

## Surgical Technique



Acumed® is a global leader of innovative orthopaedic and medical solutions.



We are dedicated to developing products, service methods, and approaches that improve patient care.



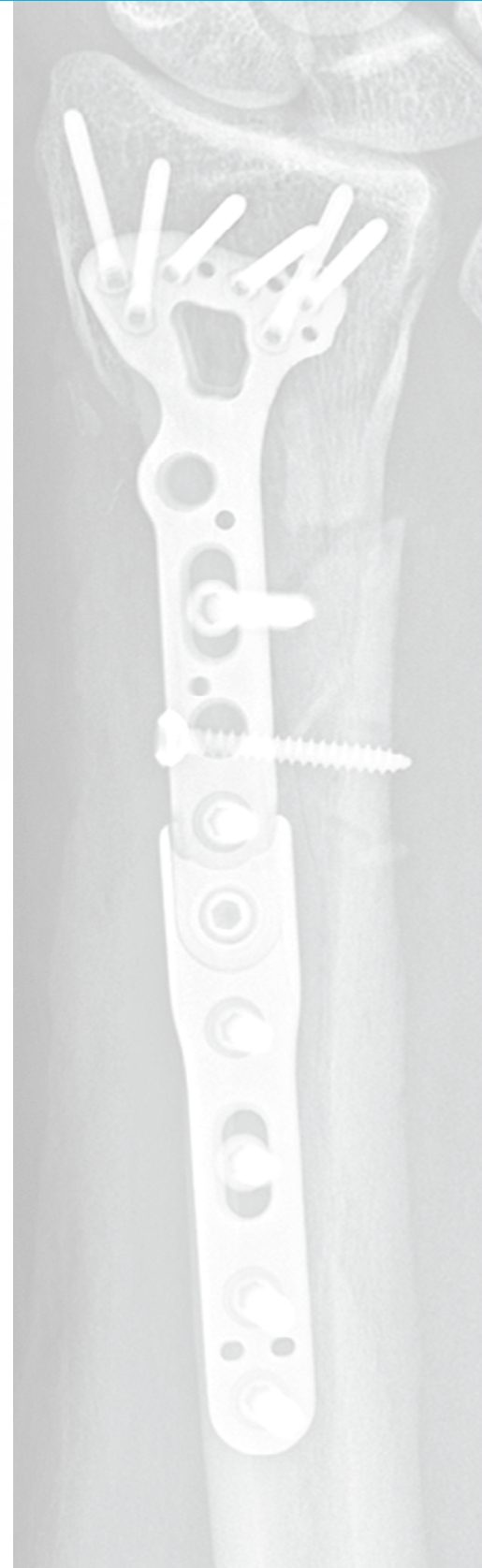
## Acumed® Acu-Loc® 2 Volar Distal Radius Plating System

The Acu-Loc 2 Wrist Plating System offers plate families and screw technologies to treat multiple fracture patterns of the distal radius and distal ulna regions.

Acumed has introduced the Acu-Loc 2 Volar Distal Radius (VDR) Plating System as the next generation in plating fixation. The system presents several plate options, a unique two-piece locking compression screw, innovative instrumentation for fracture management, and plate placement tools.

Some products shown and/or described may not be available in your distribution area. Please contact your local authorized Acumed distributor for additional information.

	Definition
<b>Warning</b>	Indicates critical information about a potential serious outcome to the patient or the user.
<b>Caution</b>	Indicates instructions that must be followed in order to ensure the proper use of the device.
<b>Note</b>	Indicates information requiring special attention.



