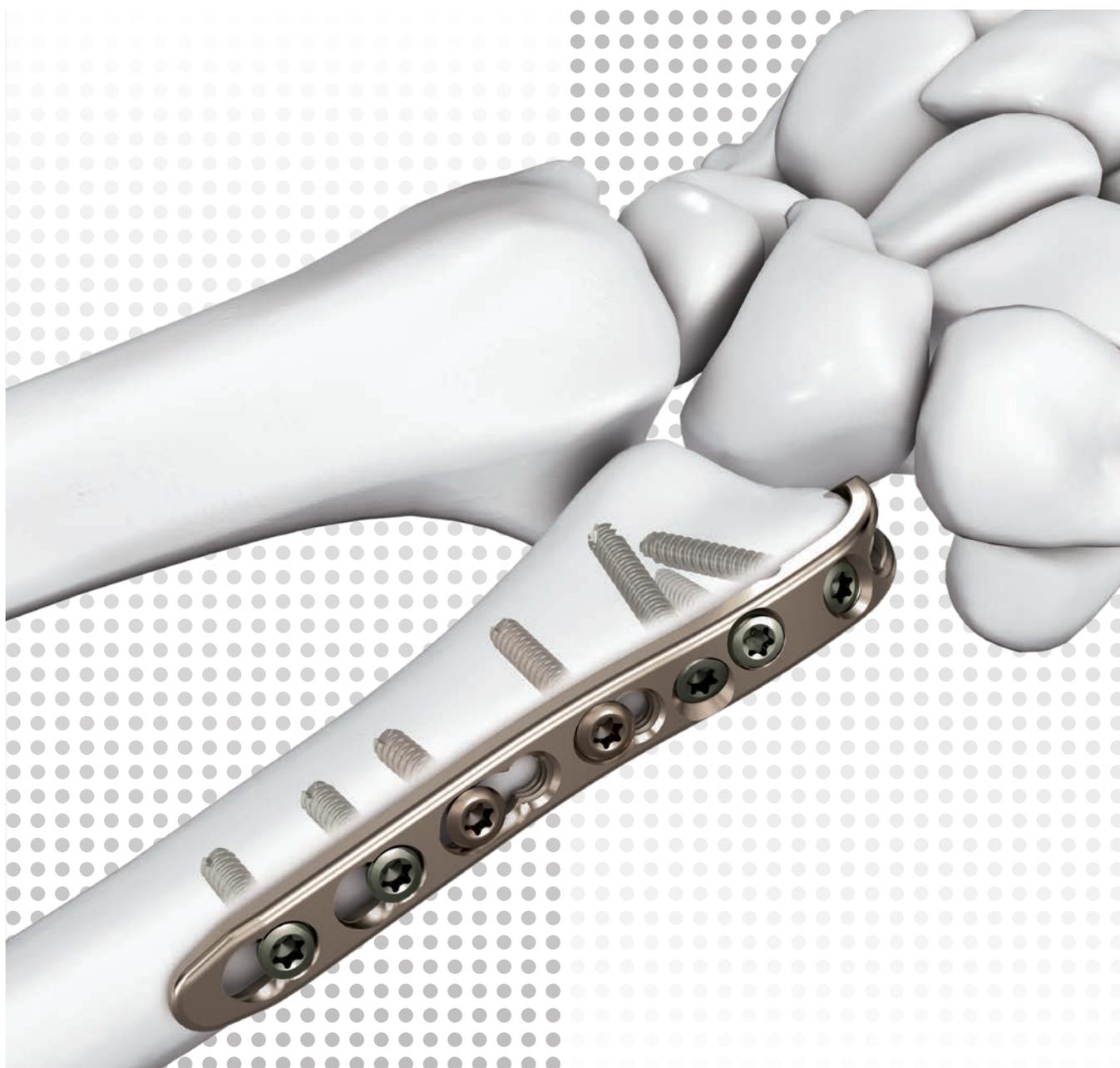


# LCP™ Distal Ulna Plate

Internal fixation of distal ulna fractures

**Surgical Technique**



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 Image intensifier control

This description alone does not provide sufficient background for direct use of DePuy Synthes products. Instruction by a surgeon experienced in handling these products is highly recommended.

