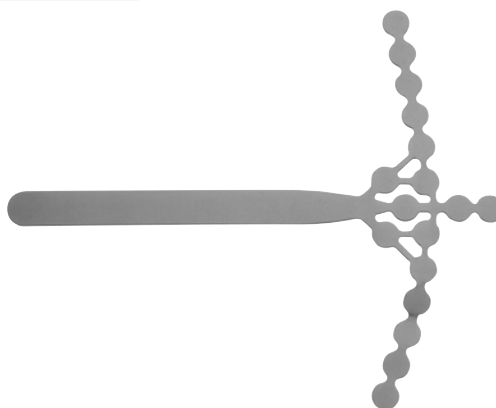
- Cortex Screw \varnothing 2.7 mm, self-tapping (X02.820–860)
- Cortex Screw \varnothing 3.5 mm, self-tapping (X04.810–860)



Instruments

Bending template

- Bending Template for Nos. X40.082 and X40.083 (329.915)



Cutting instruments

- Cutting Pliers for Plates (391.931)



- Cutting Pliers with Positioning Pin (329.151)



Bending instruments

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



- Bending Pliers for Plates (391.963)



- Bending Iron for LCP Pilon Plates 2.7/3.5, length 190 mm (329.095)



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

Surgical technique

1

Surgical access

Preferably use the anterior or medial access. Where appropriate, the anterior access may be combined with a posteromedial access.

2

Visualise joint



Visualise the joint fracture by means of an arthrotomy and distraction. If necessary apply a tibio-talar femoral distractor.

3

Reduce fracture



Reduce the fragments anatomically and fix temporarily using Kirschner wires or with definitive free screws.

4

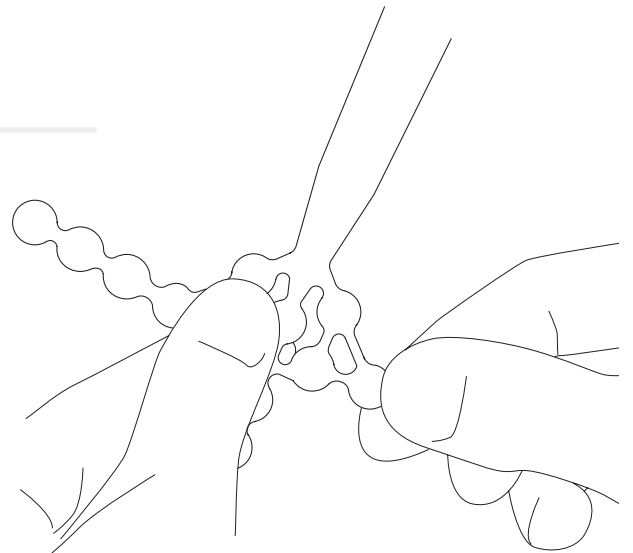
Insert bone graft (optional)

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

5

Adapt bending template

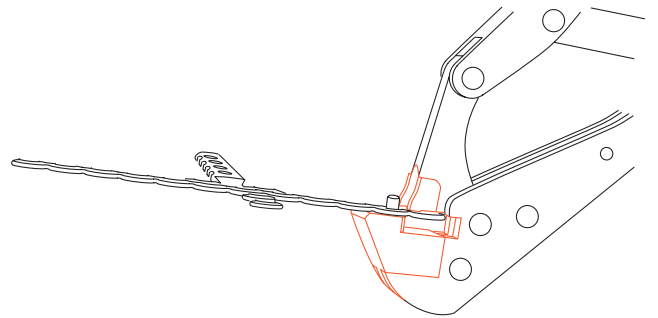
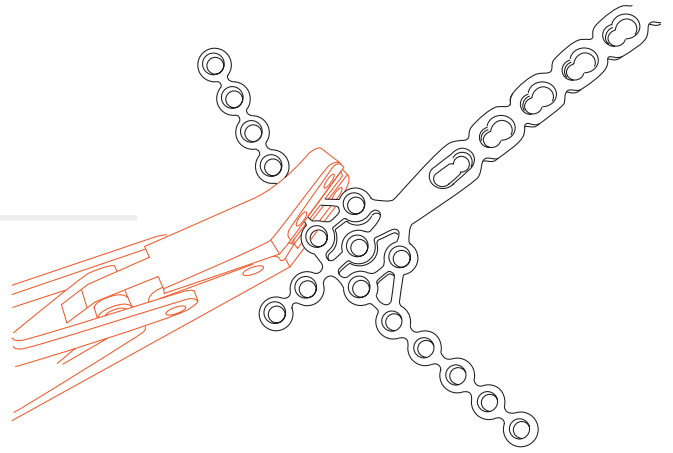
The Bending Template (329.915) can be used for the left and right tibia and for medial and anterolateral positioning. Contour the template to match the anatomical situation.



