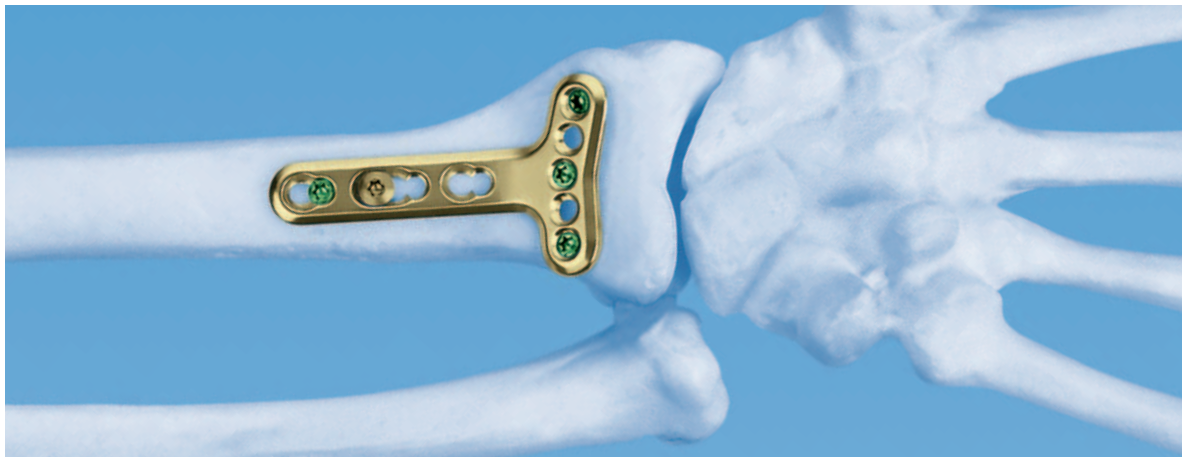
LCP Distal Radius System 2.4. Dorsal and volar plates for fractures and osteotomies of the distal radius.

Surgical technique



SYNTHES®

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

Contents

Image intensifier control

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

LCP Distal Radius System 2.4.

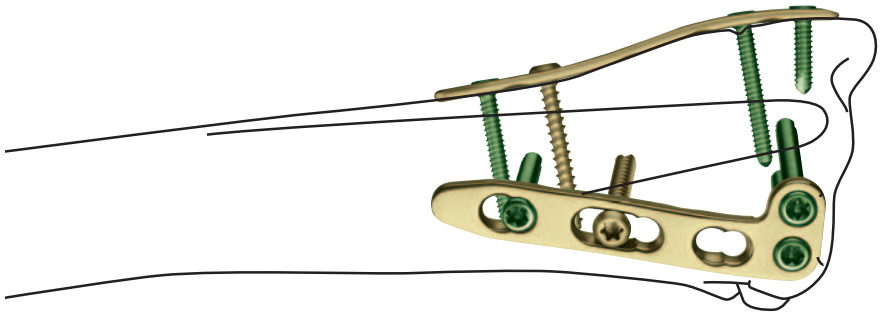
Dorsal and volar plates for fractures and osteotomies of the distal radius.

Anatomically precontoured

– Minimal irritation of ligaments and soft tissue from a flat plate and screw profile, rounded edges and polished surfaces.
– Some plates are precontoured and do not have to be bent.

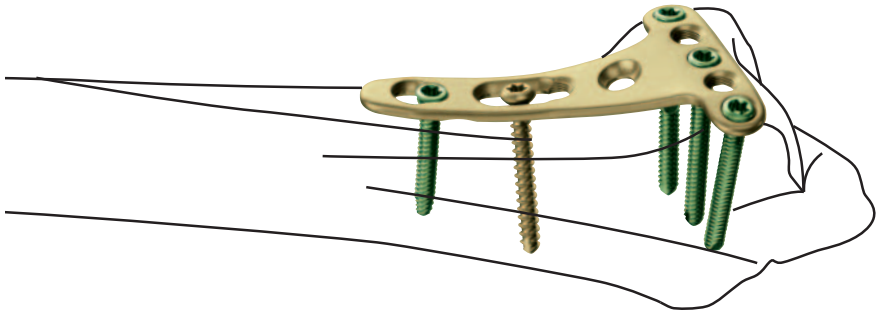
Dorsal plates

Small plate and screw dimensions enable a two-plate technique. Both locking and cortex screws can be inserted in the shaft.

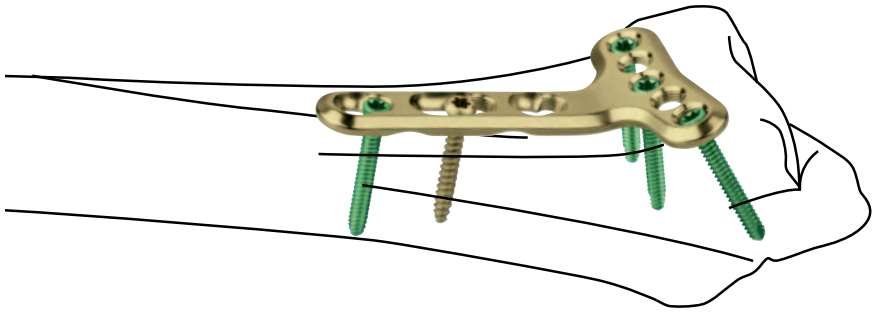


Volar plates

Depending on the indication, plates are selected with juxtaarticular or extraarticular placement. Both locking and cortex screws ∅ 2.4 mm or 2.7 mm can be inserted in the shaft.



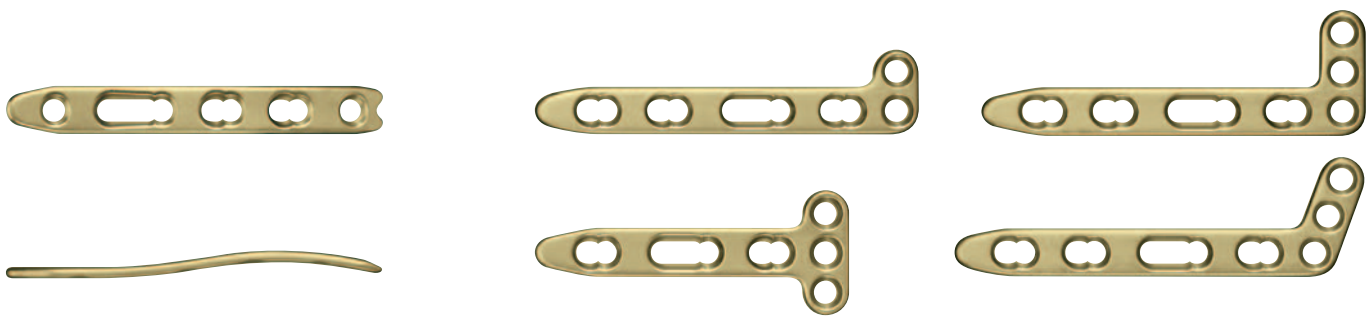
Juxtaarticular plates

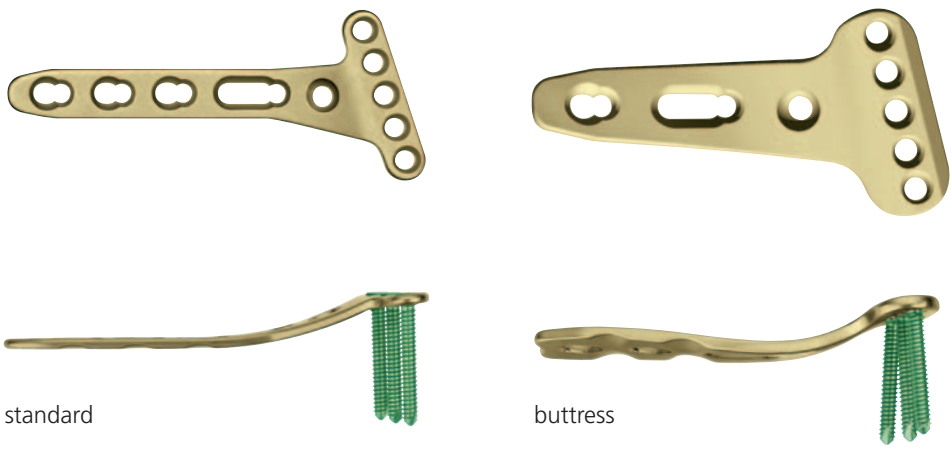


Extraarticular plates

Versatile plate system

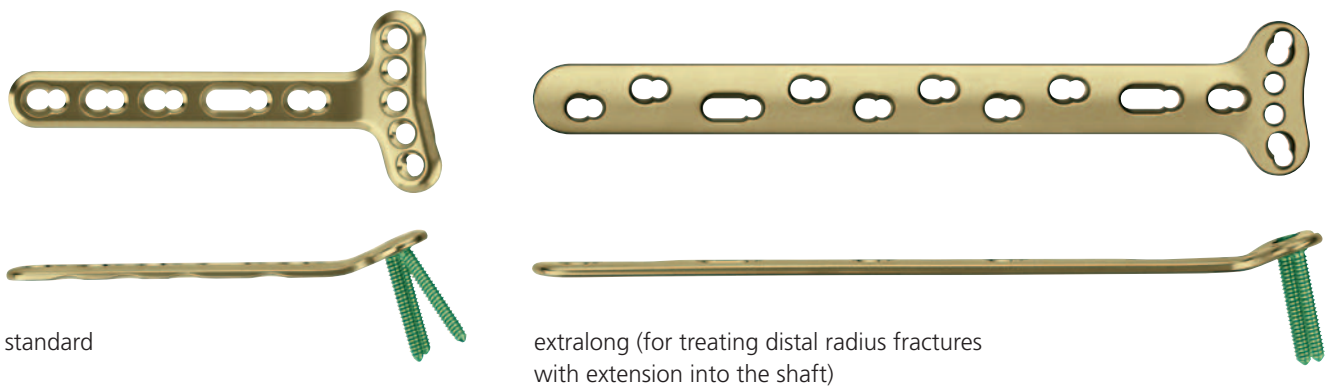
– A wide selection of dorsal and volar plates ensures the best solution for a given fracture patten.
– Since the plates come in different lengths and shapes, they do not have to be cut to size.
– Compatible with the LCP Compact Hand™ System 2.4





standard

buttress



standard

extralong (for treating distal radius fractures with extension into the shaft)

AO ASIF Principles of Internal Fixation

In 1958, the AO/ASIF (Association for the Study of Internal Fixation) formulated four basic principles[1], which have become the guidelines for internal fixation.