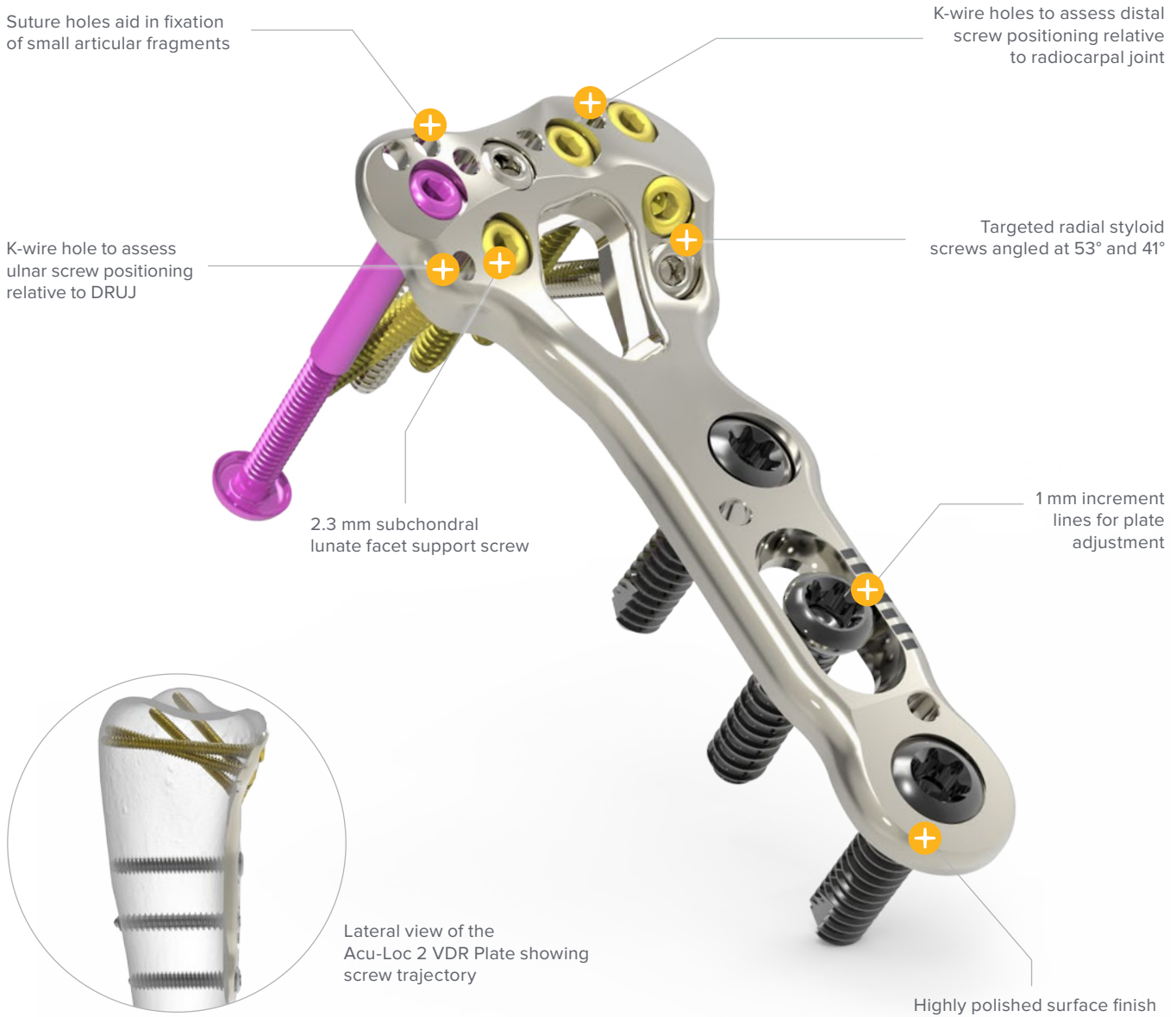
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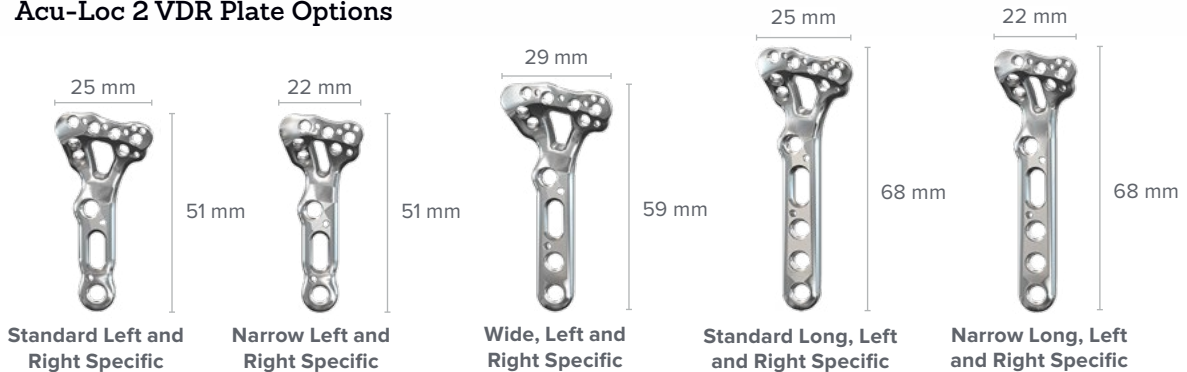
# System Features

