

Variable Angle LCP Two-Column Volar Distal Radius Plate 2.4. For fragment-specific fracture fixation with variable angle locking technology.

Surgical Technique



This publication is not intended for
distribution in the USA.

Instruments and implants
approved by the AO Foundation.



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.

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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:

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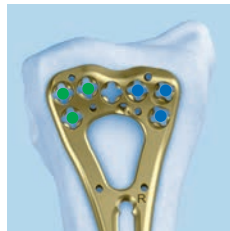
Variable Angle LCP Two-Column Volar Distal Radius Plate 2.4. For fragment-specific fracture fixation with variable angle locking technology.

Features and Benefits

The Variable Angle LCP Two-Column Volar Distal Radius Plate 2.4, featuring variable angle locking technology, is indicated for intra- and extra-articular fractures and osteotomies of the distal radius. All implants are available in stainless steel and titanium.

Dedicated screws

For fixation of radial styloid (blue) and support of lunate facet and DRUJ (green)



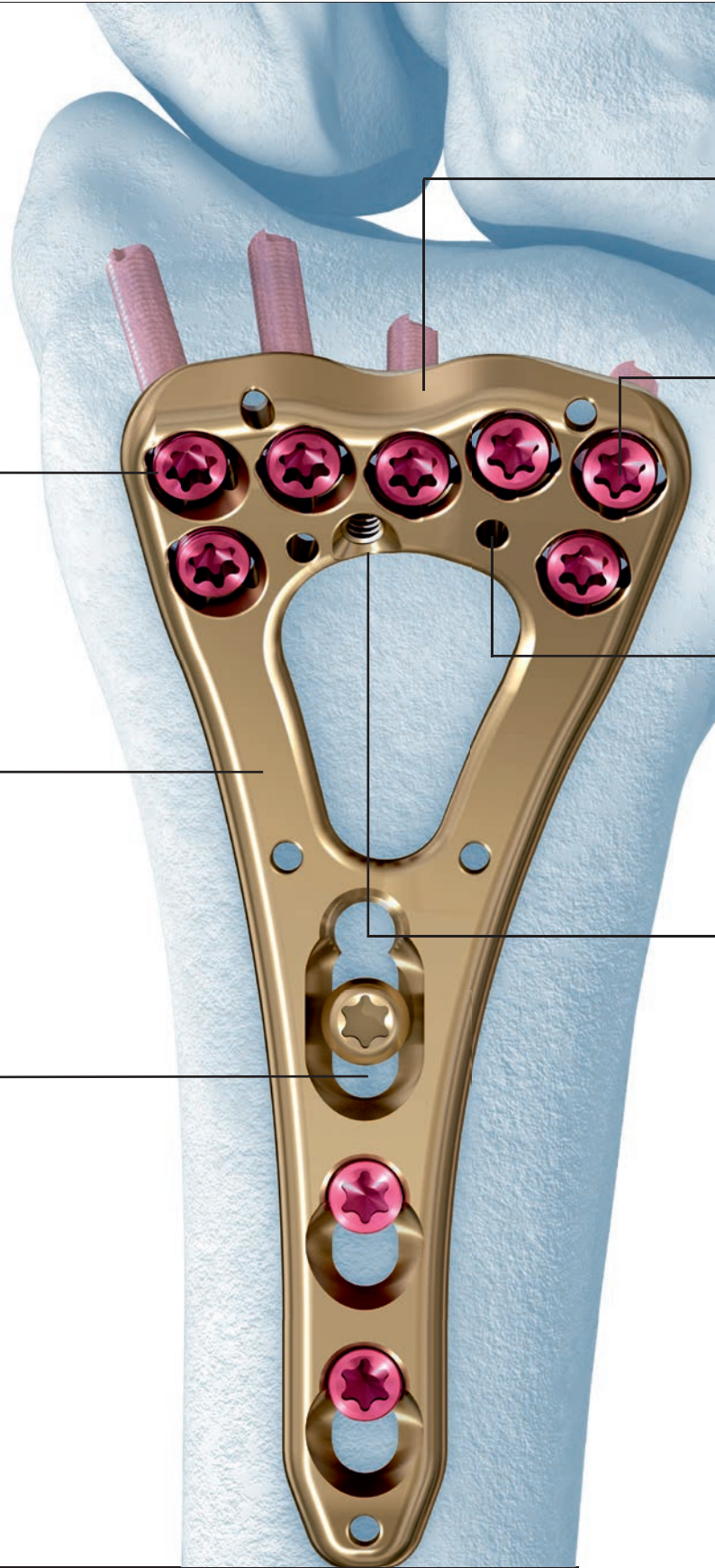
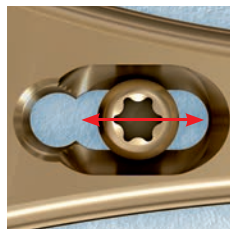
Bendable

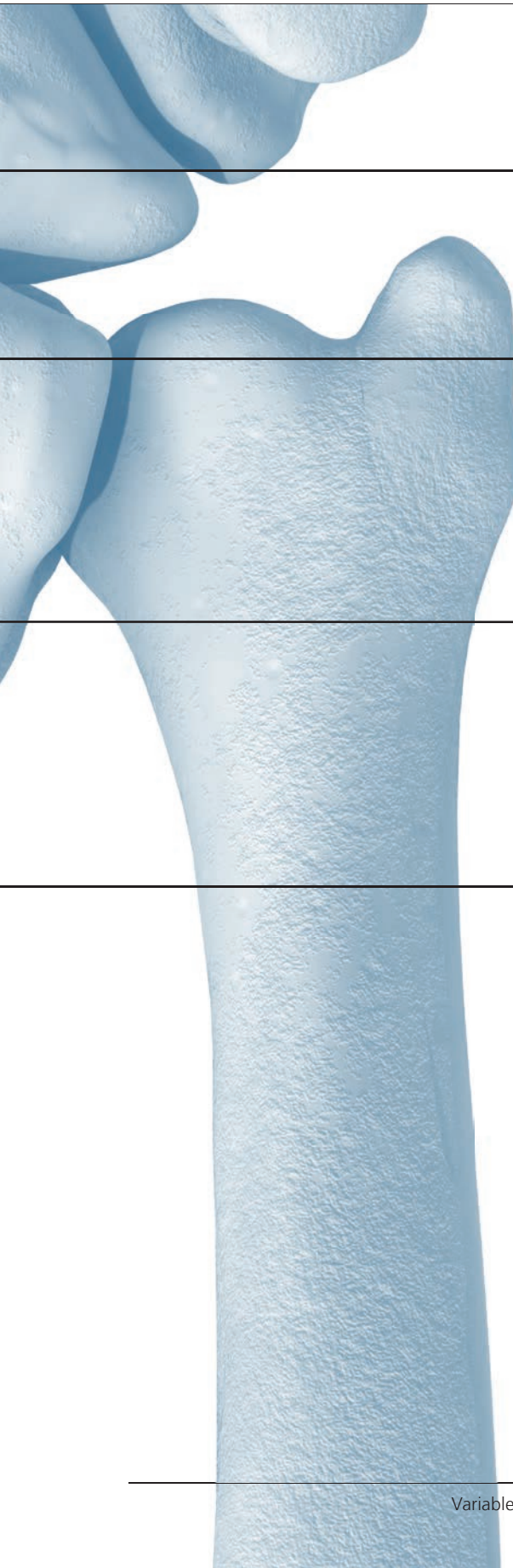
Two columns allow independent fine contouring of the radial and intermediate columns



Oblong combi-hole

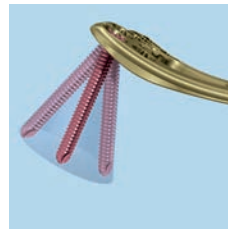
Allows accurate plate positioning on the bone





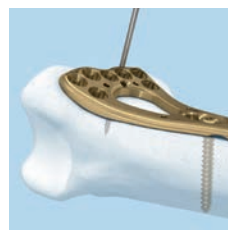
Anatomical fit

Close to the volar ridge with rounded plate edges, polished surface and countersunk screws to reduce the risk of soft tissue irritation



Variable angle locking

Holes allow up to 15° off-axis screw angulation in all directions in order to address the individual fracture patterns



Kirschner wire holes

Enable preliminary plate fixation



Guiding block

Allows guided drilling and screw insertion in the predefined nominal angle

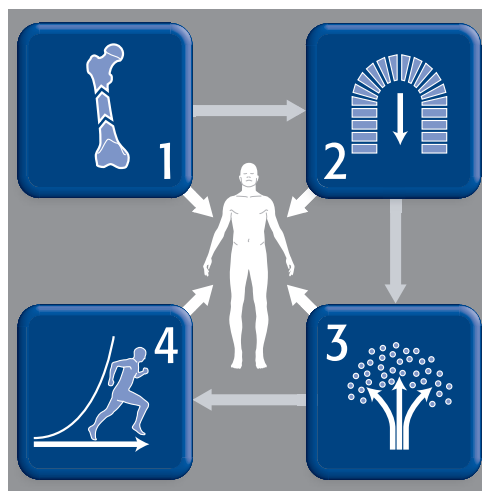
In 1958, the AO formulated four basic principles, which have become the guidelines for internal fixation^{1,2}.