6

Cut plate

Use the Cutting Pliers for Plates (391.931) for cutting the distal arms. Cut the distal arms in accordance with the positioning of the plate onto the bone. The Cutting Pliers with Positioning Pin (329.151) can be used for the definitive adaptation of the plate and for rounding off the cut surfaces.

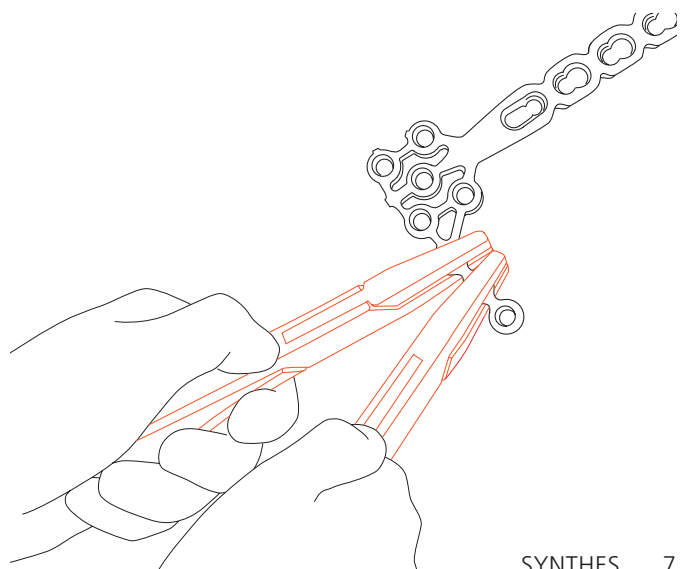
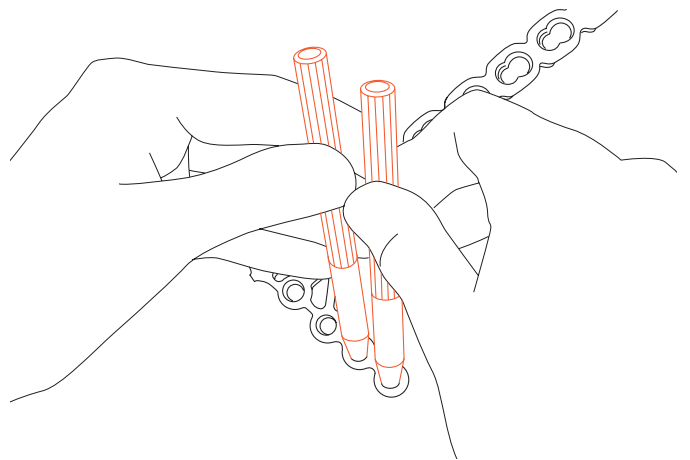


7

Contour the distal end of the plate

Use the Bending Pins (329.916) to contour the distal arms and distal end of the plate to match the shape of the bending template. Only insert pins next to each other. Alternatively, contour the plate using the Bending Pliers (391.963) or Bending Irons (329.095).

