Surgical Technique

LCP T-Plate 2.0/2.4

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

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

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Image intensifier control
The Combi-hole
The LCP plate system offers the surgeon the choice, preoperatively and intraoperatively, of using either standard screws or locking screws for fracture fixation, or a combination of the two screw types.

Experience in the use of LC-DCP or DCP plates or instruction by a surgeon with the corresponding experience is recommended.

Tapered, threaded hole for locking screws (A)
The self-tapping locking screws can be locked in an angularly stable manner in the tapered threaded hole. Plate and screw systems in which the screws are locked in the plate function according to the principle of an internal fixator. They help resolve the following problem situations:

- secondary postoperative loss of reduction, particularly in cases of osteoporosis or poor bone quality or of comminuted fractures without bony support
- compression of the periosteum and the resulting impairment of cortical circulation.

Functional principle of the internal fixator
When LCP plates are used with angularly-stable locking screws, the plate and the screws together form a stable system; the stability of the fracture is mainly dependent on the strength of the resulting assembly. Since the plate does not need to be compressed against the bone, blood flow to the bone is not additionally impaired. A locking screw can be inserted monocortically without loss of stability of the assembly or the fracture fixation, provided the screw has a secure purchase in the outer layer of the cortex.
DC hole for standard screws (B)
The DC hole corresponds to the DCU (Dynamic Compression Unit) of the LC-DCP plate 2.0 or 2.4 and is intended for standard cortex screws. As with any standard LC-DCP plate, axial compression of the fracture can be achieved by predrilling off-centre. Lag screws can also be angled laterally and longitudinally in relation to the plate for interfragmental compression. Locking screws should not be inserted in the DC hole section.

Functional principle of absolute stability
Securing the plate with standard screws creates friction between the underside of the plate and the surface of the bone by compression at the interface. In order to ensure absolute stability, the frictional resistance must be greater than the forces produced during rehabilitation. Bicortical screws are essential for this type of fixation.
Plates

– LCP-T-Plate 2.0, shaft 7 holes, head 3 holes, Stainless Steel / Pure Titanium (X47.615)
– LCP-T-Plate 2.4, shaft 7 holes, head 3 holes, Stainless Steel / Pure Titanium (X49.615)

Standard screws

– Cortex Screw \( \varnothing \) 2.0 mm, self-tapping, Stainless Steel / Titanium Alloy (TAN) (X01.806–838)
– Cortex Screw \( \varnothing \) 2.4 mm, self-tapping, Stainless Steel / Titanium Alloy (TAN) (X01.636–670)

Locking screws

– LCP Locking Screw \( \varnothing \) 2.0 mm, self-tapping, Stainless Steel / Titanium Alloy (TAN) (X01.876–900), with Stardrive® T6
– LCP Locking Screw \( \varnothing \) 2.4 mm, self-tapping, Stainless Steel / Titanium Alloy (TAN) (X12.806–830), with Stardrive® T8
Drill sleeves

- LCP Drill Sleeve 2.0, with centering thread for Drill Bits Ø 1.5 mm (323.030)
- LCP Drill Sleeve 2.4, with centering thread for Drill Bits Ø 1.8 mm (323.031)

Screwdriver shafts

- Screwdriver Shaft Stardrive® 2.0, short/long self-holding, for Mini Quick Coupling (313.842/843)
- Screwdriver Shaft Stardrive® 2.4, short/long self-holding, for Mini Quick Coupling (314.451/452)
The indications for the LCP plates are essentially the same as those for the corresponding standard plates.

Better clinical results can be obtained in patients with metaphyseal fractures, comminuted fractures and osteoporotic bone due to the stable angular screw-plate connection.

Possible indications:
- Fractures of the metacarpals (LCP T-Plate 2.0) and metatarsals (LCP T-Plate 2.4)
- Fractures of the distal radius (double-plate technique)
- Subcapital fracture of the radial head
- Foot and ankle fractures with a comminuted zone
- Osteotomies and arthrodeses of the hand and foot
- Selected fractures of the distal humerus
- As an additional implant with small fragments
The following handling technique for the implants and instruments is described using the example of an LCP T-plate 2.0 on MC 1.

1

Trim plate
Trim plate to the desired length using the Plate Cutter (391.951).

2

Bend plate
Bend plate using the Pliers (347.901).

Note: Be careful to ensure that the plate is bent across the solid sections and not across the holes, otherwise insertion of the locking screws may be hampered.

3

Position plate
Position plate on reduced fracture and fixate provisionally.

Locking screws (steps 4a–4f) or standard screws (steps 5a–5e) may be used, depending on the indication and situation in each case.
4a
Insert LCP drill sleeve
Vertically screw the LCP Drill Sleeve (323.030) into the thread of the desired hole.

4b
Predrill screw hole
Predrill screw hole through the drill sleeve, and then remove the drill sleeve.

4c
Determine screw length
Use the Depth Gauge (319.005) to determine the screw length.
Pick up screw
Select and pick up the appropriate screw using the self-holding Stardrive Screwdriver Shaft (313.842) and the corresponding Handle (311.01X).

Insert self-tapping locking screw

Insert additional locking screws
Insert additional locking screws depending on the indication and situation.

Note: Monocortical insertion is also possible in the shaft area.
5a

Predrill screw hole

Using the Universal Drill Guide (323.200), predrill the screw hole either neutrally or off-centre.

5b

Determine screw length

Use the Depth Gauge (319.005) to determine the screw length.

LCP T-Plate 2.0/2.4

Insertion of standard screws
5c

Pick up screw
Select and pick up the appropriate screw using the cruciform Screwdriver Shaft with Holding Sleeve (314.672) and the corresponding Handle (311.01X).

5d

Insert standard screw
Insert self-tapping standard screw either neutrally or off-centre.

5e

Insert additional standard screws
Insert additional standard screws depending on the indication and situation.
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.