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

² Rüedi TP, RE Buckley, CG Moran. AO Principles of Fracture Management. 2nd ed. Stuttgart, New York: Thieme. 2007

Intended Use and Indications

Intended Use

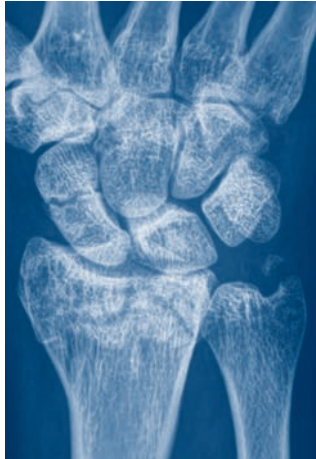
The plate and screw implants included in the Radius Plate product family are intended for temporary fixation, correction or stabilization in the radius anatomical region.

Indications

Variable Angle LCP Two-Column Volar Distal Radius Plates 2.4 are indicated for the fixation of intra- and extra-articular fractures and osteotomies of the distal radius.

Case 1

24-year-old male with AO 23C2.1 fracture, fall from scaffold



Preoperative, AP view



Preoperative, lateral view



Postoperative, AP view



Postoperative, lateral view

Case 2

77-year-old female with AO 23C1 fracture, fall



Preoperative, AP view



Preoperative, lateral view



Postoperative, AP view



Postoperative, lateral view, 20° inclined

Three Column Theory

The treatment of distal radius fractures requires a meticulous reconstruction of the joint surface, as well as stable internal fixation and early functional post-operative treatment.

Extra-articular fractures require both the restoration of the volar tilt and radial length to reduce the possibility of displacement. Any malalignment may result in limitations of movement, changes of load distribution, mid-carpal instability as well as the increased risk of osteoarthritis in the radio-carpal joint.

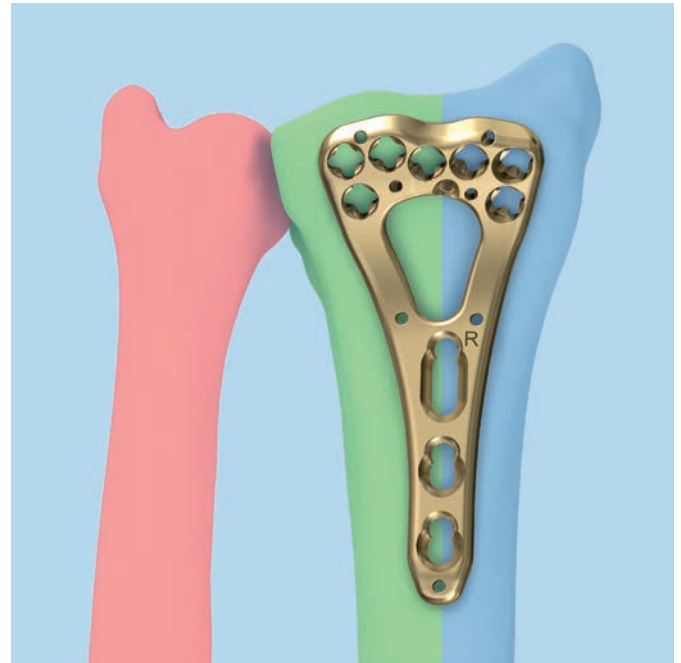
Intra-articular fractures with articular displacement of more than 2 mm in the radiocarpal joint inevitably result in osteoarthritis and functional impairment.

The distal radius and distal ulna form a three-column biomechanical construction³:




- 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 indicates not only dorsiflexion in the sagittal plane, but also radial deviation in the frontal plane and supination in the transverse plane.

Following reduction, stabilization requires optimal fixation of the intermediate column as well as the radial column. In the case of a fractured distal ulna that compromises the distal radio-ulna joint, the ulnar column must be stabilized as well.



VA-LCP Two-Column Volar Distal Radius Plate allows both fixation and buttressing of the two columns of the distal radius

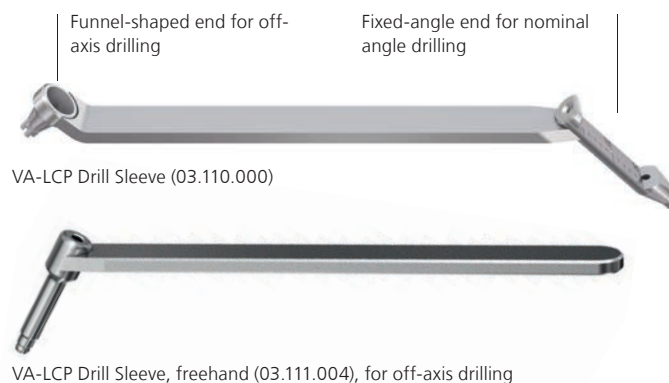
- | | |
|---|---------------------|
|  | Radial column |
|  | Intermediate column |
|  | Ulnar column |

³ Rikli DA, Regazzoni P (1996) Fractures of the distal end of the radius treated by internal fixation and early function. A preliminary report of 20 cases. J Bone Joint Surg [Br] 78 (4):588–592

Screw Insertion Techniques

Variable angle locking screws can be inserted using two different techniques:

- Variable angle technique
- Predefined nominal angle technique



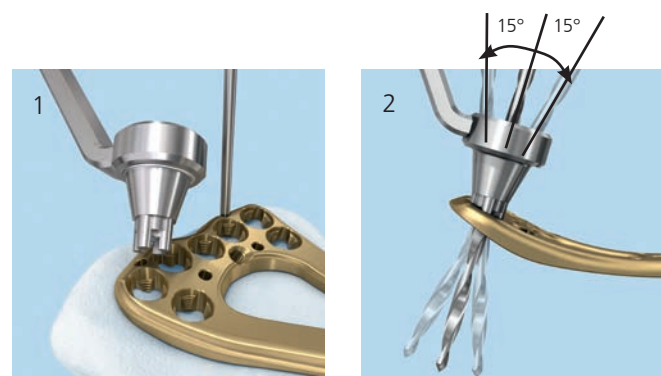
Variable angle technique

To drill variable angle holes up to 15° deviation from the nominal trajectory of the locking hole, insert the tip of the VA-LCP drill sleeve and key into the cloverleaf design of the VA locking hole (1).

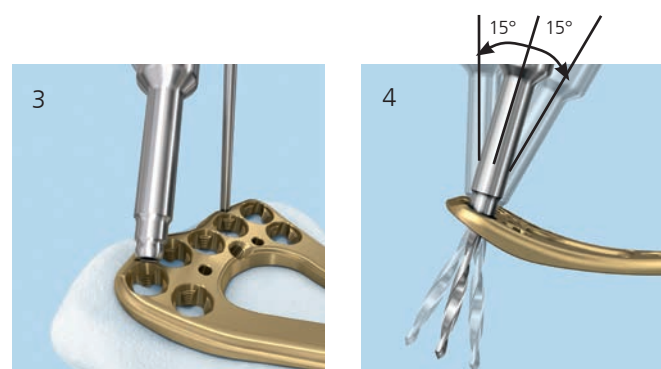
Use the funnel-shaped end of the VA-LCP drill sleeve to drill variable angle holes at the desired angle (2).

Alternatively, use the freehand VA-LCP drill sleeve and insert it fully into the VA locking hole (3).

Drill variable angle holes at the desired angle (4).