Fracture Reduction and Restoration of the Anatomical Relationships

The locking distal radius system is designed to treat today's variety of distal radius fracture patterns and enables the surgeon to select the appropriate volar or dorsal approach for each fracture and patient. Anatomic reduction is achieved according to fracture pattern and approach, either directly or indirectly, and can be stabilized with temporary K-wires while the plate is applied. Elongated holes in the proximal shaft of the plates are used to bring the plate to the bone with cortical screws and allow the adjustment of the plates position. A modest contouring of the plates according to the bone's anatomy is facilitated through threaded bending irons.

Stable Fixation

The versatility of the system enables the surgeon to stably reduce and hold even complex fractures.
Complex fractures which require a dorsal approach may be treated according to the three-column theory by a two-plate technique.
For the volar side, one may choose from a variety of plates for dedicated purposes, e.g., for buttressing, support of the articular surface, reduction of dorsally displaced fragments, and fixation of distal radius fractures which extend into the shaft.

Preservation of Blood Supply

The plates' low profile cross-sectional design together with undercuts, rounded edges and tapered tips reduce the potential for soft tissue irritation and ensure an optimal blood irrigation of the periost, especially when used with locking screws.

Early Mobilization

The features of the plates combined with the AO surgical technique create an environment for bone healing, expediting an early return to optimal function.

1. M.E. Müller, M. Allgöwer, R. Schneider, and R. Willenegger (1991) AO Manual of Internal Fixation, 3 Edition. Berlin: Springer.

Indications

Displaced extra-articular and intra-articular distal radius fractures and corrective osteotomies of the distal radius.

Dorsal approach
- Dorsally displaced fractures
- Extra-articular fractures with metaphyseal defect (AO classification 23-A3)
- Open joint reconstruction (AO classification 23-C1, C2, C3)
- Combination of distal radius with carpal and metacarpal fractures
- Corrective osteotomies

Palmar approach
- Reversed Barton
- Palmarly displaced extra-articular fractures (Goyrand-Smith)
- Dorsally displaced extra-articular (Colles) and articular fractures
- Extra-articular fractures with extension into the shaft (extra-long plates)

Case Studies

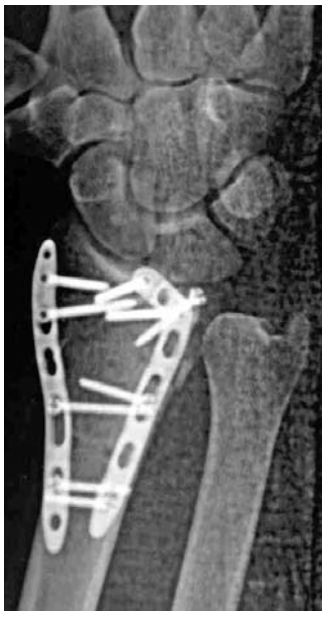
Dorsally displaced intra-articular fracture

30 year-old construction worker fell from a step-ladder. Dorsally displaced intra-articular fracture 23-C2. Initial treatment with external fixator.

Preoperative lateral view

Preoperative AP view

Preoperative



Postoperative

Postoperative

3 month postoperative

Volar approach – juxta-articular plates

34 year-old lady, white collar; fell on outstretched hand. Reversed Barton fracture 23-B3. Palmar revision and internal fixation with a buttress plate.

Preoperative AP view

Preoperative lateral view

3 month postoperative

3 month postoperative

Volar approach – juxta-articular plates

38 year-old construction worker fell from scaffold. Dorsally displaced extra-articular Colles fracture.

Preoperative AP view

Preoperative lateral view

Postoperative

Postoperative

3 month postoperative

Volar approach – extra-articular plates

Comminuted, dorsally-displaced fracture of the distal radius; fixation with a four-hole-head extra-articular plate.

Preoperative lateral view

Preoperative AP view

Postoperative

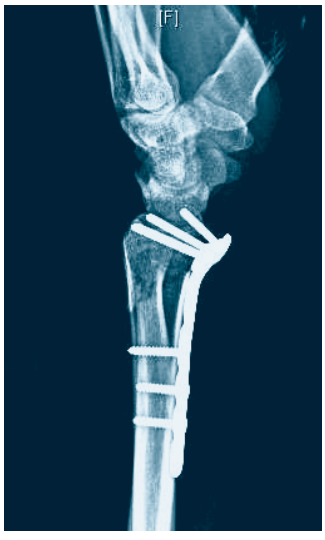
Postoperative

Volar approach – extra-articular plates

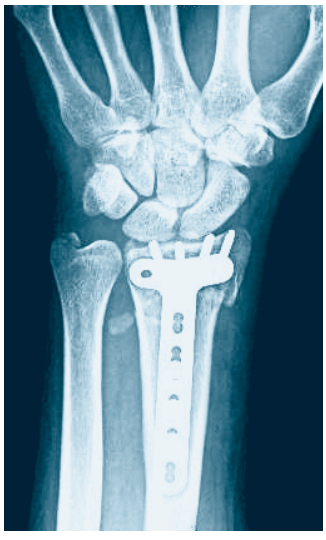
Comminuted, dorsally-displaced fracture of the distal radius; fixation with a five-hole-head extra-articular plate.

Preoperative AP view

Preoperative lateral view



Postoperative



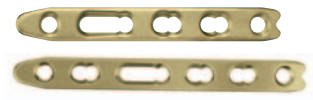
Postoperative

Implants

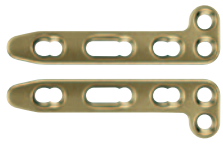
Dorsal Plates

5 types of dorsal plates, available in right and left (where applicable) and in standard and long design

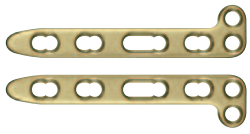
X42.479	LCP Distal Radius Plate 2.4, straight, 5 holes
X42.490	LCP Distal Radius Plate 2.4, straight, 6 holes



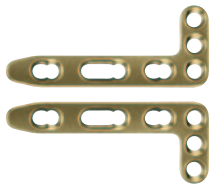
X42.500	LCP L Distal Radius Plate 2.4, left angled, shaft 3 holes, head 2 holes
X42.502	LCP L Distal Radius Plate 2.4, right angled, shaft 3 holes, head 2 holes



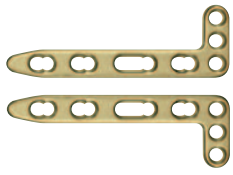
X42.501	LCP L Distal Radius Plate 2.4, left angled, shaft 4 holes, head 2 holes
X42.503	LCP L Distal Radius Plate 2.4, right angled, shaft 4 holes, head 2 holes



X42.506	LCP L Distal Radius Plate 2.4, left angled, shaft 3 holes, head 3 holes
X42.504	LCP L Distal Radius Plate 2.4, right angled, shaft 3 holes, head 3 holes

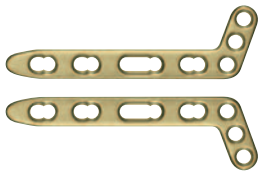


X42.507	LCP L Distal Radius Plate 2.4, left angled, shaft 4 holes, head 3 holes
X42.505	LCP L Distal Radius Plate 2.4, right angled, shaft 4 holes, head 3 holes

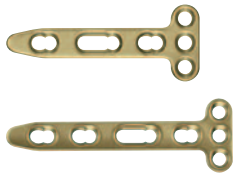


X42.511	LCP L Distal Radius Plate 2.4, oblique, left angled, shaft 3 holes, head 3 holes
X42.508	LCP L Distal Radius Plate 2.4, oblique, right angled, shaft 3 holes, head 3 holes

X42.512	LCP L Distal Radius Plate 2.4, oblique, left angled, shaft 4 holes, head 3 holes
X42.509	LCP L Distal Radius Plate 2.4, oblique, right angled, shaft 4 holes, head 3 holes



X42.477	LCP T Distal Radius Plate 2.4, shaft 3 holes, head 3 holes
X42.478	LCP T Distal Radius Plate 2.4, shaft 4 holes, head 3 holes



Volar Plates

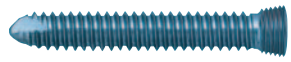
Plates for juxta-articular placement, available in right and left; design standard, long, and buttress

X42.491	LCP Distal Radius Plate 2.4, left, shaft 3 holes, head 5 holes
X42.493	LCP Distal Radius Plate 2.4, right, shaft 3 holes, head 5 holes
X42.492	LCP Distal Radius Plate 2.4, left, shaft 5 holes, head 5 holes
X42.494	LCP Distal Radius Plate 2.4, right, shaft 5 holes, head 5 holes
X42.497	Optional: LCP Buttress Plate 2.4, left, shaft 3 holes, head 5 holes
X42.495	Optional: LCP Buttress Plate 2.4, right, shaft 3 holes, head 5 holes
X42.461	LCP Distal Radius Plate 2.4, extraarticular, left, shaft 3 holes, head 5 holes
X42.458	LCP Distal Radius Plate 2.4, extraarticular, right, shaft 3 holes, head 5 holes
X42.462	LCP Distal Radius Plate 2.4, extraarticular, left, shaft 5 holes, head 5 holes
X42.459	LCP Distal Radius Plate 2.4, extraarticular, right, shaft 5 holes, head 5 holes
X42.467	LCP Distal Radius Plate 2.4, extraarticular, left, shaft 3 holes, head 4 holes
X42.464	LCP Distal Radius Plate 2.4, extraarticular, right, shaft 5 holes, head 4 holes
X42.468	LCP Distal Radius Plate 2.4, extraarticular, left, shaft 5 holes, head 4 holes
X42.465	LCP Distal Radius Plate 2.4, extraarticular, right, shaft 5 holes, head 4 holes
X41.145	LCP Distal Radius Plate 2.4, extra-long, shaft 8 holes, head 4 holes
X41.146	LCP Distal Radius Plate 2.4, extra-long, shaft 10 holes, head 4 holes
X41.147	LCP Distal Radius Plate 2.4, extra-long, shaft 12 holes, head 4 holes

Locking screws

X12.806–830 Locking Screw ∅ 2.4 mm, self-tapping

X02.206–230 Locking Screw ∅ 2.7 mm (head 2.4), self-tapping



Standard screws

X01.756–780 Cortex Screw ∅ 2.4 mm, self-tapping

X02.870–890 Cortex Screw ∅ 2.7 mm, self-tapping

All screws with Stardrive, T8 recess. Available in stainless steel (SSt) or titanium alloy (TAN).

