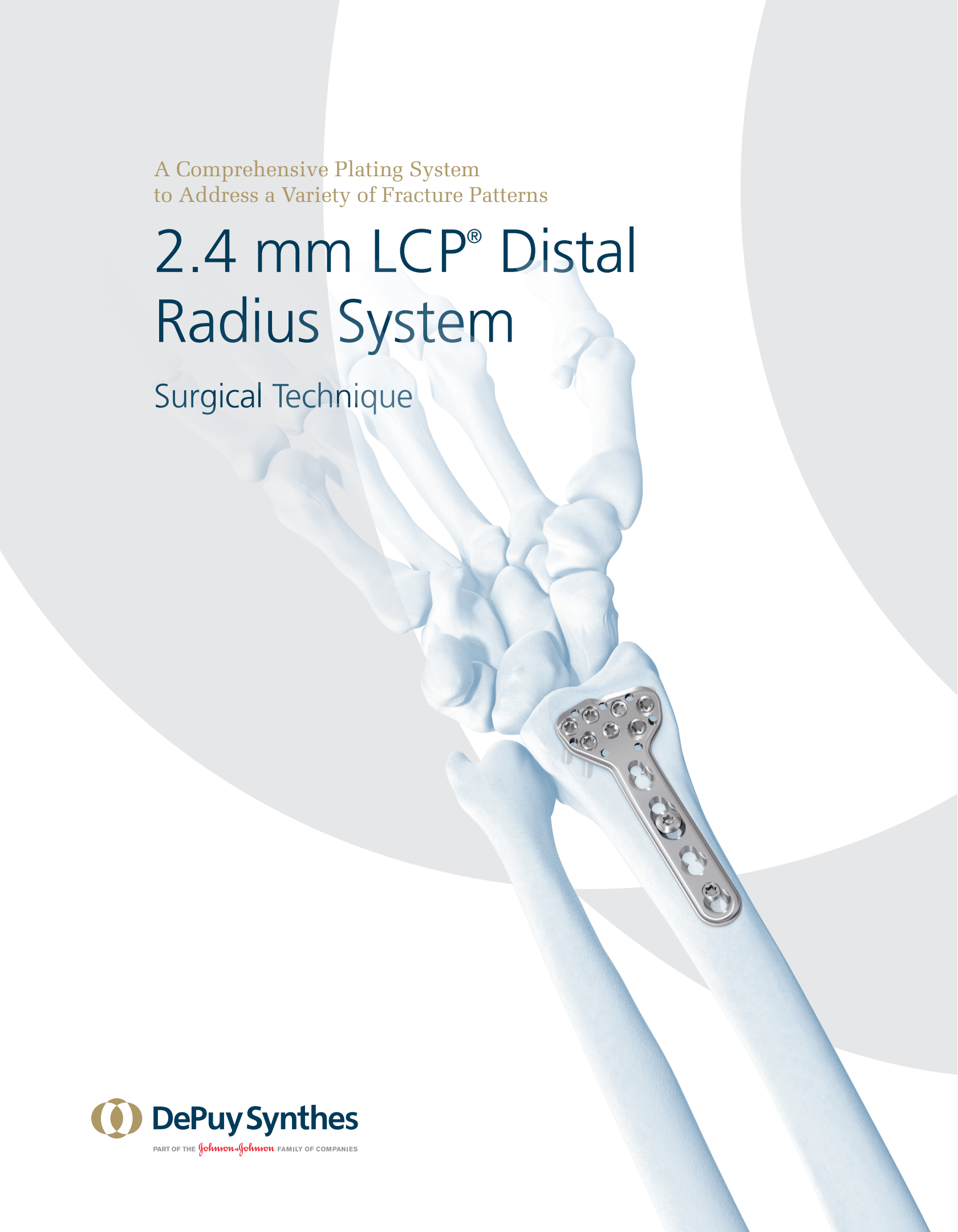
A Comprehensive Plating System
to Address a Variety of Fracture Patterns

2.4 mm LCP® Distal Radius System

Surgical Technique



DePuy Synthes

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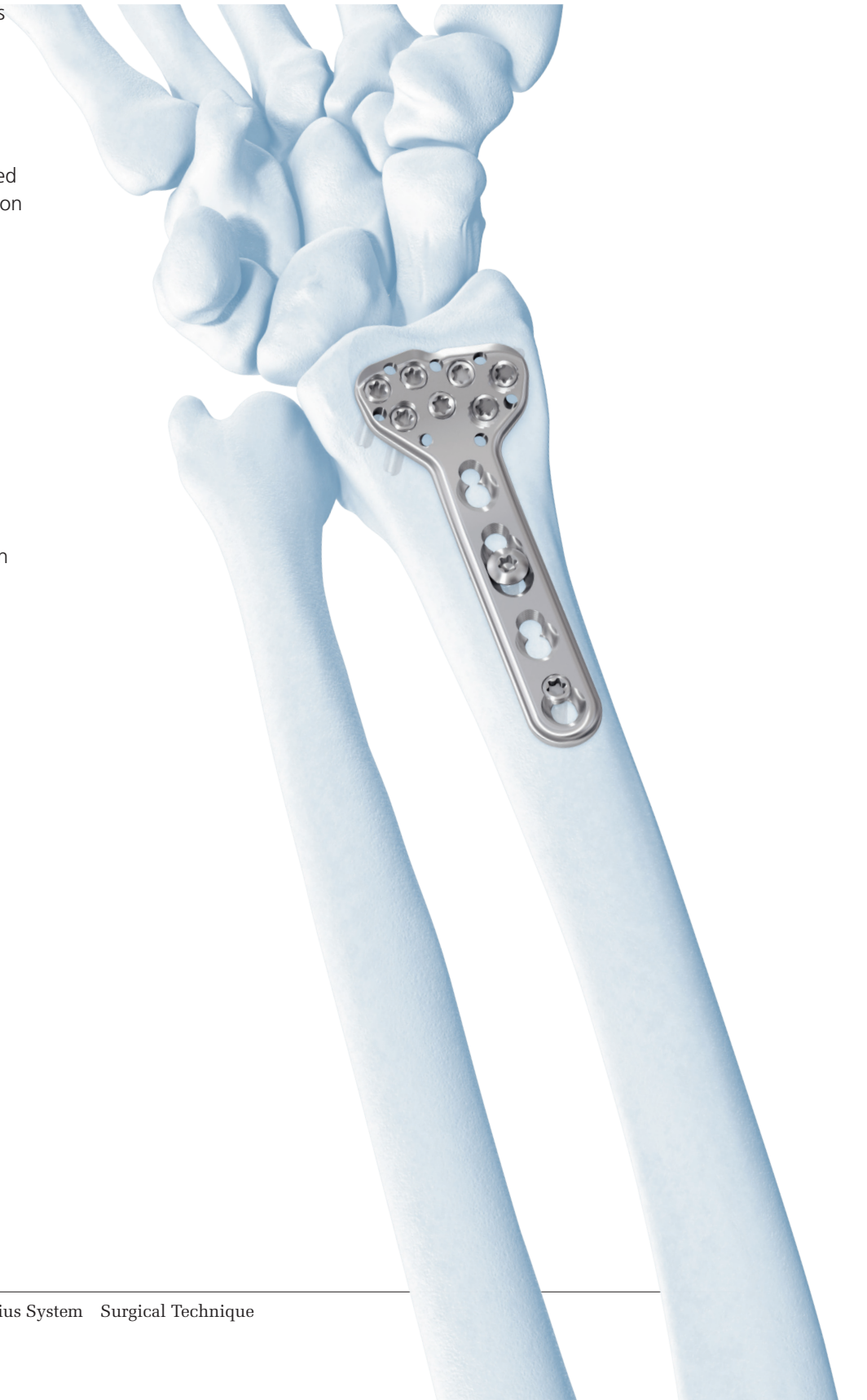
MR Information
The 2.4 mm LCP® Distal Radius System has not been evaluated for safety and compatibility in the MR environment. It has not been tested for heating, migration or image artifact in the MR environment. The safety of the 2.4 mm LCP® Distal Radius System in the MR environment is unknown. Scanning a patient who has this device may result in patient injury.

Image intensifier control

2.4 mm LCP® Distal Radius System

A comprehensive plating system to address a variety of fracture patterns

- A wide variety of dorsal and volar plates allows implant placement to match the individual patient anatomy and fracture pattern
- Three volar plate designs address both simple and complex fractures
- Low plate-and-screw profile and rounded plate edges minimize potential for tendon and soft tissue irritation
- Locking screws and pins result in a fixed-angle construct to support the articular surface, reduce the need for bone graft, and obtain fixation in osteoporotic bone
- Choice of lengths for each plate type*
- Locking option available in all plate holes
- Combi holes in the locking compression plates (LCP®) allow locking screw fixation in the threaded section, or compression/neutralization in the nonthreaded section of the hole
- Available in stainless steel and titanium



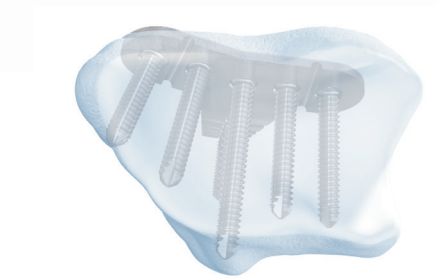
* For long volar plates refer to the DePuy Synthes *Dia-Meta Volar Distal Radius Plate Technique Guide*

Volar column distal radius plates

- Volar column plates (VCP) are precontoured for anatomic fit on the volar aspect of the distal radius. Multiple locking screw holes in the head of the plate provide additional fixation of the radial and intermediate columns, with screw trajectories designed to address a wide variety of fracture types. Specifically, two screws are angled to capture the radial styloid and prevent rotation of these fragments.
- Volar column plates can be used for both simple and complex fracture types (AO types A2, A3, B1-B3, and C1-C3). Plate placement is more distal than the extra-articular plate, but not as distal as the juxta-articular plate.