**Processing, Reprocessing, Care and Maintenance**

For general guidelines, function control and dismantling of multi-part instruments, as well as processing guidelines for implants, please contact your local sales representative or refer to:

<http://emea.depuysynthes.com/hcp/reprocessing-care-maintenance>

For general information about reprocessing, care and maintenance of DePuy Synthes reusable devices, instrument trays and cases, as well as processing of DePuy Synthes non-sterile implants, please consult the Important Information leaflet (SE\_023827) or refer to:

<http://emea.depuysynthes.com/hcp/reprocessing-care-maintenance>

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# LCP™ Distal Ulna Plate

Internal fixation of distal ulna fractures

## 1 Pointed hooks and locking screw in the head

Pointed hooks to grip the styloid process and to act as reference point for plate application. Intercrossing locking screws hold the ulnar head. The shaft contains LCP™ combi-holes.

## 2 Angular stability

The head accepts 2.0 mm locking screws. The shaft accepts either 2.0 mm locking or cortical screws.

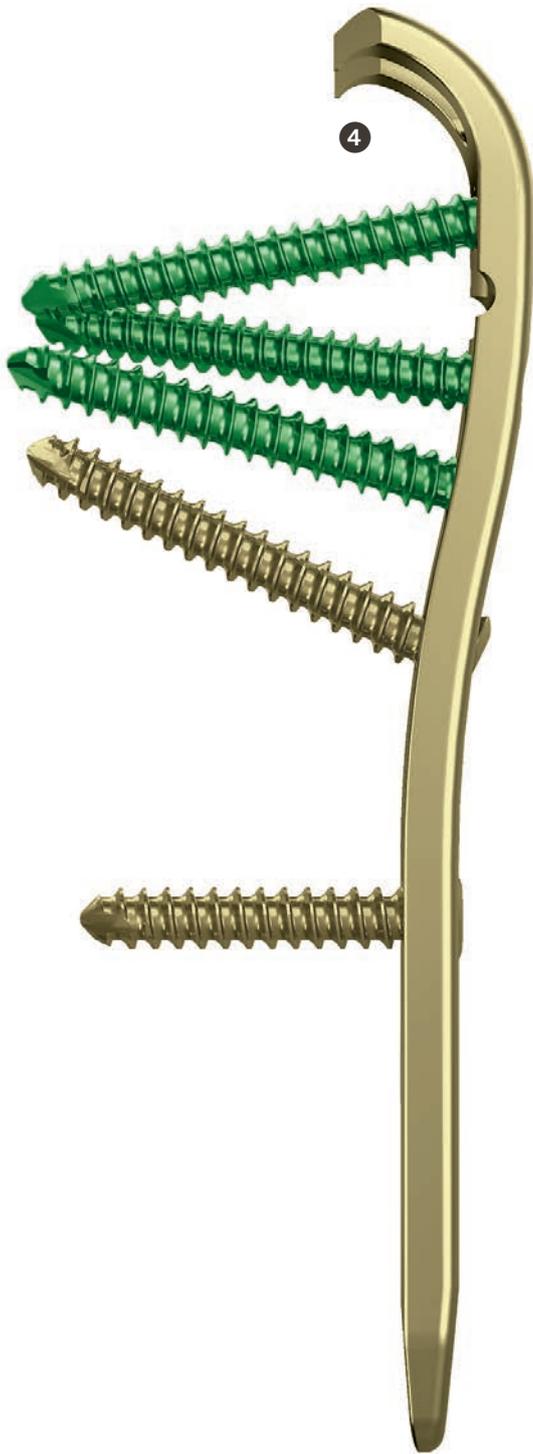
## 3 Oblong hole

The oblong hole accepts 2.0 mm cortex screws for ulnar length adjustment.

## 4 Anatomically contoured

Low screw/plate profile, rounded edges and polished surface.