Instruments

311.420	Handle with Quick Coupling	
314.467	Screwdriver Shaft Stardrive, 2.4, self-holding, for Quick Coupling	
314.468	Holding Sleeve for Screws Stardrive 2.4, for Screwdriver Shaft 314.467	
323.029	LCP Drill Sleeve 2.4, with scale up to 30 mm, for Drill Bit 1.8 mm	
323.033	LCP Drill Sleeve for locking screws 2.7 (head 2.4), with scale up to 30 mm, for Drill Bit 2.0 mm	
310.509	Drill Bit ∅ 1.8 mm with marking, length 110/85 mm, 2-fluted, for Quick Coupling	
310.534	Drill Bit ∅ 2.0 mm with marking, length 110/85 mm, 2-fluted, for Quick Coupling	
511.776	Torque Limiter 0.8 Nm, with Quick Coupling	

1

Plate selection and contouring

Instruments Needed	
Bending Pliers	347.901

The plates are available in various lengths and configurations, which allow fragment-specific treatment of distal radius fractures. Decide on the desired volar or dorsal approach and select the plates according to the fracture pattern and anatomy of the radius.

Only some plates are anatomically pre-contoured (all palmar plates and the straight plates for the radial column). Contour the plates to the anatomy with the Bending Pliers.

Note: The plate holes have been designed to accept some degree of deformation. The undercuts help ensure that the threaded holes will not be distorted with typical contouring. Significant distortion of the threaded holes will reduce locking effectiveness.

2

Screw insertion

Determine whether standard cortex screws or locking screws will be used for fixation in the shaft. Locking screws in the distal arm (head of the plate) may be an advantage to support the articular surface and prevent loss of reduction.

Recommendation: Use locking head screws in the distal arm of the plates, and locking head and/or cortex screws in the shaft of the plates. If a combination of cortex screws and locking head screws is used, a cortex screw should be used first to pull the plate to the bone.

Warning: If a locking head screw is used first, care should be taken to ensure that the plate is held securely to the bone, to avoid spinning of the plate.

Important: 2.7mm cortex screws can **only** be used in the combination hole of the volar plates.

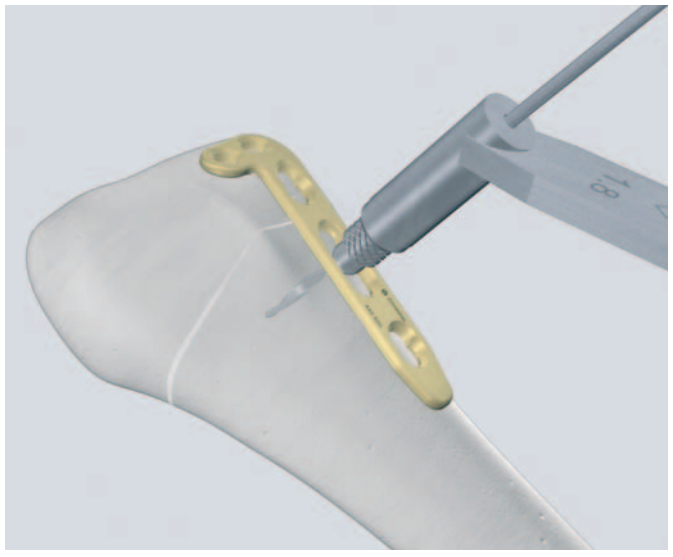
1

Pre-drill screw hole

The insertion of standard screws is described using the example of a dorsal plate (X42.500).

Instruments Needed

Handle, with AO coupling	311.420
Screwdriver Shaft, with AO coupling	314.467
Universal Drill Guide 1.8/2.4	323.202
Universal Drill Guide 2.0/2.7	323.260
Depth Gauge, for screws ∅ 2.4	319.005
Depth Gauge, for screws ∅ 2.7	319.010
Drill Bit ∅ 1.8 mm	310.509
Drill Bit ∅ 2.0 mm	310.534
Drill Bit ∅ 2.4 mm	310.530
Drill Bit ∅ 2.7 mm	310.260



According to the selected screw diameter use the appropriate Universal Drill Guide 1.8/2.4 or 2.0/2.7 to pre-drill the screw hole either neutrally (buttress) or off-centre (compression).

For the cortex screw ∅ 2.4 mm, 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.

Note: The universal drill guides are suitable for the combination hole. For cortical screws ∅ 2.4 mm use the Universal Drill Guide 1.8/2.4 and for screws ∅ 2.7 mm use the Universal Drill Guide 2.0/2.7.

2

Determine screw length

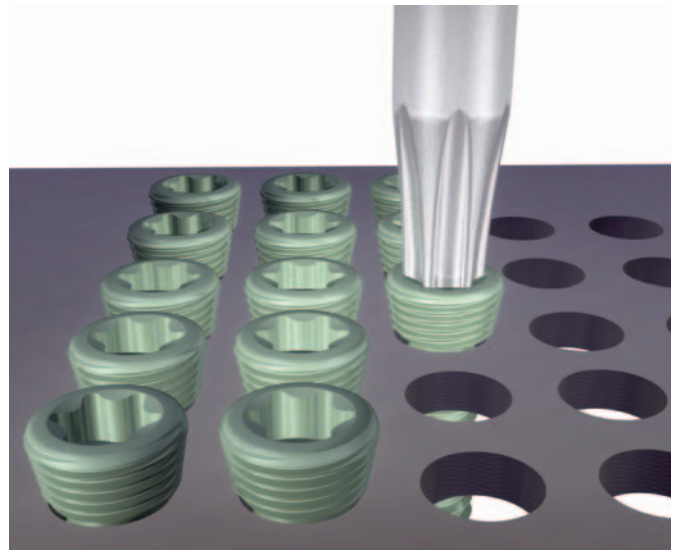
Use the Depth Gauge for screws ∅ 2.4 to determine the screw length.

Note: For standard screws ∅ 2.7 mm use the Depth Gauge 319.010.

3

Pick up screw

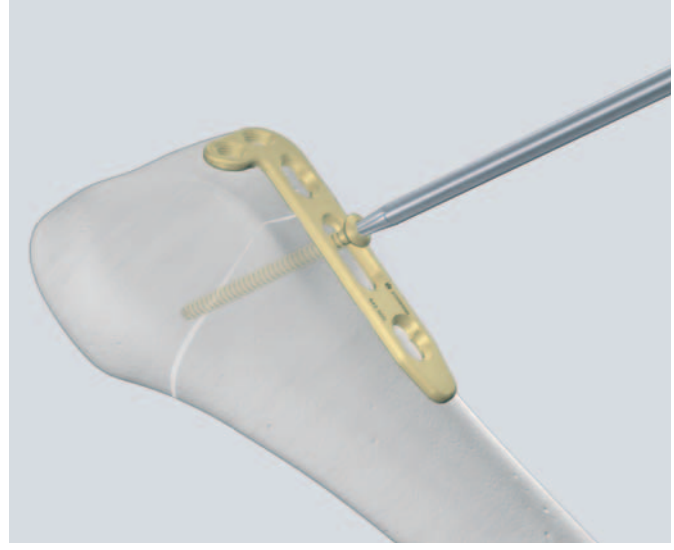
Select and pick up the appropriate cortical screw using the selfholding Stardrive Screwdriver shaft and the corresponding handle.



4

Insert self-tapping standard screw

Insert the self-tapping standard screw with the self-holding Stardrive Screwdriver.



Insertion of Locking Screws

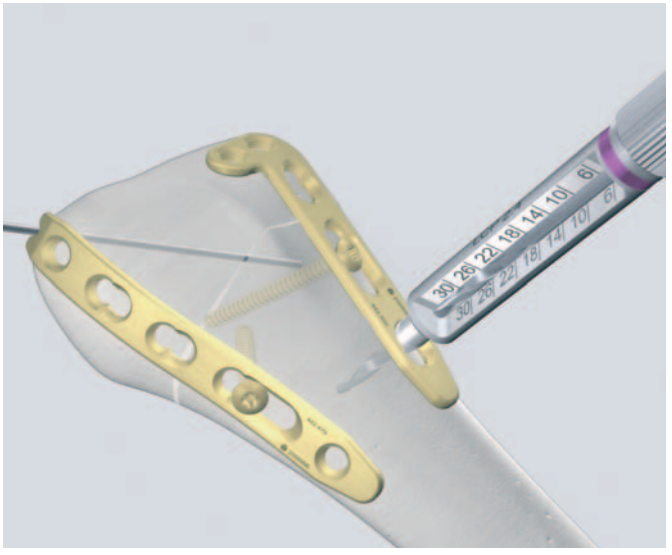
1

Insert LCP drill sleeve

The insertion of locking screws is described using the example of a dorsal plate (X42.500).

