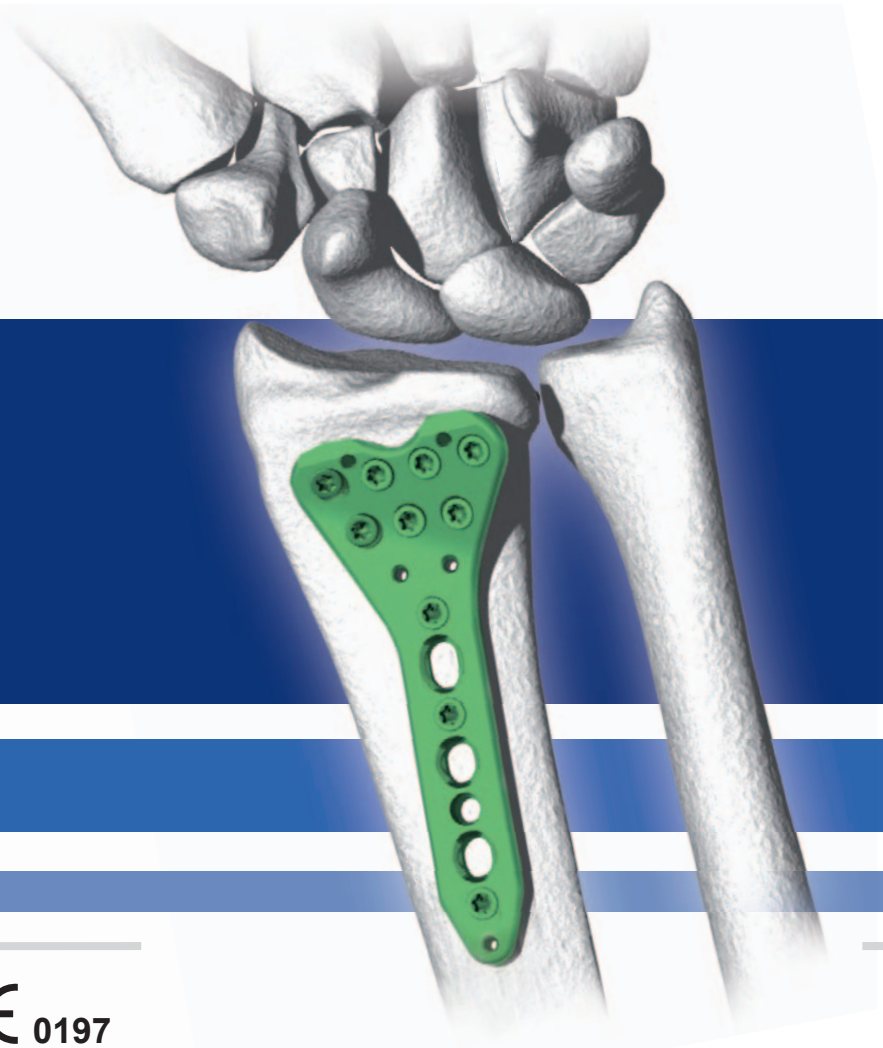
instruction

4.0ChLP
DISTAL RADIUS PLATES

IMPLANTS ◦
INSTRUMENT SET 40.5711.100 ◦
SURGICAL TECHNIQUE ◦



32E

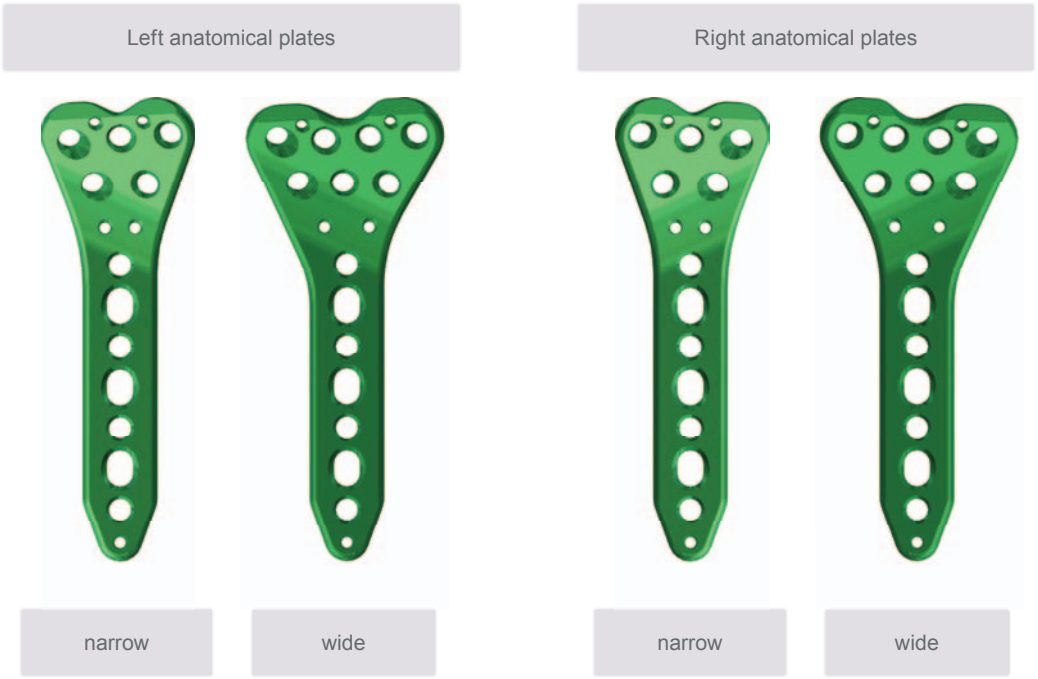
CE 0197
ISO 9001
ISO 13485

ChM®

II. IMPLANTS

The system consists of plates and corresponding screws. For more comfortable use, plates and locking screws are in the same green color.

II.1. VOLAR PLATES



Features of volar plates:

- new, more anatomical shape of the plates,
- determined screws direction provides optimal support of articular surface, stable fixation of radial styloid with two lateral screws,
- 21mm or 27 mm in width,
- 5 or 7 screws in distal plate part,
- holes for temporary plate positioning with K-wires,
- elongated hole for plate positioning,
- undercuts of bottom plate side to obtain limited contact with bone and better blood supply of surrounding tissues,
- holes in shaft part allow for placing conventional cortical screws, with or without compression, and locking screws.