## Acu-Loc 2 Volar Distal Radius (VDR) Plates

The standard Acu-Loc 2 Plate is designed to closely replicate the anatomical contours of the distal radius and may assist in restoring the original geometry.



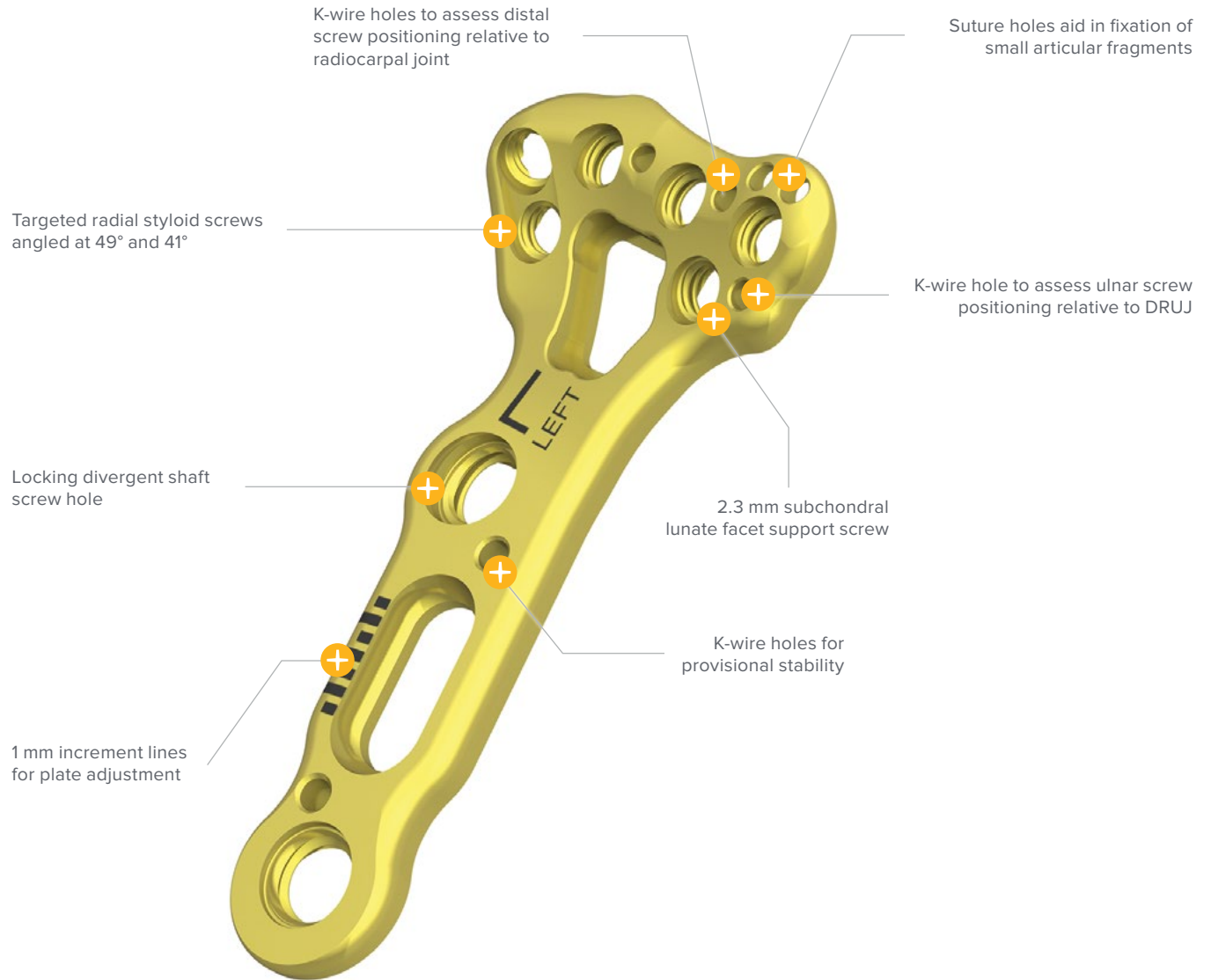
### Acu-Loc 2 VDR Plate Options



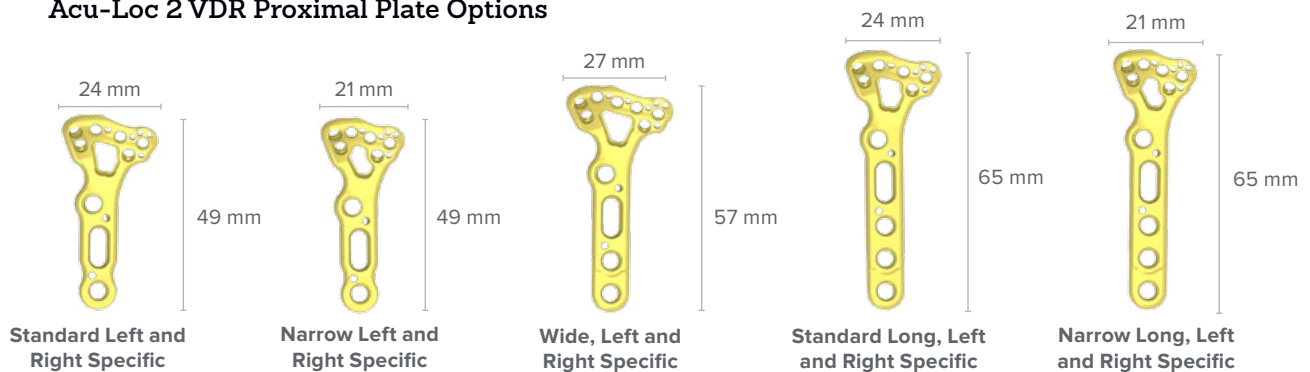
# System Features [continued]

## Acu-Loc 2 Volar Distal Radius (VDR) Proximal Plates

VDR Proximal Plates are designed to sit approximately 2 mm more proximal than the silver colored plates.