Instruments Needed

Handle, with AO coupling	311.420
Screwdriver Shaft, with AO coupling	314.467
Holding Sleeve, for 314.467	314.468
Drill Sleeve, for LCP screws 2.4	323.029
Drill Sleeve, for LCP screws 2.7	323.033
Depth Gauge, for screws ∅ 2.4	319.005
Depth Gauge, for screws ∅ 2.7	319.010
Drill Bit ∅ 1.8 mm	310.509
Drill Bit ∅ 2.0 mm	310.534
Torque Limiter 0.8 Nm	511.776



Screw the Drill Sleeve for LCP screws ∅ 2.4 mm vertically into a threaded hole until fully seated.

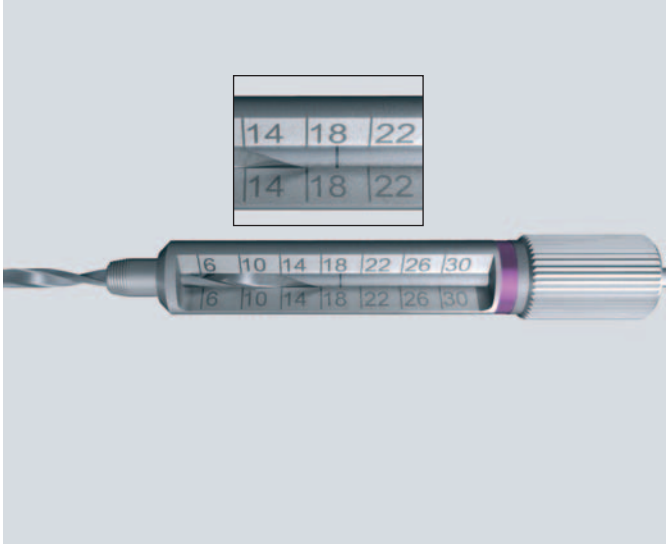
Note: For locking screws ∅ 2.7 mm (head 2.4) use the LCP Drill Sleeve for LCP screws ∅ 2.7 mm.

2

Predrill screw hole

With the Drill Sleeve for LCP screws 2.4 drill to the desired depth with the Drill Bit ∅ 1.8 mm and read the screw length directly from the scale of the drill sleeve.

Note: For locking screws ∅ 2.7 mm (head 2.4) drill with the Drill Bit ∅ 2.0 mm and use the Drill Sleeve for LCP screws 2.7.

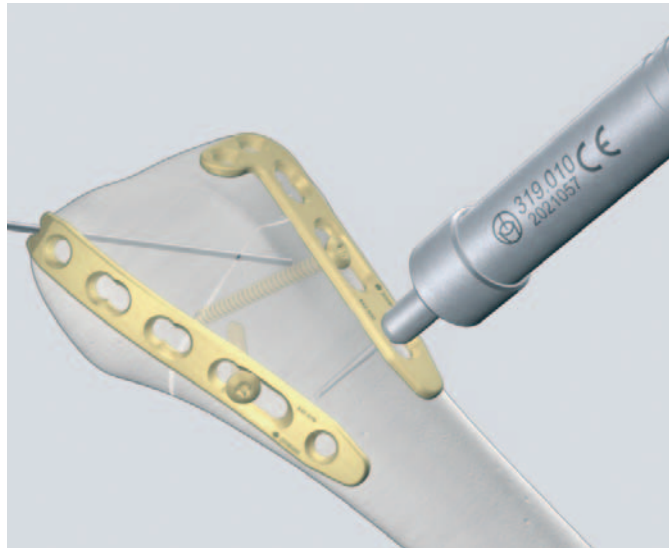


3

Determine screw length (optional)

Use the Depth Gauge for screws ∅ 2.4 to determine the screw length.

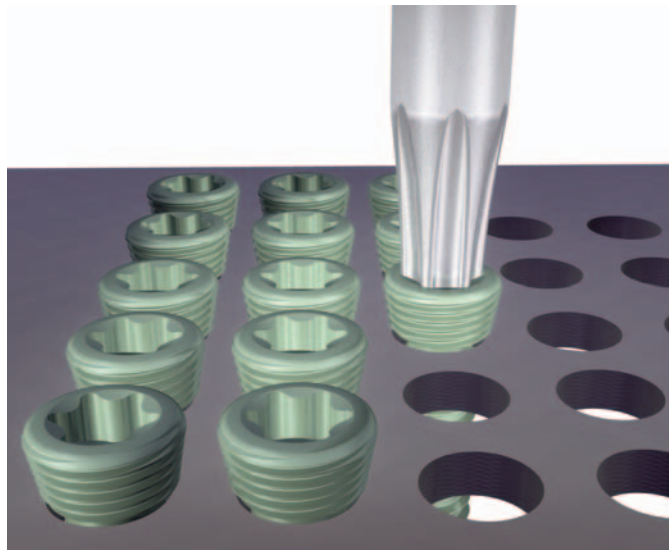
Note: For locking screws ∅ 2.7mm (head 2.4) use the Depth Gauge (319.010).



4

Pick up screw

Select and pick up the appropriate screw using the self-holding Stardrive Screwdriver Shaft and the corresponding handle.

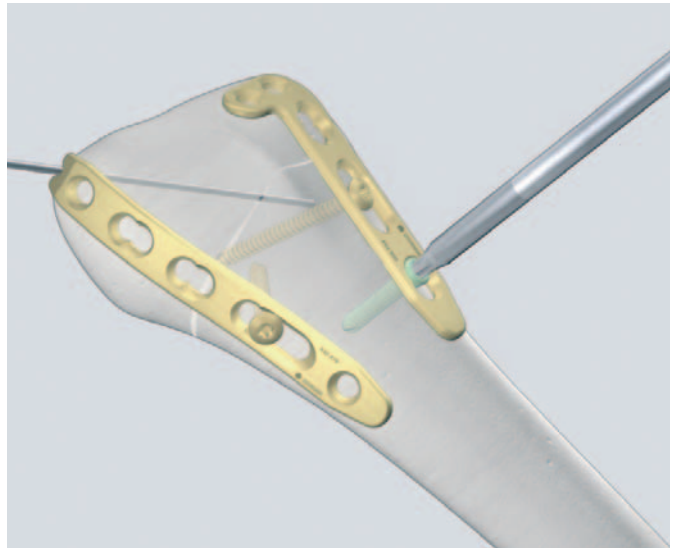


5a

Insert self-tapping locking screw

Insert the locking screw manually with the self-retaining Stardrive® Screwdriver. Carefully tighten the locking screw, as excessive force is not necessary to produce effective screw locking. Alternatively, to apply the correct amount of torque use the Torque Limiter 0.8 Nm for locking the screw.

Note: If the plate is supposed to be pulled to the bone, the locking head screw may be inserted with a holding sleeve (see 5b below).



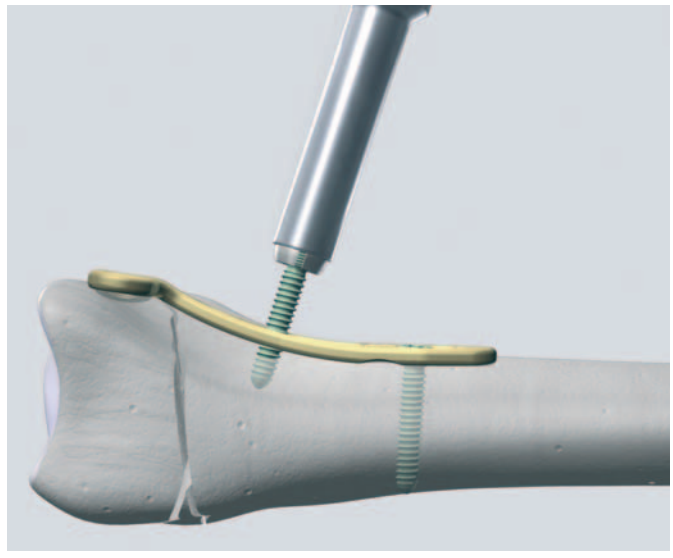
5b

Fine tuning of reduction with holding sleeve

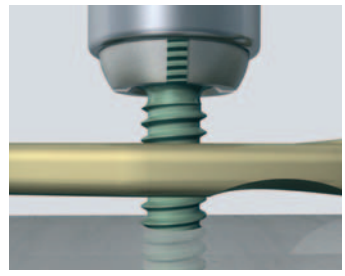
Locking screws are inserted with the aid of a holding sleeve whenever it is desirable to pull the plate to the bone.

Slide the Holding Sleeve onto the self-retaining Stardrive® Screwdriver, until it clicks into place.
With the holding sleeve jaws open, mount the appropriate locking screw ∅ 2.4 mm onto the screwdriver, then push the holding sleeve until it secures the screw.

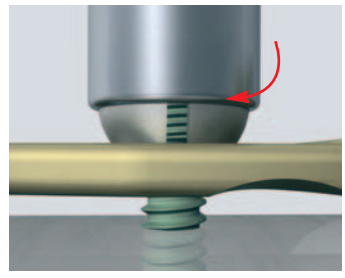
Note: The holding sleeve covers the head of the locking screw ∅ 2.4 mm.

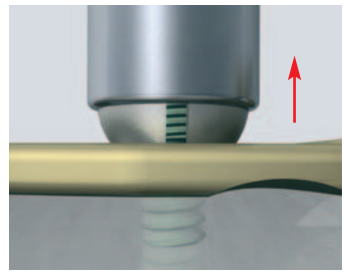


Insert locking screw.

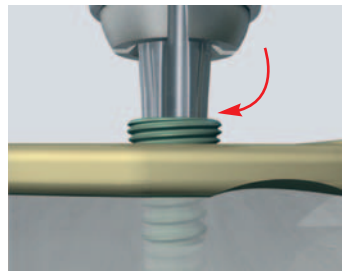


Tighten screw until the plate approaches the bone.





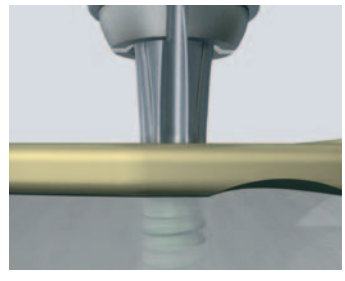
When the plate has reached the desired position, open the holding sleeve jaws and tighten the locking screw ∅ 2.4mm until it is locked.