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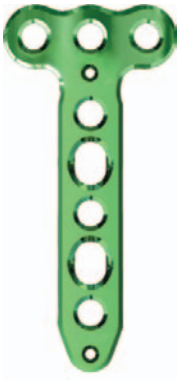
II.2. DORSAL PLATES

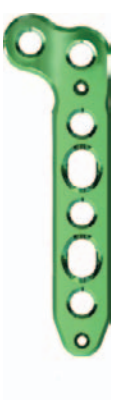
straight



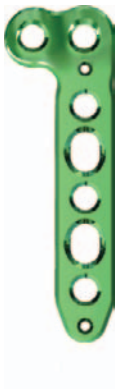
T 3 holes

Left-side directed

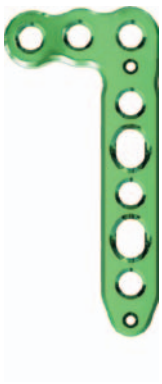
Right-side directed



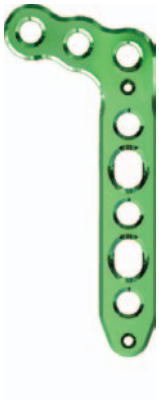
L 2 holes oblique



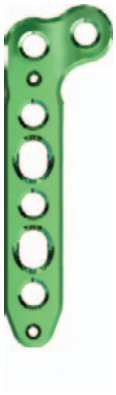
L 2 holes



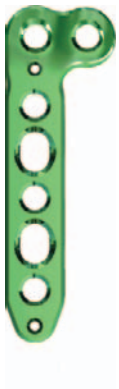
L 3 holes



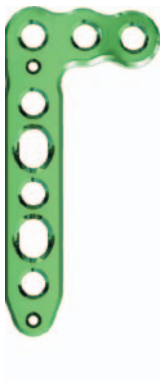
L 3 holes oblique



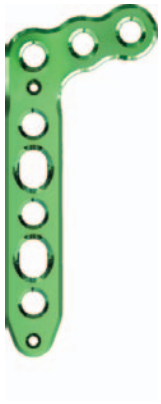
L 2 holes oblique



L 2 holes



L 3 holes



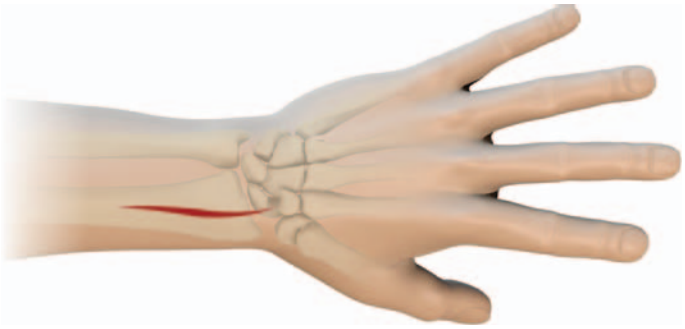
L 3 holes oblique

The above plates are generally intended for stabilization of distal radius in 2 plates system technique. This ensures stable construction for complex fractures. There is no need to remove a dorsal tubercle of radius *(like in case of other dorsal plates)* and the tendon and soft tissue irritation is decreased.