## Locking screws

X01.876-900 Locking Screw Ø 2.0 mm, self-tapping



## Cortex screws

X01.356-381 Cortex Screw Ø 2.0 mm, self-tapping



X = 2 Stainless Steel  
 X = 4 Titanium Alloy  
 All screws are also available sterile and sterile-tube packaged.  
 Add suffix "S" or "TS" to article number.

Please refer to the corresponding Instructions for Use for specific information on Intended use, Indications, Contraindications, Warnings and Precautions, Potential Adverse Events, Undesirable Side Effect and Residual Risks. Instruction for Use are available at [www.e-ifu.com](http://www.e-ifu.com) and/or [www.depuysynthes.com/ifu](http://www.depuysynthes.com/ifu)

# The AO Principles of Fracture Management

## Mission

The AO's mission is promoting excellence in patient care and outcomes in trauma and musculoskeletal disorders.

### AO Principles<sup>1,2</sup>

1.



Fracture reduction and fixation to restore anatomical relationships.

2.



Fracture fixation providing absolute or relative stability, as required by the “personality” of the fracture, the patient, and the injury.

3.



Preservation of the blood supply to soft-tissues and bone by gentle reduction techniques and careful handling.

4.



Early and safe mobilization and rehabilitation of the injured part and the patient as a whole.

<sup>1</sup> Müller ME, M Allgöwer, R Schneider, H Willenegger. Manual of Internal Fixation. 3<sup>rd</sup> ed. Berlin, Heidelberg, New York: Springer. 1991

<sup>2</sup> Buckley RE, Moran CG, Apivatthakakul T. AO Principles of Fracture Management: 3<sup>rd</sup> ed. Vol. 1: Principles, Vol. 2: Specific fractures. Thieme; 2017.

# Surgical Technique

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The distal ulna is an essential component of the distal radioulnar joint, which provides rotation to the forearm. The distal ulnar surface is also an important platform for stability of the carpus and, beyond it, the hand.

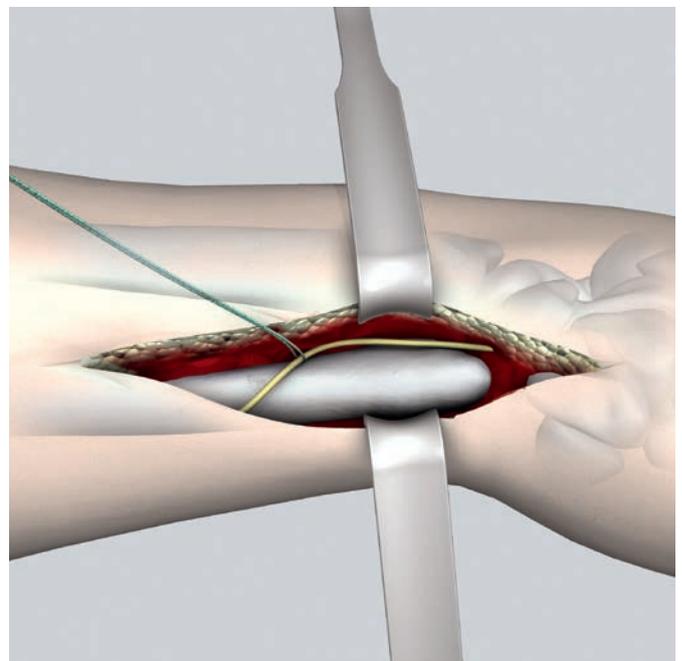
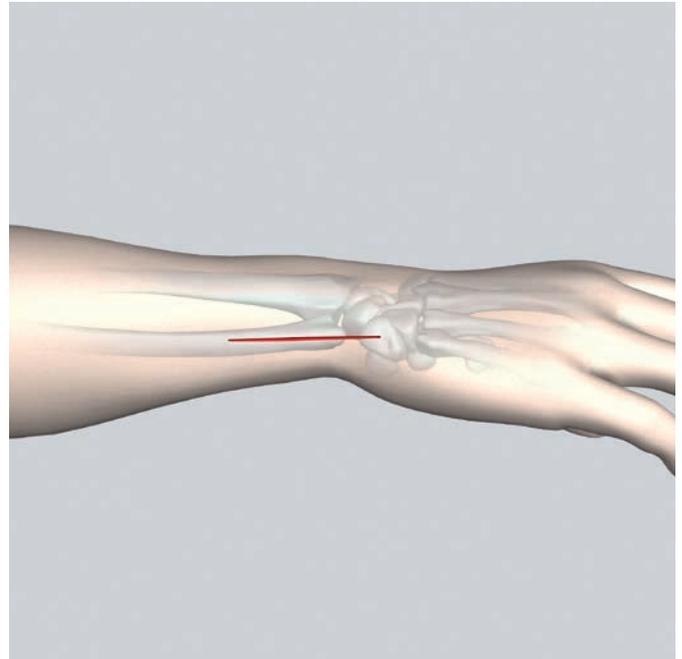
## 1. Surgical approach