Note: This technique is suitable for pulling the bone towards the plate in order to achieve interfragmentary compression with cortex screws in a following step.
Cortex screws can also be used to draw the bone to the plate, if no locking screws are inserted.

Implant removal

To remove locking screws, first unlock all screws from the plate; then remove the screws completely from the bone. This prevents rotation of the plate when removing the last locking screw.



Fragment fixation based on the three-column theory

Instruments Needed

Bending Pliers	347.901

Extra-articular fractures require avoidance of malunion with angulation and shortening. Malalignment results in limitations of movement, changes of load distribution, mid-carpal instability and increased risk of osteoarthritis in the radiocarpal joint. Intra-articular fractures with articular displacement over 2 mm in the radiocarpal joint inevitably result in osteoarthritis and functional impairment.

The treatment of distal radius fractures should provide meticulous reconstruction of the joint surface, stable internal fixation and early functional postoperative treatment.

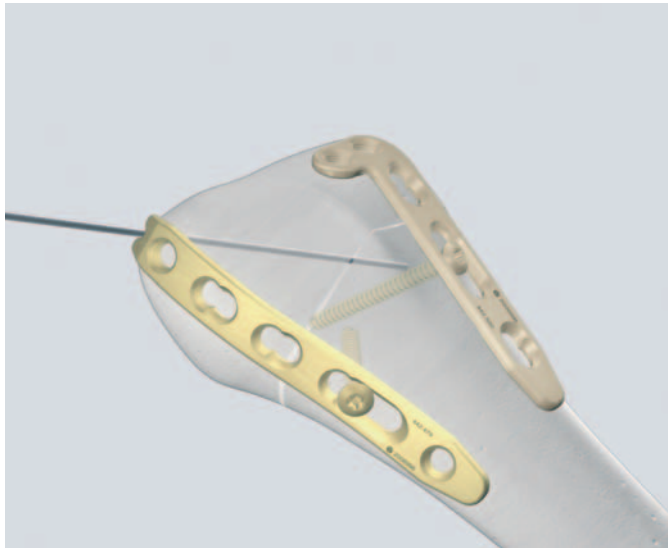
The distal radius and distal ulna form a three-column biomechanical construction:
The ulnar column is the distal ulna, the triangular fibrocartilage and the distal radio-ulnar joint.

The intermediate column is the medial part of the distal radius, with the lunate fossa and the sigmoid notch.

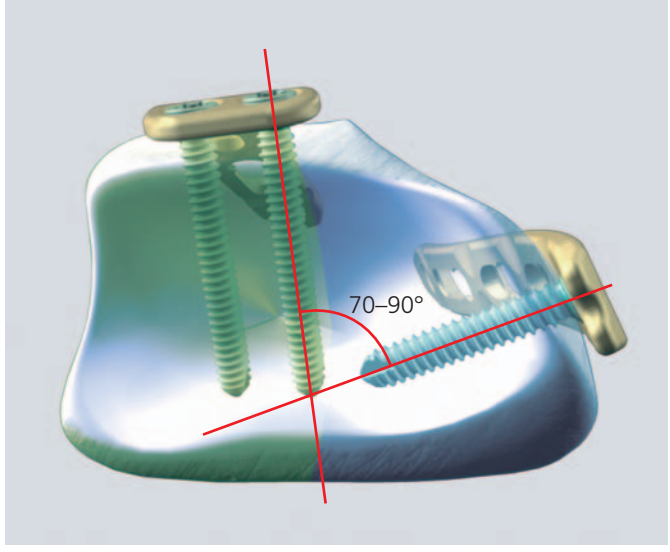
The radial column is the lateral radius with the scaphoid fossa and the styloid process.

A dorsally displaced fracture of the distal radius shows not only dorsiflection in the sagittal plane, but also radial deviation in the frontal plane and supination in the transverse plane.
Stabilization after reduction requires buttressing of the intermediate column as well as the radial column.

In case of a fractured distal ulna, the ulnar column should be stabilized as well.



Columns of the Distal Radius. The dorso-radial plate buttresses the radial column, the dorso-ulnar plate the intermediate column

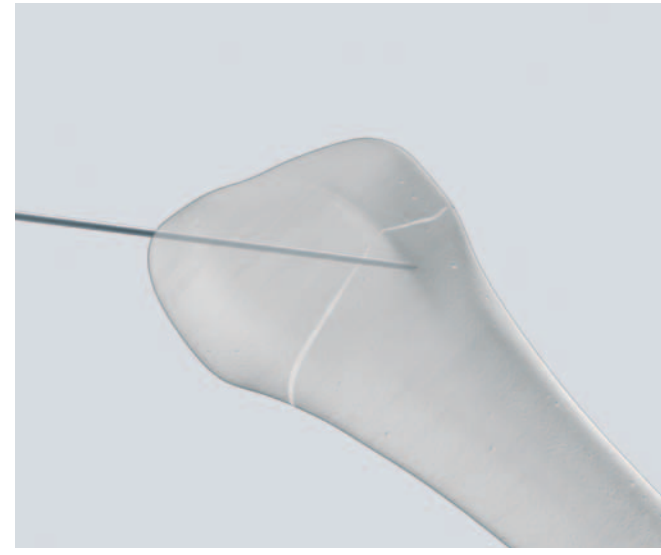


Dorsal fixation of distal radius fractures: Position of the locking screws 2.4 mm using the double-plating technique for increased stabilization.

1

Temporary fixation of fracture with Kirschner wire

Reduction can be preliminarily held with K-wires. A wire introduced across the radial styloid will fit into a small notch (horse-shoe tip) in the distal end of the straight radial plate (refer to step 3).



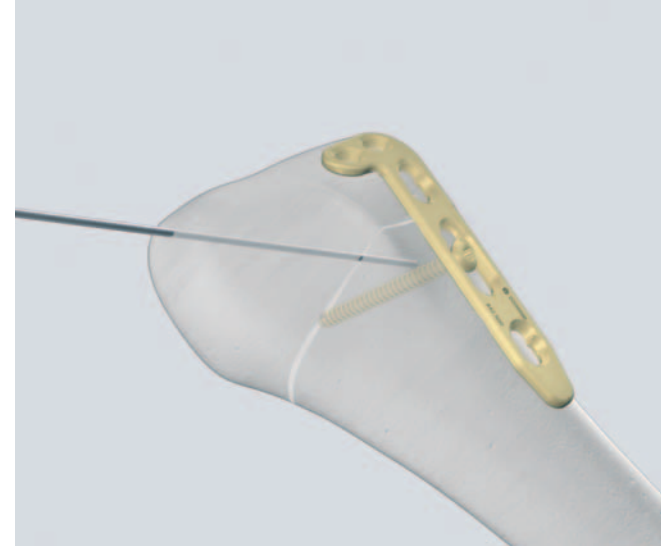
2

Apply dorso-ulnar plate

Provisionally position the plate according to anatomy and fracture pattern. Contour the plate to the bone's anatomy with the Bending Pliers.

Preliminarily fix the plate by inserting a standard cortex screw ∅ 2.4 mm in the elongated LCP combi-hole of the proximal shaft.

The plate supports the intermediate column and fixes the dorso-ulnar fragment.
(Insertion of standard screws see pages 16ff)



3

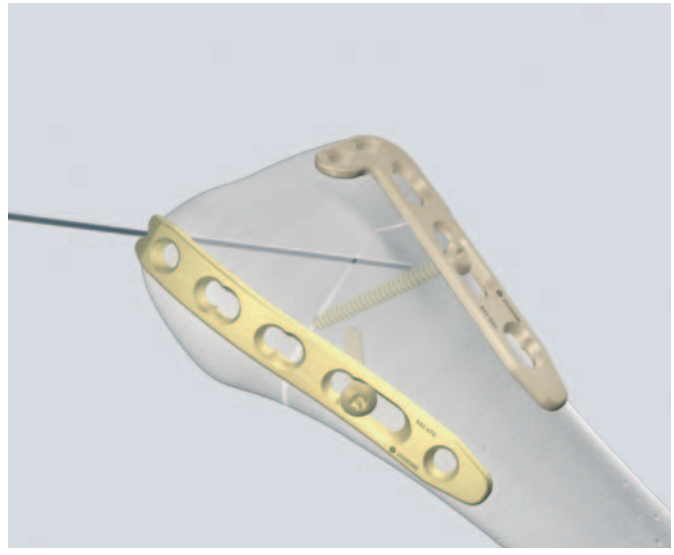
Apply dorso-radial plate

Contour radial plate to the anatomy with Bending Pliers if necessary. Use the horse-shoe tip to position the radial plate properly. Correct placement of the radial plate is crucial. It should form an angle of approximately 70° to the dorso-ulnar plate (see also picture on page 22).

After positioning, preliminarily fix the plate by inserting a standard cortex screw ∅ 2.4mm in the elongated LCP combi-hole of the proximal shaft.

Check the reduction and position of the plates by image intensifier.