IV. SURGICAL TECHNIQUE

IV.1. PATIENT POSITION

Supine position of the patient is recommended. Hand and arm placed on the hand table, preferably radiolucent for fluoroscopic imaging.

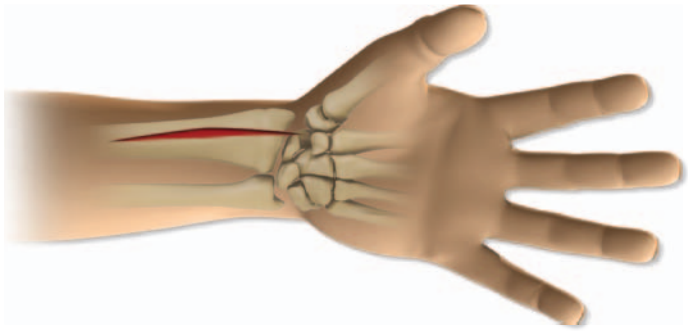


IV.2. DORSAL APPROACH

Make a longitudinal straight incision:
- from medial of the wrist *(2 cm proximally from the base of the second metacarpal)*,
- over the dorsal tubercle of radius,
- incision up to the 9 cm in length.

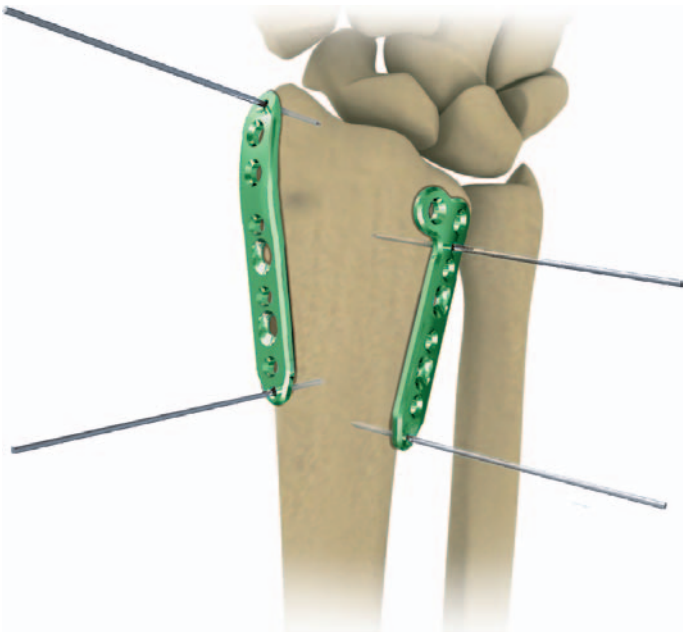
IV.3. VOLAR APPROACH.

For volar approach make a longitudinal incision between tendon sheath of flexor carpi radialis and radial artery.



IV.4. KIRSCHNER 1.0 WIRE USAGE

Use Kirschner wire 1.0/180 **[40.4814.000]** through dedicated holes in the plates for temporary stabilization on the bone.



Example of K-wires usage

The above description is not detailed instruction of conduct. The surgeon decides about choosing the operating procedure.

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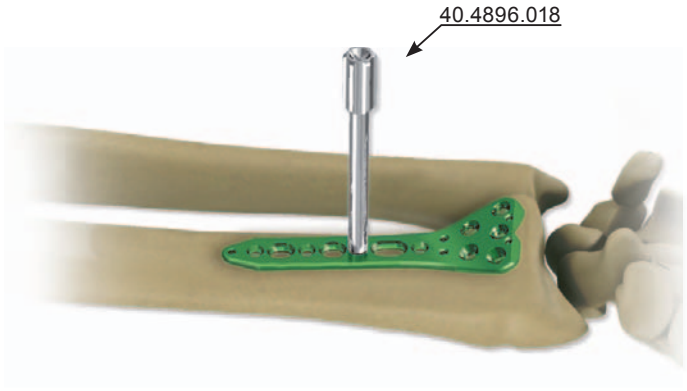
IV.5. LOCKING SCREW INSERTION

It is important to drill exactly in the axis of a locking hole. Always use the appropriate guide sleeve when drilling. The guide sleeve will ensure that the locking screw take an axial position towards the hole of the plate and be correctly locked in the plate. Unprepared drilling of a hole can lead to: thread skewing and jamming the screw, incorrect screw locking and problems when removing the screws *(thread seizure)*.