Use of funnel-shaped end of VA-LCP Drill Sleeve



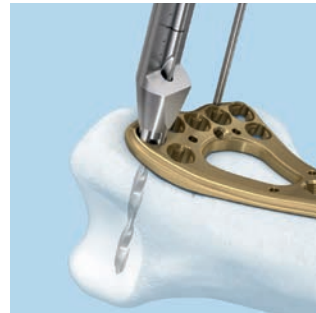
Use of freehand VA-LCP Drill Sleeve (03.111.004)

Note: It is important not to angulate more than 15° from the central axis of the screw hole. Overangulation could result in inappropriate screw locking. Moreover, the screw head may not be fully countersunk.

Predefined nominal angle technique

a) Use of fixed-angle end of VA-LCP drill sleeve

The fixed-angle end of the VA-LCP drill sleeve only allows the drill bit to follow the nominal trajectory of the VA locking hole.



Use of fixed-angle end of VA-LCP drill sleeve

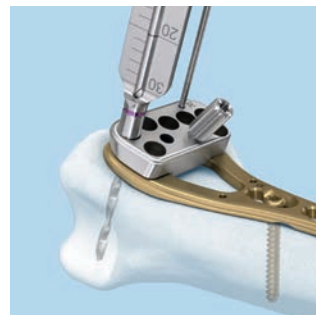


b) Use of guiding blocks

Fixation at the nominal angle of the VA locking holes in the head of the plate may also be facilitated by a guiding block attached to the plate prior to plate fixation.

The guiding blocks are used together with the quick drill sleeve (03.111.000).

Choose the guiding block corresponding to the desired plate (six or seven head hole configuration, left or right). Mount the guiding block to the plate by turning the guiding block attachment screw clockwise.

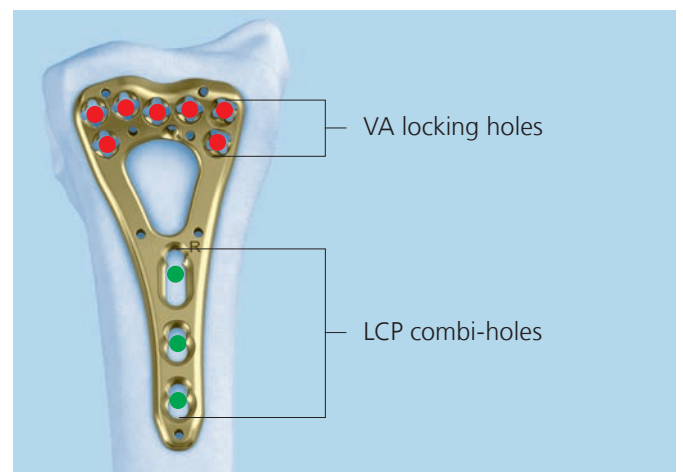


Use of guiding block with quick drill sleeve



Note: If using guiding blocks, avoid bending the head portion of the plate.

Precaution: Do not use the threaded LCP drill sleeve (323.029) in variable angle locking holes.



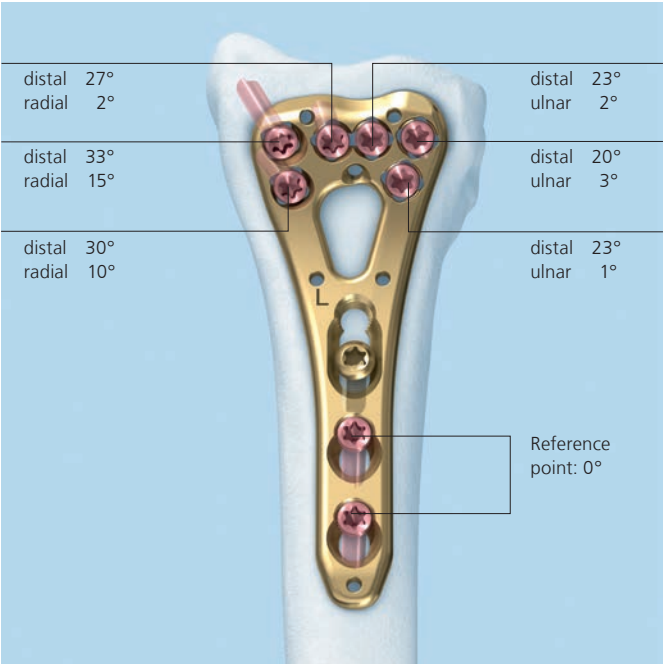
Screw Angle Overview

VA-LCP Two-Column Volar Distal Radius Plates 2.4 provide various locking screw options in the head of the plate to optimally support the articular surface:

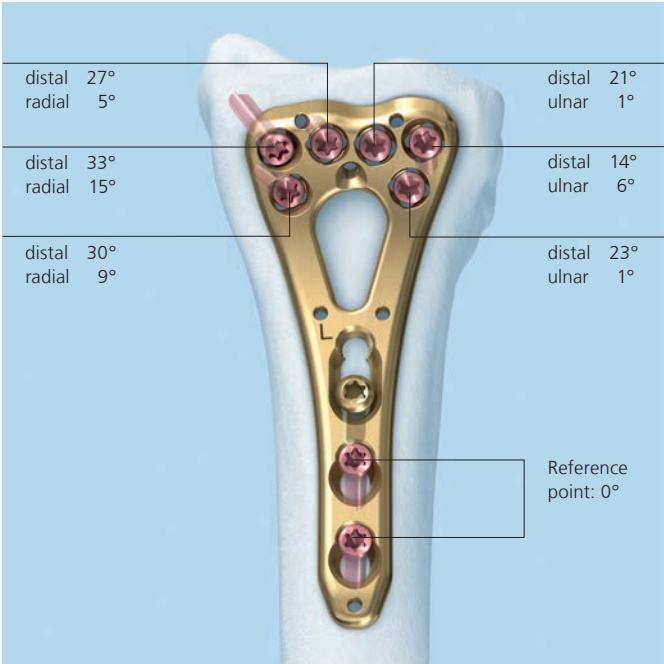
- Radial screws for the radial column
- Ulnar screws for the intermediate column

When planning the placement of screws, particularly if using the nominal angle of the trajectories (e.g., with the aid of the guiding block), refer to the screw angle overview below. Basis for the angles given is the plate shaft with screw angulation 0°.

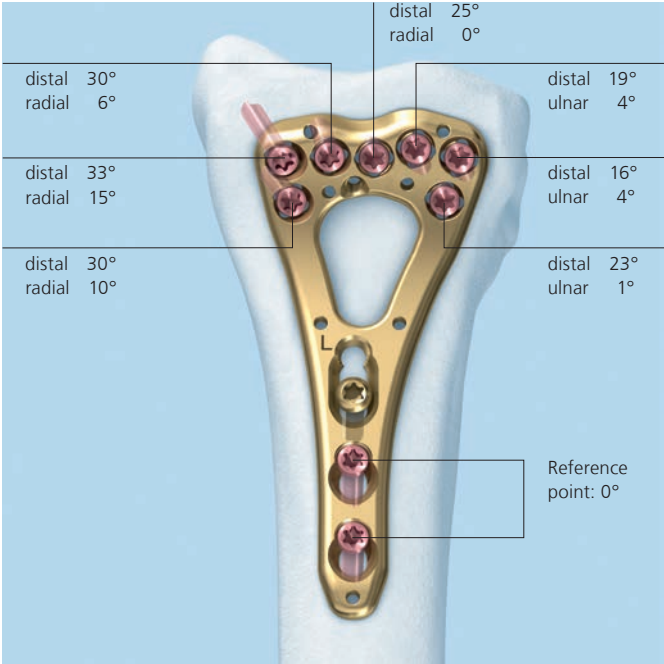
VA-LCP Two-Column Distal Radius Plates 2.4, volar, narrow, 6 head holes:



VA-LCP Two-Column Distal Radius Plates 2.4, volar, 6 head holes:



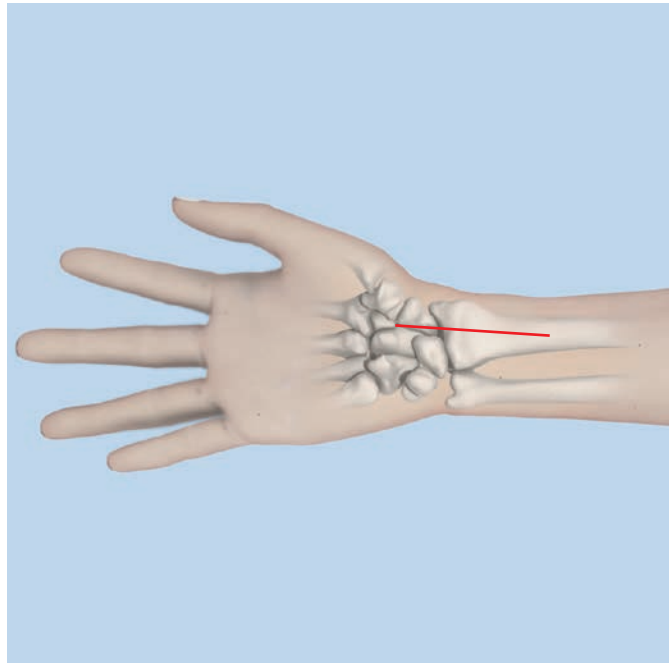
VA-LCP Two-Column Distal Radius Plates 2.4, 7 head holes:



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.