Extra-articular plates

- Extra-articular volar plates are precontoured for anatomic fit of the volar aspect of the distal radius, so that plate placement is away from the articular surface. Extra-articular volar distal radius plates can be used for simple intra- or extra-articular fractures such as AO types A2, A3, B1-B3, and C1. Diverging screw angles secure the radial styloid and other distal fragments.
- Undercuts on the bottom of the 5-hole head extra-articular plates facilitate contouring of the plate to match the anatomy of the distal radius and help minimize the potential for soft tissue irritation.

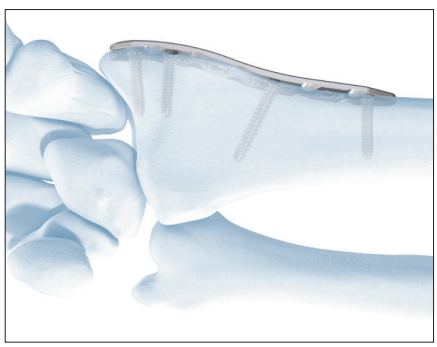


Juxta-articular volar plates

- Juxta-articular volar plates are precontoured with a complex bend designed to fit the volar surface of the distal radius. Juxta-articular plates may be used for more complex fractures (AO types B3, and C1-C3). Placement is as distal as possible on the radius. The locking holes in the head of the plate are angled 5° proximal to the articular surface, to allow a more distal plate placement.
- Undercuts on the bottom of the plate head facilitate contouring of the plate to match the anatomy of the distal radius and help minimize the potential for soft tissue irritation.

Dorsal plates

- Right-angle L-plates, oblique L-plates, T-plates and straight plates are used in the dorsal two-plate technique, which provides a strong construct for complex distal radius fractures, avoids removal of Lister's tubercle, and decreases tendon and soft tissue irritation.
- Straight plates, precontoured to fit the radial column, have a notched tip that allows these plates to fit on the radial styloid adjacent to a temporary K-wire fixation.
- The two-plate technique of dorsal fixation of distal radius fractures offers increased stabilization due to the 70°–90° angle between the two plates. The dorsoradial plate buttresses the radial column, and a dorsoulnar plate supports the intermediate column.

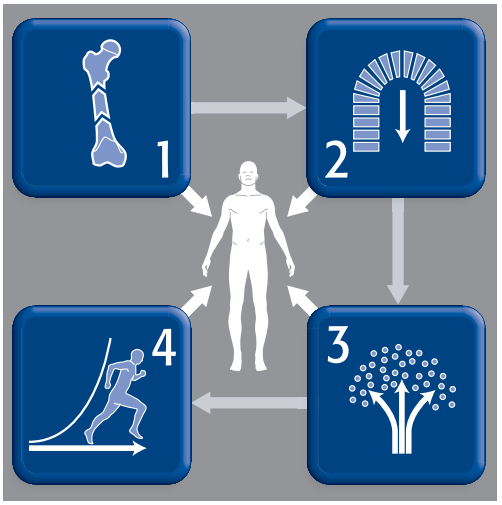


AO Principles

In 1958, the AO formulated four basic principles, which have become the guidelines for internal fixation.[1,2]

Anatomic reduction
Fracture reduction and fixation to restore anatomical relationships.

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



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

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

1. Müller ME, Allgöwer M, Schneider R, Willenegger H. *Manual of Internal Fixation*. 3rd ed. Berlin, Heidelberg, New York: Springer-Verlag; 1991.
2. Rüedi TP, RE Buckley, CG Moran. *AO Principles of Fracture Management*. 2nd ed. Stuttgart New York: Thieme; 2007.

Indications

The 2.4 mm LCP Volar Distal Radius Plates are intended for fixation of complex intra- and extra-articular fractures and other small bones in adults, skeletally mature adolescents, and the following adolescent distal radius fractures: intra-articular fractures exiting the epiphysis, intra-articular fractures exiting the metaphysis, physeal crush injuries, and any injuries which cause growth arrest to the distal radius.

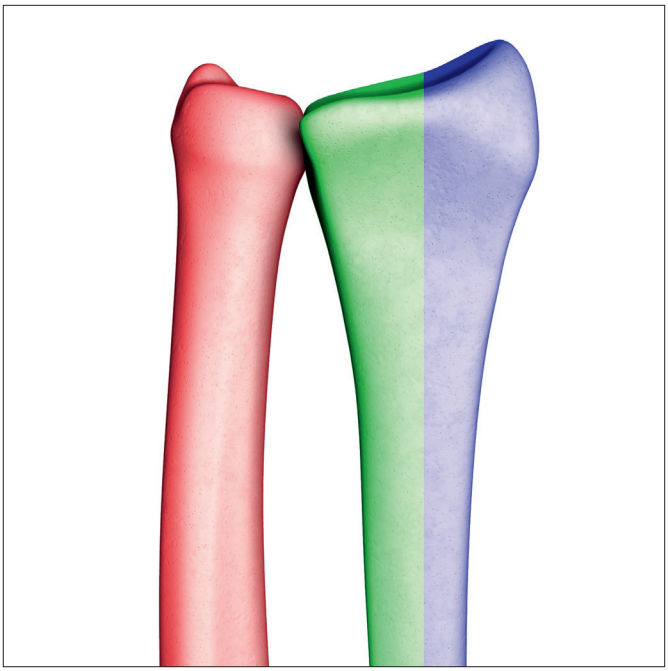
Three-Column Theory

Three-column theory of distal radius fracture fixation
The treatment of distal radius fractures should entail anatomic reconstruction of the joint surface, stable internal fixation, and an early functional postoperative regimen. The distal radius and distal ulna form a three-column biomechanical construction:

Radial column
Lateral side of radius including the radial styloid and scaphoid fossa

Intermediate column
Medial side of radius, including the lunate fossa and sigmoid notch

Ulnar column
Ulnar head, including the triangular fibrocartilage complex (TFCC) and the ulnar portion of the distal radioulnar joint (DRUJ)



Columns of the distal radius

Clinical Cases

Case 1—Volar column plate

65-year-old female, fall
Classification: A2, right hand
Osteopenic, ulna styloid.

Preoperative
lateral view

Preoperative
AP view

Postoperative
lateral view

Postoperative
AP view

Case 2—Extra-articular plate

Comminuted, dorsally displaced fracture of the distal radius.

Preoperative
lateral view

Preoperative
AP view

Postoperative
lateral view

Postoperative
AP view

Case 3—Juxta-articular plate

A 34-year-old woman with reverse Barton fracture.

Preoperative lateral view

Preoperative AP view

Postoperative lateral view

Postoperative AP view

Case 4—Dorsal plates

Comminuted intra-articular fracture; radiocarpal joint reconstruction using dorsal approach.

Preoperative lateral view

Preoperative AP view

Postoperative lateral view

Postoperative AP view

The following steps apply throughout the technique for all plates.

1. Plate contouring

Instrument	
329.922	Bending Pin (2 required)

If necessary, fine bending of the dorsal plates and distal tabs of the juxta-articular and 5-hole head extra-articular plates may be achieved using bending pins or threaded LCP Drill Guides. Be careful to avoid overbending and damage to plate threads.

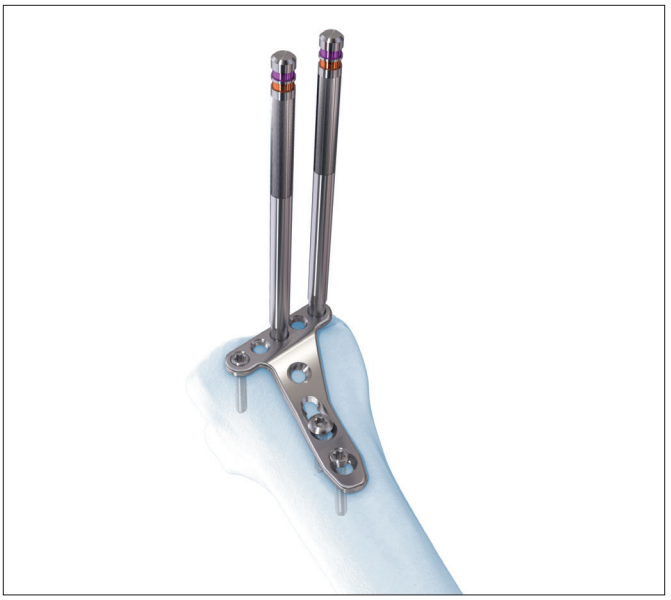
Precaution: Care should be taken to avoid overbending because the bending pin may become dislodged from the plate hole and damage the plate's threads.

