

LCP™ Distal Humerus Plates

The fixation system for the distal humerus

Surgical Technique

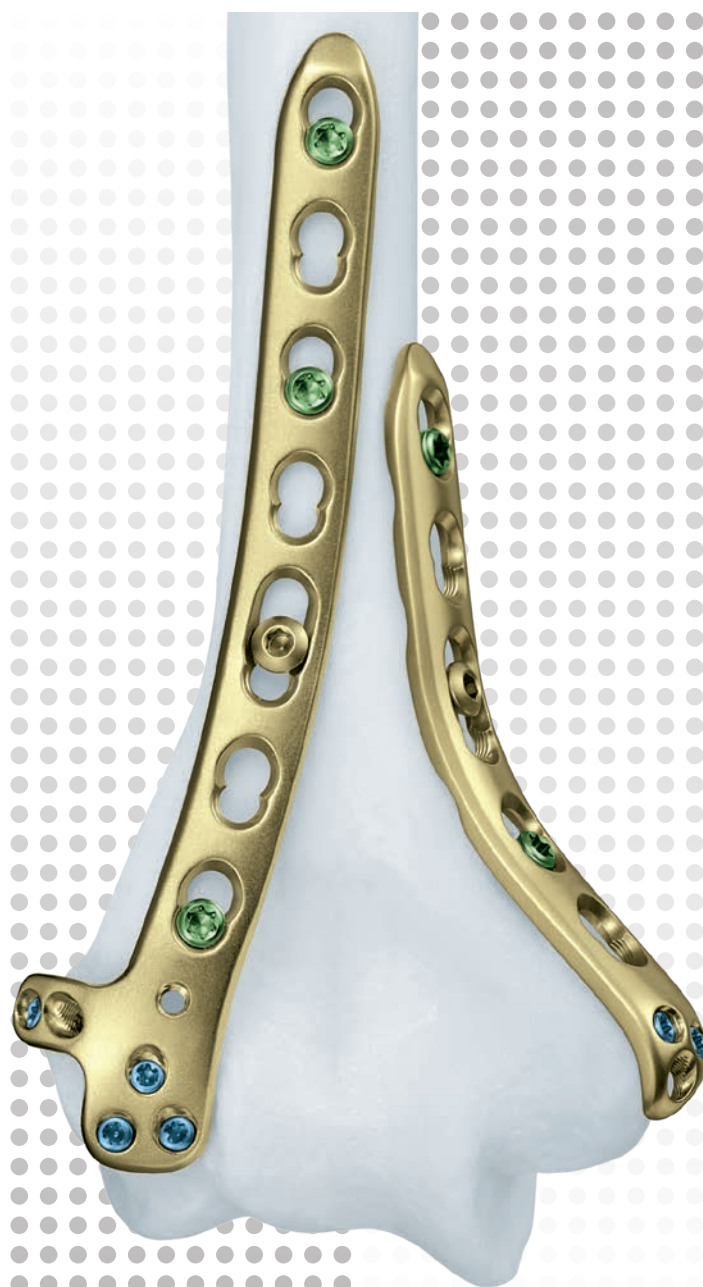


 Image intensifier control

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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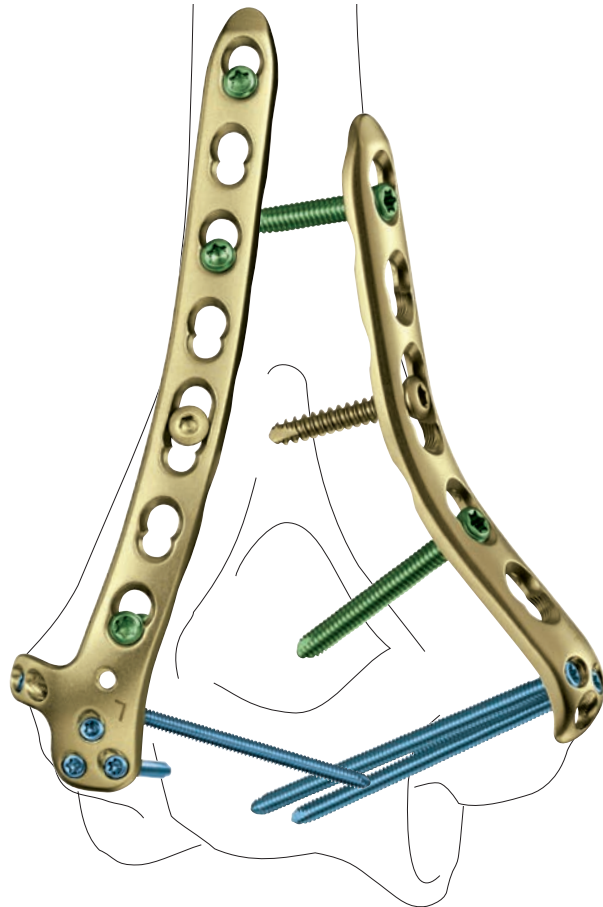
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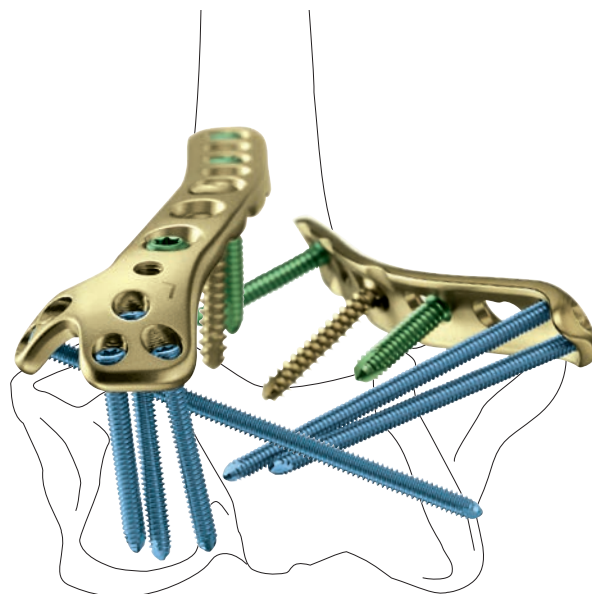
LCP™ Distal Humerus Plates

- Contoured Plates
- Screw system with 2.7 mm and 3.5 mm options are available



Options for fixation

- 2.7 mm screws up to 60 mm in length for anchoring in the distal block. Alternatively, 2.4 mm cortex screws can be used
- Five options for screwing into the distal block permit the fixation of distal fractures



Positioning and Compression Device (PCD)

- Guides insertion of distal screws parallel to the joint axis
- Allows screw length measurement

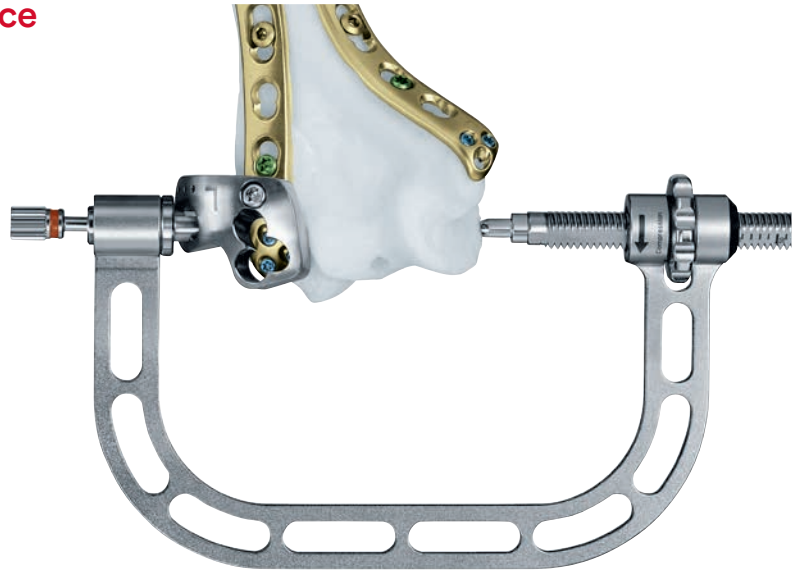


Plate System

- Dorsolateral plates without support
- Dorsolateral plates with support
- Medial plates
- All plates available in lengths of 3, 5, 7, 9 and 14 holes



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 and/or 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.

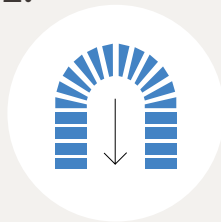
AO Principles^{1,2}

1.



Fracture reduction and fixation to restore anatomical relationships.

2.



