

ACUMED®

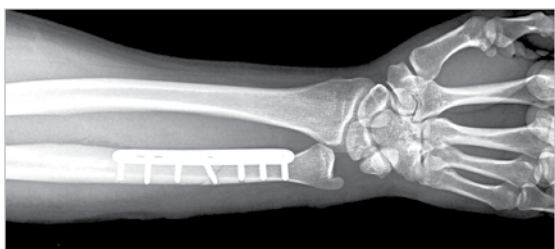
Innovative Solutions



Osteotomy System

Osteotomy System

Since 1988, Acumed has been designing solutions for the demanding situations facing orthopaedic surgeons, hospitals and their patients. Our strategy has been to know the indication, design a solution to fit and deliver quality products and instrumentation.



Acumed's Ulnar Shortening Plate is designed to offer an anatomic, low-profile plate with built-in osteotomy reference lines and a simple cutting guide.

The reference lines on the plate help facilitate the creation of the osteotomy, when a "free hand cut" is preferred.

The plate offers locking screws which sit below the plate surface when fully seated. An offset screw compresses the osteotomy and an interfragmentary lag screw is placed through a scalloped slot in the center of the plate and angles across the osteotomy, helping to compress the osteotomy and maximize fixation.

Indications for an ulnar shortening osteotomy include:

- Ulnar Impaction Syndrome due to ulnar-positive variance.
- DRUJ incongruity due to shortening of the radius.
- Traumatic and degenerative tears of the TFCC associated with positive ulnar variance.



Designed in conjunction with William B. Geissler, M.D., the low-profile ulnar shortening plate is designed to keep the screw heads as low as possible, reducing soft tissue irritation. The interfragmentary lag screw has the option to be placed in two locations through a scalloped slot and compresses the osteotomy securely. The plate offers the option to lock up to three screws distally and one proximally.

The advanced cutting guide offers precision and eliminates the need for a technically demanding cutting system. The adjustable guide reduces surgery time and allows a reduction of up to 10mm. An additional amount of shortening can be achieved after the initial 10mm resection is performed.

Osteotomy System Features

Built-in Osteotomy Reference Guides

Measurement reference lines on the side of the plate reference the amount of shortening desired. Each 40° oblique laser line and spacing in between represents 2mm of shortening. The perpendicular lines near the measurement slot are spaced at 2mm giving a reference of shortening obtained from the osteotomy, reducing the use of X-ray to determine shortening.



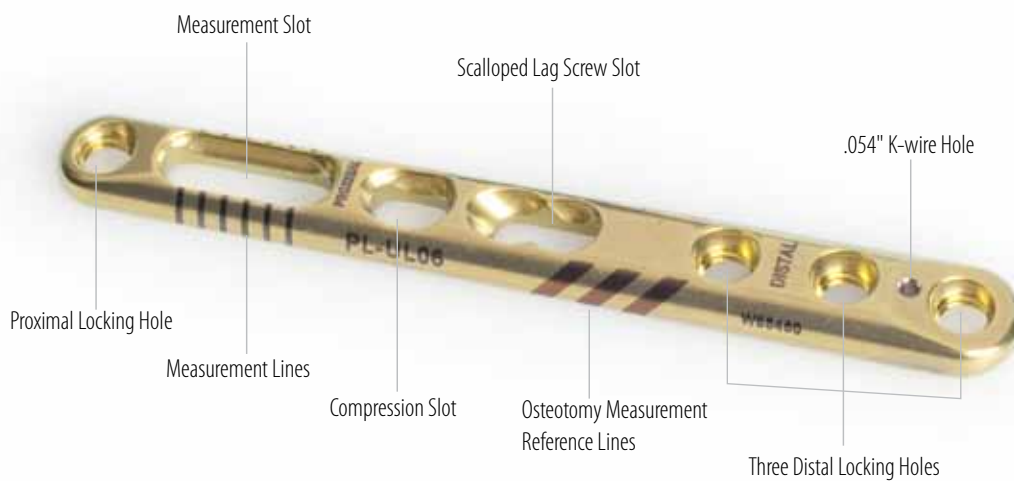
Simplified Osteotomy Guide

The cutting guide allows you to make the adjustments needed to perform the first and second cuts without the need for numerous guides. The guide offers continuous adjustment from 1mm to 10mm to give you precisely the amount of resection desired.