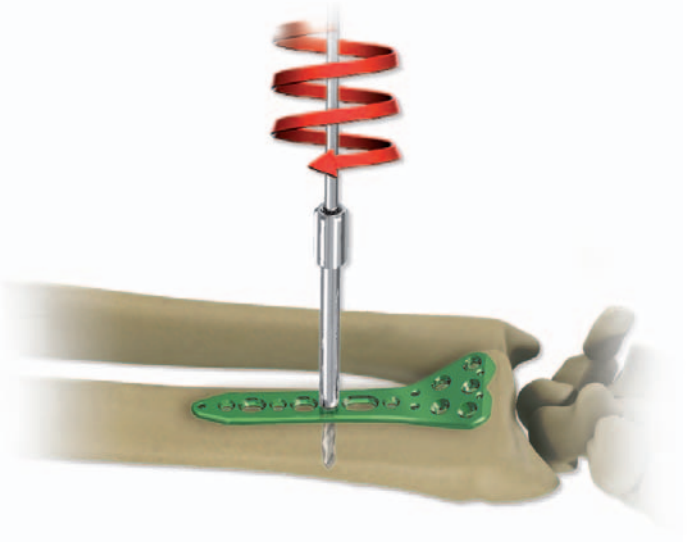
IV.5.1. Threaded Drill Guide Insertion

Insert the Threaded Guide M3.5/1.8-4.0 **[40.4896.018]** into the plate.



IV.5.2. Hole Drilling

Drill on the advisable depth using the Drill 1.8/180 **[40.2063.181]**.



IV.5.3. Hole Depth Measurement

Measure the hole depth using the Locking screw length measure **[40.4818.000]** and select the proper screw length.

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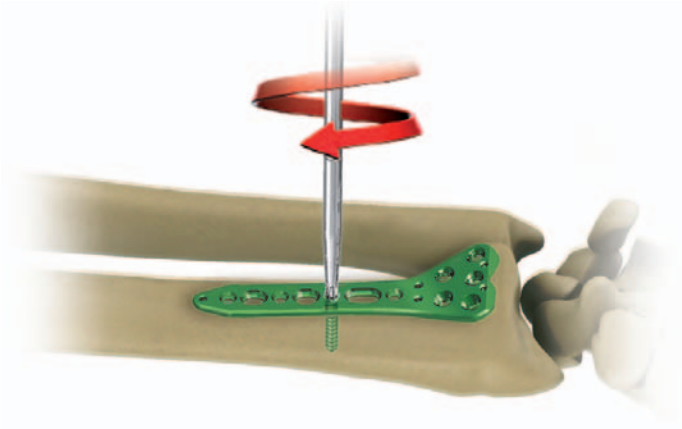
IV.5.4. Screw Insertion

Remove the Threaded Guide M3.5/1.8-4.0 **[40.4896.018]**.
Insert locking screw using the Screwdriver Tip T8 **[40.5682.000]** with Torque Handle **[40.5633]**.



Caution:
The final tightening of the locking screw, especially when mechanical motor is used, should always be performed with the use of torque limiting handle. Failure to use the torque limiting handle may lead to intraoperative and postoperative complications *(during later removal of the plate and locking screws)*.

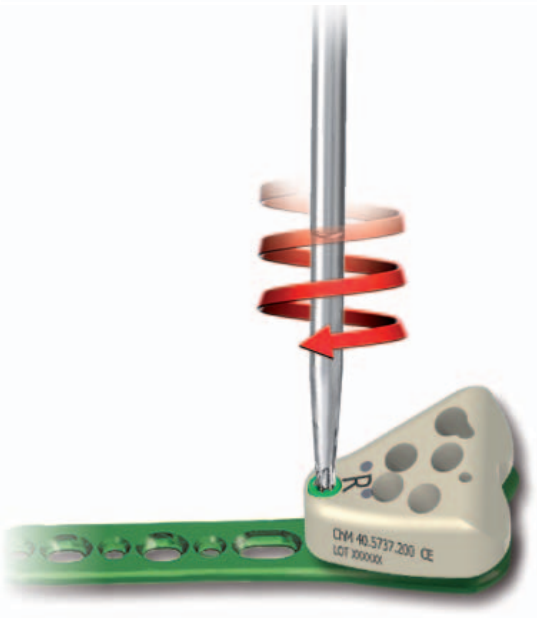
IV.6. THE USE OF AIMING BLOCK

Most locking plates ChLP are available with aiming blocks, as additional complementary instruments. Using aiming blocks ensures proper fastening of guide sleeves in the locking holes, in the epiphyseal part of the plate. It facilitates also the smooth conduct of the procedure, reduces its duration, and ensures that drilling is performed in the axis of the locking hole *(note from point IV.5)*.