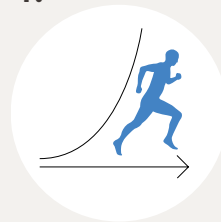
Fracture fixation providing absolute or relative stability, as required by the “personality” of the fracture, the patient, and the injury.

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.

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

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

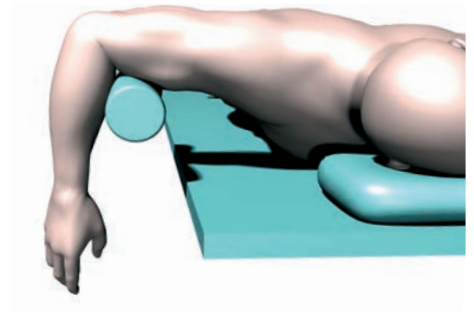
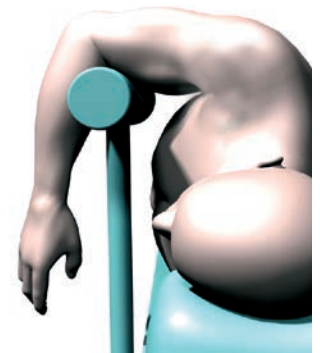
Preparation

■ Note:

For information on fixation principles using conventional and locked plating techniques, please refer to the LCP Locking Compression Plate Surgical Technique.

1. Position patient

The lateral decubitus position is usually chosen. In severe C3 fractures, the fully prone position can be used, if the patient is otherwise fit. The arm is rested on a padded bar allowing elbow flexion of 120°. In rare cases bone graft may be needed and it is wise to prepare a donor site. The use of a tourniquet, preferably sterile, is not essential, but can make it easier to identify the ulnar nerve.

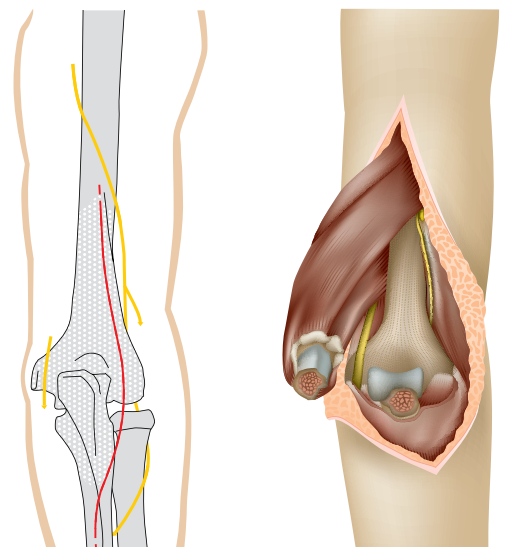


2. Surgical approach

All fractures are approached through a slightly curved posterior incision just radial to the olecranon. The ulnar nerve is gently identified and may need to be isolated and elevated at the ulnar epicondyle.

For supracondylar fractures or simple articular fractures it may be sufficient to expose the nerves on both sides of the triceps. For comminuted fractures a distally pointed chevron olecranon osteotomy exposes the fracture best.

When using longer plates the radial nerve has to be carefully identified.



3. Reduce fracture and fix temporarily

For C-type fractures, reduce the articular fragments of the distal block under direct vision or image intensifier and fix them temporarily, using Kirschner wires and/or pointed reduction forceps.

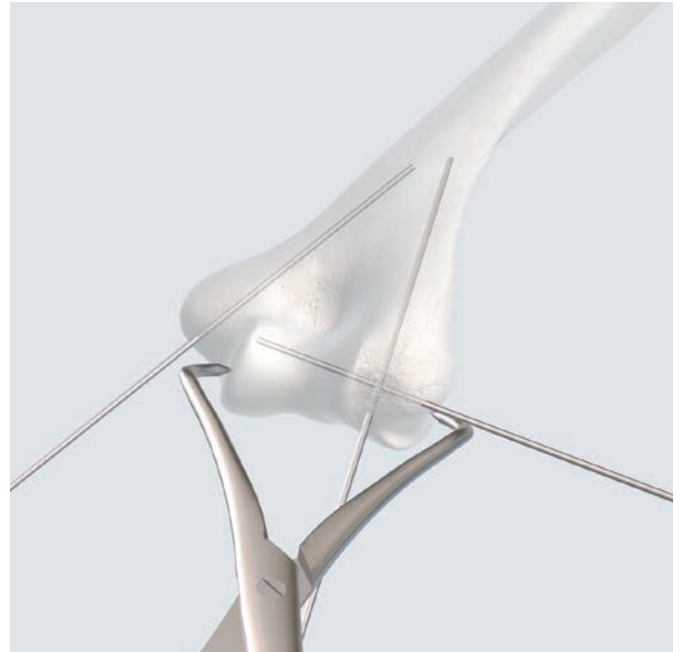
Fix the distal block temporarily to the shaft using Kirschner wires in both columns and/or forceps and make sure that the anatomy of the distal humerus is restored.

■ Note:

LCP locking screws are not suitable for reduction, since they cannot effect compression. The fracture must therefore be reduced before inserting locking screws.

▲ Precaution:

If the plate is long, the radial nerve needs to be elevated off the back of the humerus and the plate placed underneath. Otherwise, the radial nerve rarely needs to be identified by more than palpation and almost never needs to be isolated or elevated with these fractures.

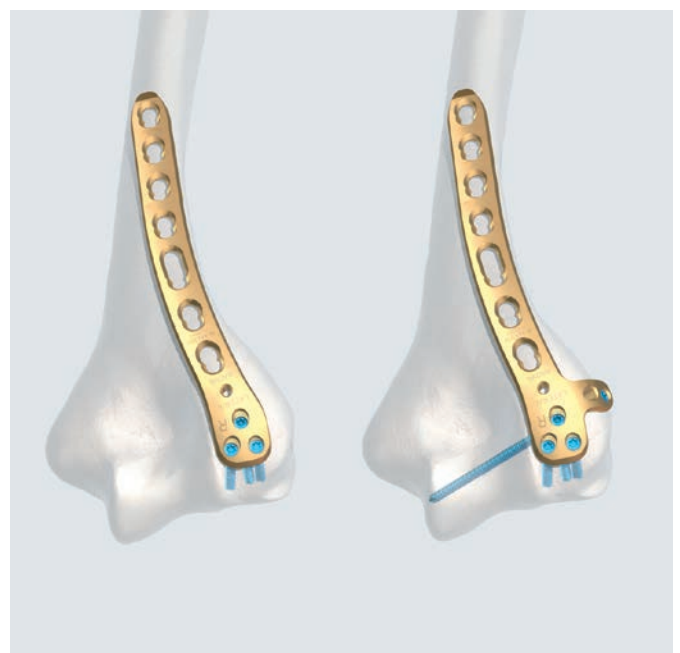


4. Choose dorsolateral plate (with or without support)

For the dorsolateral side, choose the type of implant to be used. The dorsolateral plates allow for screw insertion in a posterior-anterior direction. The plate with support allows for additional screw insertion through the lateral epicondyle in a lateral-medial direction.

■ Note:

On very small humeri the support may protrude extensively over the lateral epicondyle, in which case the use of a plate without support is recommended.



5. Determine the length of the plates

Choose plate lengths that offer sufficient fixation proximal to the fracture lines.

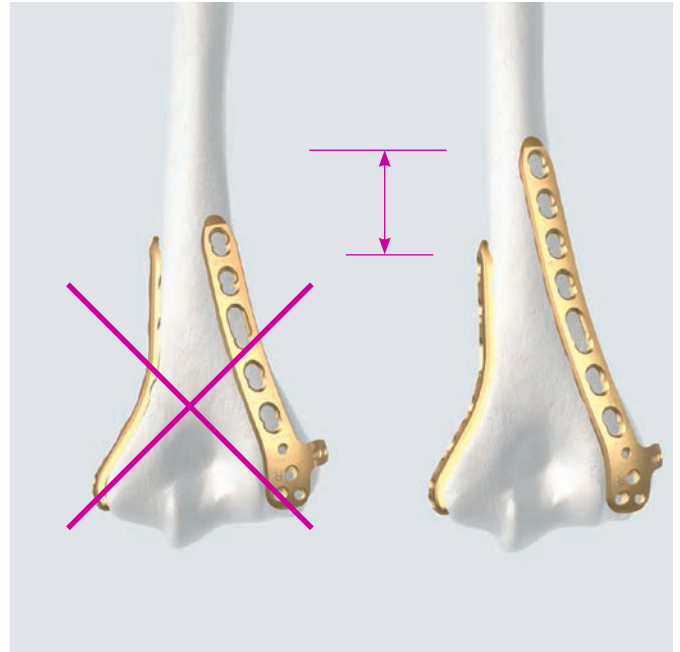
Sample: medial 5 holes, dorsolateral 7 holes.