The distal ulna is subcutaneous. The application area of the LCP Distal Ulna plate is between the tendons of flexor carpi ulnaris and extensor carpi ulnaris and continues on towards the ulnar styloid.

Make a longitudinal skin incision over the palpable ulna. Avoid the dorsal sensory branch of the ulnar nerve, which crosses the bone at this level to supply the dorsal skin of the hand.

Once the distal shaft of the ulna is visible, subperiosteal dissection will allow the fracture fragments to be visualized and reduced.

Gently retract the dorsal sensory branch of the ulnar nerve.



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## 2. Contour plate (optional)

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### Instrument

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347.901	Pliers, flat-nosed, pointed, for Plates 1.0 to 2.4
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If necessary contour the plate with flat-nosed pliers.

#### ■ Notes:

- The plate holes accept some degree of deformation. The undercut helps to ensure that the threaded holes will not be distorted with typical contouring. Significant distortion of the threaded holes will reduce locking effectiveness.
- If possible, the plate should not be cut since the resulting sharp edges can irritate the overlying soft tissues.

#### ▲ Precaution:

The plate features pointed hooks which should be handled with care.



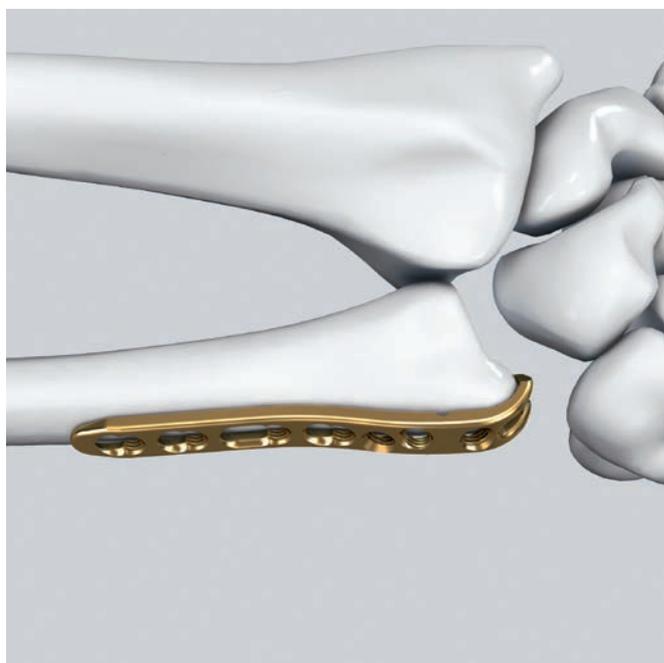
### 3. Reduce fracture and position plate

#### Instrument

292.622/623 Guide Wire Ø 1.1mm with threaded tip with trocar/with trocar tip, length 150mm, Stainless Steel

Expose and clean the fracture. Secure the pointed hooks of the LCP Distal Ulna Plate around the tip of the ulnar styloid as a reference guide.

In simple fractures of the ulnar neck, apply the plate then to the subcutaneous border of the distal ulna, securing points of fixation in both the head and the shaft.