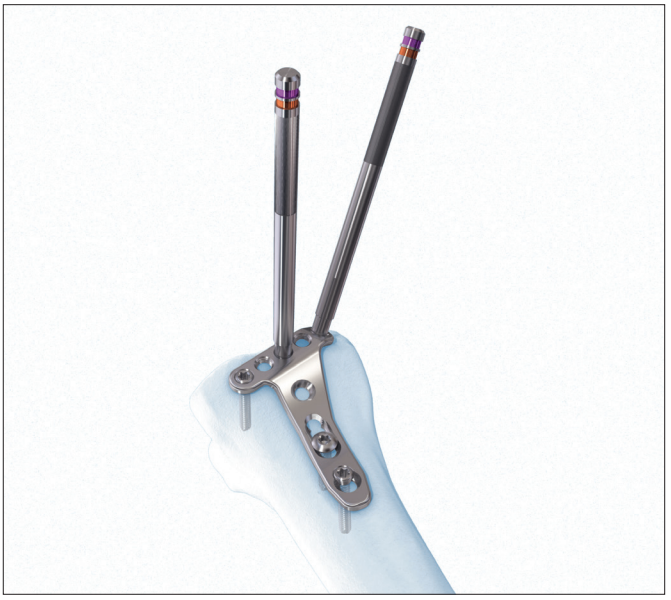
Alternative instrument	
329.12	Bending Pliers

Bending pliers are also provided for additional plate contouring.

Precautions:

- **The plate holes have been designed to accept some degree of deformation. Undercuts help protect the threaded holes from distortion. Significant distortion of the locking holes reduces locking effectiveness.**
- **Reverse bending or use of the incorrect instrumentation for bending may weaken the plate and lead to premature plate failure (e.g., breakage). Do not bend the plate beyond what is required to match the anatomy.**





2. Temporary fixation with K-wires

Instruments	
02.110.300/ 04.110.300	1.8 mm Kirschner Wire, stainless steel or titanium
292.12/ 492.12	1.25 mm Kirschner Wire, stainless steel or titanium
292.16/ 492.16	1.6 mm Kirschner Wire, stainless steel or titanium
323.029	Threaded LCP Drill Guide, 1.8 mm
323.035	1.8 mm Threaded Drill Guide, short
324.084	1.25 mm K-Wire Insert (for use with 323.029)

1.8 mm K-wires can be placed through the 1.8 mm short threaded drill guide or threaded LCP Drill Guide. When using a 1.8 mm K-wire, the drilling step with a 1.8 mm drill bit may be omitted.

1.25 mm K-wires may also be placed through the threaded LCP Drill Guide using the 1.25 mm K-wire insert. Thread the drill guide into a locking hole and place the K-wire insert into the drill guide. Insert the K-wire.

For the 6- or 7-hole head LCP Volar Column Plate, a 1.6 mm K-wire may be inserted directly through any of the dedicated K-wire holes.

Note: When using the guide block for 6- or 7-hole head volar column plate, insert a 1.25 K-wire.

3. Screw and buttress pin insertion

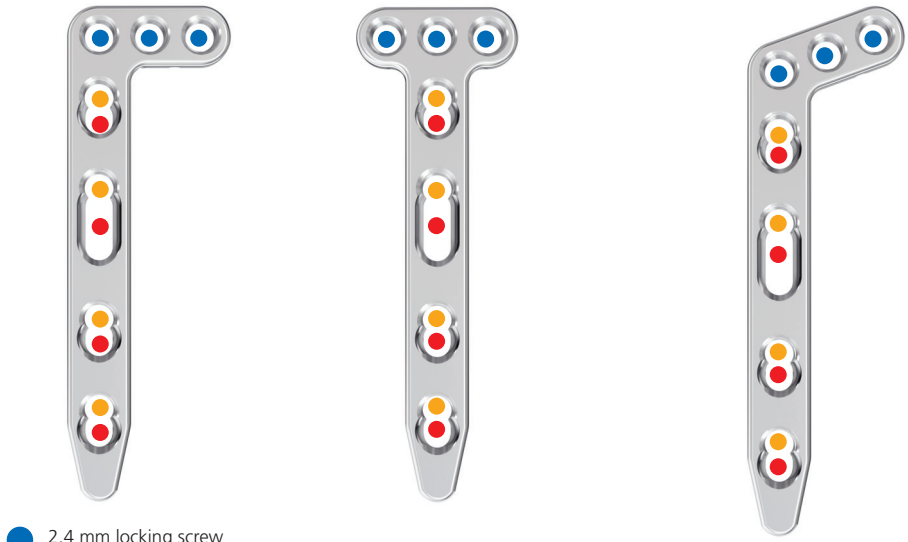
Use 2.4 mm locking screws in the distal portion of the dorsal or volar plates and 2.4 mm locking or 2.4 mm cortex screws in the shaft of dorsal and volar plates. 2.7 mm cortex screws can be used only in the Combi holes in the shaft of the volar plates. 1.8 mm LCP Buttress Pins can be used in any 2.4 mm locking hole.

If a combination of locking and cortex screws is planned, a cortex screw should be used first to pull the plate to the bone.

Warning: If a locking screw is used first, care should be taken to ensure that the plate is held securely to the bone to keep the plate from rotating off the bone as the screw is locked into the plate.

Volar Plates

Dorsal Plates



- 2.4 mm locking screw
  1.8 mm buttress pin
  2.4 mm cortex screw
- 2.4 mm locking screw
  1.8 mm buttress pin
- 2.4 mm cortex
  2.7 mm cortex
- 2.4 mm cortex

4. Insert cortex screws

Instruments	
310.19	2.0 mm Drill Bit, quick coupling
310.26	2.7 mm Drill Bit, quick coupling
310.509	1.8 mm Drill Bit, with depth mark, quick coupling
310.530	2.4 mm Drill Bit, quick coupling
311.43	Handle, with quick coupling, small
314.467	StarDrive Screwdriver Shaft, T8
319.006	Depth Gauge, for 2.0 mm and 2.4 mm cortex screws
319.01	Depth Gauge, for 2.7 mm and 3.5 mm cortex, and 4.0 mm cancellous bone screws
323.202	2.4 mm Universal Drill Guide
323.26	2.7 mm Universal Drill Guide

Use the 2.4 mm universal drill guide or the 2.7 mm universal drill guide for an eccentric (compression) or neutral (buttress) insertion of cortex screws.

For 2.4 mm cortex screws, use the 1.8 mm drill bit for the threaded hole and the 2.4 mm drill bit for the gliding hole.

For 2.7 mm cortex screws, use the 2.0 mm drill bit for the threaded hole and the 2.7 mm drill bit for the gliding hole.

Use the appropriate depth gauge to measure for screw lengths.

Use a T8 StarDrive™ Screwdriver for all 2.4 mm and 2.7 mm cortex screws.

5. Insert locking screws and buttress pins

Instruments	
03.110.006	Direct Measuring Device, for 1.8 mm Kirschner Wire
03.110.020	Measuring Device for use with 1.8 mm Short Threaded Drill Guide
311.43	Handle, with quick coupling, small
314.467	StarDrive Screwdriver Shaft, T8
319.006	Depth Gauge, for 2.0 mm and 2.4 mm cortex screws
323.029	Threaded LCP Drill Guide, 1.8 mm
323.035	1.8 mm Threaded Drill Guide, short

Screw the threaded LCP Drill Guide or short threaded drill guide into a locking hole until it is fully seated.

Note: To ensure proper thread engagement, align the selected drill guide with the trajectory of the threaded plate hole and rotate the guide approximately ¼ turn counterclockwise until a click is noticed and the threads engage. Then advance the guide clockwise until firmly seated.

Use the 1.8 mm drill bit with depth mark to drill to the desired depth. Alternatively, a 1.8 mm K-wire can be inserted to the desired depth through the drill guide.

5. Insert locking screws and buttress pins (continued)

Determine screw length
Multiple instruments can be used to measure screw length.

When using the short 1.8 mm threaded drill guide, use the measuring device for use with 1.8 mm short threaded drill guide to determine screw length, while holding the measuring device on top of the drill guide (Figure 1).

If a 1.8 mm K-wire is inserted through the short 1.8 mm threaded drill guide, screw size can be determined using the direct measuring device for 1.8 mm K-wires (Figure 1) or the measuring device for use with 1.8 mm short threaded drill guide (Figure 2).

Screw length may also be determined by removing the drill guide and using the depth gauge for 2.4 mm screws (Figure 3).

When using the long 1.8 mm threaded LCP Drill Guide, measure screw length directly from the mark on the drill bit or 1.8 mm K-wire and scale on the threaded drill guide.

Note: When using the guide block for volar column plates, screw length can be read directly using the 1.8 mm drill guide with measuring for guide block (refer to page 23).

Figure 1

Figure 2

Figure 3

Insert screw
Remove the drill guide before inserting a locking screw. Insert locking screws manually with a T8 StarDrive Screwdriver. Carefully tighten the locking screw. Excessive force is not necessary to lock the screw to the plate.

Insert buttress pin
Use the same technique as used for 2.4 mm locking screws.

When using plates containing parallel screw holes (for example, the head of the 2.4 mm LCP Juxta-Articular Volar Distal Radius Plate), it is recommended to alternate the buttress pins with locking or cortex screws to reduce the risk of fracture displacement. For plates with parallel screw angles, each fragment that contains a buttress pin should also contain a screw (Figure 4).

In plates with nonparallel screw angles (such as the head of the 2.4 mm LCP Volar Column Distal Radius Plate), the buttress pins can be placed in any 2.4 mm locking hole, with or without the addition of screws (Figure 5).

Figure 4

Figure 5

5. Insert locking screws and buttress pins (continued)

Alternative technique

Instrument	
314.468	Holding Sleeve

Alternatively, a locking screw may be used to pull the plate to the bone.