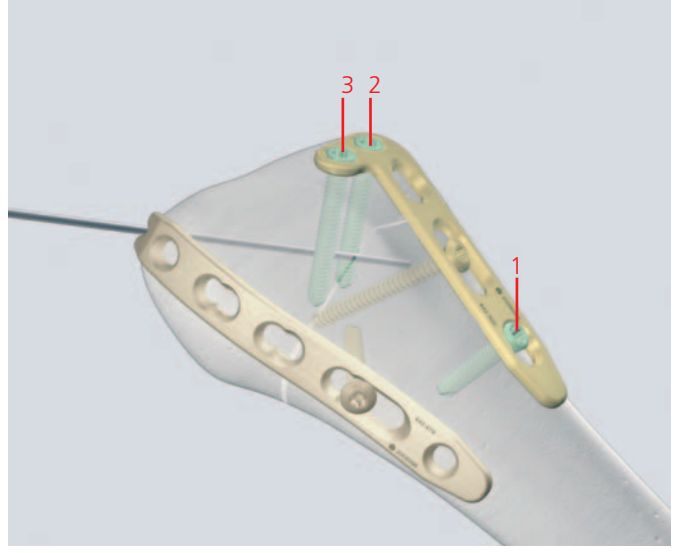
The osteosynthesis is then completed as follows:



4

Insert the screws in the dorso-ulnar plate

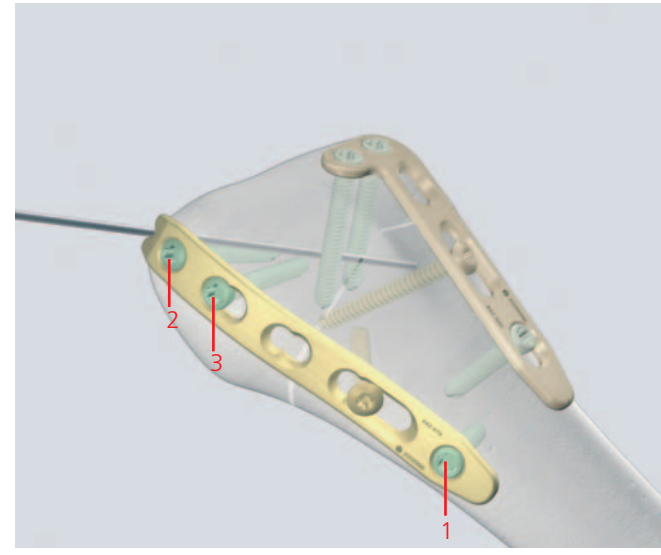
Insert a locking or a standard screw ∅ 2.4 mm in the most proximal hole in the shaft of the plate (1). Complete internal fixation by inserting locking screws in the distal arm of the plate (2,3).
(Insertion of locking screws, refer to pages 18ff)



5

Insert the screws in the dorso-radial plate

Insert a locking screw ∅ 2.4 mm in the most proximal hole in the shaft of the plate (1). Complete internal fixation by inserting locking screws in the distal arm of the plate (2,3).
(Insertion of locking screws, refer to pages 18ff)



6

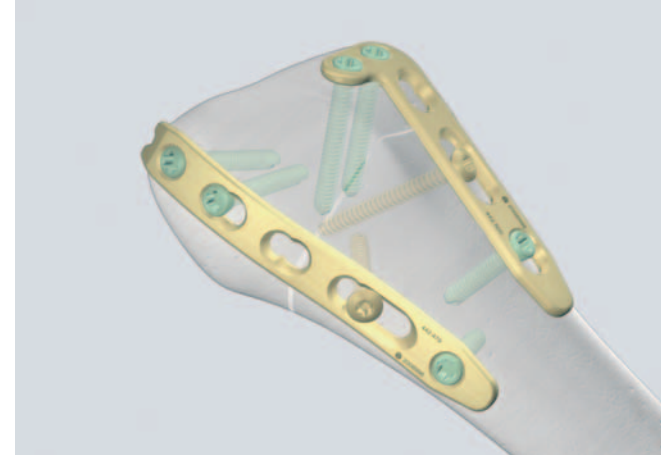
Final fixation

A final fluoroscopy is performed to confirm correct reduction of the fracture, length and position of the implants.

Important: Correct placement of the plates is crucial to provide sufficient support to the radial styloid. In an anterior view during intra-operative fluoroscopy, the dorso-ulnar plate should be projected almost antero-posteriorly, the dorso-radial plate almost laterally, and vice versa for the lateral view. If the plates appear to be parallel, the dorso-radial plate is positioned too far on the ulnar side.

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

Postoperative treatment: A palmar splint is applied for the first few days to prevent the patient from holding the hand in palmar flexion. Early function is then initiated.



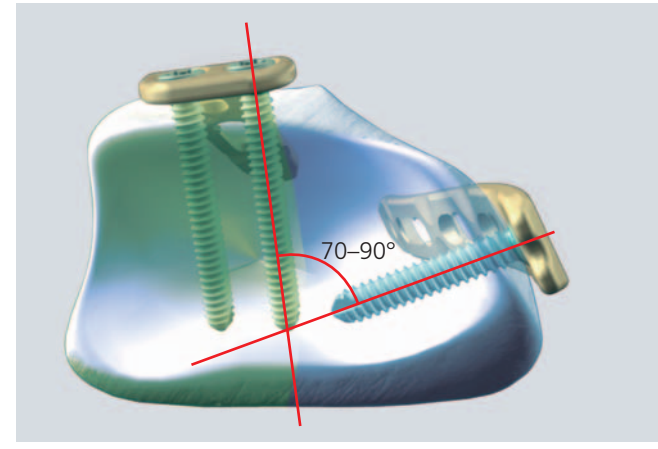


Illustration of the position of the 2.4 mm locking head screws of the "double-plate" technique according to the 3-column theory.

Surgical Technique – Palmar Approach With Buttress Technique

1

Placement and contouring

Instruments Needed

Bending Pliers	347.901

The placement of the plate depends on its three-dimensional shape and the angulation of the screws in the plates head.

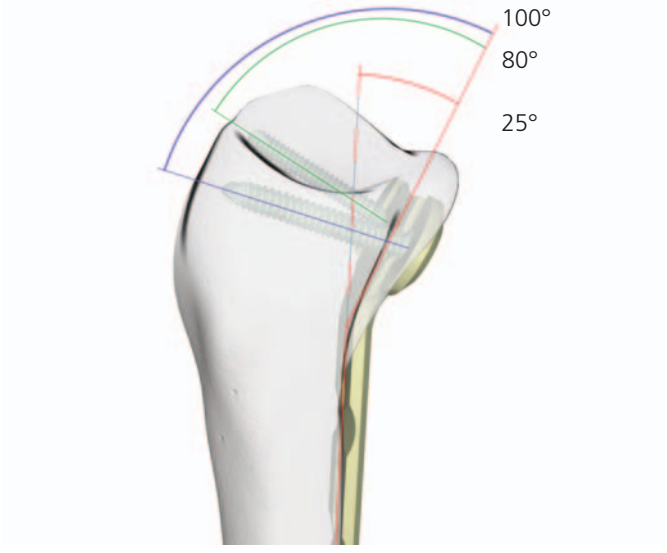
According to the desired placement, one may choose from two types of plates:

Juxta-articular plates

The distal screws of juxta-articular plates are angled 5° pointing proximally, away from the joint. Therefore plates can be placed very distally, with minimal risk of screws penetrating the articular surface. These plates support the articular surface very well and act as buttress plates.

Extra-articular plates

The distal screws of extra-articular plates are directed towards the articular surface. This is the consequence of the bend of the plate's head which follows the slope of the subchondral volar surface. The diverging screws of extra-articular plates buttress the distal radius and allow to secure the styloid and dorsally displaced, hard to reach fragments which are close to the joint.

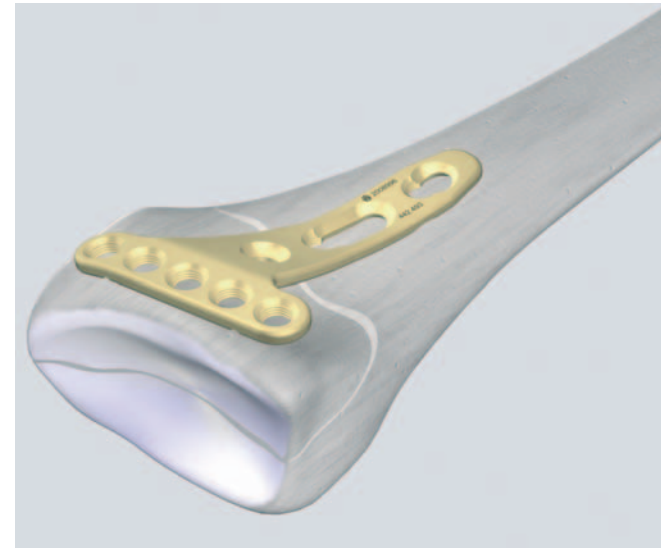


1a

Placement of juxta-articular plates

Mark the level of the radio-carpal joint by introducing a needle into the joint.

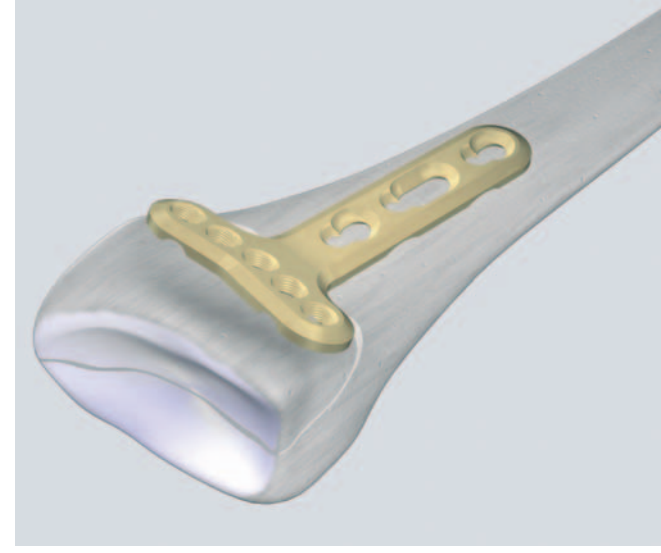
Apply the plate very distally and contour carefully with the Bending Pliers.



1b

Placement of extra-articular plates

Decide about the correct position of the plate according to the shape of the subchondral volar surface. If needed contour the plate carefully with the Bending Pliers (plates with 5 holes in the head only).