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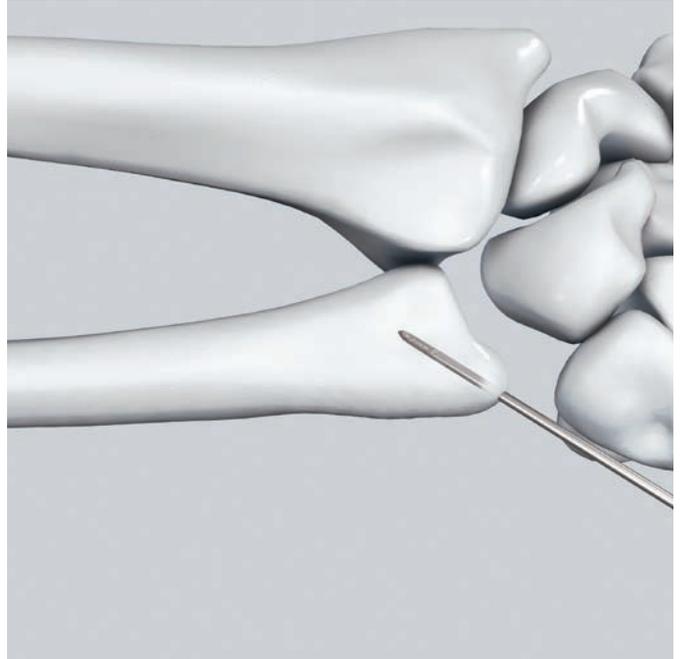
**■ Note:**

It might be necessary to temporarily stabilize the fracture with a trans-styloid guide wire  $\varnothing$  1.1mm. The wire should be inserted between the distal hooks of the temporarily applied plate.

**▲ Precaution:**

The head of the distal ulna is often fragile. Caution should be exercised if using pointed reduction forceps, since the force of this instrument may cause further comminution of the ulnar head. Much of the reduction will be performed indirectly.

Complete exposure of the ulnar head should not be performed because this will detach essential soft tissue stabilizers.



## 4. Fix plate distally

### Instruments

310.507	Drill Bit $\varnothing$ 1.5 mm with Marking, Length 96/82 mm, 2-fluted, for Mini Quick Coupling
323.034	LCP Drill Sleeve 2.0, with Scale, for Drill Bits $\varnothing$ 1.5 mm with marking
319.005	Depth Gauge for Screws $\varnothing$ 2.0 and 2.4 mm, measuring range up to 40 mm
313.842	Screwdriver Shaft STARDRIVE™ 2.0, short, self-holding, for Mini Quick Coupling
or	
313.843	Screwdriver Shaft STARDRIVE™ 2.0, long, self-holding, for Mini Quick Coupling
311.012	Handle with mini Quick Coupling for 313.842/843

Secure the drill sleeve in the desired hole. Pre-drill the hole with the drill bit  $\varnothing$  1.5 mm through the drill sleeve and measure the screw length directly from gauge. Remove the drill sleeve.

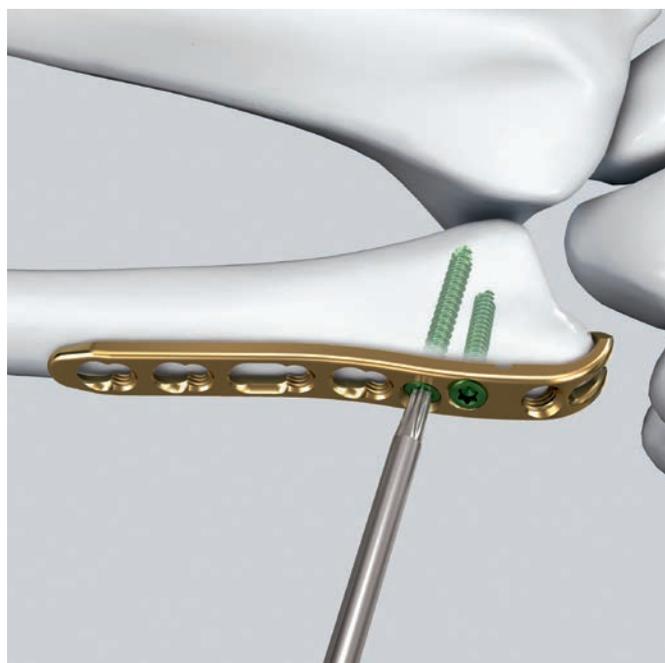


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Alternatively, screw length may be measured with the depth gauge.