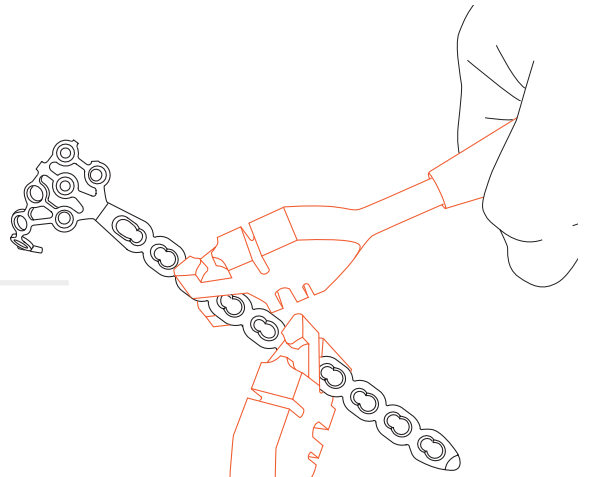
Note: Bend the plate between the threaded holes to avoid damage to the thread. Do not bend the plate repeatedly back and forth.



8

Contour plate shaft

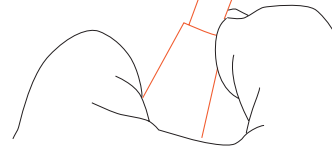
Use bending irons to contour the shaft. Do not use the bending pins.



9

Position plate

Position and adapt the plate such that the distal screws can be inserted as subchondrally as possible.



10

Provisionally fix plate

Before inserting the first LCP locking screw, ensure that the plate shows good provisional fixation.

11

Determine screw type and diameter

Select LCP Locking Screws \varnothing 2.7 mm (X02.920–960) or \varnothing 3.5 mm (X13.010–060), or Cortex Screws \varnothing 2.7 mm (X02.820–860) or \varnothing 3.5 mm (X04.810–860). A combination of all screw types is possible.

Alternative

Cancellous Bone Screws \varnothing 4.0 mm (X07.010–060) may also be used.

If both cortex and LCP locking screws are 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.

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).

12

Predrill screw holes

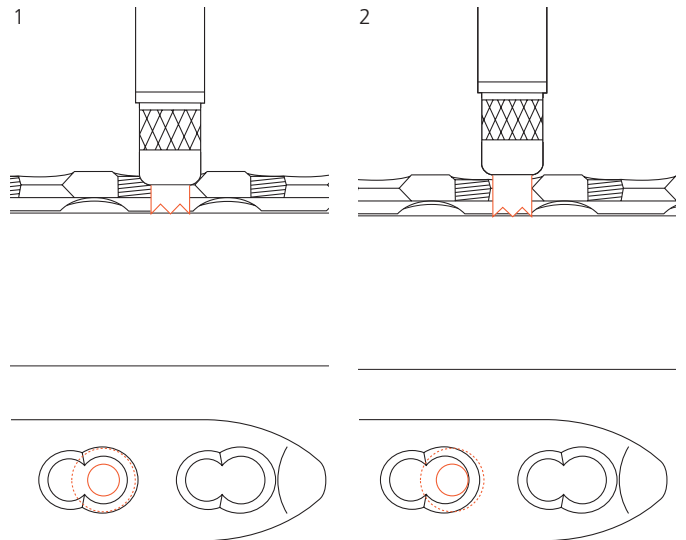
a. When predrilling for **standard screws** with the Universal Drill Guide (323.260 or 323.360) and the matching bit, predrill the screw hole neutrally (1) or off-centre (2).

Use the following bits:

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

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)

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



b. When predrilling for **LCP locking screws**, screw the LCP Drill Sleeve 2.7 mm (312.922) or 3.5 mm (323.027) 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. The angular stability is reduced if the LCP locking screws are inserted obliquely.