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

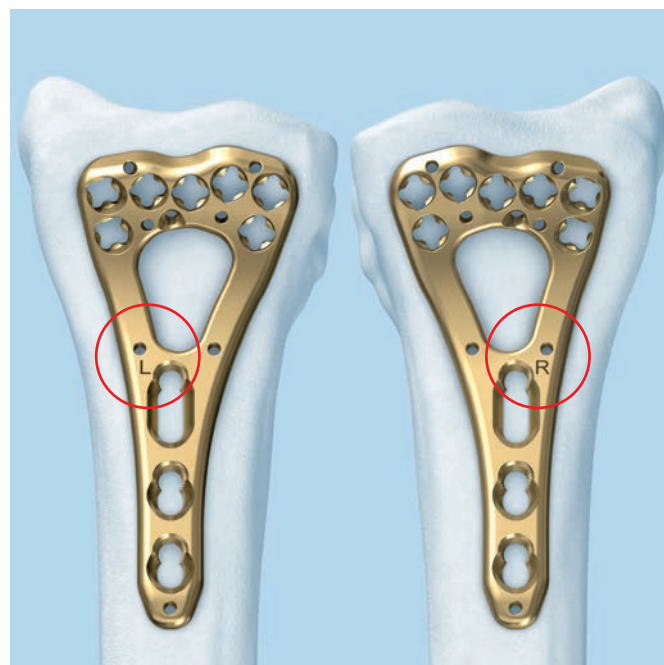


1

Select implant

Select the plates according to the fracture pattern and anatomy of the radius.

Note: Ensure the proper plate selection by verifying the L (left) and R (right) etching on the plate shaft. The plate's distal lip is slightly lower on the radial side.



Left and right plates are marked like indicated

2

Reduce fracture and position plate

Instruments for 2.4 mm and 2.7 mm cortex screws

310.509	Drill Bit Ø 1.8 mm, with marking, length 110/85 mm, 2-flute, for Quick Coupling
310.534	Drill Bit Ø 2.0 mm, with marking, length 110/85 mm, 2-flute, for Quick Coupling
323.202	Universal Drill Guide 2.4
323.260	Universal Drill Guide 2.7
311.430	Handle with Quick Coupling, length 110 mm
314.453	Screwdriver Shaft, Stardrive, T8, short, self-holding
03.111.005	Depth Gauge for Screws Ø 2.4 to 2.7 mm, measuring range up to 40 mm

Optional

314.467	Screwdriver Shaft, Stardrive, T8, self-holding
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292.120	Kirschner Wire Ø 1.25 mm with trocar tip, length 150 mm, Stainless Steel
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02.111.500.01(S)	Plate Reduction Wire Ø 1.25 mm, with thread, with Small Stop, length 150 mm, Stainless Steel
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02.111.501.01(S)	Plate Reduction Wire Ø 1.25 mm, with thread, with Large Stop, length 150 mm, Stainless Steel
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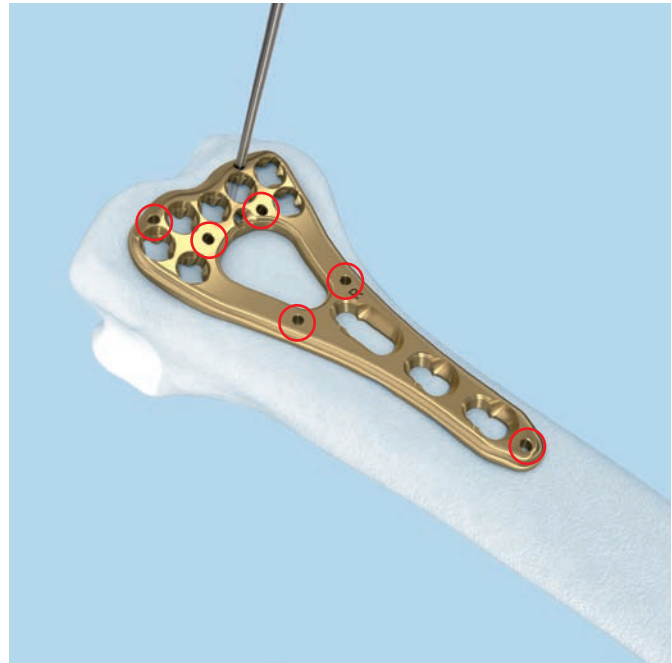
Reduce the fracture. The reduction method will be fracture-specific.

Apply the plate to fit the volar surface.

If necessary, use 1.25 mm Kirschner wires inserted through the desired Kirschner wire hole to temporarily fix the plate distally.

The order of screw insertion and the use of Kirschner wires may vary depending on the fracture pattern and reduction technique.

- Perform several radiographic views of the distal radius to ensure alignment and reduction.



Additional options for preliminary Kirschner wire fixation

Option: Plate reduction wires

The 1.25 mm plate reduction wires can be used for preliminary plate fixation. They must be removed when not needed for temporary fixation anymore.

Precaution: The plate reduction wires and Kirschner wires are single use items, do not re-use.



Beginning with the elongated hole in the shaft of the plate, drill with the 1.8 mm drill bit using the Universal Drill Guide 2.4.



Insert a 2.4 mm cortex screw in the elongated hole in the plate shaft. Adjust the plate position if necessary and tighten the screw.

Note: Alternatively, insert 2.7 mm cortex screws into the shaft. Use the Universal Drill Guide 2.7 in the unthreaded part of the hole. Drill with the drill bit 2.0 mm.



3

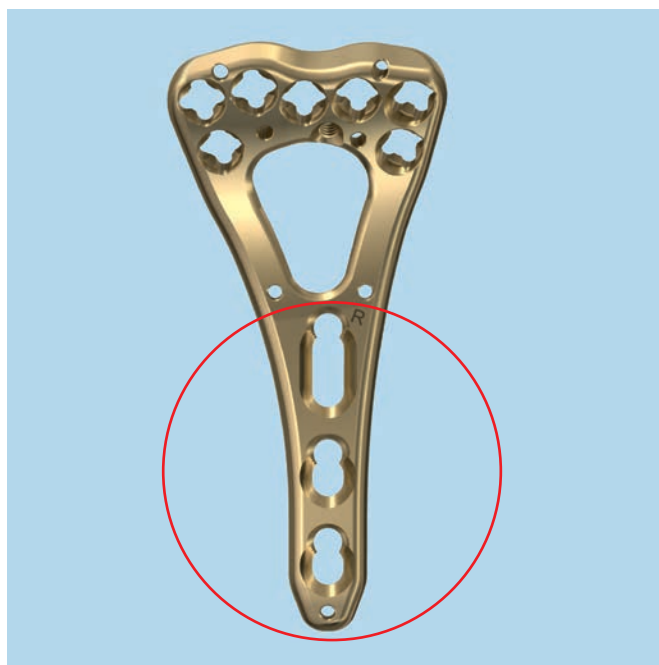
Insert proximal screws

Instruments for 2.4 mm locking screws

310.509	Drill Bit Ø 1.8 mm, with marking, length 110/85 mm, 2-flute, for Quick Coupling
323.029	LCP Drill Sleeve 2.4, with Scale up to 30 mm, for Drill Bits Ø 1.8 mm
03.111.005	Depth Gauge for Screws Ø 2.4 to 2.7 mm, measuring range up to 40 mm
311.430	Handle, with Quick Coupling
314.453	Screwdriver Shaft, Stardrive, T8, short, self-holding
03.110.005	Handle for Torque Limiters 0.4/0.8/1.2 Nm
511.776	Torque Limiter 0.8 Nm

Instruments for 2.4 mm or 2.7 mm cortex screws

310.509	Drill Bit Ø 1.8 mm, with marking, length 110/85 mm, 2-flute, for Quick Coupling
310.534	Drill Bit Ø 2.0 mm, with marking, length 110/85 mm, 2-flute, for Quick Coupling
323.202	Universal Drill Guide 2.4
323.260	Universal Drill Guide 2.7
03.111.005	Depth Gauge for Screws Ø 2.4 to 2.7 mm, measuring range up to 40 mm
311.430	Handle, with Quick Coupling
314.453	Screwdriver Shaft, Stardrive, T8, short, self-holding



Optional

314.467	Screwdriver Shaft, Stardrive, T8, self-holding
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Determine where 2.4 mm locking screws and 2.4 mm or 2.7 mm cortex screws will be used in the shaft of the plate. Insert the screws, beginning with the most proximal screw.