■ Note:

To reach sufficient stability for early mobilization both plates dorsolateral and medial have to be used in case of severe fractures. Application of single plates should be limited to simple fractures where one column is still intact.

▲ Precautions:

- For fractures extending into the shaft always use both dorsolateral and medial plates to have sufficient strength, especially when using 9- or 14-hole plates.
- To prevent extensive diaphyseal stress, it is recommended that the medial and lateral plates are not the same length. For example, use a short medial plate with a medium dorsolateral/lateral plate.



6. Prepare plates, bending

Required instruments

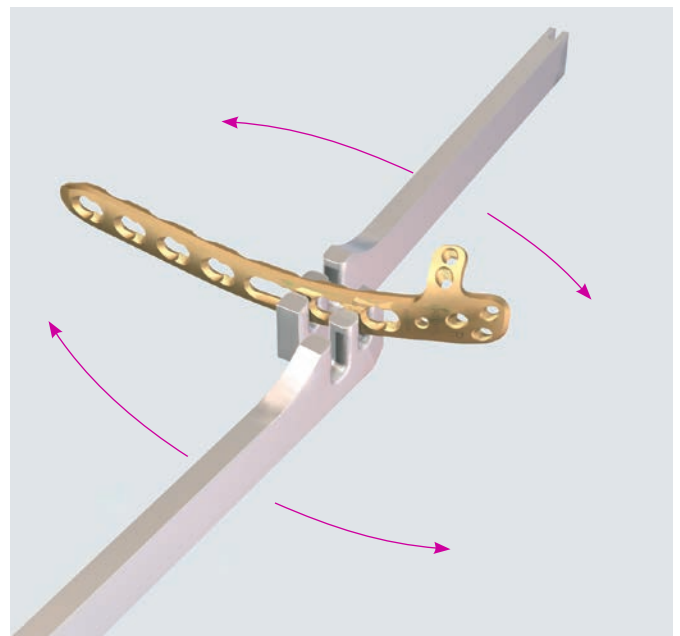
329.150	Bending Pliers for Plates 2.4 to 4.0, length 230 mm
329.040/ 329.050	Bending Iron for Plates 2.4 to 3.5, length 145 mm
323.061	LCP Drill Sleeve 2.7 (head LCP 2.4), with scale up to 60 mm, for Drill Bits \varnothing 2.0 mm

The form of the distal humerus can vary between individuals. Bending might be required to adapt the plate form. Use bending pliers and irons to shape the plates.

Be careful to observe the LCP locking screw direction of the distal screws during the bending. Use drill guide to check.

▲ Precautions:

- If cortex screws are used, the plates need to be congruent with the surface of the bone and bending or torquing may be required. Bending should be limited to the region of the Combi holes.
- Contour the plate precisely at the level of the undercuts and/or the level of the reconstruction notches to avoid deformation of the plate holes.



Dorsolateral Plate with Support

Position and fix the dorsolateral plate with support

Normally a transolecranon approach is used and the plate fixation starts on the dorsolateral side of the distal humerus.

1. Position the plate

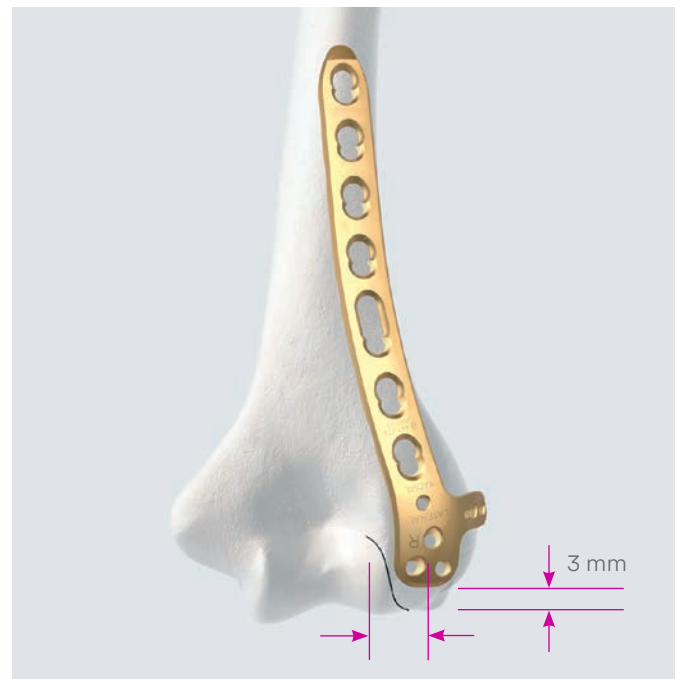
The plate is to be positioned on the dorsolateral aspect of the distal humerus, with its distal spoon-shaped portion covering the non-articulating part of the capitellum, and with the lateral support reaching over the most protruding tip of the lateral epicondyle, just proximal to the lateral collateral ligament insertion. Make sure that the shaft portion of the plate is positioned at safe distance from the olecranon fossa.

The position of the plate should allow for distal screw insertion through the lateral support to reach through the articular block to the medial side. The direction of the screw to be used can be visualised with the LCP Drill Sleeve 2.7 and a Kirschner wire or with the Positioning and Compression Device (PCD).

▲ Precaution:

The plate distal position has to be carefully chosen to ensure no impingement of the radius head and thus, loss of extension. The distance between the plate and the cartilage should not be less than 3 mm.

In contrast to conventional plating, plating with LCP locking screws do not rely on a congruent contact of plate-to-bone.

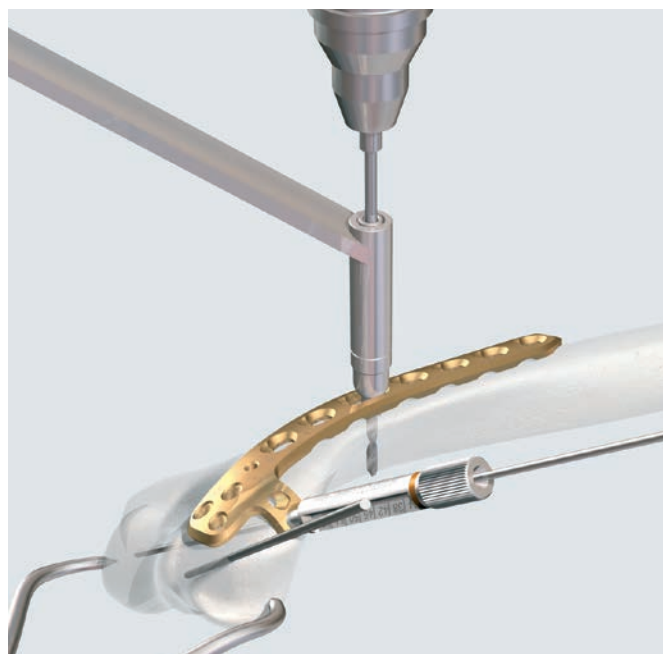


2. Preliminary fixation of the plate

Required instruments

323.360	Universal Drill Guide 3.5
310.250	Drill Bit \varnothing 2.5 mm, length 110/85 mm, 2-flute, for Quick Coupling

After correct placement of the plate use the drill guide and the drill bit \varnothing 2.5 mm to pre-drill both cortices.



3. Determine screw length

Required instruments

319.010	Depth Gauge for Screws \varnothing 2.7 to 4.0 mm, measuring range up to 60 mm
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Determine the required length of the cortex screw with the depth gauge.

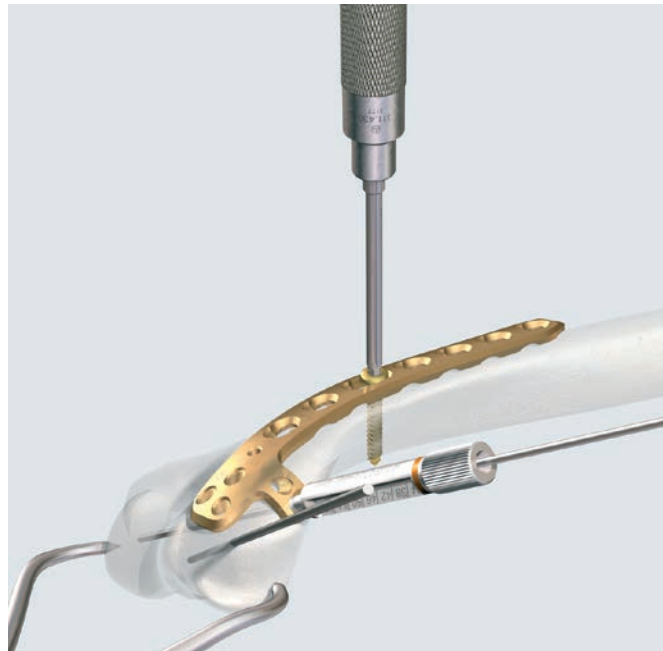


4. Insert cortex screw

Required instruments

314.030	Screwdriver Shaft, hexagonal, small, Ø 2.5 mm
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Use the screwdriver shaft mounted on a power tool or on a handle to insert the self-tapping cortex screw Ø 3.5 mm. Do not tighten the screw.