Introduce the measured length of the 2.0 mm locking screw with the screwdriver until seated.



## 5. Length adjustment and final fixation

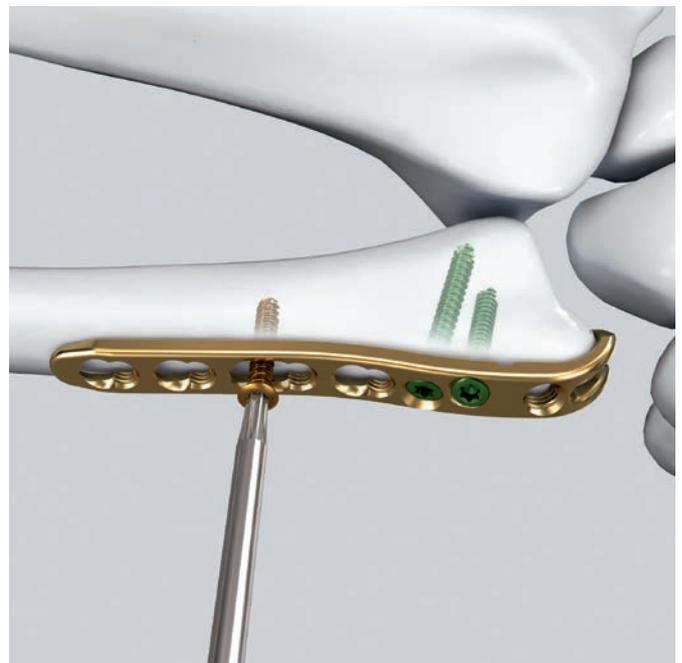
Multiple options for screw insertion in the distal portion of the plate allow a range of fracture patterns as per approved indications to be stabilized.

### 5a. Length adjustment

#### Instruments

313.842	Screwdriver Shaft STARDRIVE™ 2.0, short, self-holding, for Mini Quick Coupling
or	
313.843	Screwdriver Shaft STARDRIVE™ 2.0, long, self-holding, for Mini Quick Coupling
311.012	Handle with mini Quick Coupling for 313.842/843

In fractures which require length adjustment, place one or two 2.0 mm locking screws in the ulnar head to securely fix the implant distally. Then place a 2.0 mm cortical screw in the oblong hole of the shaft, and obtain the correct length of reduction. Use surrounding holes to stabilize the fracture, using a combination of cortical and locking screws.



## 5b. Fixation: most distal hole

In the case of unstable fractures of the base of the ulnar styloid, a 2.0 mm locking screw can be applied through the most distal hole in the Distal Ulnar Plate. This screw does not need to reach the far cortex because it is a locking screw.

For the insertion of locking screws see step 4 on Fix plate distally section.