Locking screws

For locking screws, carefully insert the LCP drill sleeve 2.4 with scale, perpendicular to the plate and in line with the hole's axis until it is seated in the desired locking hole. Drill with the drill bit 1.8 mm.

Read the screw length directly from the laser mark on the drill bit. Alternatively, use the corresponding depth gauge to determine the screw length.

Using the 0.8 Nm torque limiter, insert either a locking or variable angle locking screw.

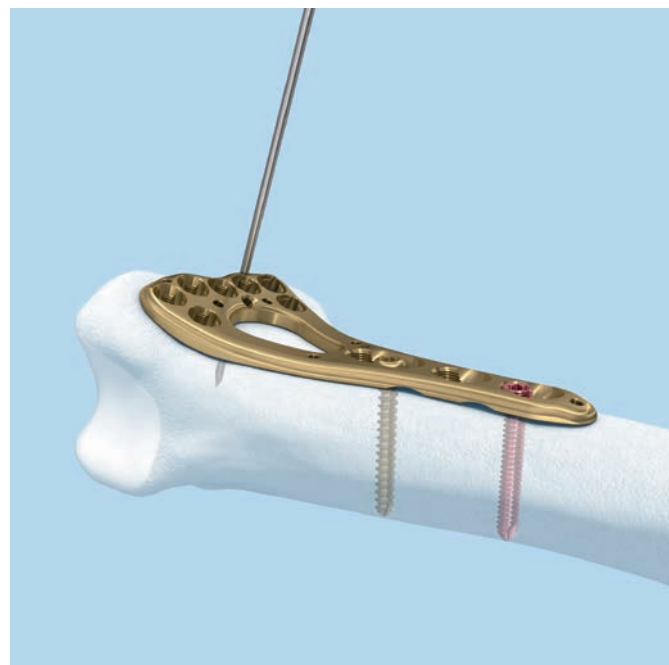
The torque limiter prevents overtightening and ensures that the VA locking screws are securely locked into the plate.

Note: For dense bone, visually inspect if the screw is countersunk after tightening with the torque limiter. If required, carefully tighten without the torque limiter until the screw head is flush with the plate surface.

Cortex screws

For 2.4 mm cortex screws, use the Universal Drill Guide 2.4 in the unthreaded part of the hole. Drill with the drill bit 1.8 mm.

For 2.7 mm cortex screws, use the Universal Drill Guide 2.7 in the unthreaded part of the hole. Drill with the drill bit 2.0 mm (not indicated).



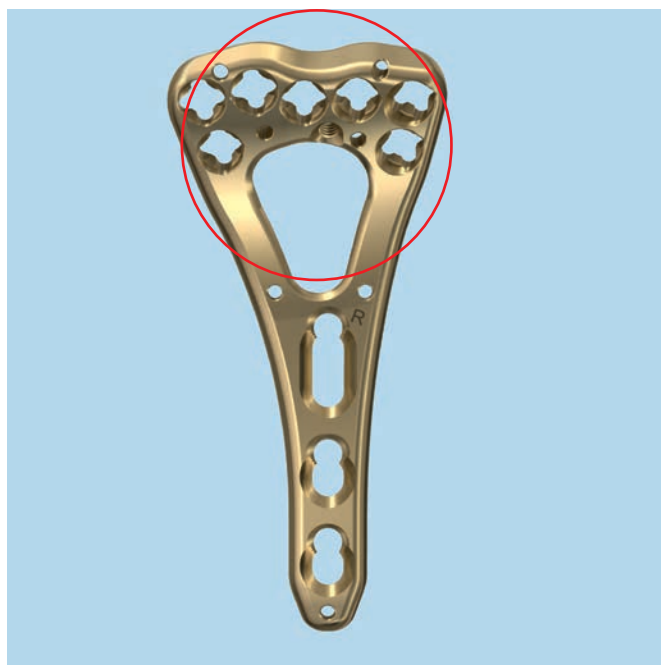
4

Drill screw hole for VA locking screws

Instruments

310.509	Drill Bit Ø 1.8 mm, with marking, length 110/85 mm, 2-flute, for Quick Coupling
03.111.005	Depth Gauge for Screws Ø 2.4 to 2.7 mm, measuring range up to 40 mm

Determine whether screws will be inserted at a variable angle (4a) or at the predefined nominal angle (4b).



4a

Drill screw hole for VA locking screw using variable angle technique

Instrument

03.110.000	VA-LCP Drill Sleeve 2.4, for Drill Bits Ø 1.8 mm
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Optional

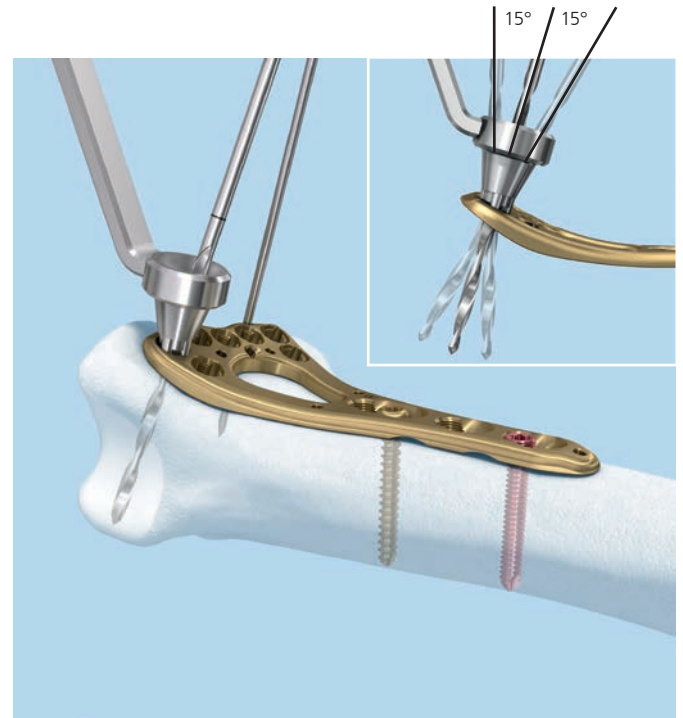
03.110.023	VA-LCP Drill Sleeve 2.4, conical, for Drill Bits Ø 1.8 mm
03.111.004	VA-LCP Drill Sleeve 2.4, for Drill Bits Ø 1.8 mm, freehand usable

Drill using VA-LCP drill sleeve with funnel

Insert and lock the VA-LCP drill sleeve tip into the cloverleaf design of the VA locking hole.

Use the 1.8 mm drill bit to drill to the desired depth at the desired angle.

The funnel of the drill sleeve allows the drill bit up to a 15° angulation around the central axis of the locking hole.