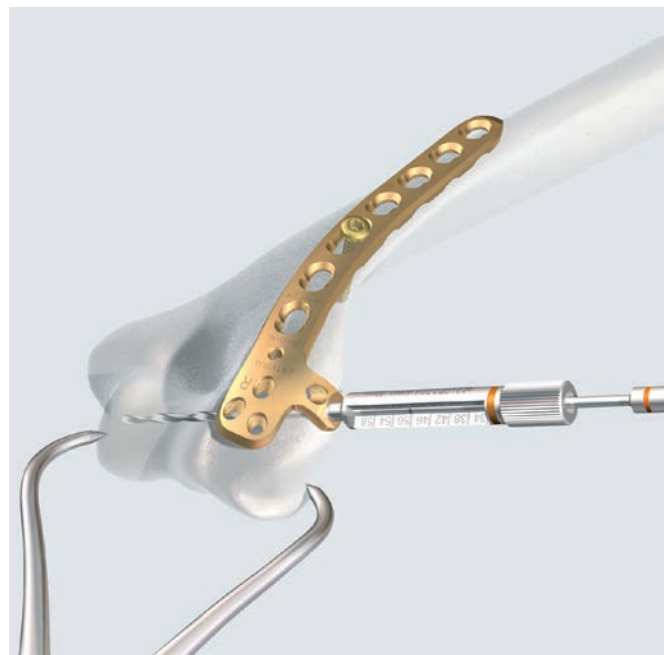


5. Pre-drill distal hole

Required instruments

323.061	LCP Drill Sleeve 2.7 (head LCP 2.4), with scale up to 60 mm, for Drill Bits Ø 2.0 mm
323.062	Drill Bit Ø 2.0 mm, with double marking, length 140/115mm, 3-flute, for Quick Coupling

Screw the LCP Drill Sleeve into one of the threaded holes of the distal part of the plate and pre-drill a hole with the drill bit Ø 2.0 mm. Check the depth of the drill bit under image intensifier.



6. Determine length of screw

Required instruments

323.061	LCP Drill Sleeve 2.7 (head LCP 2.4), with Scale up to 60 mm, for Drill Bits \varnothing 2.0 mm
323.062	Drill Bit \varnothing 2.0 mm, with double marking, length 140/115 mm, 3-flute, for Quick Coupling
319.005	Depth Gauge for Screws \varnothing 2.0 and 2.4 mm, measuring range up to 40 mm
319.010	Depth Gauge for Screws \varnothing 2.7 to 4.0 mm, measuring range up to 60 mm

Determine the required length of the screw by using the scale on the drill guide. If a single marking is visible on the drill bit, the scale from 0–30 mm applies; if a double marking is visible, the scale from 30–60 mm applies.

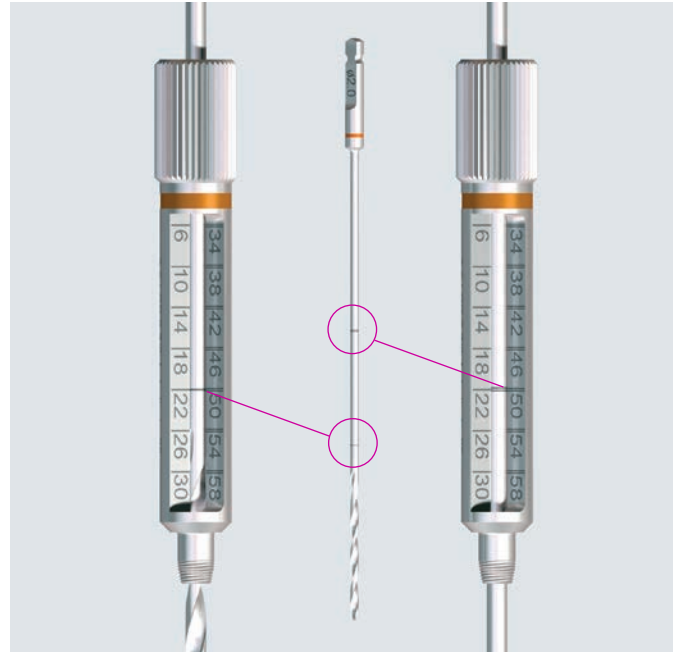
Option: Use a Depth Gauge 319.005 to check length.

For all screw types: using the exact length indication will lead to a screw which ends exactly at the exit point of the bone for all measuring devices contained in the set. Thus for bicortical screws (shaft), the chosen screw must be a little longer than the indication.

▲ Precaution:

Screws should not protrude through the articular surface.

If Depth Gauge 319.010 is used for 2.7 mm screws, subtract 4 mm from the indication to obtain a correctly comparable screw length.



7. Insert distal screws LCP 2.7 mm

Required instruments

313.301	Holding Sleeve for LCP Screws STARDRIVE Ø 2.4/2.7 mm (head LCP 2.4), T8, for Screwdriver Shafts Ø 3.5 mm
313.304	Screwdriver Shaft STARDRIVE, T8, cylindrical, with groove, shaft Ø 3.5 mm, for AO/ASIF Quick Coupling
511.776	Torque Limiter, 0.8 Nm, with AO/ASIF Quick Coupling

The LCP locking screw can be inserted manually or by power tool.

Use the screwdriver shaft, attached to the torque limiter. Use the holding sleeve if necessary.

A “click” indicates that the screw is locked into the plate.

▲ Precaution:

Always use Torque Limiter when inserting LCP locking screws, otherwise plate and/or screws might be damaged.

Option: Use cortex screw Ø 2.4 mm.

Repeat the above steps for all distal holes to be used.

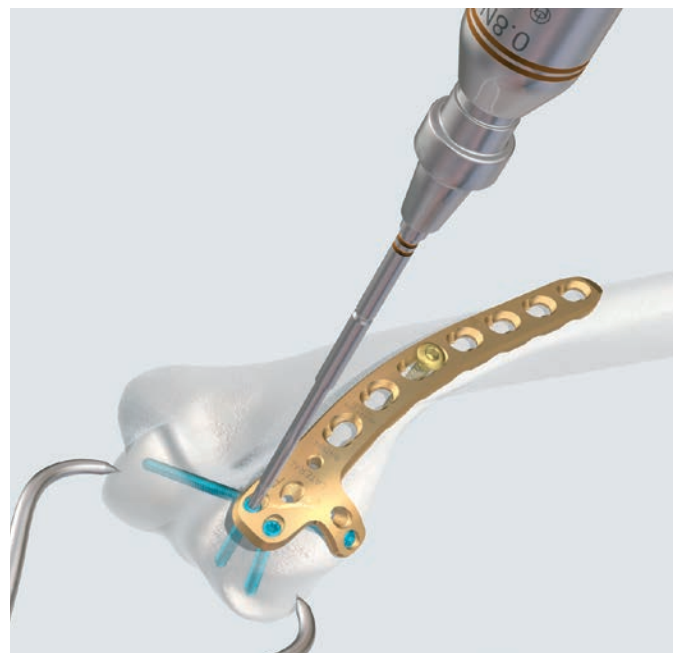
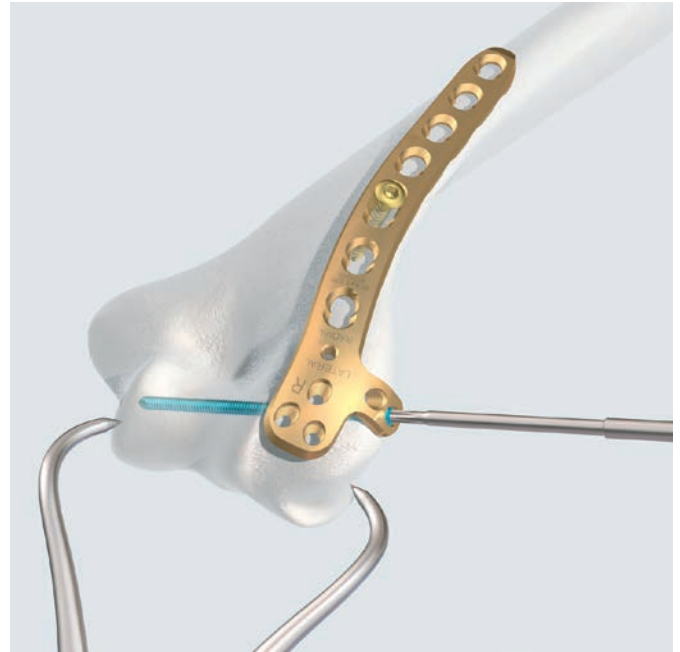
▲ Precaution:

It is recommended to use minimum one screw on the lateral side which crosses the distal block. Screw length should be 40–60 mm depending on the size of the humerus.