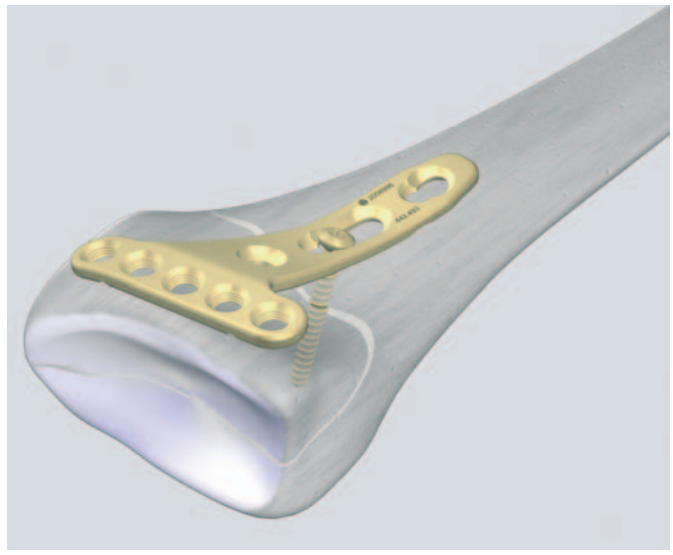
2

Insert screw in elongated LCP combi hole

Note: The insertion of screws works for plates with juxta- and extra-articular placement alike. The following example illustrates the insertion using a standard juxta-articular plate.

After reduction insert the 2.7 mm cortex screw into the long hole and check the correct position by fluoroscopy.

(Insertion of cortical screws, see pages 16ff)

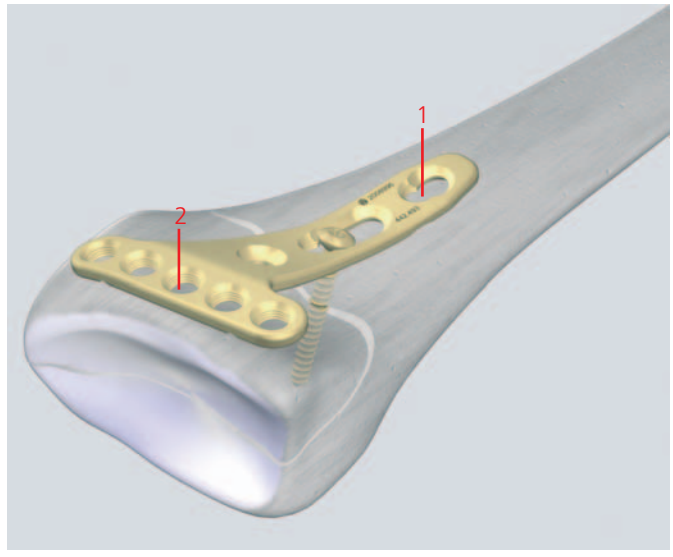


3

Insert proximal screw and middle distal screw

Insert a locking head screw ∅ 2.4 or ∅ 2.7 mm (head LCP 2.4) into the most proximal hole (1) of the plate's shaft. Alternatively, insert a standard cortical screw ∅ 2.7 mm.

Then insert a locking screw ∅ 2.4 mm in the middle hole of the distal part of the plate (2).



4

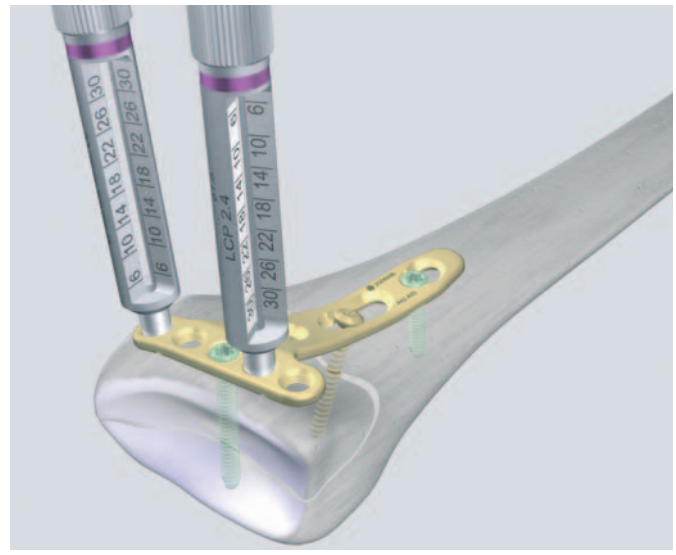
Fine bending of the plate (optional)

Instruments Needed

LCP Drill Sleeves	323.029

If necessary, fine bending may be achieved in situ with the two LCP Drill Sleeves. Thread them into round holes and apply small incremental force to achieve the required bending.

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



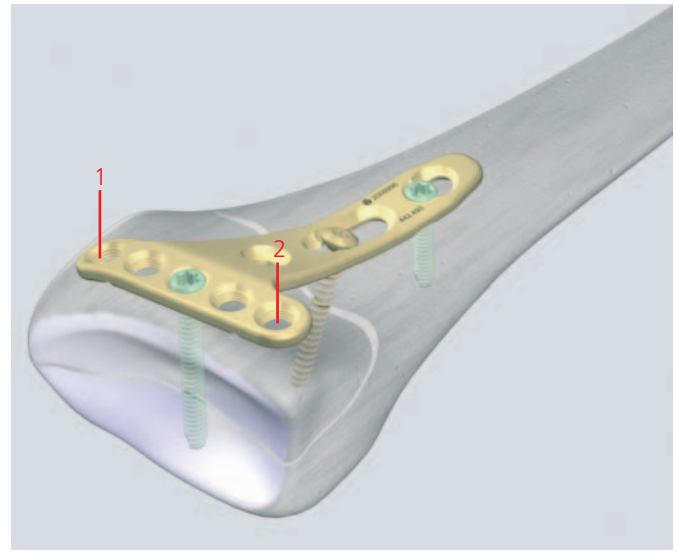
5

Insertion of all distal screws

Plates with 5 holes: Insert two more screws in the distal arm of the plate (1,2). In osteoporotic bone, insertion of 4 to 5 locking screws in the distal arm of the plate is recommended.

Plates with 4 holes: Occupation of all four holes with locking screws is recommended.

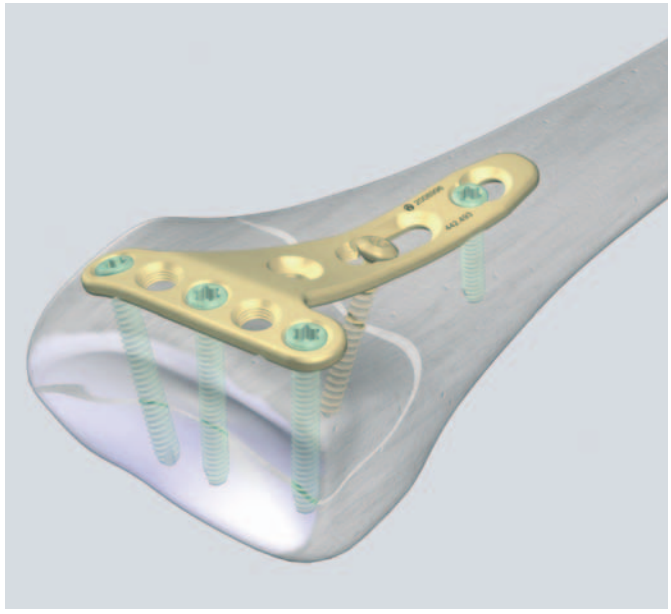
(Insertion of locking screws see pages 18ff; insertion of standard screws, see pages 16ff)



6

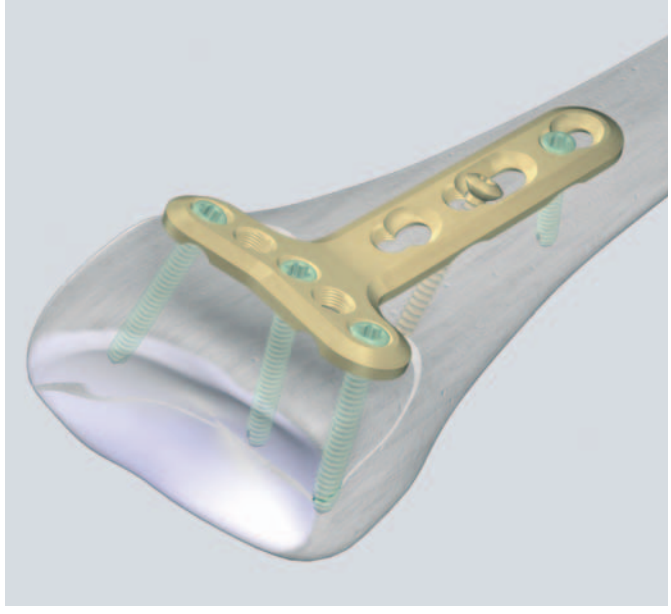
Final fixation – overview according to plate type

Juxta-articular plates: A final fluoroscopy is performed to confirm correct reduction of the fracture, length and position of the screws and the implant.

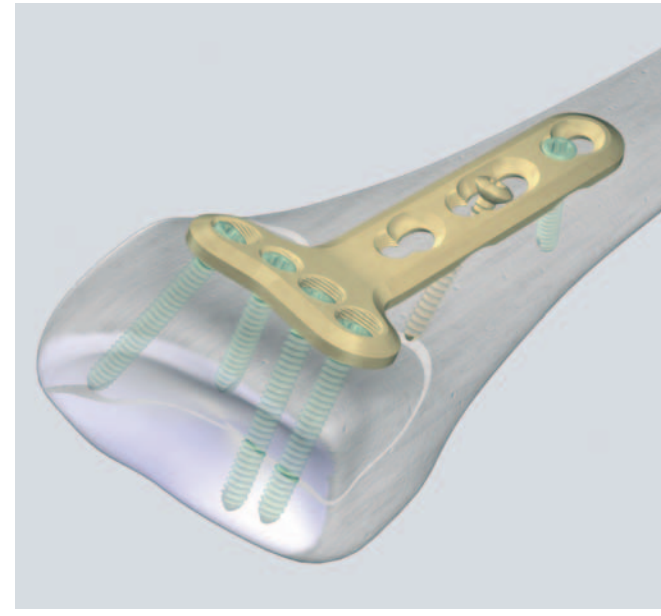


Juxta-articular plate

Extra-articular plates: Confirm proper joint reconstruction, screw placement and screw length using multiple C-arm views. To assure the most distal screws are not in the joint, use additional views, such as 10° titled PA, 20° inclined lateral, and 45° pronated oblique.