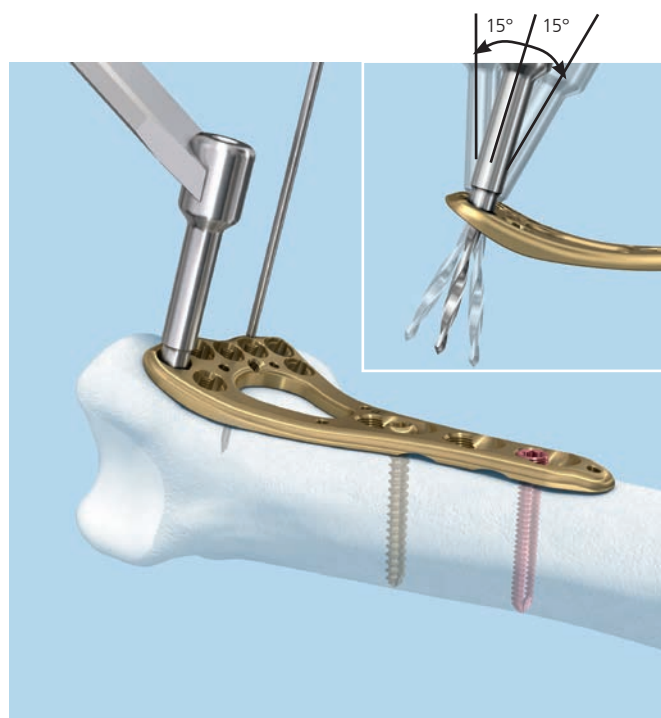
Drill using VA-LCP drill sleeve for freehand use

Alternatively, use the free hand VA-LCP Drill Sleeve. Fully extend it into the VA locking hole. Drill variable angle holes at the desired angle.

Note: To ensure that the screw is locked correctly, do not angle it in excess of $\pm 15^\circ$ from the nominal trajectory of the hole.

To achieve the desired angle, verify the drill bit angle under image intensifier control. If necessary, drill at a different angle and verify again under image intensifier control.

Use the corresponding depth gauge to measure the correct screw length.



4b

Drill using predefined nominal angle technique

Instrument

03.110.000	VA-LCP Drill Sleeve 2.4, for Drill Bits Ø 1.8 mm
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Optional

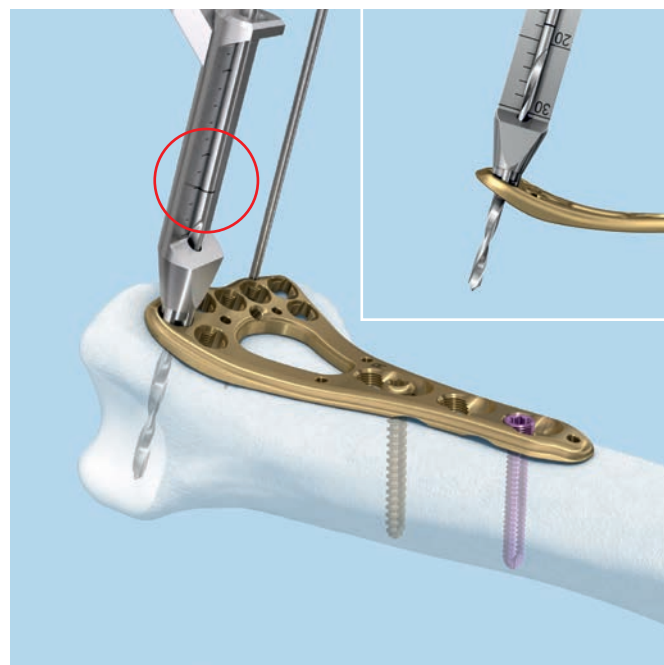
03.110.024	VA-LCP Drill Sleeve 2.4, coaxial, for Drill Bits Ø 1.8 mm
03.111.000	Quick Drill Sleeve 2.4 with Scale, for Drill Bits Ø 1.8 mm, for Guiding Block
03.111.500	Guiding Block for Two-Column Distal Radius Plate 2.4, narrow, 6 holes, right
03.111.501	Guiding Block for Two-Column Distal Radius Plate 2.4, narrow, 6 holes, left
03.111.600	Guiding Block for Two-Column Distal Radius Plate 2.4, 6 holes, right
03.111.601	Guiding Block for Two-Column Distal Radius Plate 2.4, 6 holes, left
03.111.700	Guiding Block for Two-Column Distal Radius Plate 2.4, 7 holes, right
03.111.701	Guiding Block for Two-Column Distal Radius Plate 2.4, 7 holes, left

Drill using VA-LCP Drill Sleeve

The fixed-angle end of the drill sleeve only allows the drill bit to follow the nominal trajectory of the VA locking hole.

Read the screw length directly from the laser mark on the drill bit. Alternatively, use the corresponding depth gauge to determine the screw length.

Note: For the direction of predefined screw angles, refer to the reference charts on pages 10 and 11.



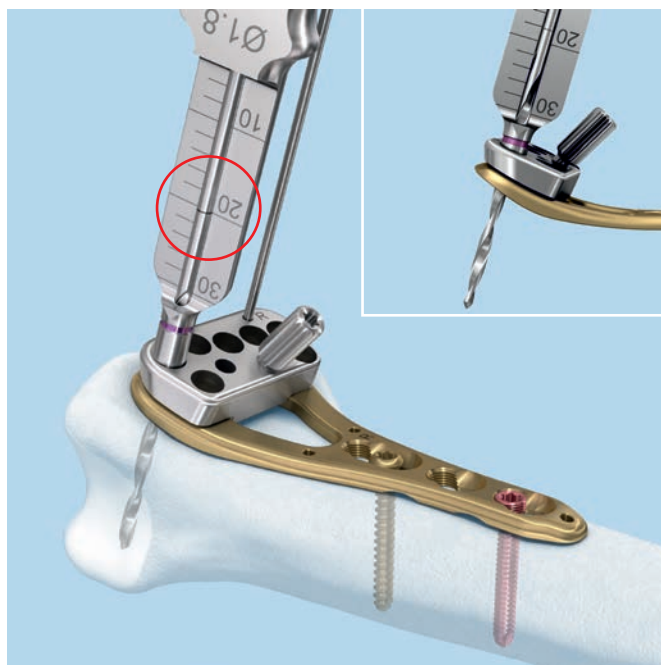
Drill using guiding blocks

Alternatively, use the two-column distal radius plate guiding block in combination with the quick drill sleeve.

Select the corresponding guiding block and secure it to the plate using the attachment screw.

Insert the quick drill sleeve with scale into the guiding block hole. Ensure that the quick drill sleeve is firmly seated in the hole. Drill to the desired depth using the 1.8 mm drill bit.

Read the screw length directly from the laser mark on the drill bit.



Alternatively, measure with a corresponding depth gauge directly through the guiding block.



5

Insert VA locking screws

Instruments

311.430	Handle with Quick Coupling, length 110 mm
314.453	Screwdriver Shaft, Stardrive, T8, short, self-holding

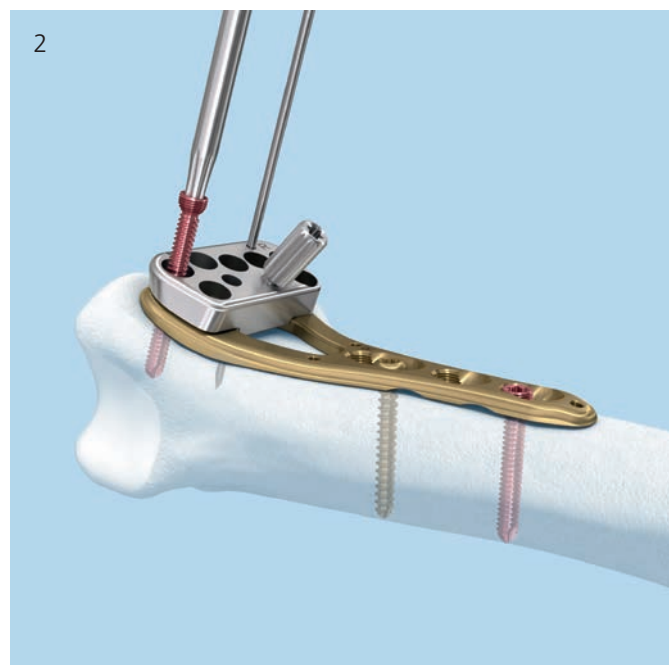
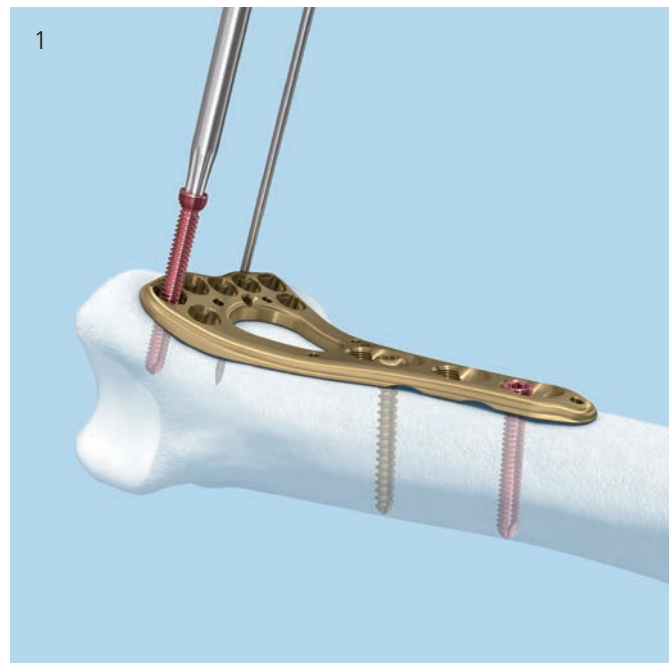
Optional

314.467	Screwdriver Shaft, Stardrive, T8, self-holding
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Insert the VA locking screws manually with the self retaining T8 Stardrive screwdriver shaft and quick coupling handle and tighten just enough for the screw head to be fully seated in the VA locking hole (1).