The recommended screw length for the capitellum is 16–24 mm.

▲ Precautions:

- In the distal portion of the posterolateral plate, pay close attention to the posterior to anterior screw holes during drilling and screw insertion. Confirm screw placement and length with image intensification in different planes to ensure screws are not protruding through the articular surface.
- When inserting screws under power, final tightening should be done using manual screwdriver and Torque Limiter. Ensure that the screws do not protrude in the olecranon or coronoid fossa.



Medial Plate

1. Position and adaption of the plate

Required instruments

329.150	Bending Pliers for Plates 2.4 to 4.0, length 230 mm
329.040/ 329.050	Bending Iron for Plates 2.4 to 3.5, length 145 mm
323.061	LCP Drill Sleeve 2.7 (head LCP 2.4), with scale up to 60 mm, for Drill Bits \varnothing 2.0 mm

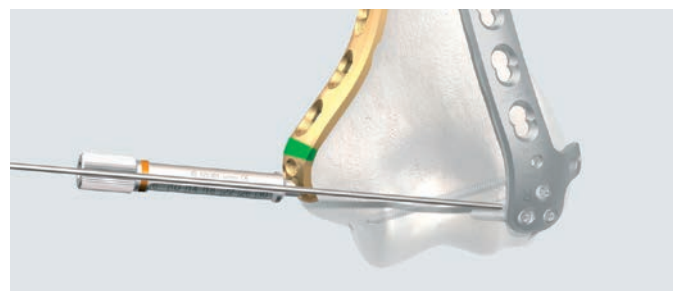
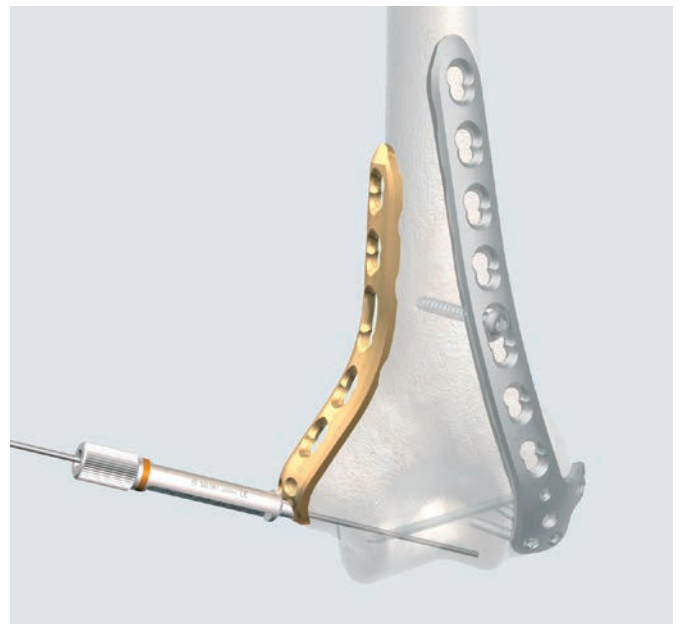
The position of the medial plate is on the medial ridge and on, or slightly dorsal to the inter-muscular septum, with the distal tip reaching down to the insertion of the medial collateral ligament.

Use the drill guide with double scale and a Kirschner wire to determine the appropriate position of the plate. If needed, check the position under image intensifier.

Distal screws should reach into the bone, as far as possible. Therefore, choose a plate position that allows for longest possible screws.

Bending of the distal part is recommended to adjust the appropriate position of the long screws through the articular block.

Situation after bending.



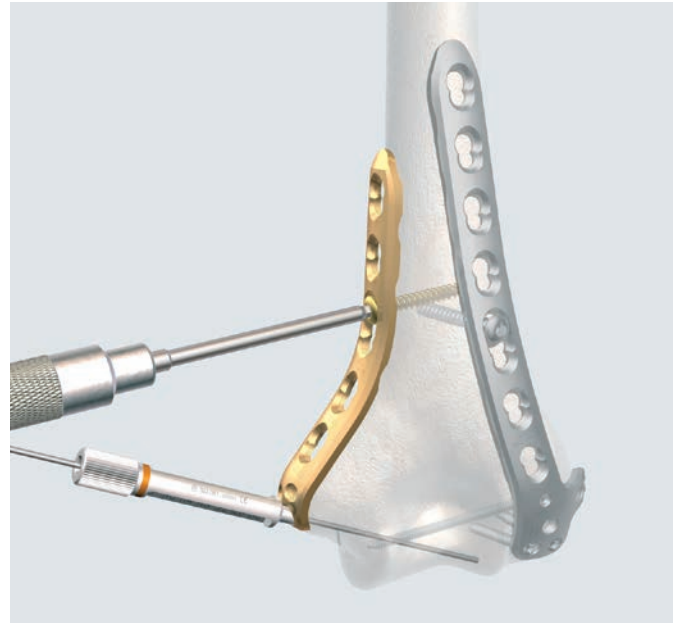
2. Preliminary fixation of the plate to the bone

Required instruments

310.250	Drill Bit Ø 2.5 mm, length 110/85 mm, 2-flute, for Quick Coupling
323.360	Universal Drill Guide 3.5
323.061	LCP Drill Sleeve 2.7 (head LCP 2.4), with scale up to 60 mm, for Drill Bits Ø 2.0 mm

Use a Kirschner wire through the drill sleeve in the distal hole to fix the distal plate position. Make sure no collision with the already implemented screws occurs.

Use the drill guide and the drill bit Ø 2.5 mm to pre-drill both cortices. Insert a 3.5 mm cortex screw through the long hole of the plate.

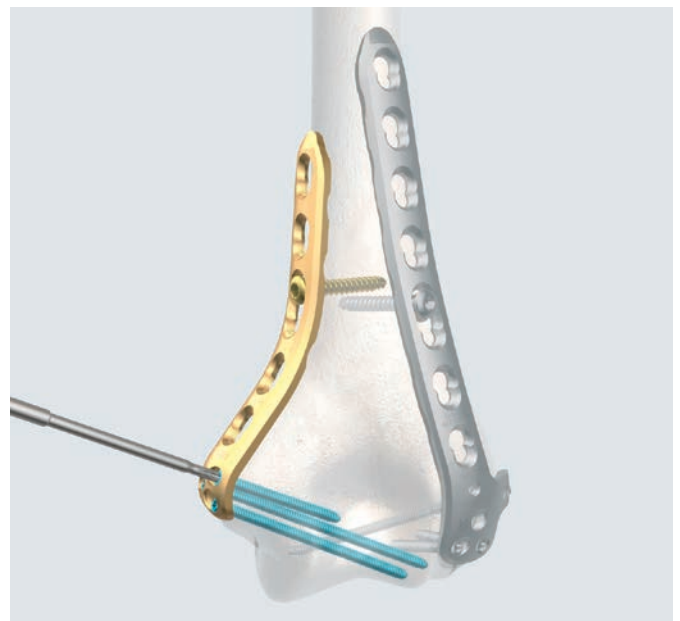


3. Fix the distal part of the plate to the bone

Use a similar procedure as for the dorsolateral plate to insert the LCP locking or cortex screws (see dorsolateral plate with support).

▲ Precautions:

- Careful drilling is necessary as collision with the screws of the contralateral plate may occur. In case of collision stop drilling and use adequate screw for fixation. Use other available holes for application for more screws.
- It is recommended to use minimum one screw on the medial side and one screw on the lateral side which cross the distal block. Screw length should be 40–60 mm depending on the size of the humerus.