Place the holding sleeve onto the StarDrive Screwdriver. Pick up the locking screw with the holding sleeve, and insert it into the screw hole (Figure 1). With the locking screw still held by the holding sleeve, tighten the screw until the plate is drawn to the bone (Figures 2 and 3).

Pull up on the holding sleeve to release the screwhead, and tighten the locking screw into the plate (Figure 4).

Figure 1

Figure 2

Figure 3

Figure 4

Volar Plating Surgical Technique

Determine which volar plate will be used depending on the fracture pattern and patient anatomy. Three volar plating options are available: volar column, extra-articular, and juxta-articular plates.

1. Position patient

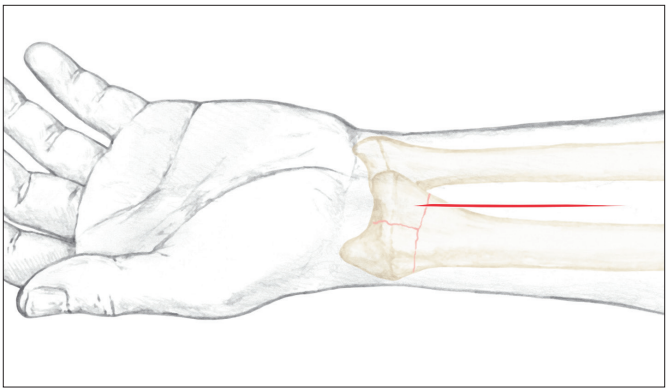
Place the patient in the supine position with the hand and arm on a hand table, preferably radiolucent for fluoroscopic imaging. The elbow should be fully extended and in full supination.[2]

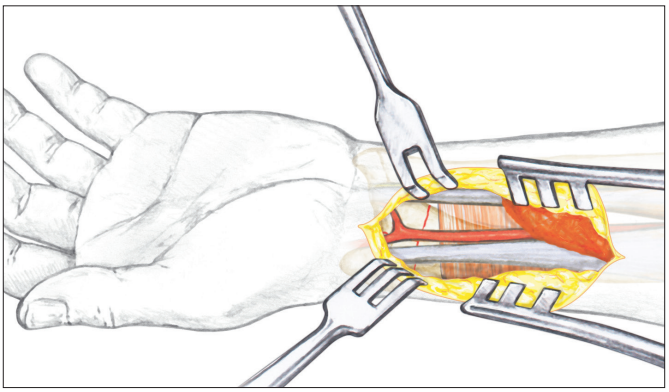
2 T. P. Reudi, R.E. Buckley, and C.G. Moran, AO Principles of Fracture Management, second expanded edition. Davos Platz: AO Publishing. 2007.

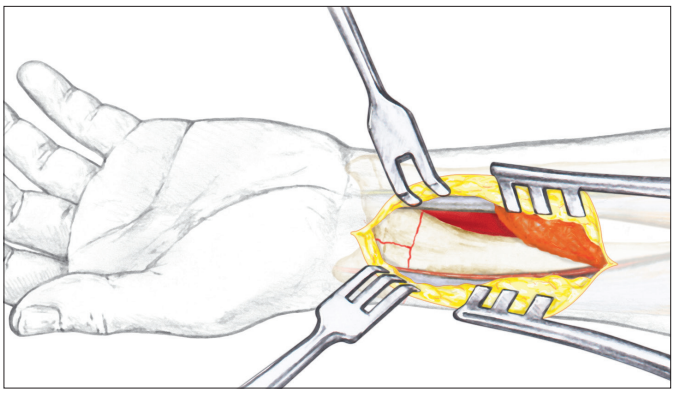
2. Approach

Make a longitudinal incision slightly radial to the flexor carpi radialis tendon (FCR). Dissect between the FCR and the radial artery, exposing the pronator quadratus. Detach the pronator quadratus from the lateral border of the radius and elevate it toward the ulna so the radius is exposed and the fracture is visualized.

Precaution: Leave the volar wrist capsule intact to avoid devascularization of the fracture fragments and destabilization of the volar wrist ligaments.







3. Reduce fracture and position plate

Instruments

310.19	2.0 mm Drill Bit, quick coupling
310.509	1.8 mm Drill Bit with depth mark, quick coupling
311.43	Handle, with quick coupling, small
314.467	StarDrive Screwdriver Shaft, T8
319.006	Depth Gauge, for 2.0 mm and 2.4 mm cortex screws
319.01	Depth Gauge, for 2.7 mm and 3.5 mm cortex, and 4.0 mm cancellous bone screws
323.202	2.4 mm Universal Drill Guide
323.26	2.7 mm Universal Drill Guide

Reduce the fracture using the preferred reduction technique. The reduction method will be fracture specific.

Apply the plate to fit the volar surface of the distal radius and insert a 2.4 mm or 2.7 mm cortex screw into the long hole in the shaft, following the method described in the General Technique section. Adjust the plate position as necessary, and tighten the screw.

4. Insert distal screws

Instruments	
03.110.006	Direct Measuring Device, for 1.8 mm Kirschner Wire
03.110.020	Measuring Device for 1.8 mm Drill Bit and Short Drill Guide
310.509	1.8 mm Drill Bit with depth mark, quick coupling
311.43	Handle, with quick coupling, small
314.467	StarDrive Screwdriver Shaft, T8
319.006	Depth Gauge, for 2.0 mm and 2.4 mm cortex screws
323.029	Threaded LCP Drill Guide, 1.8 mm
323.035	1.8 mm Threaded Grill Guide, short

The order of screw insertion in the shaft and metaphysis may vary depending on fracture pattern and reduction technique.

Select the preferred drill guide and insert it into a 2.4 mm locking hole in the head of the plate. Drill to the desired depth with a 1.8 mm drill bit or 1.8 mm K-wire. Measure correct screw length using the preferred method as described in the General Technique section. Insert a 2.4 mm locking screw or 1.8 mm LCP Buttress Pin.

Verify plate and distal screw location with a drill bit or K-wires before inserting multiple screws.

Precaution: When finished with the fixation, promptly remove all unused short LCP drill sleeves from the plate to ensure that they are not implanted in the patient. The holding sleeve for T8 Stardrive Screwdriver shaft can be used for short LCP drill sleeve removal.

Alternative technique when using volar column plate (8- or 9-hole head)

Instruments	
03.110.011	Attachment Screw for Guide Block, T8
03.110.016– 03.110.019	Guide Blocks for Volar Column Plate, 8- or 9-hole head, right or left
03.110.021	1.8 mm Drill Guide, with Measuring for Guide Block

Select the appropriate guide block and secure it to the plate using the attachment screw. Insert the 1.8 mm drill guide with measuring into one of the distal plate holes. Ensure that the guide is firmly seated in the hole. Drill with the 1.8 mm drill bit (or 1.8 mm K-wire) and measure screw length directly from the gauge on the instrument, then insert a 2.4 mm locking screw using a T8 StarDrive Screwdriver. Repeat this procedure for the remaining distal holes that will be filled.

Notes:

- **The notched distal edge of the guide block and a K-wire inserted at the joint level, may facilitate plate placement.**
- **The 1.8 mm short threaded drill guide may also be used with the guide block for volar column plate, if desired.**

4. Insert distal screws (continued)

Alternative technique when using volar column plate (6- or 7-hole plate)

Instruments	
03.110.021	1.8 mm Drill Guide with measuring
03.110.026– 03.110.029	Guide Blocks for Volar Column Plates, 6- or 7-hole head, right or left

Select the appropriate guide block for the 6- or 7-hole head volar column plate and secure it to the plate manually using the positioning screw (Figure 1). If desired, insert a 1.25 mm K-wire(s) as needed to fix the plate to the bone. Insert the drill guide with measuring for guide block into one of the distal plate holes. Ensure that the guide is firmly seated in the hole. Drill with the 1.8 mm drill bit (or 1.8 mm K-wire) and measure screw length directly from the gauge on the instrument (Figure 2), then insert a 2.4 mm locking screw using a T8 StarDrive Screwdriver (Figure 3). Repeat this procedure for the remaining distal holes that will be filled (Figure 4).

Remove guide block when distal screw insertion is complete.

Precaution: Care should be taken to avoid overbending because the drill guides may become dislodged from the plate hole and damage the plate's threads.

Figure 1

Figure 2

Figure 3

Figure 4

5. Insert remaining proximal screws

Instruments	
310.19	2.0 mm Drill Bit, quick coupling
310.509	1.8 mm Drill Bit with depth mark, quick coupling
311.43	Handle, with quick coupling, small
314.467	StarDrive Screwdriver Shaft, T8
319.006	Depth Gauge, for 2.0 mm and 2.4 mm cortex screws
319.01	Depth Gauge, for 2.7 mm and 3.5 mm cortex, and 4.0 mm cancellous bone screws
323.029	Threaded LCP Drill Guide, 1.8 mm
323.035	1.8 mm Threaded Drill Guide, short
323.202	2.4 mm Universal Drill Guide
323.26	2.7 mm Universal Drill Guide

Determine where 2.4 mm locking or 2.4 mm or 2.7 mm cortex screws will be used in the shaft of the volar plate. Following the steps described in the General Technique section, insert these screws, beginning with the most proximal screw.

6. Confirm proper joint reconstruction

Confirm proper joint reconstruction, screw placement, and screw length, using multiple C-arm views. To ensure that the most distal screws are not in the joint, use additional views such as 10° tilted AP, 20° inclined lateral, and 45° pronated oblique.

Straight AP

10° tilted AP

Lateral

20° radial tilt

7. Close incision

Use the appropriate method for surgical closure of the incision.