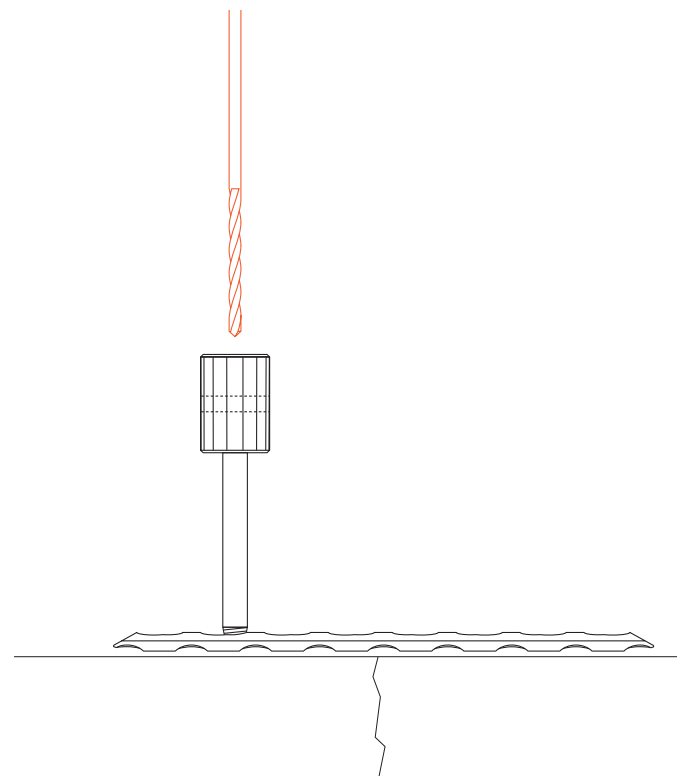
Note: Do not bend the plate with the drill sleeve as this may damage the sleeve. Predrill the screw hole with a suitable bit.

Use the following drill bits:

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

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

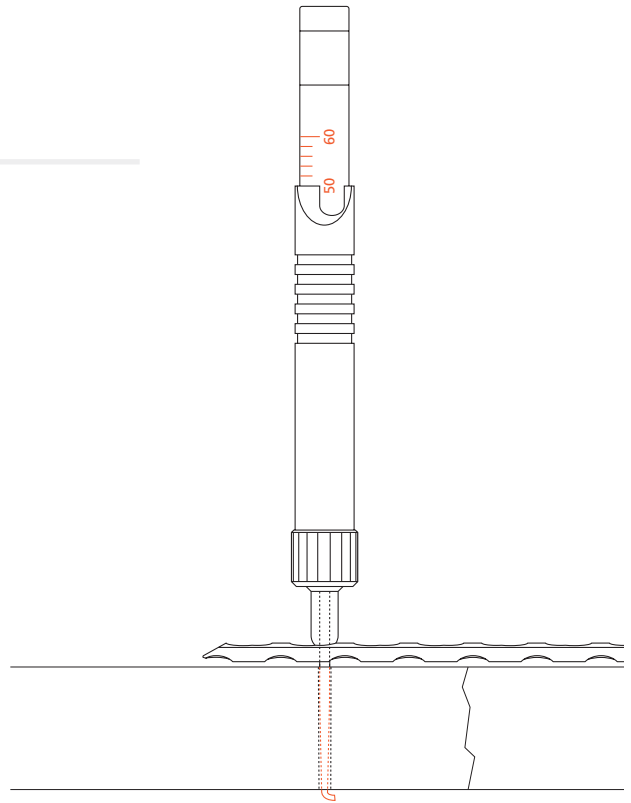
Note: Select the plate holes and screw lengths used in the contoured distal arm of the plate in such a way as to avoid collision of screws.



13

Determine screw length

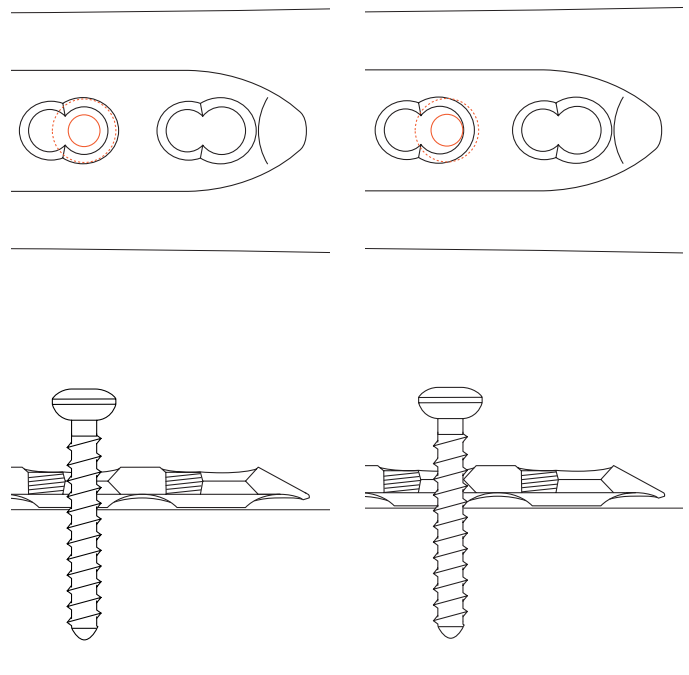
Determine the screw length with the Depth Gauge (319.010).