When aiming blocks are not used, the implantation can be incorrect, and in particular can cause:
- **improper locking of the screws and their migration,**
- **decrease of the fixation stability,**
- **complications while implants removing.**

Position the aiming block on the plate.

Tighten up with Star screwdriver T8 **[40.0669.000]**.



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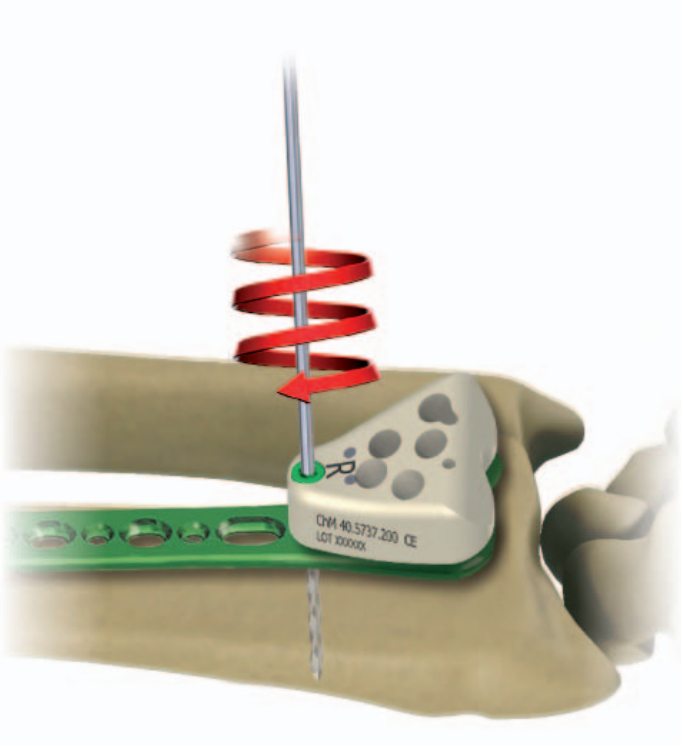
Screw the Threaded Guide M3.5/1.8-4.0 **[40.4896.018]** into the plate.

NOTE
Further proceedings in accordance with the steps described in the point IV.5 on page 18

Cannulated mounting screw of the aiming block allows for drilling a hole for locking screw in the first hole of the plate shaft.



IV.7. CORTICAL SCREW 2.7 INSERTION

IV.7.1. Compression guide setting

Set the Compression Guide 1.8 **[40.4897.018]** in the advisable position:

IV.7.1.A. Neutral Position

Press down the guide to the plate. Guide will set in position that allows neutral insertion of the screw.

The above description is not detailed instruction of conduct. The surgeon decides about choosing the operating procedure.

IV.7.1.B. Compression Position

Move the guide without pressure to the edge of compression hole. Hole drilled in this position allows for screw insertion in compression position.

IV.7.1.C. Angular Position

Angular positioning of the guide is also possible.

IV.7.2. Drilling

In the desired position make a hole for cortical screw 2.7 through both cortices using the Drill 1.8/180 **[40.2063.181]**.