Fixing the Shaft

Fix the shafts of the dorsolateral and medial plate

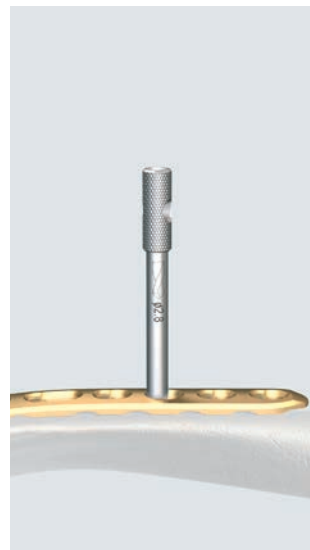
Use LCP locking screws \varnothing 3.5 mm to fix the proximal part of the plate to the bone.

1. Attach LCP drill sleeve

Required instruments

323.027 LCP Drill Sleeve 3.5 for Drill Bits \varnothing 2.7

Carefully screw the LCP drill sleeve (323.027) into the threaded central hole of the plate.



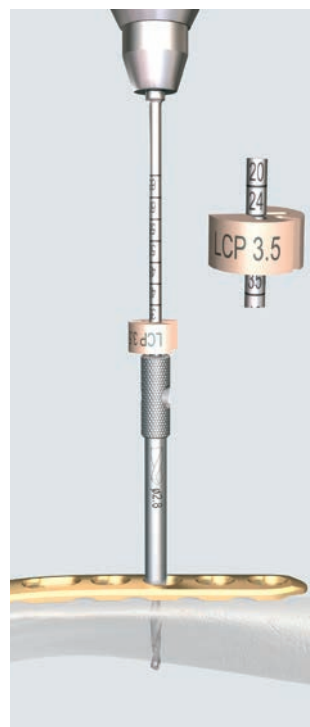
2. Predrill the screw hole

Required instruments

310.284 LCP Drill Bit \varnothing 2.8 mm with Stop, length 165 mm, 2-flute, for Quick Coupling

Predrill the screw hole with a LCP drill bit \varnothing 2.8 mm through both cortices. Read the required screw length directly from the drill bit.

Option: Use depth gauge to check length of screw.



3. Insert LCP locking screw

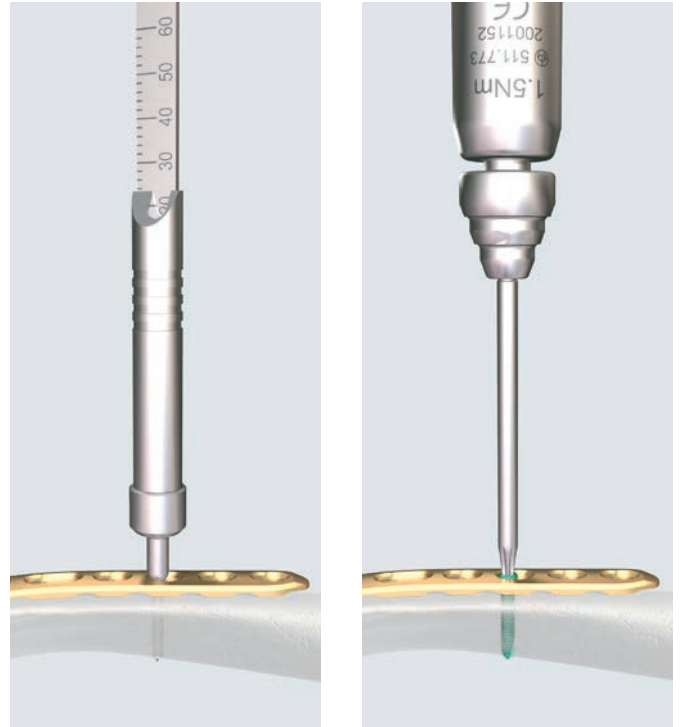
Required instruments

314.030	Screwdriver Shaft, hexagonal, small, Ø 2.5 mm
314.116	Screwdriver Shaft STARDRIVE 3.5, T15, self-holding, for AO/ASIF Quick Coupling
397.705	Handle for Torque Limiter Nos. 511.770 and 511.771
311.431	Handle with Quick Coupling

Insert the LCP locking screw with the screwdriver for hexagonal or for StarDrive™ Recess, mounted on torque limiter 1.5 Nm. Insert the screw manually or by machine until a click is heard. If a power tool is used, reduce speed when screwing the head of the locking screw into the plate.

Repeat the procedure until all required shaft holes are used. Final check the locking of the screws.

Use 3 screws bicortical per plate for appropriate fixation to the shaft.



Option: Dorsolateral Plate without Support

1. Position the plate

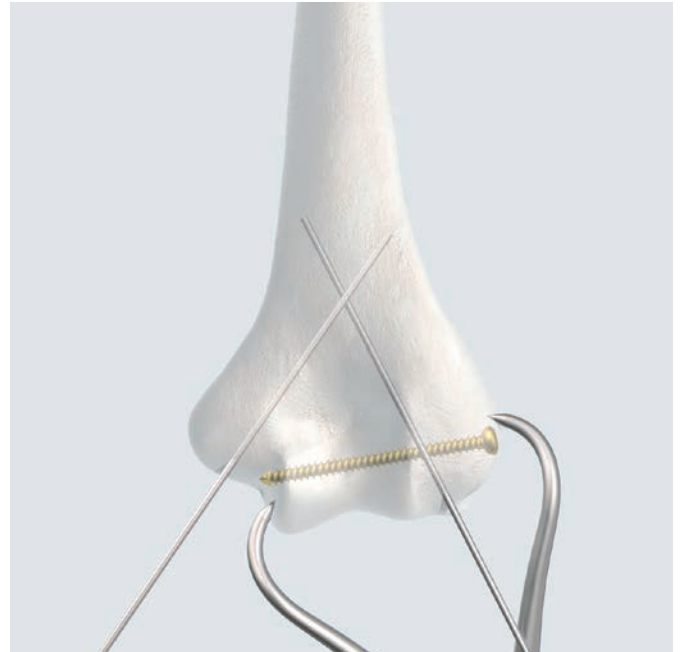
Fix the distal part of the bone temporarily to the shaft with Kirschner wires and reduction forceps.

Fix and compress it with minimum one 3.5 mm cortex screw.

Position the plate on the dorsolateral aspect of the distal humerus, with its distal spoon shape portion covering the non-articulating part of the capitellum.

■ Note:

The positioning and compression device (PCD) can be used for guided insertion of the 3.5 mm cortex screw.



2. Preliminary fixation of the plate to the bone

Required instruments

323.360	Universal Drill Guide 3.5
310.250	Drill Bit Ø 2.5 mm, length 110/85 mm, 2-flute, for Quick Coupling
319.010	Depth Gauge for Screws Ø 2.7 to 4.0 mm, measuring range up to 60 mm

After determining the correct position of the plate, fix it to the bone with a 3.5 mm cortex screw through the long hole in the shaft portion of the plate.



3. Fix the distal part of the plate to the bone

Required instruments

323.062	Drill Bit Ø 2.0 mm, with double marking, length 140/115mm, 3-flute, for Quick Coupling
313.301	Holding Sleeve for LCP Screws STARDRIVE Ø 2.4/2.7 mm (head LCP 2.4), T8, for Screwdriver Shafts Ø 3.5 mm
313.304	Screwdriver Shaft STARDRIVE, T8, cylindrical, with groove, shaft Ø 3.5 mm, for AO/ASIF Quick Coupling
511.776	Torque Limiter, 0.8 Nm, with AO/ASIF Quick Coupling



Use the 3 distal screws to fix the plate to the capitellum. Use a similar procedure as for the dorsolateral plate to insert the LCP or cortex screws.

The recommended screw length is 16–24 mm.

▲ Precaution:

In the distal portion of the posterolateral plate, pay close attention to the posterior to anterior screw holes during drilling and screw insertion. Confirm screw placement and length with image intensification during movement of the elbow to ensure screws are not exiting through the joint.

4. Continue the procedure

Continue the procedure according to “Medial plate”.

Option: Positioning and Compression Device (PCD)

Positioning and Compression Device (PCD) with length markings for guided positioning of the dorsolateral plate with support.

The PCD with length markings (313.351–357) assists in finding an appropriate plate position to allow for the insertion of longest possible screws across the distal articular block.

1. Fix aiming block to the plate

Required instruments

314.116	Screwdriver Shaft STARDRIVE 3.5, T15, self-holding, for AO/ASIF Quick Coupling
313.351	Aiming Block, left, for Aiming Arm No. 313.354, for DHP
313.352	Aiming Block, right, for Aiming Arm No. 313.354, for DHP
313.353	Drill Sleeve 2.7, for Aiming Arm No. 313.354, for DHP
313.354	Aiming Arm for DHP
313.355	Insert for Drill Sleeve 2.7



Fix the aiming block and PCD to the dorsolateral plate with support.