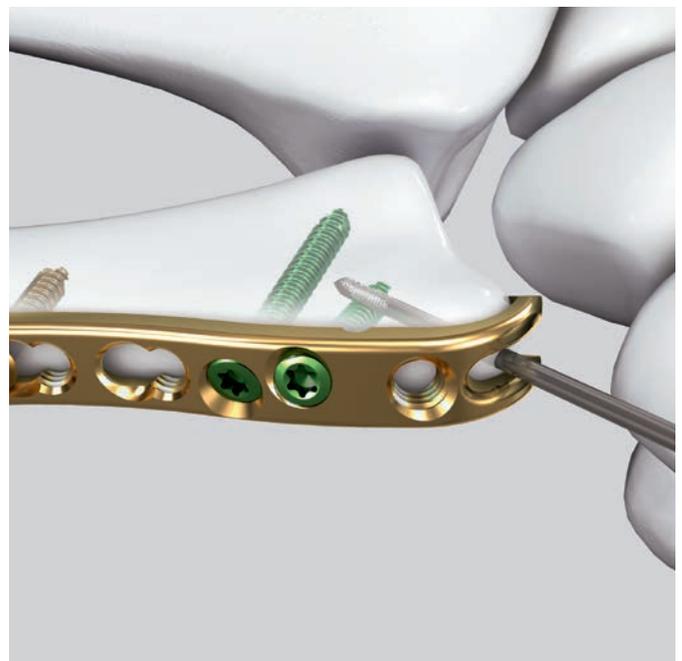


## 5c. Fixation: between the arms of the distal hooks

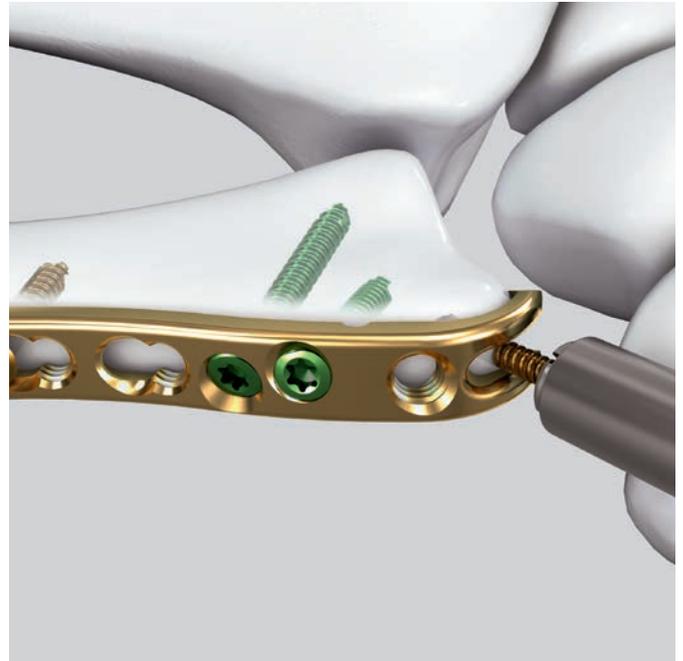
### Instruments

314.667	Screwdriver Shaft 1.5, cruciform, with Holding Sleeve, length 66 mm, with Mini Quick Coupling
310.507	Drill Bit $\varnothing$ 1.5 mm with Marking, Length 96/82 mm, 2-fluted, for Mini Quick Coupling

In fractures where it is necessary to stabilize the tip of the ulnar styloid process, the most distal plate hole is left empty. Remove the Guide Wire  $\varnothing$  1.1 mm, which was used for preliminary fixation (see note in step 3).



Overdrill the near fragment with a drill bit  $\varnothing$  1.5 mm.  
Apply a cortical screw  $\varnothing$  1.5 mm in lag mode between the arms of the distal hooks.



## 6. Confirm joint reconstruction

- 1 Confirm joint reconstruction, screw placement and screw length from different angles – AP, lateral and multiple oblique views.

Check that no screws enter either the distal radioulnar or ulnocarpal joints by using an image intensifier.



AP-view

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## 7. Implant removal

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### Instruments

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311.012	Handle with Mini Quick Coupling
314.676	Screwdriver Shaft STARDRIVE™ 2.0, with Holding Sleeve, for Mini Quick Coupling
314.667	Screwdriver Shaft 1.5, cruciform, with Holding Sleeve, length 66 mm, with Mini Quick Coupling

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To remove locking screws, first unlock all screws from the plate; then remove the screws completely from the bone. The last screw removed should be a non-locking screw on the shaft. This helps the plate not to spin when locking screws are removed.

# Implants

## Plates

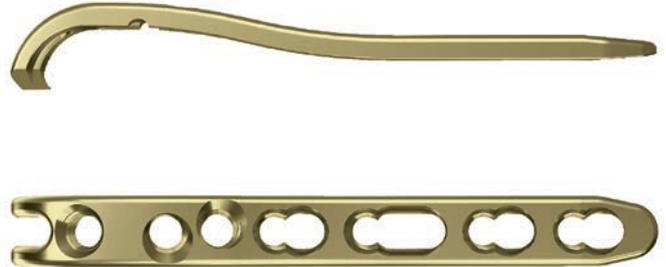
X42.531 LCP Distal Ulna Plate 2.0, with hooks,  
7 holes, length 46 mm

X = 2 Stainless Steel

X = 4 TiCP

All plates are also available sterile packaged.