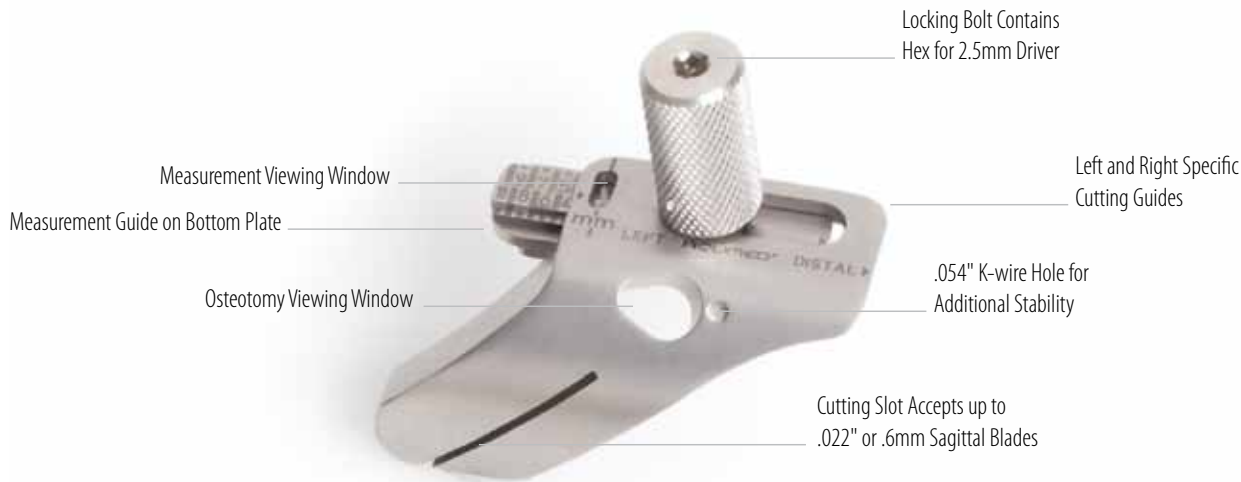


Advanced Instrumentation

The reduction clamp utilizes a speed-lock wheel to maintain a hands free compression of the osteotomy. The multipurpose temporary reduction peg is partially threaded to ensure that the far cortex is not tapped prior to it being replaced by a screw. The peg first stabilizes the ulna to help maintain rotational alignment while creating the osteotomy prior to being used with the reduction clamp. This allows easy compression of the osteotomy and significantly simplifies the procedure.



Cutting Guide Assembly Features



Cutting Guide Assembly Instructions



1 Ensuring that the laser marked arrows are aligned, slide the bottom plate (80-0420) into the chosen cutting guide (80-0418 or 80-0419). Ensure that the bottom plate is completely engaged into the cutting guide.

Note: The subsequent technique is for a volar approach with the cutting guide. If a medial approach is taken then the opposite cutting guide can be used. Be sure the cutting slot lines up with the angled measurement reference lines on the plate.



2 Slide the bottom plate distal enough so that the locking bolt (80-0421) can be inserted through both pieces.

Saw Blade Specifications

The use of a generic saw blade with the Osteotomy System must meet the specifications below and is considered the responsibility of the user.

Blade specifications for use with Osteotomy System:

Minimum Cutting Depth: 25mm

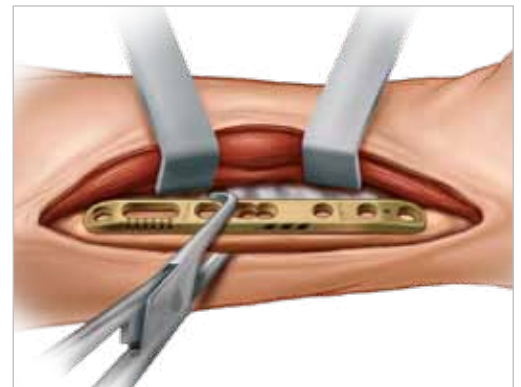
Blade Thickness: Equal to or less than .6mm (.022")

Note: The cutting slot is .025" or .64mm wide. The saw blade used must be thinner than the cutting slot and should allow for a minimum cutting depth of 25mm in order to pass through the guide and bone. Saw blades smaller than .5mm may be too thin and can increase the chance of an unparallel cut.