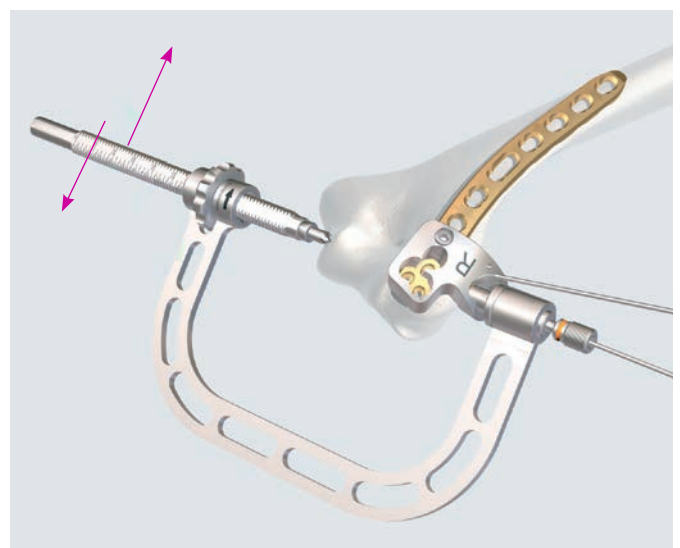
Note:

For easier insertion of the drill sleeve, loosen the connection screw in the aiming block, thread the drill sleeve into the plate hole and tighten the connection screw.

2. Position dorsolateral plate

Position the dorsolateral plate in approximate position. The point of bone contact on the medial side marks the exit point of the screw inserted through the hole of the plate and thus shows the exact direction of the screw.

Use Kirschner wires through the aiming block for temporary fixation.



Option:
Positioning and Compression Device PCD

3. Fix the plate with cortex screw

Required instruments

323.360	Universal Drill Guide 3.5
310.250	Drill Bit \varnothing 2.5 mm, length 110/85 mm, 2-flute, for Quick Coupling
314.030	Screwdriver Shaft, hexagonal, small, \varnothing 2.5 mm

Use a 3.5 mm cortex screw for preliminary fixation of the plate to the bone.



4. Use the PCD to choose the screw length

Read the screw length on the scale of the PCD and choose the required length.

Account a safety margin to the articulating surface (2–10 mm depending on position).



5. Insert the LCP 2.7 mm screw

Required instruments

323.062	Drill Bit Ø 2.0 mm, with double marking, length 140/115mm, 3-flute, for Quick Coupling
313.304	Screwdriver Shaft STARDRIVE, T8, cylindrical, with groove, shaft Ø 3.5 mm, for AO/ASIF Quick Coupling
511.776	Torque Limiter, 0.8 Nm, with AO/ASIF Quick Coupling

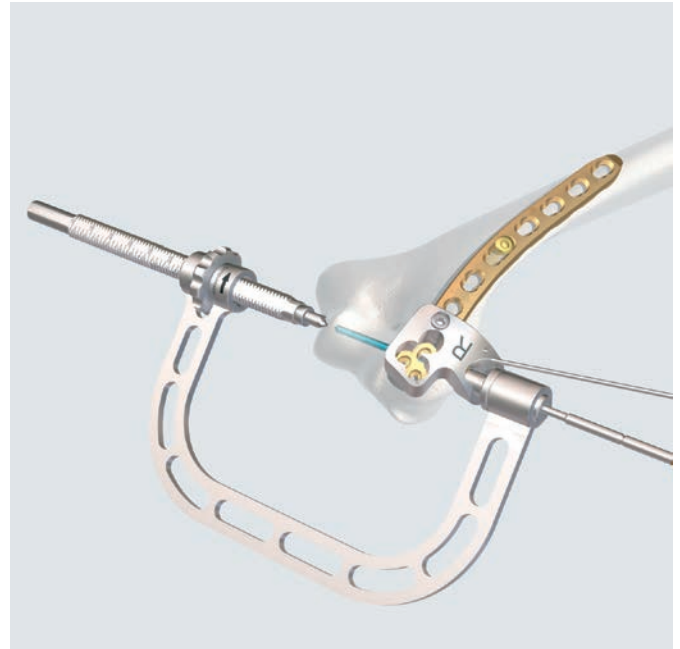
Drill the hole with the drill bit Ø 2.0 mm. The drill will exit the bone at the medial point of contact of the PCD.

Use a Kirschner wire instead of the drill bit if you need to check correct position of the plate and screw first.

Take out the drill sleeve and insert the LCP 2.7 mm screw with 2.4 head through the PCD.

▲ Precaution:

The (K-) Kirschner wire position represents the final position of the locking screw. Confirm that the (K-) Kirschner wire does not enter the joint.



6. Insert additional screws

Required instruments

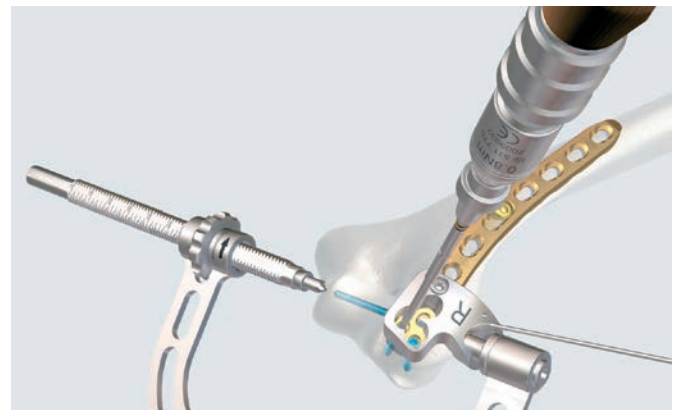
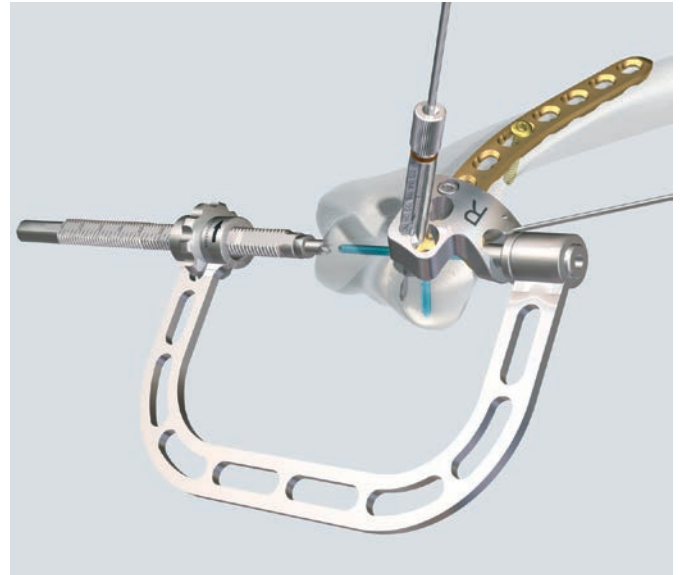
323.061	LCP Drill Sleeve 2.7 (head LCP 2.4), with scale up to 60 mm, for Drill Bits \varnothing 2.0mm
323.062	Drill Bit \varnothing 2.0 mm, with double marking, length 140/115mm, 3-flute, for Quick Coupling
313.304	Screwdriver Shaft STARDRIVE, T8, cylindrical, with groove, shaft \varnothing 3.5 mm, for AO/ASIF Quick Coupling
511.776	Torque Limiter, 0.8 Nm, with AO/ASIF Quick Coupling

Use the LCP drill sleeve and the drill bit \varnothing 2.0 mm to drill additional holes.

Insert additional LCP locking or cortex screws as needed.

▲ Precaution:

In the distal portion of the posterolateral plate, pay close attention to the posterior to anterior screw holes during drilling and screw insertion. Confirm screw placement and length with image intensification during movement of the elbow to ensure screws are not exiting through the joint.



7. Continue the procedure

Continue the procedure according to “Dorsolateral Plate with Support”.

The PCD may stay in place and serve as an indicator for the position of the screw in order to avoid collision with the medial distal screws.

■ Note:

The PCD can also be used to position a 3.5 mm cortex screws through the articular block.