Add suffix "S" to article number.



## Locking screws

X01.876–900 Locking Screw Ø 2.0 mm, self-tapping



## Cortex screws

X01.356–381 Cortex Screw Ø 2.0 mm, self-tapping



## Optional

X00.806–824 Cortex Screw Ø 1.5 mm, self-tapping\*



X = 2 Stainless Steel

X = 4 Titanium Alloy

All screws are also available sterile and sterile-tube packaged.

Add suffix "S" or "TS" to article number.

\* Not available "TS" packed

# Instruments

311.012	Handle with Mini Quick Coupling	
314.676	Screwdriver Shaft STARDRIVE™ 2.0, with Holding Sleeve, for Mini Quick Coupling	
323.034	LCP Drill Sleeve 2.0, with Scale, for Drill Bits Ø 1.5 mm with marking	
313.842	Screwdriver Shaft STARDRIVE™ 2.0, short, self-holding, for Mini Quick Coupling	
313.843	Screwdriver Shaft STARDRIVE™ 2.0, long, self-holding, for Mini Quick Coupling	
310.507	Drill Bit Ø 1.5 mm with Marking, length 96/82 mm, 2-fluted, for Mini Quick Coupling	
319.005	Depth Gauge for Screws Ø 2.0 and 2.4 mm, measuring range up to 40 mm	

## The above instruments are part of LCP Compact Hand

292.622/623	Guide Wire Ø 1.1mm with threaded tip with trocar/with trocar tip, length 150 mm, Stainless Steel	
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## Optional Instruments

347.901	Pliers, flat-nosed, pointed, for Plates 1.0 to 2.4	
314.667	Screwdriver Shaft 1.5, cruciform, with Holding Sleeve, length 66mm, with Mini Quick Coupling	

# MRI Information

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## **Torque, Displacement and Image Artifacts according to ASTM F 2213, ASTM F 2052 and ASTM F2119**

Non-clinical testing of worst case scenario in a 3 T MRI system did not reveal any relevant torque or displacement of the construct for an experimentally measured local spatial gradient of the magnetic field of 3.69 T/m. The largest image artifact extended approximately 169 mm from the construct when scanned using the Gradient Echo (GE). Testing was conducted on a 3 T MRI system.

## **Radio-Frequency-(RF-)induced heating according to ASTM F2182**

Non-clinical electromagnetic and thermal testing of worst case scenario lead to peak temperature rise of 9.5 °C with an average temperature rise of 6.6 °C (1.5 T) and a peak temperature rise of 5.9 °C (3 T) under MRI Conditions using RF Coils [whole body averaged specific absorption rate (SAR) of 2 W/kg for 6 minutes (1.5 T) and for 15 minutes (3 T)].

### **▲ Precautions:**

The above mentioned test relies on non-clinical testing. The actual temperature rise in the patient will depend on a variety of factors beyond the SAR and time of RF application. Thus, it is recommended to pay particular attention to the following points:

- It is recommended to thoroughly monitor patients undergoing MR scanning for perceived temperature and/or pain sensations.
- Patients with impaired thermo regulation or temperature sensation should be excluded from MR scanning procedures.
- Generally it is recommended to use a MR system with low field strength in the presence of conductive implants. The employed specific absorption rate (SAR) should be reduced as far as possible.
- Using the ventilation system may further contribute to reduce temperature increase in the body.



Please refer to the corresponding Instructions for Use for specific information on Intended use, Indications, Contraindications, Warnings and Precautions, Potential Adverse Events, Undesirable Side Effect and Residual Risks.  
Instruction for Use are available at [www.e-ifu.com](http://www.e-ifu.com) and/or [www.depuysynthes.com/ifu](http://www.depuysynthes.com/ifu)

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