### Acu-Loc 2 VDR Proximal Plate Options





## System Features [continued]

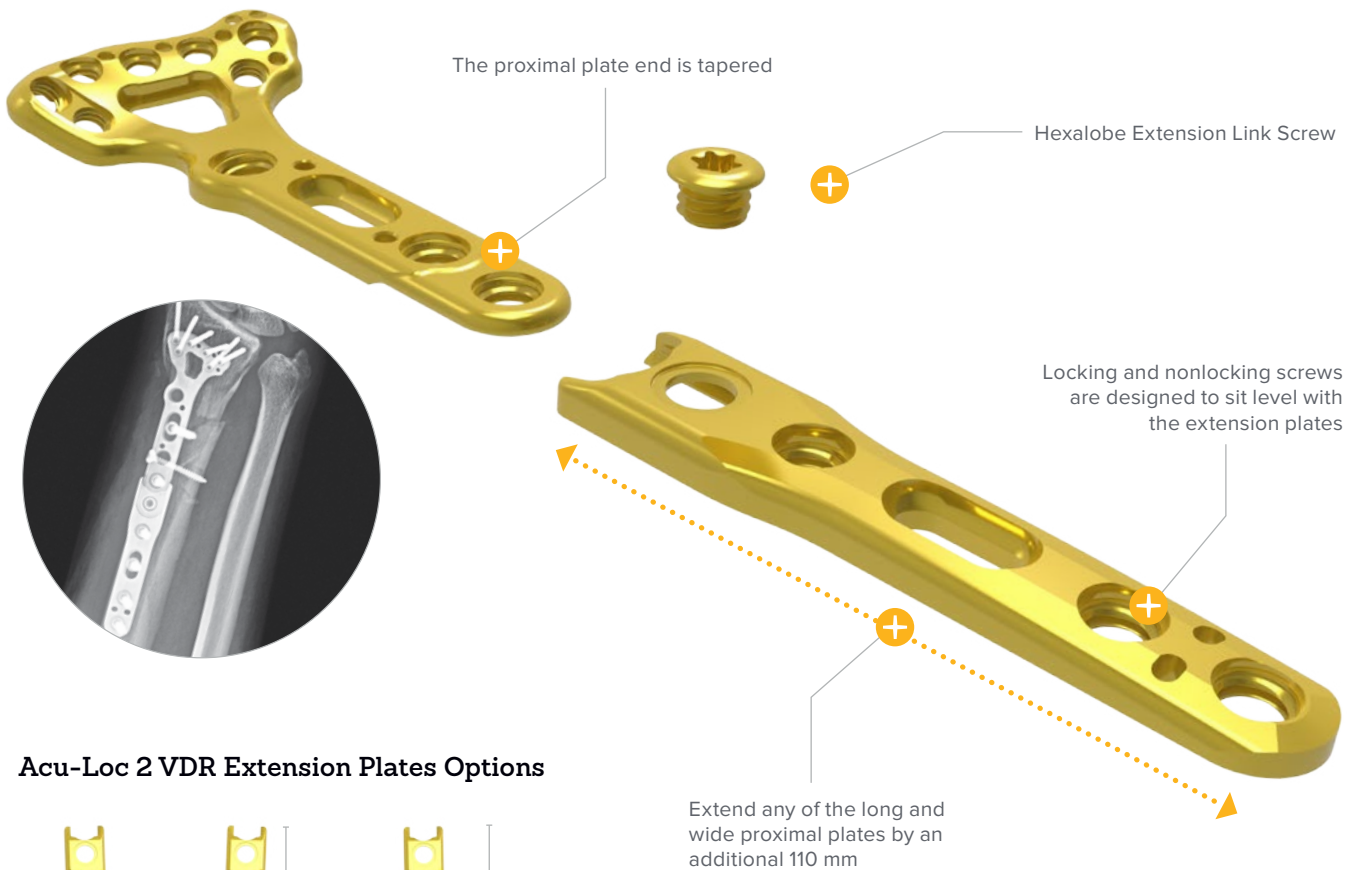
### Acu-Loc 2 VDR Extension Plates

The Acu-Loc 2 VDR Plating System includes the ability to extend the Acu-Loc 2 VDR Proximal Plates. The Acu-Loc 2 VDR Extension Plates are rigidly locked with a Acu-Loc 2 VDR Plate (hex) Extension Link Screw (30-0093) or Acu-Loc 2 VDR Hexalobe Extension Link Screw (30-0100) to the following Acu-Loc 2 VDR Proximal Plates:

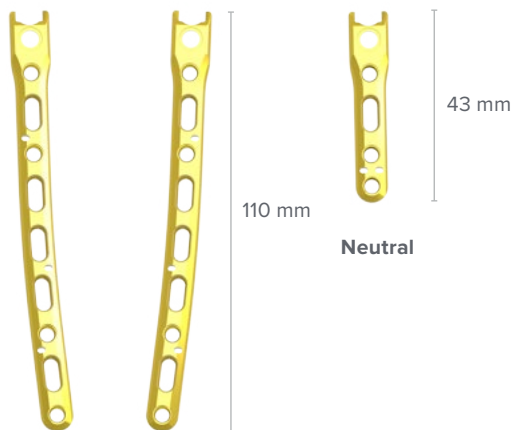
- ▶ Acu-Loc 2 VDR Proximal Standard Long Plates
- ▶ Acu-Loc 2 VDR Proximal Narrow Long Plates
- ▶ Acu-Loc 2 VDR Proximal Wide Plates

#### Long Extension Plates

Modular plate attachments allow surgeons to extend any of the long and wide proximal plates by an additional 110 mm. This option has both left and right plates to accommodate the radial bow. Plates are connected by a hex or hexalobe link screw.



#### Acu-Loc 2 VDR Extension Plates Options



Left and Right Specific

#### Available Plate Length Combinations

Plate Lengths with Extension	Wide	Narrow Long	Standard Long
Neutral Extension	100 mm	108 mm	108 mm
Long Extension	167 mm	176 mm	176 mm

## System Features [continued]

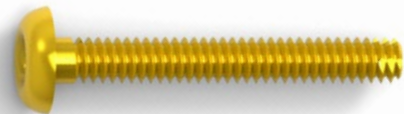
### Frag-Loc® Compression Screw



Frag-Loc Compression Sleeve  
(30-0370)



Frag-Loc Compression Screw  
(30-0371)



Frag-Loc Compression Screw, Long  
(30-0372)

The Frag-Loc Compression Screw is a two-part cannulated compression screw designed to reduce dorsal fragments to the Acu-Loc 2 VDR Plates, Acu-Loc VDR Plates, and Acu-Loc EX Plates.