Implant Removal

Implant removal

Required instruments

311.440	T-Handle with Quick-Coupling
314.030	Screwdriver Shaft, hexagonal, small, Ø 2.5 mm
314.116	Screwdriver Shaft STARDRIVE 3.5, T15, self-holding, for AO/ASIF Quick Coupling
309.520	Extraction Screw, conical, for Screws Ø 2.7, 3.5 and 4.0 mm
309.521	Extraction Screw for Screws Ø 3.5 mm
309.510	Extraction Screw, conical, for Screws Ø 1.5 and 2.0 mm

Implant removal

Unlock all screws from the plate, then remove the screws completely from the bone. This prevents simultaneous rotation of the plate when unlocking the last locking screw. If a screw cannot be removed with the screwdriver (e.g. if the hexagonal or STARDRIVE recess of the locking screw is damaged or if the screw is stuck in the plate), use the T-Handle with Quick-Coupling (311.440) to insert the conical Extraction Screw (309.520 or 309.521) into the screw head, and unscrew the screw in a counter-clockwise direction.

Implants

Distal Humerus Plates

Distal Humerus Plate, dorsolateral, right

Art. No.	Holes
X41.262	3
X41.264	5
X41.266	7
X41.268	9
X41.300	14



Distal Humerus Plate, dorsolateral, left

Art. No.	Holes
X41.263	3
X41.265	5
X41.267	7
X41.269	9
X41.301	14



Distal Humerus Plate, dorsolateral with support, right

Art. No.	Holes
X41.272	3
X41.274	5
X41.276	7
X41.278	9
X41.302	14



Distal Humerus Plate, dorsolateral with support, left

Art. No.	Holes
X41.273	3
X41.275	5
X41.277	7
X41.279	9
X41.303	14



Distal Humerus Plate, medial, right

Art. No.	Holes
X41.282	3
X41.284	5
X41.286	7
X41.288	9
X41.304	14






Distal Humerus Plate, medial, left

Art. No.	Holes
X41.283	3
X41.285	5
X41.287	7
X41.289	9
X41.305	14



All plates are available sterile packed.
 For sterile implants add suffix "S" to article number.
 X=2: Stainless Steel
 X=4: TiCP

LCP locking screws

⊗ *X02.214–260	Locking Screw STARDRIVE Ø 2.7 mm (head LCP 2.4), length 14–60 mm, self-tapping For sterile tube, add suffix "TS" to article number	
⊗ *X12.102–124	Locking Screw STARDRIVE Ø 3.5 mm, length 12–60 mm, self-tapping For sterile tube, add suffix "TS" to article number	
● *X13.012–060	Locking Screw Ø 3.5 mm, length 12–60 mm, self-tapping	

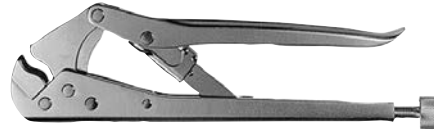
Standard screws

⊗ *X01.764–790	Cortex Screw STARDRIVE Ø 2.4 mm, length 14–40 mm, self-tapping For sterile tube, add suffix "TS" to article number	
● **X04.814–860	Cortex Screw Ø 3.5 mm, length 14–60 mm, self-tapping	

X=2: Stainless Steel
*X=4: TAN
**X=4: TiCP
All screws are available sterile packed. For sterile implants add
suffix "S" to article number.

Bending Instruments

329.150	Bending Pliers for Plates 2.4 to 4.0, length 230 mm
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329.040	Bending Iron for Plates 2.4 to 3.5, length 145 mm
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■ **Note:**

Slit widths 2.5 and 4.5 mm, required with No. 329.050

329.050	Bending Iron for Plates 2.4 to 3.5, length 145 mm
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■ **Note:**

Slit widths 4.5 and 2.5 mm, required with No. 329.040

Instruments

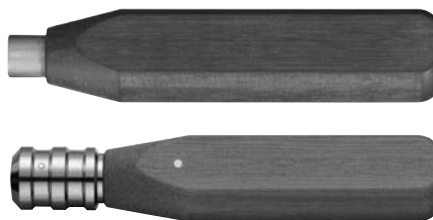
Torque Limiters

511.776	Torque Limiter 0.8 Nm with AO/ASIF Quick Coupling
511.773	Torque Limiter 1.5 Nm, for LCP locking screws Ø 3.5 mm for AO/ASIF Quick Coupling
511.770	Torque Limiter 1.5 Nm for Compact Air Drive and Power Drive

Note:

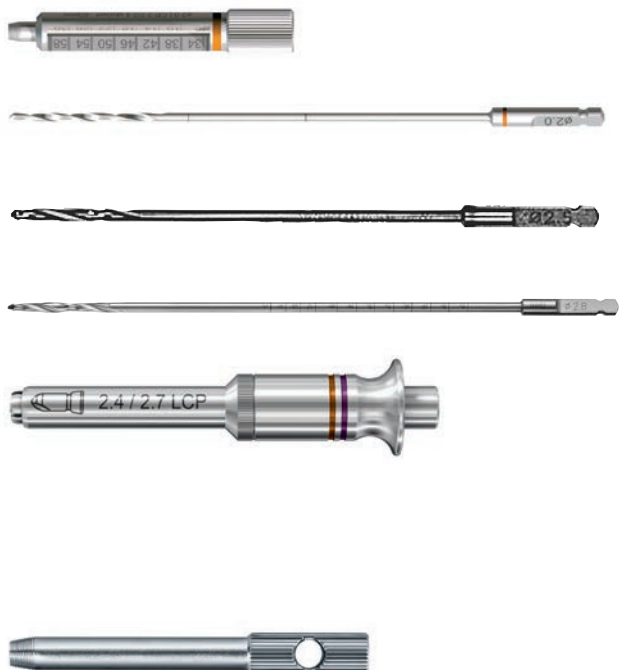
Always use Torque Limiter when inserting LCP screws, otherwise plate and/or screws might be damaged

397.705	Handle for Torque Limiter Nos. 511.770 and 511.771
311.431	Handle with Quick Coupling



Drilling instruments for LCP locking screws Ø 2.7 mm

323.061	LCP Drill Sleeve 2.7 (head LCP 2.4), with scale up to 60 mm, for Drill Bits Ø 2.0mm
323.062	Drill Bit Ø 2.0 mm, with double marking, length 140/115mm, 3-flute, for Quick Coupling
310.250	Drill Bit Ø 2.5 mm, length 110/85 mm, 2-flute, for Quick Coupling
310.284	LCP Drill Bit Ø 2.8 mm with Stop, length 165 mm, 2-flute, for Quick Coupling
313.301	Holding Sleeve for LCP Screws STARDRIVE Ø 2.4/2.7 mm (head LCP 2.4), T8, for Screwdriver Shafts Ø 3.5 mm
313.304	Screwdriver Shaft STARDRIVE, T8, cylindrical, with groove, shaft Ø 3.5 mm, for AO/ASIF Quick Coupling
323.027	LCP Drill Sleeve 3.5 for Drill Bits Ø 2.8 mm



314.030 Screwdriver Shaft, hexagonal, small, Ø 2.5 mm



314.116 Screwdriver Shaft STARDRIVE 3.5, T15, self-holding, for AO/ASIF Quick Coupling



Positioning and Compression Device (PCD) for the dorso-lateral plate with support

313.351 Aiming Block, left, for Aiming Arm No. 313.354, for DHP

313.352 Aiming Block, right, for Aiming Arm No. 313.354, for DHP

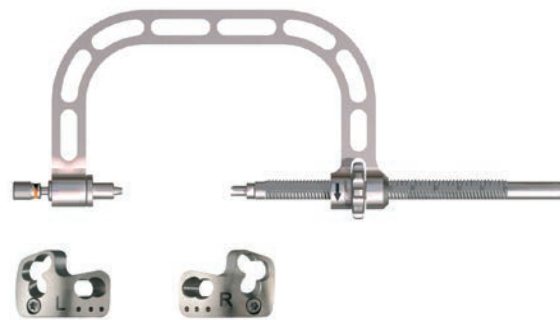
313.353 Drill Sleeve 2.7, for Aiming Arm No. 313.354, for DHP

313.354 Aiming Arm for DHP

313.355 Insert for Drill Sleeve 2.7

313.356 Insert for Drill Sleeve 3.5

313.357 Drill Sleeve 3.5, for Aiming Arm No. 313.354, for DHP



■ Note:

The PCD can also be used without plate to implement 3.5 mm cortex screws.

Length measurement devices

319.005 Depth Gauge for Screws Ø 2.0 and 2.4 mm, measuring range up to 40 mm



319.010 Depth Gauge for Screws Ø 2.7 to 4.0 mm, measuring range up to 60 mm



MRI Information

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 led to a 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 and/or www.depuysynthes.com/ifu
Not all products are currently available in all markets.
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