If the kerf of the blade does not clear the slot, it may be inserted by sliding the blade through the open-end of the cutting slot.

Osteotomy with Guide Surgical Technique by William B. Geissler, M.D.

1 Determine the amount of ulnar variance by preoperative X-rays. After exposing the volar side of the ulna, place the plate 3–5cm proximal to the distal end of the ulna. Secure the plate to the volar surface with one or more clamps. Make sure the proximal and distal orientation of the plate is correct, as noted by the laser marks on the plate.



2 Drill the most distal locking hole using the threaded drill guide (80-0384) and 2.8mm drill (80-0387) and insert the proper length 3.5mm light blue locking screw (COL-3XX0). In the proximal end of the measurement slot, drill bicortically and perpendicular to the plate and insert the temporary reduction peg (80-0422) with a 2.5mm hex driver.

Option: You can predrill the two remaining distal locking holes in the same manner with the threaded drill guide but DO NOT INSERT SCREWS. You can also do this after the osteotomy has been achieved.



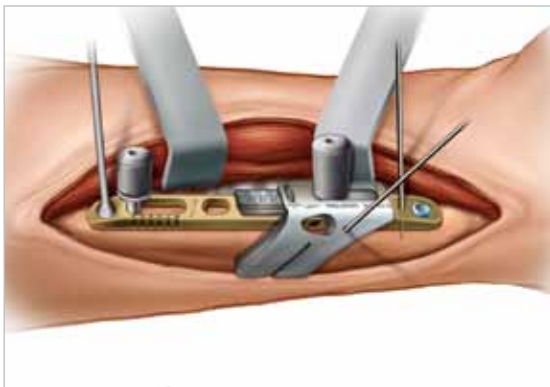
Osteotomy with Guide



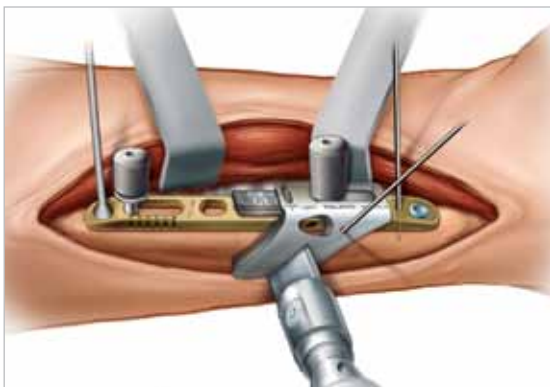
3 Remove the clamp and insert the pre-assembled cutting guide so that the locking bolt is inserted into the third most distal locking hole closest to the lasered Reference Lines. The cutting slot on the cutting guide will be aligned with the angled laser lines on the plate.



4 Set the cutting guide to the 1mm mark in the measurement window and firmly tighten the locking bolt (80-0421) with a 2.5mm hex driver.



5 For additional rotational stability, a plate tack (PL-TACK) may be inserted into the proximal locking hole and a .054" K-wire can be inserted into the K-wire hole in the distal end of the plate. A second .054" K-wire may be inserted through the cutting guide and into the bone for additional stability.



6 Irrigation of the osteotomy should be considered to minimize the risk of thermal necrosis. Insert the saw blade in the cutting guide slot and make the first cut

Note: The cutting slot is .025" or .64mm wide. The saw blade used must be thinner than the cutting slot and should allow for a minimum cutting depth of 25mm in order to pass through the guide and bone. Saw blades smaller than .5mm may be too thin and can increase the chance of an unparallel cut. If the kerf of the blade does not clear the slot, it may be inserted by sliding the blade through the open-end of the cutting slot.

7 Remove the K-wire inserted into the cutting guide and loosen the locking bolt just enough to slide the cutting guide to the number corresponding to the amount of shortening desired. Firmly retighten the locking bolt with the 2.5mm hex driver.

Make sure that both sides of the ulna are re-aligned and re-insert the K-wire through the cutting guide into the bone. Make the 2nd cut.