Note: Do not over-tighten the screw. This allows the screws to be easily removed should they not be in the desired position.

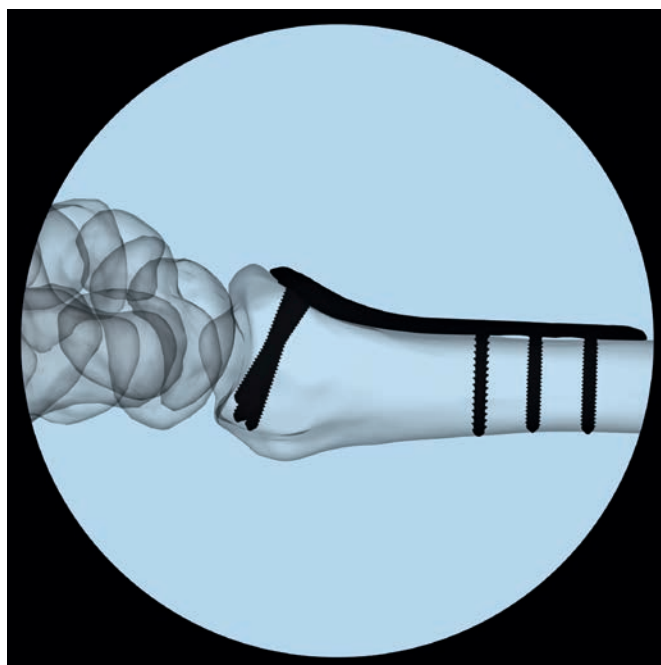
Note: When a guiding block is used, the locking screw (VA locking or standard locking) may be inserted with a T8 screwdriver directly through the guiding block (2).



6

Ensure proper joint reconstruction

Ensure proper joint reconstruction, screw placement and screw length using multiple radiographic views. Verify that the distal screws are not in the joint by using additional views such as a 10° dorsally tilted, 20° inclined lateral, and 45° pronated oblique view.



7

Final fixation of VA locking screws

Instruments

03.110.005	Handle for Torque Limiters 0.4/0.8/1.2 Nm
511.776	Torque Limiter, 0.8 Nm, with AO Quick Coupling
314.453	Screwdriver Shaft, Stardrive, T8, short, self-holding

Optional

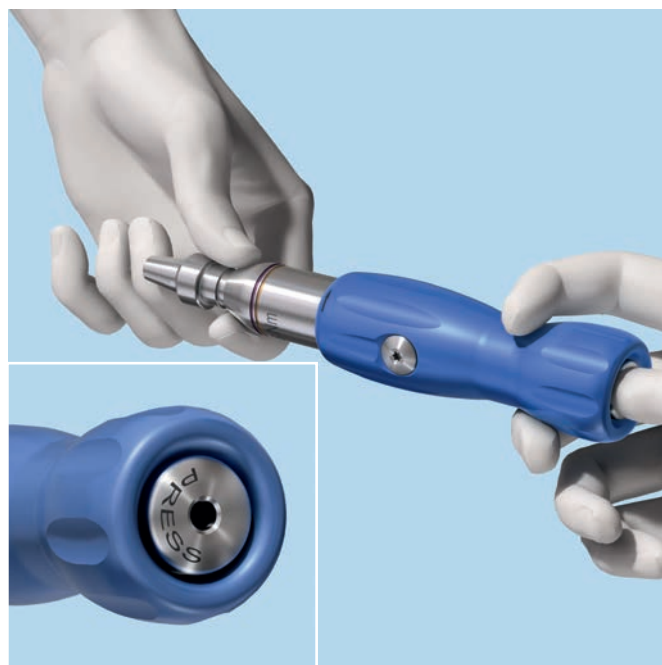
314.467	Screwdriver Shaft, Stardrive, T8, self-holding
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Use the 0.8 Nm torque limiter to perform the final locking step for the VA locking screws.

The torque limiter prevents over-tightening and ensures that the VA locking screws are securely locked into the plate.

Note: For dense bone, visually inspect if the screw is countersunk after tightening with the torque limiter. If required, carefully tighten without the torque limiter until the screw head is flush with the plate surface.

Precaution: Use of the TLA is mandatory when inserting locking screws into variable angle locking holes.



Postoperative Treatment/ Implant Removal

Postoperative treatment

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

Implant removal

Instruments

311.430	Handle with Quick Coupling
314.453	Screwdriver Shaft Stardrive 2.4, short, self-holding, for Quick Coupling

Optional

314.467	Screwdriver Shaft Stardrive, T8, self-holding
314.468	Holding Sleeve for Screws Stardrive Ø 2.4 mm, T8, for Screwdriver Shaft 314.467

To remove locking screws, first unlock all screws from the plate; then remove the screws completely from the bone.

The last screw removed should be a non-locking screw on the shaft. This prevents the plate from spinning when locking screws are removed.

Recommendation

Fine contouring of the plate (optional)

Instrument

347.901	Pliers, flat-nosed, pointed, for Plates 1.0 to 2.4
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VA-LCP Two-Column Volar Distal Radius Plates 2.4 are designed to optimally fit the volar surface of the majority of radii.

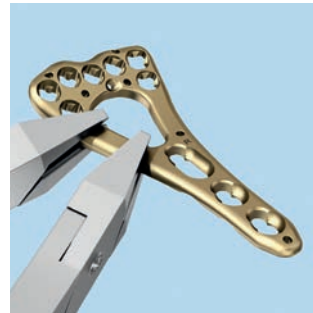
If necessary, bend the plate to suit anatomical conditions as indicated. Avoid repetitive bending.

Recommendation: Use non-serrated bending pliers for preservation of the plate's smooth finish.

Precautions:

- The design of the plate holes allow a certain degree of deformation. However, if threaded holes are significantly deformed, locking is not sufficiently efficient.
- 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.

Note: If using guiding blocks, avoid bending the head portion of the plate. Otherwise, the guide block might not function as intended.



Cover the shaft's Kirschner wire hole. Stay below head holes.



Cover proximal head holes. Adjust slightly over the middle hole.