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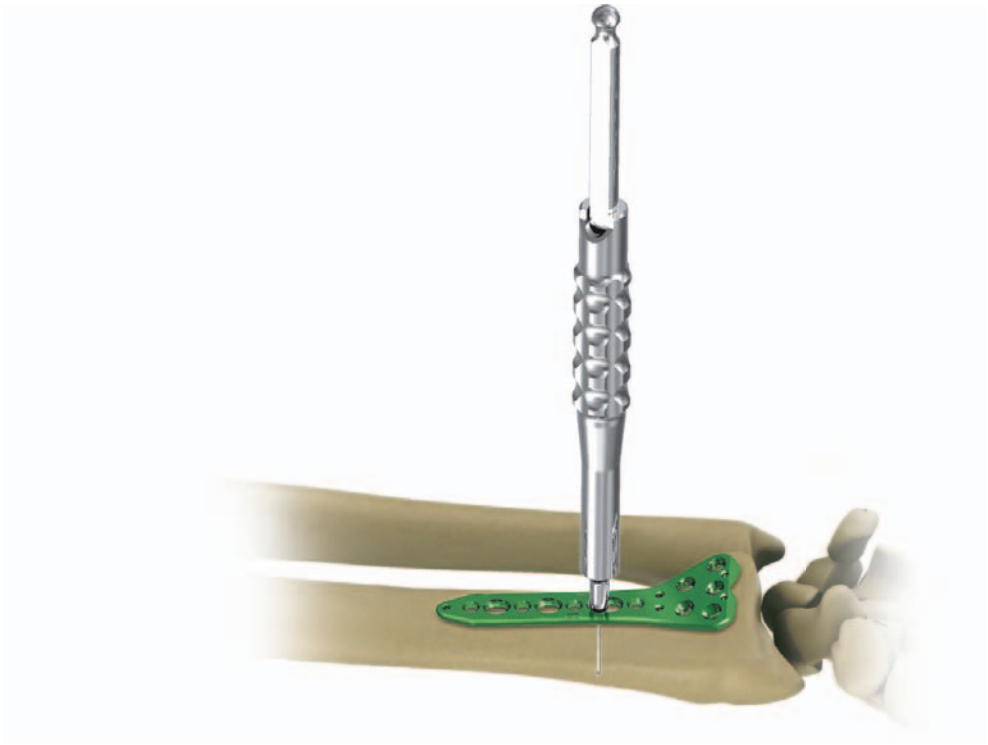
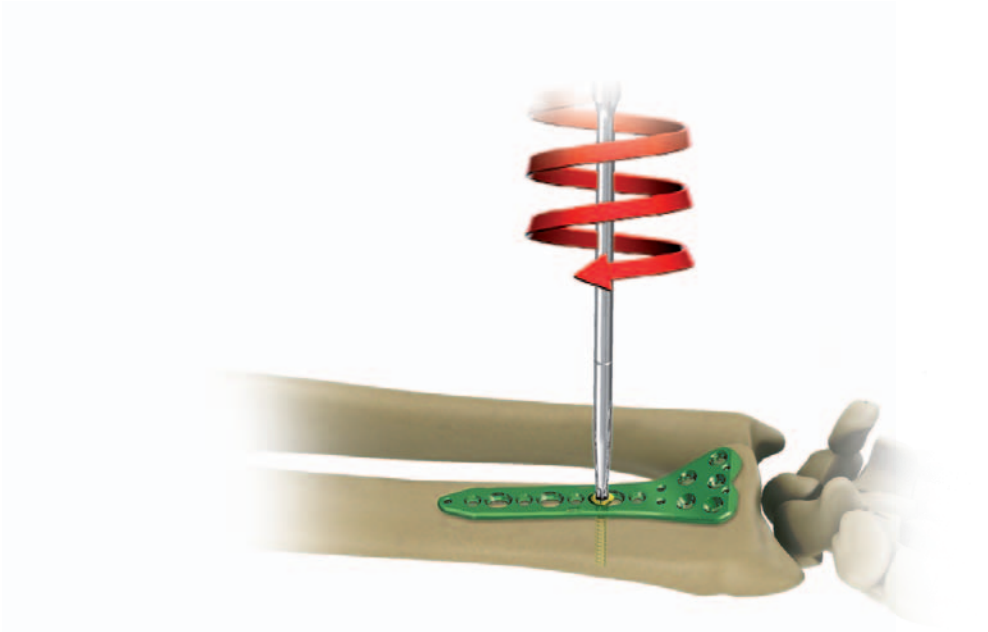
IV.7.3. Hole Depth Measurement

Insert the Depth Measure **[40.4640.000]**, into drilled hole, until its hook reaches the outer surface of opposite cortex bone.