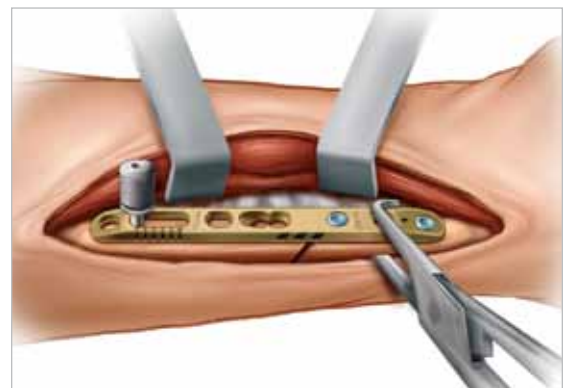
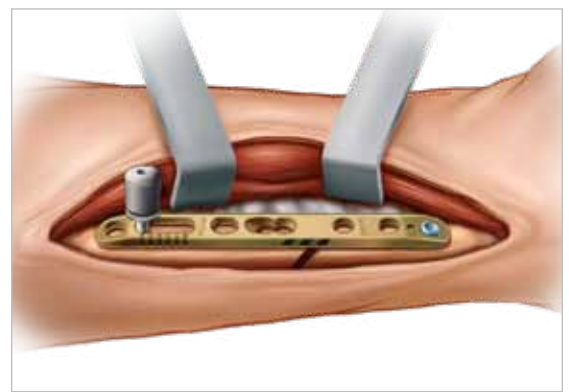
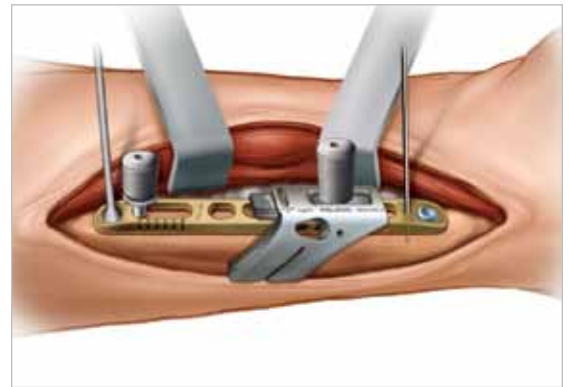
Note: The numbers on the bottom plate correspond to the desired amount of bone to be resected, i.e. the "4" signifies 4mm of resection.

8 Remove both K-wires, the cutting guide and plate tack. Slightly loosen (DO NOT REMOVE) the temporary reduction peg in the measurement slot and excise the bone wafer.

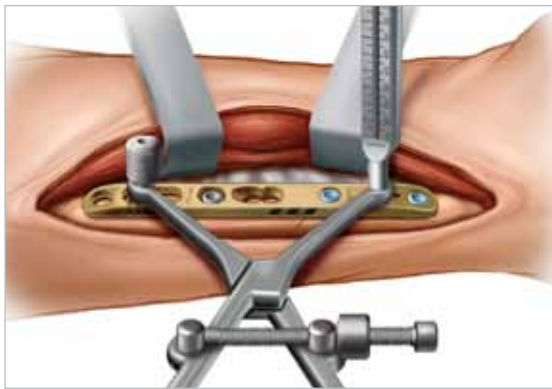
Note: If the gap does not close, make sure there is no bone left in the osteotomy site near the plate. If this occurs the proximal and distal ends of the bone may be rotated under the plate to remove any bone blocking reduction.

9 Place a bone clamp over the distal portion of the ulna and plate to reduce the gap in between them. In the third most distal locking hole closest to the osteotomy, drill using the threaded drill guide (80-0384) and 2.8mm drill (80-0387) if predrilling was not performed in STEP 2. Insert the proper length 3.5mm locking screw or nonlocking screw. Remove the bone clamp and place the threaded drill guide into the second distal locking hole.

10 Slightly loosen the reduction peg in the measurement slot. Place the reduction clamp (80-0423) around the reduction peg and threaded drill guide. Reduce the osteotomy gap with the reduction clamp and tighten the speed-lock wheel on the clamp to maintain reduction hands-free.



Osteotomy with Guide cont...