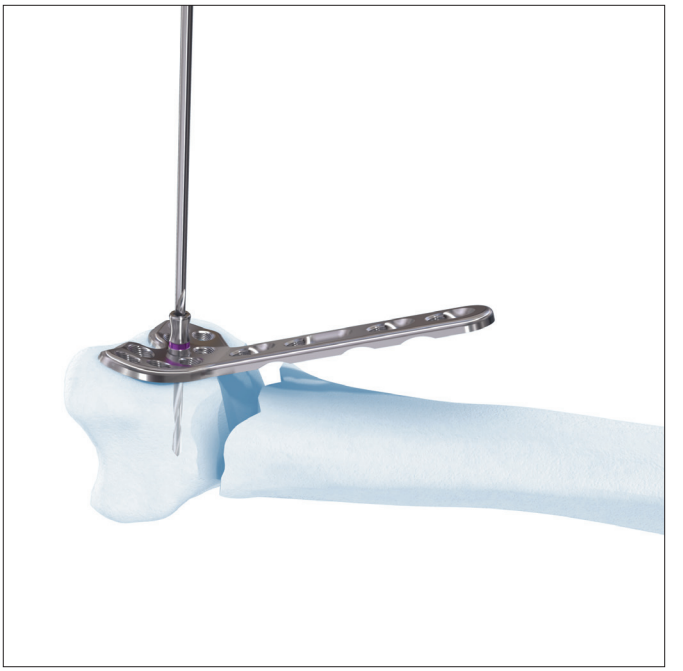
Volar Plating for Dorsally Displaced (Colles') Fractures

These fractures may be fixed with either extra-articular, juxta-articular, or volar column plates.

1. Position plate

Instruments	
02.110.300/ 04.110.300	1.8 mm K-wire (with depth mark), stainless steel or titanium
310.509	1.8 mm Drill Bit with depth mark, quick coupling
323.035	1.8 mm Threaded Drill Guide, short

Apply the appropriate volar plate distally. Insert a threaded drill guide in one of the central plate holes and drill to the desired depth with the 1.8 mm drill bit with depth mark or 1.8 mm K-wire with depth mark.

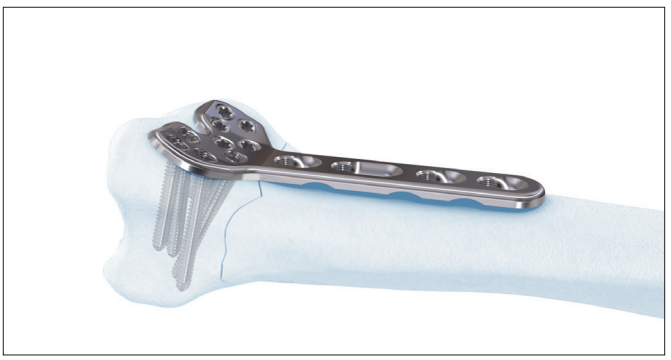


2. Insert locking screws distally

Insert 2.4 mm locking screws as needed in the distal end of the plate.

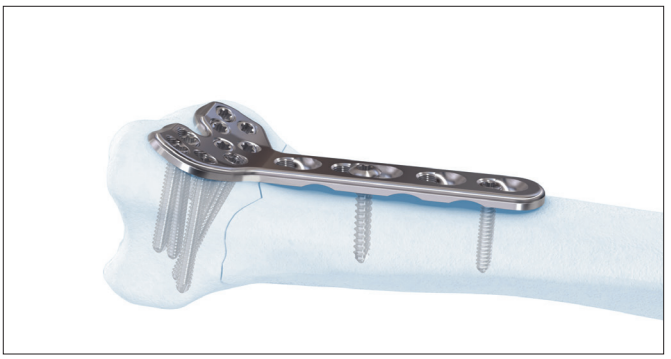
3. Reduce fracture

Reduce the fracture by positioning the plate onto the shaft.



4. Insert proximal screws

Insert 2.4 mm locking or 2.4 mm or 2.7 mm cortex screws as needed in the plate shaft.



5. Close incision

Use the appropriate method for surgical closure of the incision.

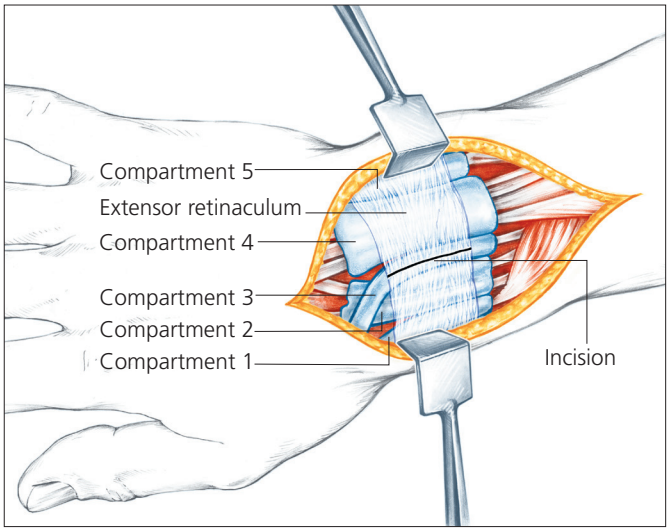
1. Position patient

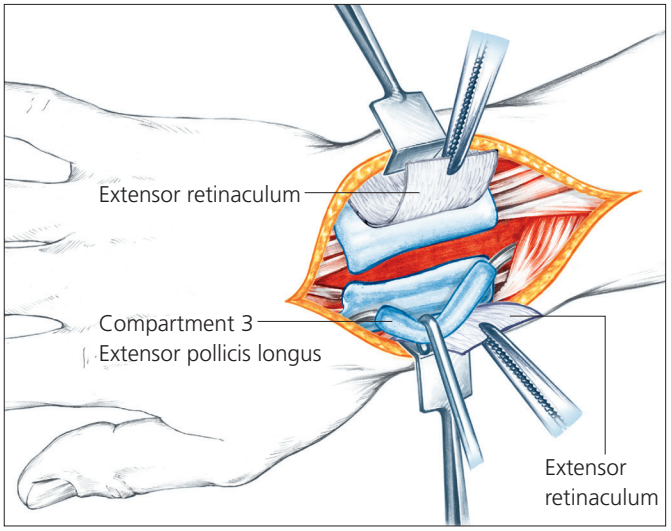
Place the patient in the supine position with the hand and arm on a hand table, preferably radiolucent for fluoroscopic imaging. The elbow should be fully extended with the hand pronated.

2. Approach

Make a straight incision 5 cm to 9 cm in length, approximately 2 cm proximally from the base of the second metacarpal over Lister's tubercle to the border of the muscle belly of the first extensor compartment.

Open the extensor retinaculum using a longitudinal incision over the third compartment. Dissect the extensor pollicis longus (EPL) tendon and place it in a vessel loop for manipulation.

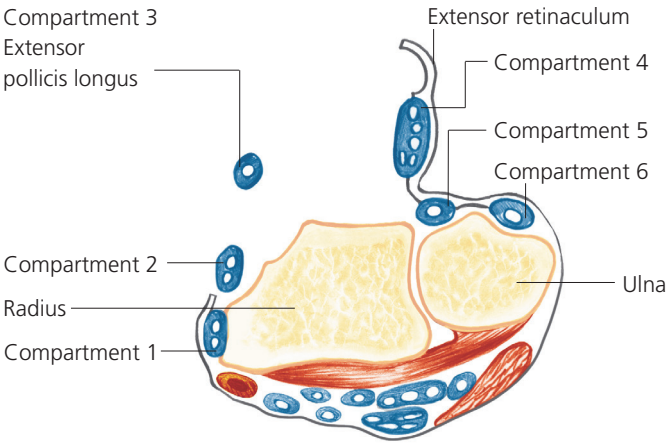




2. Approach continued

Elevate the second and fourth dorsal compartments subperiosteally to preserve the integrity of these compartments so there will be no direct contact between the tendons and implants.

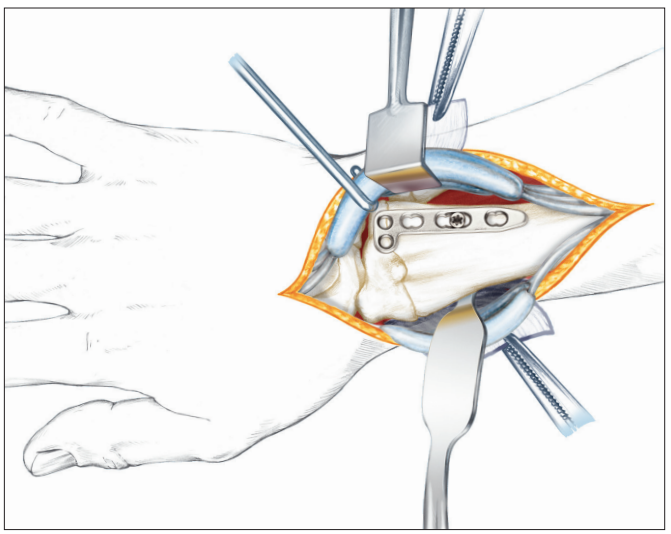
On the ulnar side, continue to dissect toward the radial border of the DRUJ, preserving the ligament and joint capsule. On the radial side, dissect toward the brachioradialis tendon, to place the dorsoradial plate correctly to support the radial styloid.