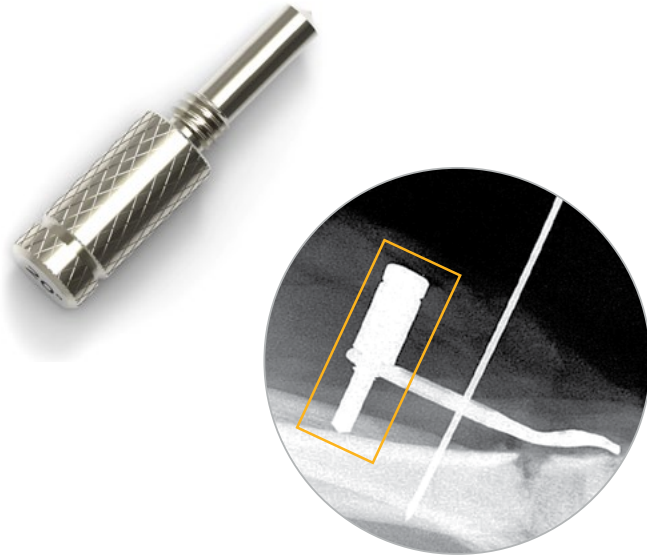
**Note:** The Frag-Loc Compression Screw may only be used for screw lengths of 16–24 mm and the long Frag-Loc Compression Screw, may be used for lengths of 20–28 mm.

A second 2.3 mm screw may be placed in an adjacent screw hole to prevent rotation of the dorsal bone fragment.



## System Features [continued]

### Key Instruments



#### Acu-Loc 2 KickStand Posts

With the introduction of the next generation of distal radius fixation, the Acu-Loc 2 System offers a variety of innovative instrumentation. The KickStand Posts (80-07XX) are threaded posts designed to assist with distal radius volar tilt correction by lifting the proximal end of the plate away from the radial shaft to form a stable platform with which to achieve distal screw fixation.

Six different KickStand post angles are offered to assist with corrective osteotomies and dorsally displaced fractures. Five of the KickStand posts are offered in finite increments of 5°, 10°, 15°, 20°, and 25° osteotomy angles. A fully threaded option for fractures allows for volar tilt correction between 5 and 30 degrees.

During an osteotomy, the desired angular correction of the volar aspect of the distal radius determines which KickStand post is selected. A 10° KickStand post will lift the plate approximately 7.5 mm. The chosen KickStand post is threaded into the locking hole just proximal of the adjustment slot of the Acu-Loc 2 VDR Plate prior to plate placement.

**KickStand Post 5°**  
(80-0718)



**KickStand Post 20°**  
(80-0721)



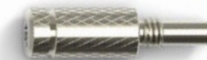
**KickStand Post 10°**  
(80-0719)



**KickStand Post 25°**  
(80-0722)



**KickStand Post 15°**  
(80-0720)



**KickStand Post 5–30°**  
(80-0731)





# System Features [continued]

## Key Instruments

### Cannulated Locking Bolt and Targeting Guide

Cannulated locking bolt accepts the 2.0 mm Quick Release Drill, which is available across multiple Acumed product lines