11 While holding the compression, drill the proximal end of the compression slot with a 2.8mm drill, measure and insert a 3.5mm nonlocking bicortical screw. Ensure that the desired amount of shortening has been achieved by X-ray.

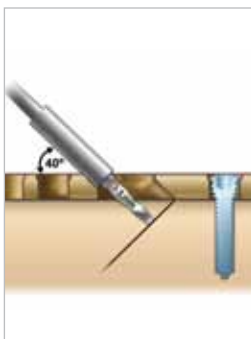


Figure 1

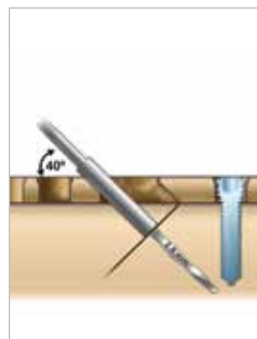
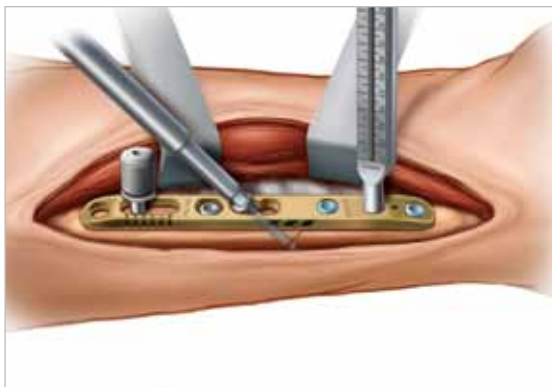


Figure 2

12 In the scalloped lag screw slot using a 3.5mm drill and the 3.5mm/2.8mm drill guide (PL-2196), drill a glide hole in the near cortex at an angle across the osteotomy site (Figure 1). Although the proximal or distal portion of the slot may be used depending on the osteotomy location and desired interfragmentary screw placement, the proximal slot is preferred. Next, place the 2.8mm end of the drill guide into the 3.5mm glide hole and use a 2.8mm drill to drill the far cortex (Figure 2).

Note: If the angle of the drill is too shallow, the drill may collide with the adjacent screw in hole.



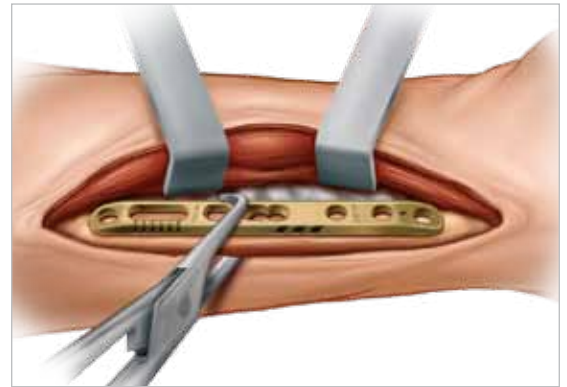
13 Measure and insert a non-locking 3.5mm screw into the scalloped lag screw slot. Remove the reduction clamp. Drill the second distal locking hole before removing the threaded drill guide. Measure and insert a locking screw into the remaining distal locking hole.



14 Remove the temporary reduction peg. Measure and replace with a 3.5mm nonlocking screw. Drill, measure and insert a locking 3.5mm screw in the remaining proximal locking hole.

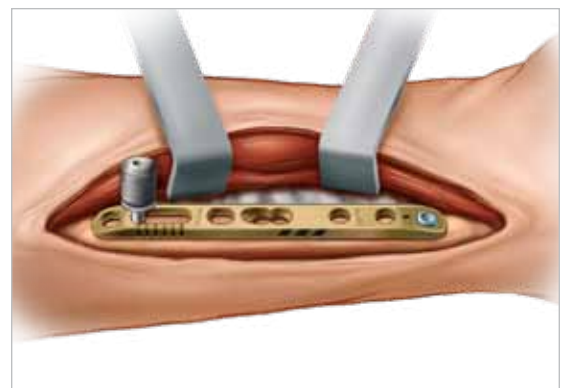
Osteotomy w/o Guide Surgical Technique by William B. Geissler, M.D.

1 Determine the amount of ulnar variance by preoperative X-rays. After exposing the volar side of the ulna, place the plate 3-5cm proximal to the distal end of the ulna. Secure the plate to the volar surface with one or more clamps. Make sure the proximal and distal orientation of the plate is correct, as noted by the laser marks on the plate.