Cross-sectional view

3. Reduce fracture

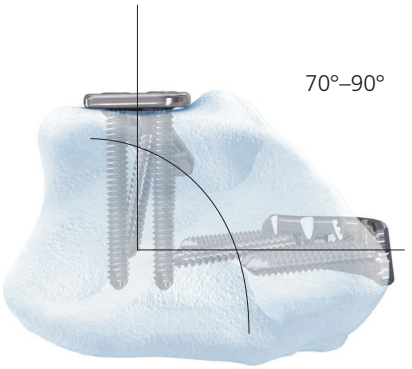
Instruments	
310.509	1.8 mm Drill Bit with depth mark, quick coupling
311.43	Handle, with quick coupling, small
314.467	StarDrive Screwdriver Shaft, T8
323.202	2.4 mm Universal Drill Guide

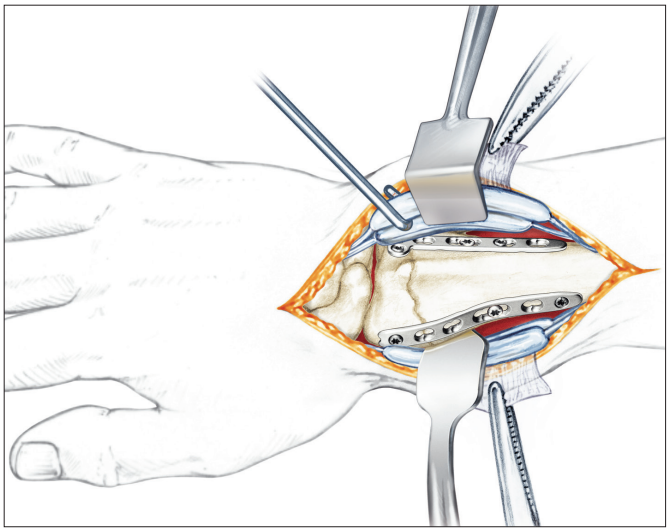


Begin fixation on the intermediate column with the dorsoulnar plate, adapting it carefully to the surface of the bone. This plate supports the intermediate column and fixes the dorsoulnar fragment. Fix the plate preliminarily with a 2.4 mm cortex screw in the shaft fragment close to the fracture (buttress position).

4. Position dorsoradial plate

For the radial column, position the dorsoradial plate beneath the first compartment to support the radial styloid. Fix it to the bone with a 2.4 mm cortex screw in the shaft, close to the fracture. It should form an angle of approximately 70° to 90° to the dorsoulnar plate. Confirm correct reduction and position of the plates with fluoroscopy.





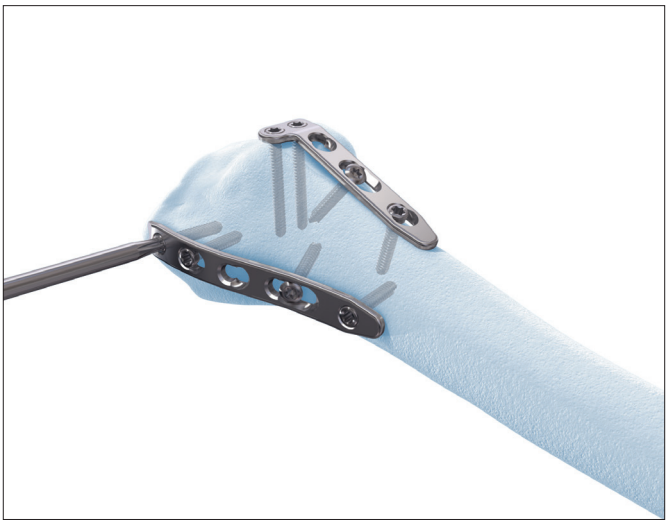
4. Position dorsoradial plate (continued)

Alternative technique
The dorsoradial plate may be placed using a separate incision between the first and second extensor compartments. Use caution with the alternative approach to protect branches of the superficial radial nerve in the skin flap.

The dorsoulnar plate may be placed through a separate incision into the fifth extensor compartment. The extensor retinaculum over the distal part of the third compartment may be preserved, so that the tendon is guided along its course toward the thumb.

5. Complete fixation

Using two screws in the distal fragment and two screws in the proximal fragment will usually provide sufficient stability.



6. Confirm proper joint reconstruction

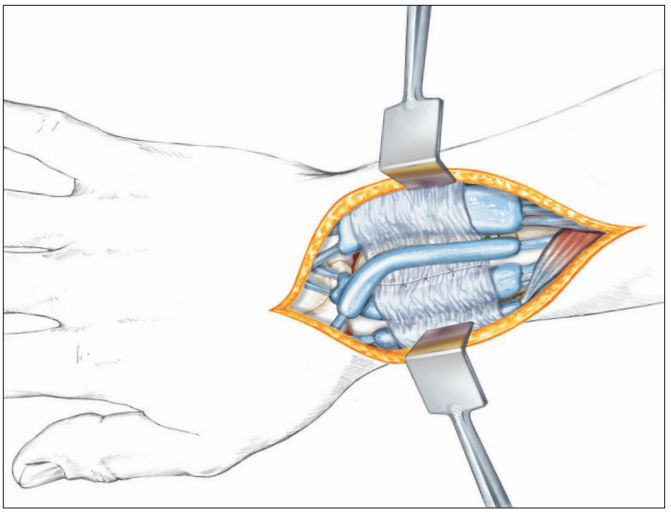
Confirm proper joint reconstruction, screw placement, and screw length using multiple C-arm views.

Precaution: Do not cut the plates distally. The sharp cut end may lead to lesions of the extensor tendons.

Note: For additional information on technique alternatives, see Rikli DA, Regazzoni P. The double plating technique for distal radius fractures. *Tech Hand Up Extrem Surg*. 2000;4(2):107-114.

7. Create flap

Create a flap with the extensor retinaculum by pulling it underneath the EPL and suturing it. The extensor retinaculum lies between the EPL and the dorsoulnar plate to avoid direct contact with the structures.



8. Close incision

Use the appropriate method for surgical closure of the incision.

Alternative technique for plating the radial styloid

Access to the radial styloid could be obtained by a volar approach. Follow the volar approach as previously described, and detach the brachioradialis at its insertion point to allow full mobilization of the styloid fragment. To fix the radial styloid fragment, an LCP Straight Plate is placed under the first extensor compartment. It is often necessary to open the first compartment and retract the EPL and EPB tendons to visualize the lateral surface of the radius. Apply the LCP Straight Plate to the lateral radius using the technique described above.

Postoperative Treatment and Implant Removal

Postoperative treatment

Postoperative treatment with locking compression plates does not differ from conventional internal fixation procedures.

Implant removal

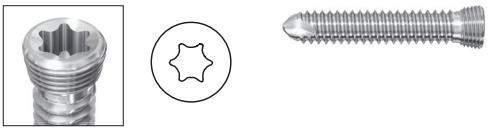
Instruments	
311.43	Handle with quick coupling, small
314.467	StarDrive Screwdriver Shaft, T8, 105 mm

To remove locking screws, unlock all screws from the plate and then remove the screws completely from the bone. This prevents rotation of the plate when removing the last locking screw. The holding sleeve for the StarDrive Screwdriver shaft T8 may be used to hold the head of screws or buttress pins during implant removal.

Screws Used With the 2.4 mm LCP Distal Radius Plates

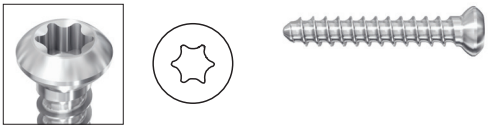
2.4 mm Locking Screws, self-tapping, with StarDrive Recess

- Threaded, conical head locks securely into the threaded holes in the plate to provide angular stability
- Locked screws allow unicortical screw fixation and load transfer to the near cortex
- StarDrive Recess mates with self-retaining screwdriver
- 6 mm to 30 mm lengths (2 mm increments)



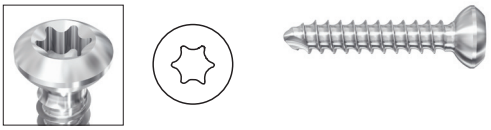
2.4 mm Cortex Screws, self-tapping, with StarDrive Recess

- For use in round or Combi holes
- Low-profile head in the plate holes
- Used to provide compression or neutral fixation
- 6 mm to 30 mm lengths (2 mm increments)



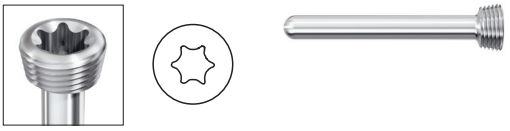
2.7 mm Cortex Screws, self-tapping, with StarDrive Recess

- For use in Combi holes in the shaft of 2.4 mm LCP Volar Distal Radius Plates
- Used to provide compression or neutral fixation
- 10 mm to 30 mm lengths (2 mm increments)



1.8 mm LCP Buttress Pins, with StarDrive Recess

- Smooth, nonthreaded shaft profile with a blunt, rounded tip
- Threaded, conical head locks in threaded holes in the plate, to provide angular stability
- Locked pins allow unicortical screw fixation and load transfer to the near cortex
- 1.8 mm diameter matches the core diameter of a 2.4 mm locking screw
- StarDrive Recess mates with self-retaining screwdriver
- 12 mm to 30 mm lengths (2 mm increments)



Screws and buttress pins are available in implant quality 316L stainless steel and titanium alloy, Ti-6Al-7Nb.

Note: For information on fixation principles using conventional and locked plating techniques, please refer to the *Small Fragment Locking Compression Plate (LCP) System Technique Guide*.