Extra-articular plate with 5 holes in the head



Extra-articular plate with 4 holes in the head

Surgical Technique –
Palmar Approach with “Angled Plate”

1

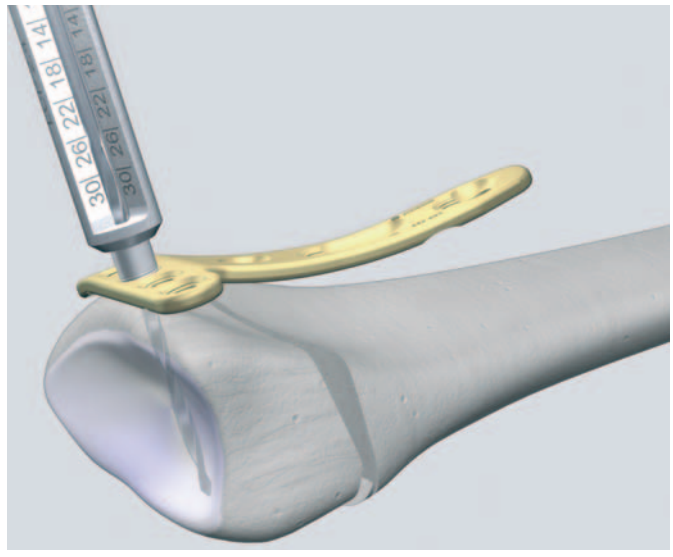
Plate placement

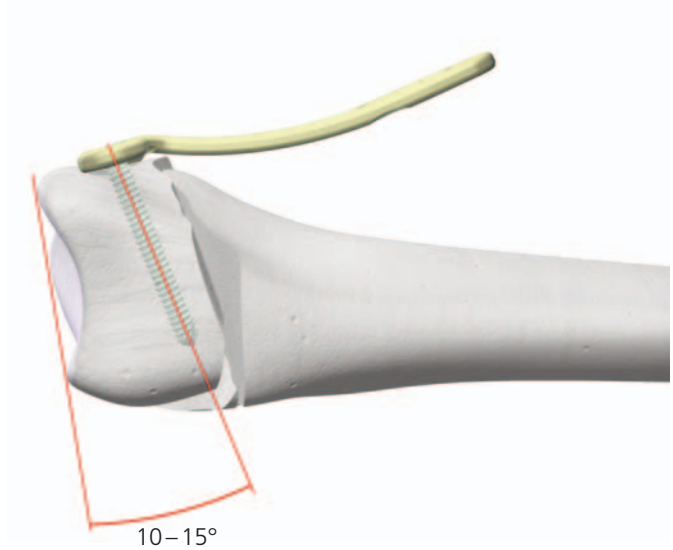
Instruments Needed

LCP Drill Sleeve	323.029
Drill Bit ∅ 1.8 mm	310.509

Plates which are placed juxta-articularly may be used as reduction aid to reduce dorsally displaced Colles fractures. This is described in the following.

Apply the plate very distally. Screw the LCP Drill Sleeve into the middle distal plate hole and drill to the desired depth with the Drill Bit at an angle of 10–15° to the radiocarpal joint. Measure the length directly from the threaded drill guide.



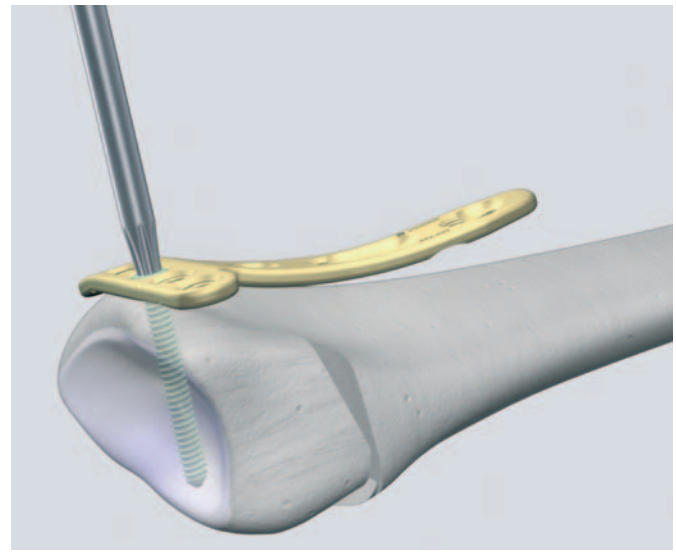


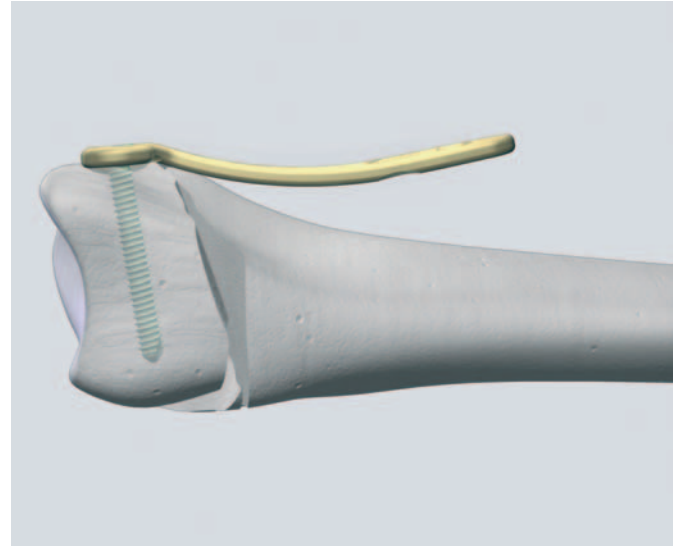
2

Screw insertion

Insert the locking head screw with the Stardrive® Screwdriver Shaft and the corresponding handle.

Insert the required number of 2.4 mm locking head screws in the distal part of the plate.

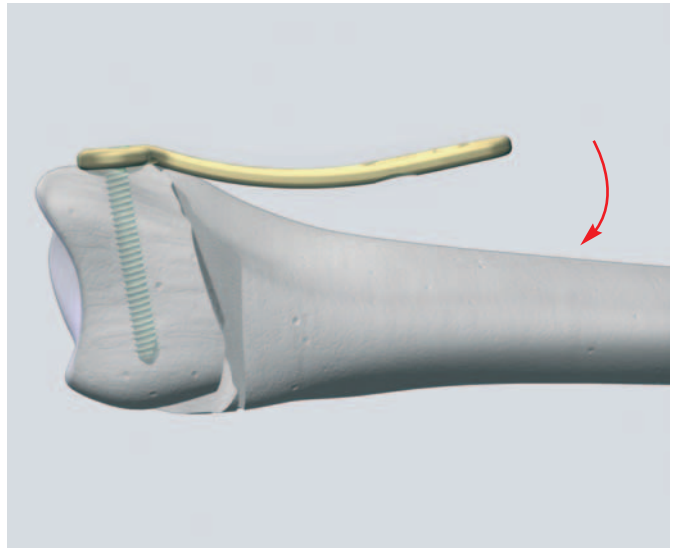




3

Reduction

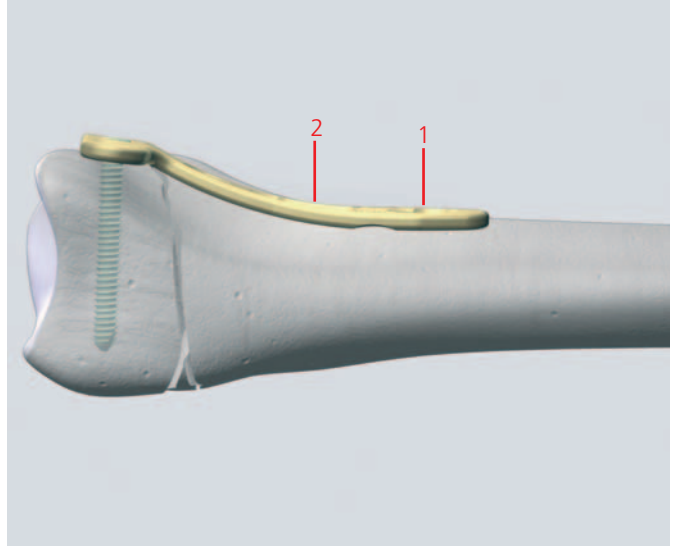
Reduce the fracture by repositioning the plate onto the shaft.



4

Secure plate

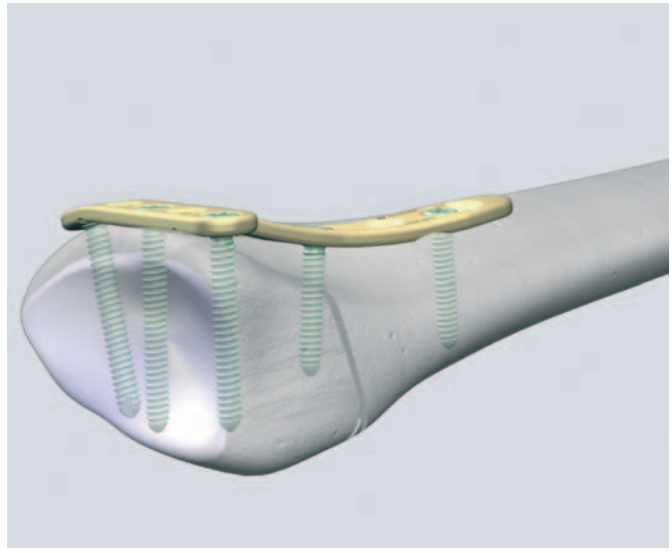
Insert at least two screws, either 2.4 mm locking head (1) or 2.7 mm cortex screws (2) in the shaft.



5

Final fixation

A final fluoroscopy is performed to confirm correct reduction of the fracture, length and position of the screws and the implant.



Postoperative treatment

Postoperative treatment with Locking Compression Plates (LCP) does not differ from conventional internal fixation procedures.

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