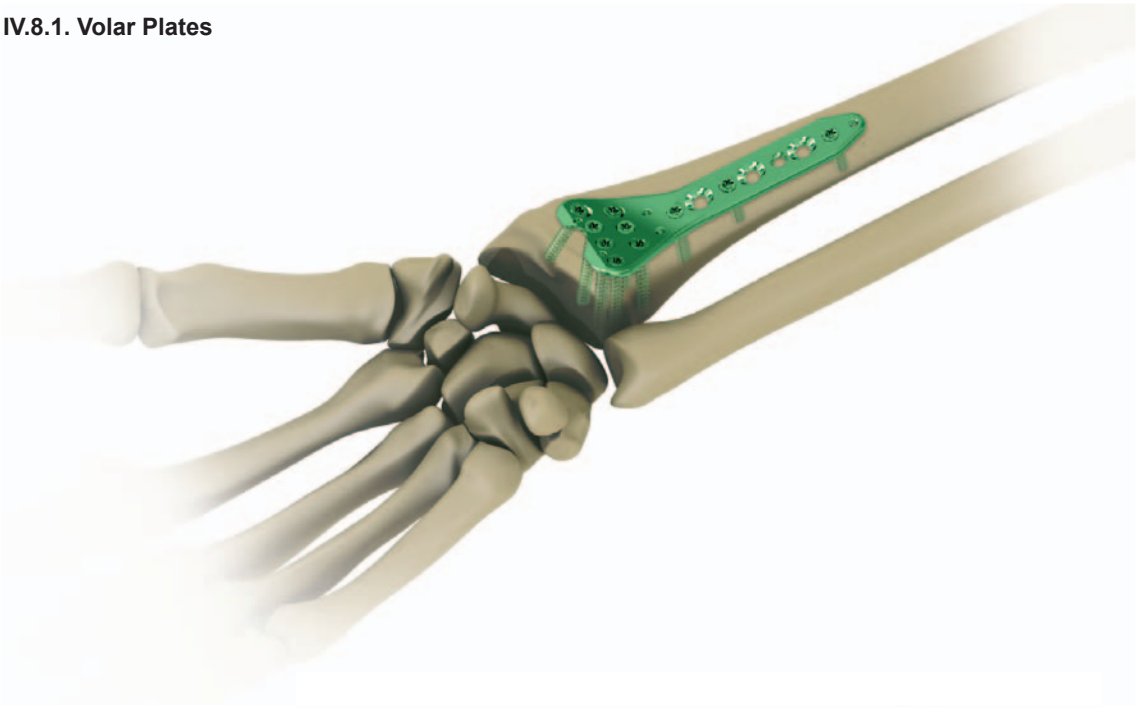
IV.7.4. Screw Insertion

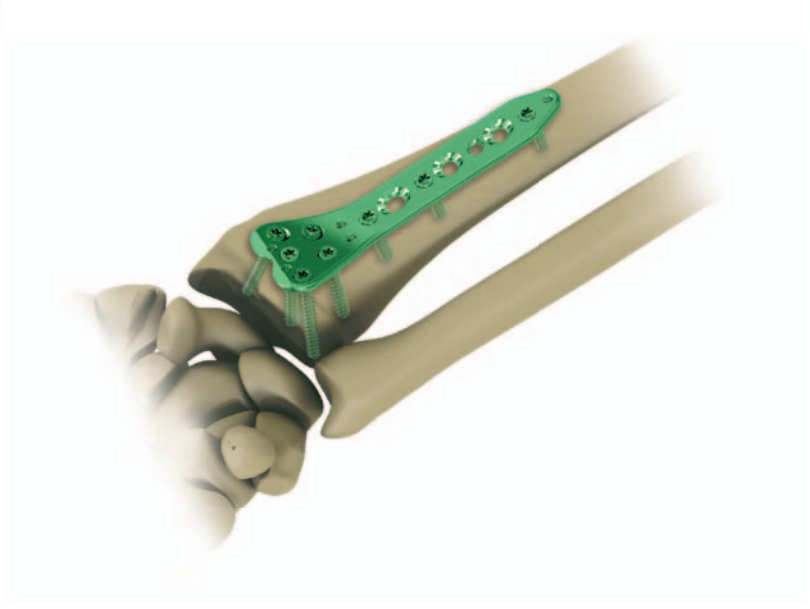
Insert the Cortical self-tapping screw 2.7 **[3.1220.006÷040]** using the Screwdriver Tip T8.