Implants

2.4 mm LCP Volar Column Distal Radius Plates

Stainless steel*	Titanium†	Length (mm)	Description
02.110.330	04.110.330	50.5	9 hole head, 3 hole shaft, right
02.110.331	04.110.331	50.5	9 hole head, 3 hole shaft, left
02.110.340	04.110.340	59.5	9 hole head, 4 hole shaft, right
02.110.341	04.110.341	59.5	9 hole head, 4 hole shaft, left
02.110.350	04.110.350	68.5	9 hole head, 5 hole shaft, right
02.110.351	04.110.351	68.5	9 hole head, 5 hole shaft, left
02.110.430	04.110.430	50.5	8 hole head, 3 hole shaft, right
02.110.431	04.110.431	50.5	8 hole head, 3 hole shaft, left
02.110.440	04.110.440	59.5	8 hole head, 4 hole shaft, right
02.110.441	04.110.441	59.5	8 hole head, 4 hole shaft, left
02.110.450	04.110.450	68.5	8 hole head, 5 hole shaft, right
02.110.451	04.110.451	68.5	8 hole head, 5 hole shaft, left

*Implant-quality 316L stainless steel.
†Commercially pure (CP) titanium.

2.4 mm LCP Volar Column Distal Radius Plates

Stainless steel*	Titanium†	Length (mm)	Description
02.110.730	04.110.730	45	6 hole head, 3 hole shaft, right
02.110.731	04.110.731	45	6 hole head, 3 hole shaft, left
02.110.740	04.110.740	54	6 hole head, 4 hole shaft, right
02.110.741	04.110.741	54	6 hole head, 4 hole shaft, left
02.110.750	04.110.750	63	6 hole head, 5 hole shaft, right
02.110.751	04.110.751	63	6 hole head, 5 hole shaft, left
02.110.830	04.110.830	45	7 hole head, 3 hole shaft, right
02.110.831	04.110.831	45	7 hole head, 3 hole shaft, left
02.110.840	04.110.840	54	7 hole head, 4 hole shaft, right
02.110.841	04.110.841	54	7 hole head, 4 hole shaft, left
02.110.850	04.110.850	63	7 hole head, 5 hole shaft, right
02.110.851	04.110.851	63	7 hole head, 5 hole shaft, left

*Implant-quality 316L stainless steel.
†Commercially pure (CP) titanium.

LCP Volar Distal Radius Plates, extra-articular

Stainless steel*	Titanium‡	Length (mm)	Description
242.458	442.458TM	48	5 hole head, 3 hole shaft, right
242.459	442.459TM	66	5 hole head, 5 hole shaft, right
242.461	442.461TM	48	5 hole head, 3 hole shaft, left
242.462	442.462TM	66	5 hole head, 5 hole shaft, left
242.464	442.464TM	47	4 hole head, 3 hole shaft, right
242.465	442.465TM	65	4 hole head, 5 hole shaft, right
242.467	442.467TM	47	4 hole head, 3 hole shaft, left
242.468	442.468TM	65	4 hole head, 5 hole shaft, left

LCP Distal Radius Plates, volar

Stainless steel*	Titanium†	Length (mm)	Description
242.491	442.491	43	5 holes head, 3 holes shaft, left
242.492	442.492	61	5 holes head, 5 holes shaft, left
242.493	442.493	43	5 holes head, 3 holes shaft, right
242.494	442.494	61	5 holes head, 5 holes shaft, right

*Implant-quality 316L stainless steel.
†Commercially pure (CP) titanium.
‡Titanium alloy (Ti-15Mo).

2.4 mm LCP Distal Radius T-Plates, 3 holes head

Stainless steel*	Titanium†	Length (mm)	
242.477	442.477	40	3 holes shaft
242.478	442.478	49	4 holes shaft

2.4 mm LCP Distal Radius Plates, straight

Stainless steel*	Titanium†	Length (mm)	
242.479	442.479	48	5 holes
242.490	442.490	57	6 holes

*Implant-quality 316L stainless steel.
†Commercially pure (CP) titanium.

2.4 mm LCP Distal Radius L-Plates, 2 holes head

Stainless steel*	Titanium†	Length (mm)	
242.500	442.500	40	-90, 3 hole shaft
242.501	442.501	49	-90, 4 hole shaft
242.502	442.502	40	+90, 3 hole shaft
242.503	442.503	49	+90, 4 hole shaft

2.4 mm LCP Distal Radius L-Plates, 3 holes head

Stainless steel*	Titanium†	Length (mm)	
242.504	442.504	40	+90, 3 hole shaft
242.505	442.505	49	+90, 4 hole shaft
242.506	442.506	40	-90, 3 hole shaft
242.507	442.507	49	-90, 4 hole shaft
242.508	442.508	43	+20, 3 hole shaft
242.509	442.509	52	+20, 4 hole shaft
242.511	442.511	43	-20, 3 hole shaft
242.512	442.512	52	-20, 4 hole shaft

*Implant-quality 316L stainless steel.
†Commercially pure (CP) titanium.

Instruments

02.110.300/ 04.110.300	1.8 mm Kirschner Wire (with depth mark), stainless steel or titanium	
03.110.006	Direct Measuring Device, for 1.8 mm Kirschner Wire	
03.110.007	StarDrive Screwdriver, T8	
03.110.011	Attachment Screw for Guide Block, T8	
 03.110.016 03.110.017	Guide Blocks for Volar Column Plate, 8 hole head Right Left	
 03.110.018 03.110.019	Guide Blocks for Volar Column Plate, 9 hole head Right Left	
03.110.020	Measuring Device for use with 1.8 mm Short Threaded Drill Guide	
03.110.021	1.8 mm Drill Guide with Measuring for Volar Column Plate Guide Block	

03.110.022	StarDrive Screwdriver Shaft, T8, with hexagonal coupling, for ratcheting handle	
	Guide Blocks for Volar Column Distal Radius Plate, 6 hole head	
03.110.026	Right	
03.110.027	Left	
	Guide Blocks for Volar Column Distal Radius Plate, 7 hole head	
03.110.028	Right	
03.110.029	Left	
310.19	2.0 mm Drill Bit, quick coupling, 100 mm	
310.26	2.7 mm Drill Bit, quick coupling, 100 mm	
310.509	1.8 mm Drill Bit with depth mark, quick coupling, 110 mm	
310.530	2.4 mm Drill Bit, quick coupling, 100 mm	

311.023.97	Ratcheting Screwdriver Handle	
311.43	Handle, with quick coupling	
314.467	StarDrive Screwdriver Shaft, T8, 105 mm	
314.468	Holding Sleeve, for StarDrive Screwdriver Shaft, T8	
319.006	Depth Gauge, for 2.0 mm and 2.4 mm cortex screws	
319.01	Depth Gauge, for 2.7 mm and 3.5 mm cortex, and 4.0 mm cancellous bone screws	
319.39	Sharp Hook	

323.029	Threaded LCP Drill Guide, 1.8 mm	
323.035	1.8 mm Threaded Drill Guide, short	
323.202	2.4 mm Universal Drill Guide	
323.26	2.7 mm Universal Drill Guide	
324.084	1.25 mm K-Wire Insert	
329.12	Bending Pliers, 140 mm, for 1.5 mm and 2.0 mm plates	
329.922	Bending Pin, for 2.4 mm locking plates	

398.41	Reduction Forceps with Points, broad, ratchet, 132 mm	
398.95	Termite Forceps, 90 mm length	
399.18	Hohmann Retractor, 6 mm width, small, short narrow tip, 160 mm length	
399.48	Periosteal Elevator, 3 mm width, curved blade, straight edge	
399.481	Periosteal Elevator, 3 mm width, curved blade, round edge	
399.97	Reduction Forceps, with points, 130 mm length, ratchet	

2.4 mm LCP Distal Radius System
Stainless Steel (01.110.045) and Titanium (01.110.046)

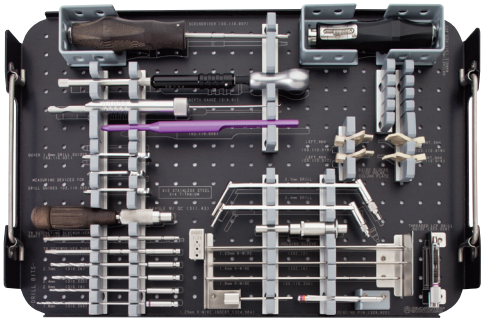
Graphic Cases

60.110.037	Graphic Case for 2.4 mm LCP Distal Radius System
60.110.039	2.4 mm LCP Volar Column Distal Radius Plate Module
60.110.041	Implant Module for LCP Dorsal Distal Radius Plates
60.110.042	Implant Module for LCP Extra-Articular and Juxta-Articular Volar Distal Radius Plates

Note: Brackets are included in the 60.110.037 graphic case to hold up to 4 LCP Dia-Meta Distal Radius Plates and 2 bending irons for 2.7 mm and 3.5 mm plates (329.04 and 329.05).