14

Insert standard screws

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



15

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.

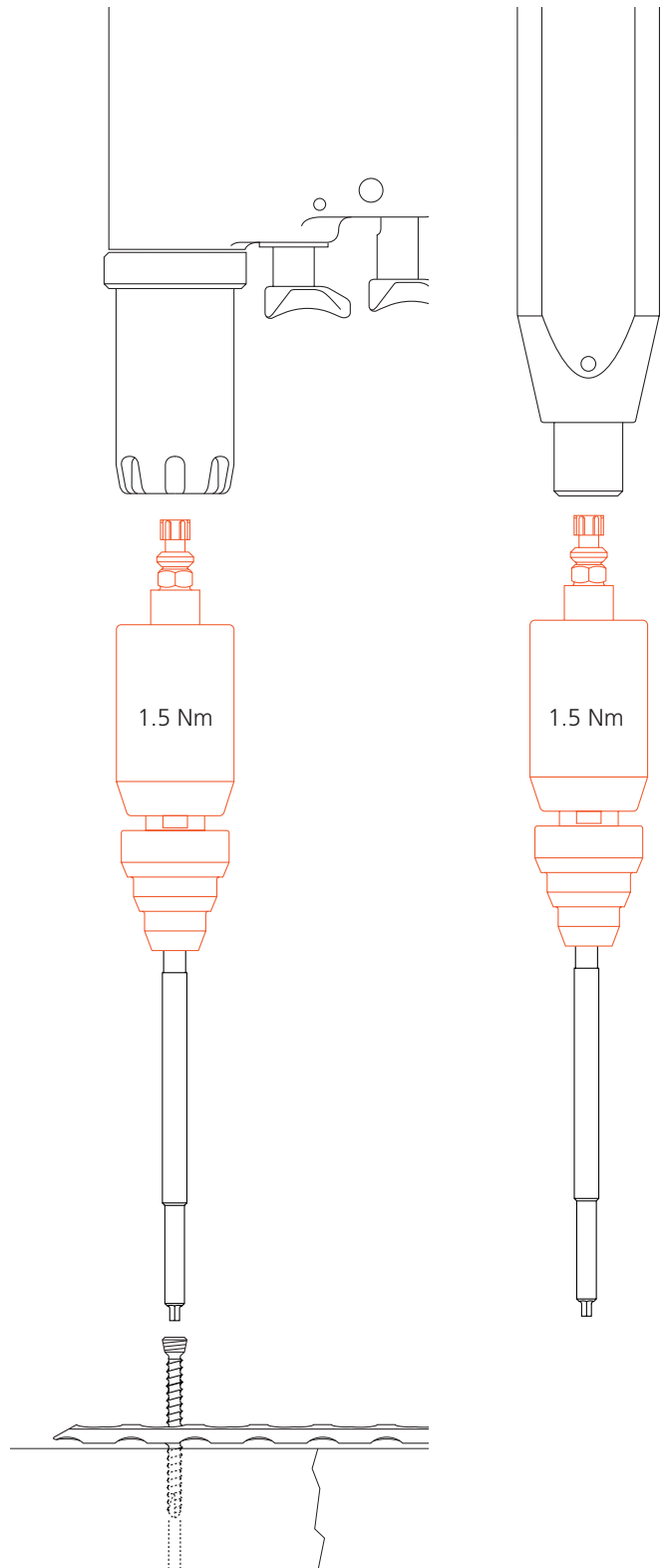
Note: Do not lock the screw at full speed as this risks damaging the hexagonal or Stardrive recess, making implant removal more difficult.

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 fails 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 counter-clockwise.