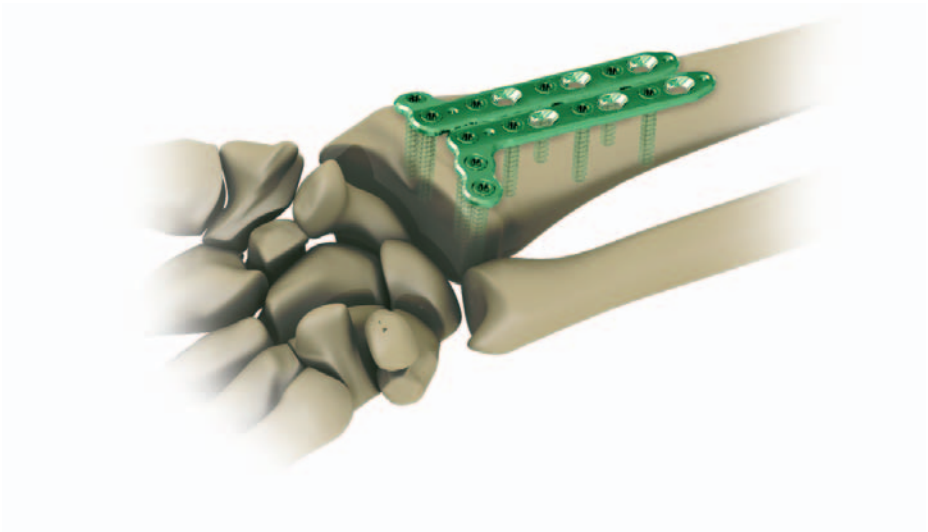


IV.8. CORRECT POSITION OF THE PLATE

IV.8.1. Volar Plates







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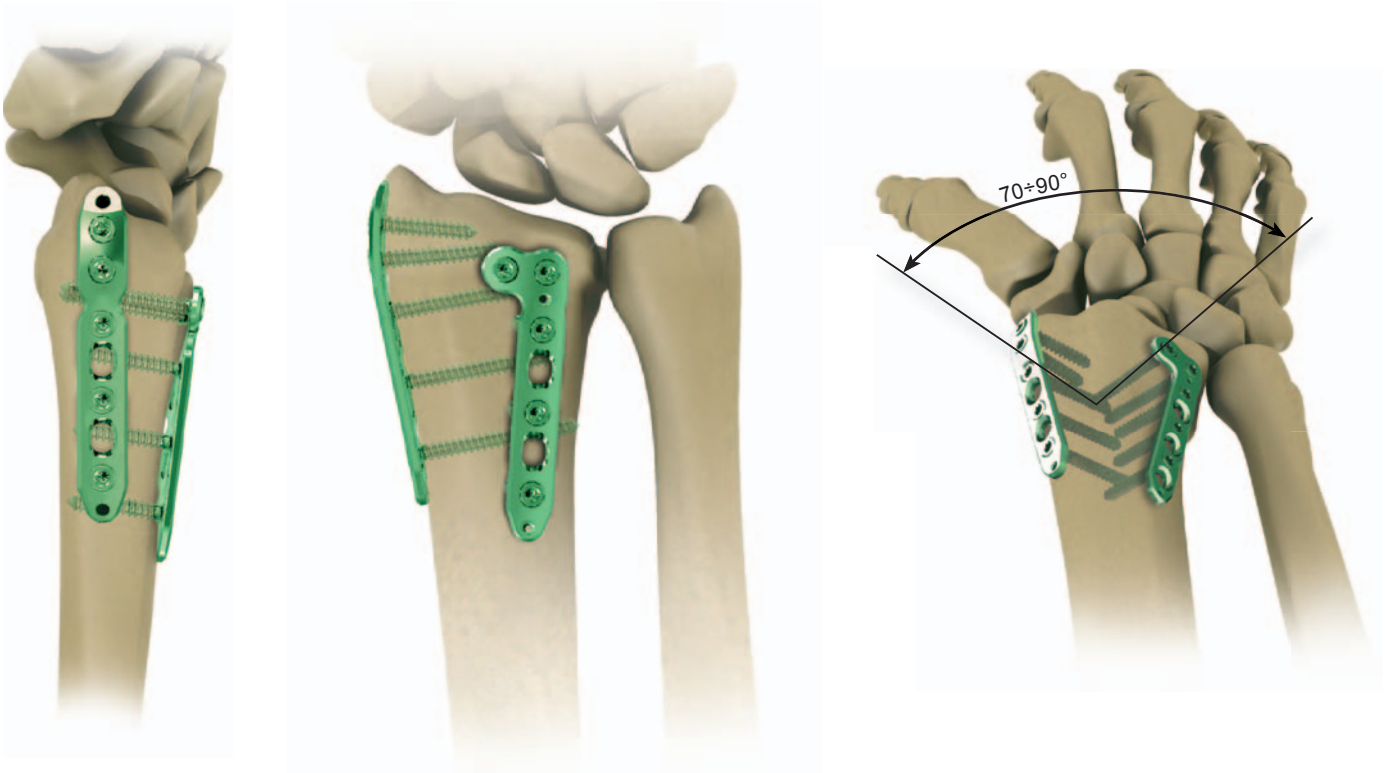
IV.8.2. Dorsal Plates



IV.9. WOUND CLOSURE

Use appropriate surgical technique to close the wound. Prior to wound closure make sure that all screws are properly tightened.

V. POSTOPERATIVE PROCEDURE

To prevent restrictions in movement, a patient shall exercise after surgery as soon as possible. However, it is important to take heed not to load the limb with full load before complete union of the fractured bone occurs.

VI. IMPLANT REMOVAL

For implant removal, first it is necessary to unlock all locking screws from the plate. Next, remove screws from bone. It will allow to avoid plate rotation while the last locking screw unlocking.

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