Instruments

03.110.006	Direct Measuring Device, for 1.8 mm Kirschner Wire
03.110.007	StarDrive Screwdriver, T8
03.110.011	Attachment Screw for Guide Block, T8, 4 ea.
	Guide Blocks for Volar Column Plate
03.110.016	8 hole head, right
03.110.017	8 hole head, left
03.110.018	9 hole head, right
03.110.019	9 hole head, left
03.110.026	6 hole head, right
03.110.027	6 hole head, left
03.110.028	7 hole head, right
03.110.029	7 hole head, left
03.110.020	Measuring Device, for 1.8 mm Drill Bit and Short Drill Guide, 2 ea.
03.110.021	1.8 mm Drill Guide, with Measuring for Guide Block, 2 ea.
03.110.022	StarDrive Screwdriver Shaft, T8, for ratcheting handle, 2 ea.
310.19	2.0 mm Drill Bit, quick coupling, 100 mm, 2 ea.
310.26	2.7 mm Drill Bit, quick coupling, 100 mm, 2 ea.
310.509	1.8 mm Drill Bit, with depth mark, quick coupling, 110 mm, 2 ea.
310.530	2.4 mm Drill Bit, quick coupling, 100 mm, 2 ea.
311.023.97	Ratcheting Screwdriver Handle
311.43	Handle with quick coupling



Note: For additional information, please refer to the package insert or www.e-ifu.com.

For detailed cleaning and sterilization instructions, please refer to www.depuysynthes.com/hcp/cleaning-sterilization or sterilization instructions, if provided in the instructions for use.

Instruments (continued)

314.467	StarDrive Screwdriver Shaft, T8, 105 mm, 2 ea.
314.468	Holding sleeve, for StarDrive Screwdriver Shaft, T8
319.006	Depth Gauge, for 2.0 mm and 2.4 mm screws
319.01	Depth Gauge, for 2.7 mm and small screws
319.39	Sharp Hook
323.029	Threaded LCP Drill Guide, 1.8 mm, 2 ea.
323.035	1.8 mm Threaded Drill Guide, short, 4 pkgs. of 5
323.202	2.4 mm Universal Drill Guide
323.26	2.7 mm Universal Drill Guide
324.084	1.25 mm K-Wire Insert
329.12	Bending Pliers, 140 mm, for 1.5 mm and 2.0 mm plates, 2 ea.
329.922	Bending Pin, for 2.4 mm Locking Plates, 2 ea.
398.95	Termite Forceps, 90 mm
398.41	Reduction Forceps with Points, broad, ratchet
399.18	Hohmann Retractor, 6 mm width, small, short narrow tip, 160 mm length, 2 ea.
399.48	Periosteal Elevator, 3 mm, curved blade, straight edge
399.481	Periosteal Elevator, 3 mm, curved blade, round edge
399.97	Reduction Forceps with points, 130 mm length, ratchet

Implants

1.8 mm LCP Buttress Pins, with T8 StarDrive Recess

Stainless steel	Titanium*	Length (mm)	Quantity
200.190	400.190	12	3
200.191	400.191	14	3
200.192	400.192	16	6
200.193	400.193	18	6
200.194	400.194	20	6
200.195	400.195	22	6
200.196	400.196	24	6
200.197	400.197	26	6
200.198	400.198	28	3
200.199	400.199	30	3

Material:
316 L stainless steel
*Titanium alloy (Ti-6Al-7Nb)

2.4 mm Locking Screws, self-tapping, with T8 StarDrive Recess

Stainless steel	Titanium*	Length (mm)	Quantity
212.806	412.806	6	4
212.808	412.808	8	4
212.810	412.810	10	4
212.812	412.812	12	12
212.814	412.814	14	12
212.816	412.816	16	12
212.818	412.818	18	12
212.820	412.820	20	12
212.822	412.822	22	12
212.824	412.824	24	12
212.826	412.826	26	4
212.828	412.828	28	4
212.830	412.830	30	4

2.4 mm Cortex Screws, self-tapping, with T8 StarDrive Recess, 3 ea.

Stainless steel	Titanium*	Length (mm)
201.756	401.756	6
201.758	401.758	8
201.760	401.760	10
201.762	401.762	12
201.764	401.764	14
201.766	401.766	16
201.768	401.768	18
201.770	401.770	20
201.772	401.772	22
201.774	401.774	24
201.776	401.776	26
201.778	401.778	28
201.780	401.780	30

Implants (continued)

2.7 mm Cortex Screws, self-tapping, with T8 StarDrive Recess, 3 ea.

Stainless steel	Titanium*	Length (mm)
202.870	402.870	10
202.872	402.872	12
202.874	402.874	14
202.876	402.876	16
202.878	402.878	18
202.880	402.880	20
202.882	402.882	22
202.884	402.884	24
202.886	402.886	26
202.888	402.888	28
202.890	402.890	30

2.4 mm LCP Volar Column Distal Radius Plates

Stainless steel	Length (mm)	Description
02.110.330	50.5	9 hole head, 3 hole shaft, right
02.110.331	50.5	9 hole head, 3 hole shaft, left
02.110.340	59.5	9 hole head, 4 hole shaft, right
02.110.341	59.5	9 hole head, 4 hole shaft, left
02.110.350	68.5	9 hole head, 5 hole shaft, right
02.110.351	68.5	9 hole head, 5 hole shaft, left
02.110.430	50.5	8 hole head, 3 hole shaft, right
02.110.431	50.5	8 hole head, 3 hole shaft, left
02.110.440	59.5	8 hole head, 4 hole shaft, right
02.110.441	59.5	8 hole head, 4 hole shaft, left
02.110.450	68.5	8 hole head, 5 hole shaft, right
02.110.451	68.5	8 hole head, 5 hole shaft, left

2.4 mm LCP Volar Column Distal Radius Plates

Stainless steel	Length (mm)	Description
02.110.730	50.5	6 hole head, 3 hole shaft, right
02.110.731	50.5	6 hole head, 3 hole shaft, left
02.110.740	59.5	6 hole head, 4 hole shaft, right
02.110.741	59.5	6 hole head, 4 hole shaft, left
02.110.750	68.5	6 hole head, 5 hole shaft, right
02.110.751	68.5	6 hole head, 5 hole shaft, left
02.110.830	50.5	7 hole head, 3 hole shaft, right
02.110.831	50.5	7 hole head, 3 hole shaft, left
02.110.840	59.5	7 hole head, 4 hole shaft, right
02.110.841	59.5	7 hole head, 4 hole shaft, left
02.110.850	68.5	7 hole head, 5 hole shaft, right
02.110.851	68.5	7 hole head, 5 hole shaft, left

LCP Volar Distal Radius Plates, extra-articular

Stainless steel	Titanium††	Length (mm)	Description
242.458	442.458TM	47	5 hole head, 3 hole shaft, right
242.459	442.459TM	65	5 hole head, 5 hole shaft, right
242.461	442.461TM	47	5 hole head, 3 hole shaft, left
242.462	442.462TM	65	5 hole head, 5 hole shaft, left
242.464	442.464TM	47	4 hole head, 3 hole shaft, right
242.465	442.465TM	65	4 hole head, 5 hole shaft, right
242.467	442.467TM	47	4 hole head, 3 hole shaft, left
242.468	442.468TM	65	4 hole head, 5 hole shaft, left

LCP Distal Radius Plates, volar

Stainless steel	Titanium†	Length (mm)	Description
242.491	442.491	43	5 holes head, 3 holes shaft, left
242.492	442.492	61	5 holes head, 5 holes shaft, left
242.493	442.493	43	5 holes head, 3 holes shaft, right
242.494	442.494	61	5 holes head, 5 holes shaft, right

2.4 mm LCP Distal Radius T-Plates, 3 holes head

Stainless steel	Titanium†	Length (mm)	
242.477	442.477	40	3 holes shaft
242.478	442.478	49	4 holes shaft

2.4 mm LCP Distal Radius Plates, straight

Stainless steel	Titanium†	Length (mm)	
242.479	442.479	48	5 holes
242.490	442.490	57	6 holes

2.4 mm LCP Distal Radius L-Plates, 2 holes head

Stainless steel	Titanium†	Length (mm)	
242.500	442.500	40	-90, 3 hole shaft
242.501	442.501	49	-90, 4 hole shaft
242.502	442.502	40	+90, 3 hole shaft
242.503	442.503	49	+90, 4 hole shaft

2.4 mm LCP Distal Radius L-Plates, 3 holes head

Stainless steel	Titanium†	Length (mm)	
242.504	442.504	40	+90, 3 hole shaft
242.505	442.505	49	+90, 4 hole shaft
242.506	442.506	40	-90, 3 hole shaft
242.507	442.507	49	-90, 4 hole shaft
242.508	442.508	43	+20, 3 hole shaft
242.509	442.509	52	+20, 4 hole shaft
242.511	442.511	43	-20, 3 hole shaft
242.512	442.512	52	-20, 4 hole shaft

Kirschner Wires, 150 mm, trocar point, 10/pkg., 1 pkg. each,

Stainless steel	Titanium*	
292.12	492.12	1.25 mm
292.16	492.16	1.6 mm
02.110.300	04.110.300	1.8 mm

Material:
316 L stainless steel
†CP titanium
††Titanium alloy (Ti-15Mo)

Also Available

Additional implant modules and screw racks may be ordered separately.

60.110.038	Screw Rack for 2.4 mm LCP Distal Radius System Graphic Case
60.110.039	2.4 mm LCP Volar Column Distal Radius Plate Module
60.110.040	Small Module for LCP Radial Head Instruments and Implants
60.110.041	Implant Module for LCP Dorsal Distal Radius Plates
60.110.042	Implant Module for LCP Extra-articular and Juxta-articular Volar Distal Radius Plates
60.110.049	Implant Module for 6 and 7 hole head 2.4 mm LCP Volar Column Distal Radius Plates
03.110.007	Positioning Screw for Distal Radius Guide Blocks (for 6- and 7-hole head plates)

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