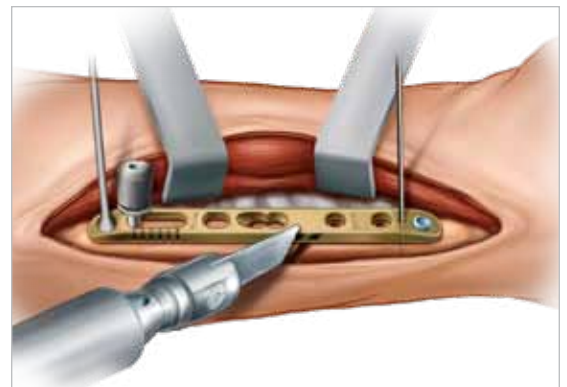
2 Drill the most distal locking hole using the threaded drill guide (80-0384) and 2.8mm drill (80-0387) and insert the proper length 3.5mm light blue locking screw (COL-3XX0). In the proximal end of the measurement slot, drill bicortically perpendicular to the plate and insert the temporary reduction peg (80-0422) with a 2.5mm hex driver.

Option: You can predrill the two remaining distal locking holes in the same manner with the threaded drill guide but DO NOT INSERT SCREWS. You can also do this after the osteotomy has been achieved.



3 Using the 40° reference marks as a lines, create the osteotomy angled at least 40° perpendicular to the plate. Start the osteotomy at the most distal laser mark. Irrigation of the osteotomy should be considered to minimize thermal necrosis. Create the osteotomy to the determined amount of shortening and excise the bone wafer. A .054" K-wire in the distal end of the plate and a plate tack in the proximal end may be used for additional stability.

Note: Each 40° reference line and space is 2mm wide. Additionally, the kerf of the blade should be taken into consideration when creating the osteotomy.

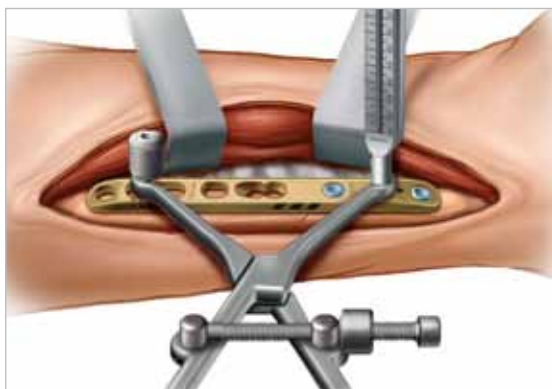


4 Remove any K-wires and plate tacks. Make sure there is no bone left in the osteotomy site near the plate. If this occurs the proximal and distal ends of the bone may be rotated under the plate to remove any bone blocking the reduction.

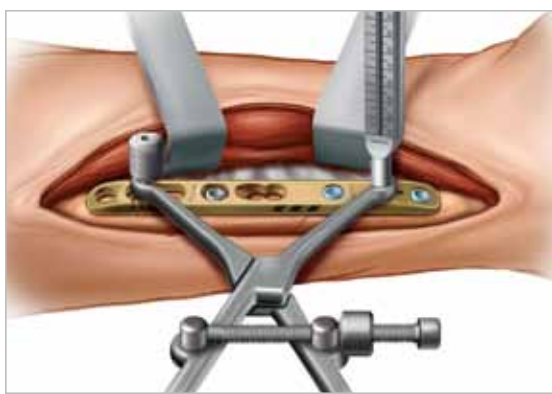
Place a bone clamp over the distal portion of the ulna and plate to reduce the gap in between them. In the third most distal locking hole closest to the osteotomy, drill using the threaded drill guide (80-0384) and 2.8mm drill (80-0387) if predrilling was not performed in STEP 2. Insert a locking or bicortical nonlocking screw.



Osteotomy without Guide



5 Remove the bone clamp and place the threaded drill guide into the second distal locking hole. Slightly loosen the reduction peg in the measurement slot. Place the reduction clamp (80-0423) around the reduction peg and threaded drill guide. Reduce the osteotomy gap with the reduction clamp and tighten the speed-lock wheel on the clamp to maintain reduction hands-free.