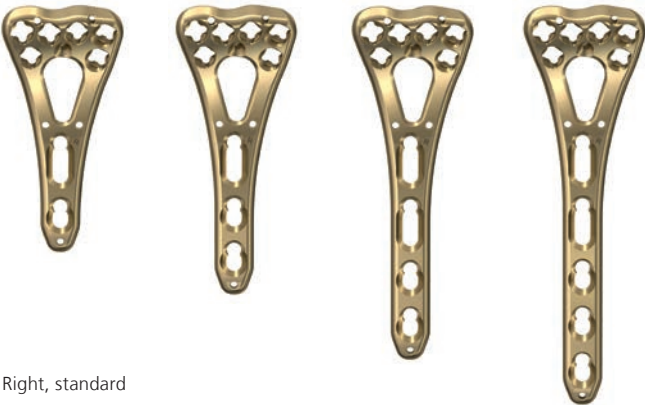
Plates

VA-LCP Two-Column Distal Radius Plates 2.4, volar, narrow, 6 holes, width 19.5 mm				
Part number	Head holes	Shaft holes	Length mm	Left/Right
OX.111.520	6	2	42	R
OX.111.521	6	2	42	L
OX.111.530	6	3	51	R
OX.111.531	6	3	51	L
OX.111.540	6	4	63	R
OX.111.541	6	4	63	L
OX.111.550	6	5	72	R
OX.111.551	6	5	72	L



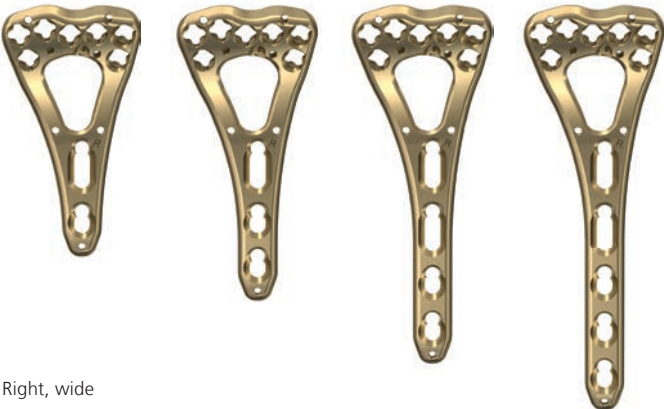
Right, narrow

VA-LCP Two-Column Distal Radius Plates 2.4, volar, 6 holes, width 22 mm				
Part number	Head holes	Shaft holes	Length mm	Left/Right
OX.111.620	6	2	45	R
OX.111.621	6	2	45	L
OX.111.630	6	3	54	R
OX.111.631	6	3	54	L
OX.111.640	6	4	66	R
OX.111.641	6	4	66	L
OX.111.650	6	5	75	R
OX.111.651	6	5	75	L



Right, standard

VA-LCP Two-Column Distal Radius Plates 2.4, volar, 7 holes, width 25.5 mm				
Part number	Head holes	Shaft holes	Length mm	Left/Right
OX.111.720	7	2	47	R
OX.111.721	7	2	47	L
OX.111.730	7	3	55	R
OX.111.731	7	3	55	L
OX.111.740	7	4	68	R
OX.111.741	7	4	68	L
OX.111.750	7	5	77	R
OX.111.751	7	5	77	L



Right, wide

All plates are available non-sterile and sterile packed. Add suffix “S” to article number to order sterile product.

X = 2: Stainless Steel
X = 4: TiCP

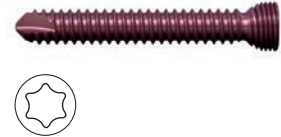
Screws

Variable Angle Locking Screws 2.4 mm

*0X.210.108 – VA Locking Screw Stardrive Ø 2.4 mm,
*0X.210.130 self-tapping, lengths 8 mm to 30 mm

For use in VA locking holes.

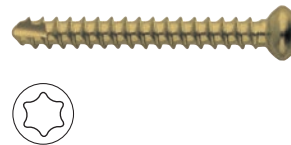
Precaution: For final locking, the 0.8 Nm torque limiter is required.



Cortex Screws 2.4 mm

*X01.756 – Cortex Screw Stardrive Ø 2.4 mm,
*X01.780 self-tapping, lengths 6 mm to 30 mm

For use in VA locking holes or oblong combi-holes.



X = 2: Stainless Steel
X = 4: TAN

All screws are also available sterile packed. Add suffix "S" to article number.

Screws with * are also available sterile packed in Sterile Tubes. Add suffix "TS" to article number.

Optional
Cortex Screws 2.7 mm

X02.866 – Cortex Screw Stardrive Ø 2.7 mm,
X02.890 self-tapping, lengths 6 mm to 30 mm

For use in oblong combi-holes.

**Variable Angle Locking Buttress Pins 1.8 mm**

0X.210.078 – VA-LCP Buttress Pins, Stardrive, Ø 1.8 mm,
0X.210.100 lengths 8 mm to 30 mm

For use in VA locking holes.



Precaution: For final locking, the 0.8 Nm torque limiter is required.

Locking Screws 2.4 mm

X12.806 – Locking Screw Stardrive Ø 2.4 mm,
X12.830 self-tapping, lengths 6 mm to 30 mm

For use in VA locking holes but only in predefined angle using nominal angle technique.



Precaution: For final locking, the 0.8 Nm torque limiter is required.

X = 2: Stainless Steel

X = 4: TAN

All screws are also available sterile packed. Add suffix "S" to article number.

Optional: Trial Implants

Trial Implants for VA-LCP Two-Column Distal Radius Plates 2.4, volar, narrow, shaft 3 holes marked, head 6 holes marked, Stainless Steel

Part number	Length mm	Left/Right
03.111.530	51	R
03.111.531	51	L



Trial Implants for VA-LCP Two-Column Distal Radius Plates 2.4, volar, shaft 3 holes marked, head 6 holes marked, Stainless Steel

Part number	Length mm	Left/Right
03.111.630	54	R
03.111.631	54	L




Trial Implants for VA-LCP Two-Column Distal Radius Plates 2.4, volar, shaft 3 holes marked, head 7 holes marked, Stainless Steel

Part number	Length mm	Left/Right
03.111.730	55	R
03.111.731	55	L



Instruments

03.110.000	VA-LCP Drill Sleeve 2.4, for Drill Bits Ø 1.8 mm	
310.509	Drill Bit Ø 1.8 mm with marking, length 110/85 mm, 2-flute, for Quick Coupling	
310.534	Drill Bit Ø 2.0 mm with marking, length 110/85 mm, 2-flute, for Quick Coupling	
311.430	Handle with Quick Coupling	
314.453	Screwdriver Shaft Stardrive, T8, short, self-holding, for Quick Coupling	
314.467	Screwdriver Shaft Stardrive, T8, self-holding, for Quick Coupling	
03.111.005	Depth Gauge for Screws Ø 2.0 to 2.7 mm, measuring range up to 40 mm	

323.029 LCP Drill Sleeve 2.4, with Scale up to 30 mm, for Drill Bits \varnothing 1.8 mm



323.202 Universal Drill Guide 2.4



323.260 Universal Drill Guide 2.7



03.110.005 Handle for Torque Limiters 0.4/0.8/1.2 Nm



511.776 Torque Limiter 0.8 Nm, with Quick Coupling



292.120(S) Kirschner Wire \varnothing 1.25 mm with trocar tip, length 150 mm, Stainless Steel



Optional instruments

03.110.023 VA-LCP Drill Sleeve 2.4, conical, for Drill Bits Ø 1.8 mm



03.110.024 VA-LCP Drill Sleeve 2.4, coaxial, for Drill Bits Ø 1.8 mm



03.111.004 VA-LCP Drill Sleeve 2.4, for Drill Bits Ø 1.8 mm, freehand useable



03.111.000 Quick Drill Sleeve 2.4 with Scale, for Drill Bits Ø 1.8 mm, for Guiding Block, for VA-LCP Radius Plates



02.111.500.01(S) Plate Reduction Wire Ø 1.25 mm, with thread, with Small Stop, length 150 mm, Stainless Steel



02.111.501.01(S) Plate Reduction Wire Ø 1.25 mm, with thread, with Large Stop, length 150 mm, Stainless Steel



03.111.500	Guiding Block for Two-Column Distal Radius Plate 2.4, narrow, 6 holes, right	
03.111.501	Guiding Block for Two-Column Distal Radius Plate 2.4, narrow, 6 holes, left	
03.111.600	Guiding Block for Two-Column Distal Radius Plate 2.4, 6 holes, right	
03.111.601	Guiding Block for Two-Column Distal Radius Plate 2.4, 6 holes, left	
03.111.700	Guiding Block for Two-Column Distal Radius Plate 2.4, 7 holes, right	
03.111.701	Guiding Block for Two-Column Distal Radius Plate 2.4, 7 holes, left	
03.111.007	Screw for Guiding Block for Two-Column Distal Radius Plate 2.4	
314.468	Holding Sleeve for Screws Stardrive Ø 2.4 mm, T8, for Screwdriver Shaft 314.467	

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Torque, Displacement and Image Artifacts according to ASTM F 2213-06, ASTM F 2052-06e1 and ASTM F 2119-07

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 F 2182-11a

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

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

- It is recommended to thoroughly monitor patients undergoing MR scanning for perceived temperature and/or pain sensations.
 - Patients with impaired thermoregulation 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.
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