6 While holding the compression, drill the proximal end of the compression slot with a 2.8mm drill, measure and insert a 3.5mm nonlocking bicortical screw. Ensure that the desired amount of shortening has been achieved by X-ray.

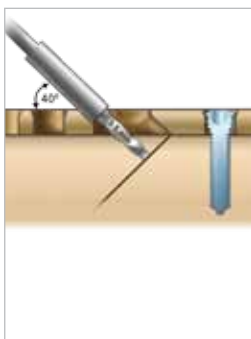


Figure 1

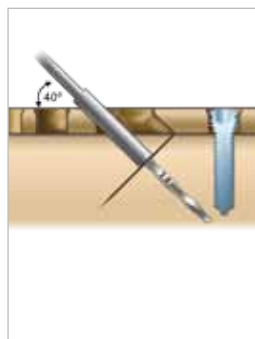


Figure 2

7 In scalloped slot using a 3.5mm drill and the 3.5mm/2.8mm drill guide (PL-2196), drill a glide hole in the near cortex at an angle across the osteotomy site (1). Next, place the 2.8mm end of the drill guide into the 3.5mm glide hole and use a 2.8mm drill to drill the far cortex (2). Measure and insert a nonlocking screw. The proximal or distal portion of the slot may be used depending on the osteotomy location and desired interfragmentary screw placement. The most proximal hole is preferred.

Note: If the angle of the drill is too shallow, the drill may collide with the adjacent screw in hole.



8 Remove reduction clamp and drill the second distal locking hole before removing the threaded drill guide. Measure and insert a locking screw into the remaining distal locking hole. Remove the temporary reduction peg. Measure and replace with a 3.5mm nonlocking screw. Drill, measure and insert a locking 3.5mm screw in the remaining proximal locking hole.

Ulnar Shortening Osteotomy Plate

Ulnar Shortening Plate	PL-UL06
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3.5mm Locking Cortical Screws

3.5mm x 8mm Locking Cortical Screw	COL-3080
3.5mm x 10mm Locking Cortical Screw	COL-3100
3.5mm x 12mm Locking Cortical Screw	COL-3120
3.5mm x 14mm Locking Cortical Screw	COL-3140
3.5mm x 16mm Locking Cortical Screw	COL-3160
3.5mm x 18mm Locking Cortical Screw	COL-3180

3.5mm Cortical Screws

3.5mm x 10mm Cortical Screw	CO-3100
3.5mm x 12mm Cortical Screw	CO-3120
3.5mm x 14mm Cortical Screw	CO-3140
3.5mm x 16mm Cortical Screw	CO-3160
3.5mm x 16mm Cortical Screw	CO-3180
3.5mm x 20mm Cortical Screw	CO-3200

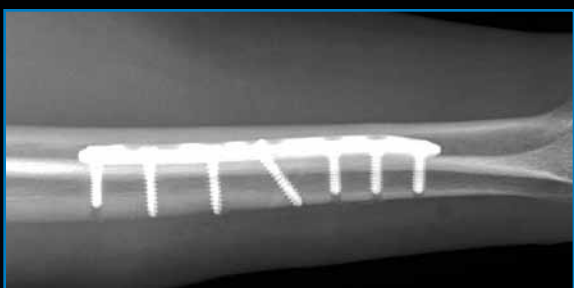
Instrumentation

Ulnar Shortening Guide Left	80-0418
Ulnar Shortening Guide Right	80-0419
Ulnar Shortening Guide Bottom Plate	80-0420
Ulnar Shortening Locking Bolt	80-0421
Ulnar Shortening Reduction Peg	80-0422
Ulnar Shortening Reduction Clamp	80-0423
2.8mm Quick Release Drill	80-0387
3.5mm x 5" Quick Release Drill	MS-DC35
2.8mm Locking Drill Guide 6-65mm	80-0384
.054" x 6" Guide Wire	WS-1406ST

Tray

Instrument Tray	80-0513
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Note: The Ulnar Shortening Osteotomy Plate can be used with the following Acumed systems: Universal Tray and Congruent Locking Elbow Plate. For ordering information, please contact your local Acumed Sales Representative.



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