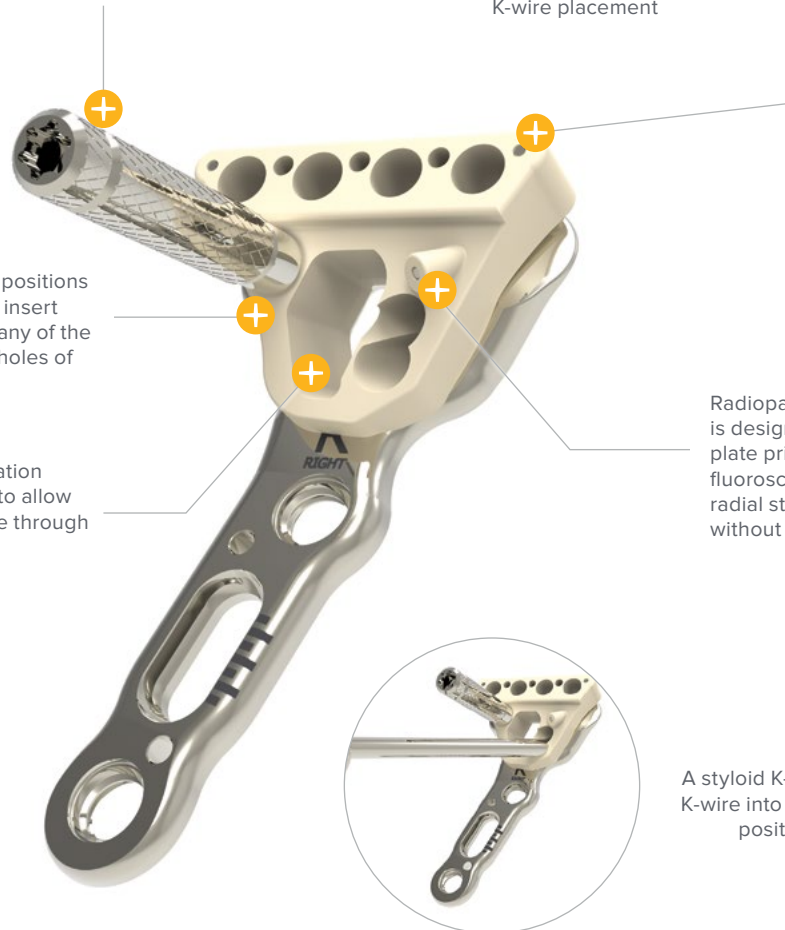
Radiopaque Positioning Posts (Distal Row) are designed to allow visualization of the distal row screws trajectory without K-wire placement

Multiple locking bolt positions provide the ability to insert the locking bolt into any of the distal 2.3 mm screw holes of the plate

The fracture visualization window is designed to allow access to the fracture through the targeting guide

Radiopaque Positioning Post (Radial Styloid) is designed to assist with positioning of the plate prior to K-wire and screw fixation. Under fluoroscopy, shows the trajectory of the distal radial styloid screw prior to plate placement without drilling or K-wire placement

A styloid K-wire guide allows insertion of a K-wire into the radial styloid to check plate positioning before final radial styloid screw placement



The low-profile radiolucent targeting guides allow the surgeon to target and insert all distal screws. Radiopaque positioning posts have been integrated into the targeting guides to assist with plate placement under fluoroscopy.

**Styloid Positioning Post:** To verify plate placement, a radiopaque styloid post is utilized in an anteroposterior (A/P) view to project the trajectory of the most distal styloid screw. To align styloid screw placement, position the wrist under fluoroscopy in an A/P view and adjust the plate so that the positioning post targets the styloid tip. This verifies correct trajectory of the styloid screw prior to drilling.

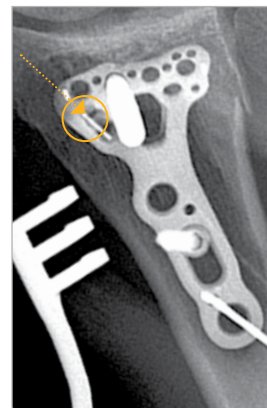


Figure 1



Figure 2

# Plate Placement Instrumentation

## Acu-Loc® 2 VDR Targeting Guides



Figure 1A



Figure 1B

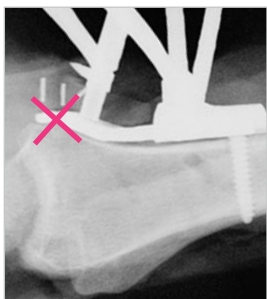


Figure 2A  
Incorrect Placement

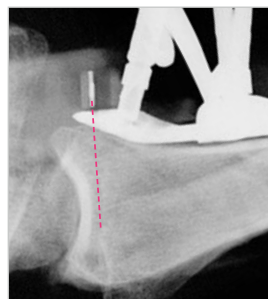


Figure 2B  
Correct Placement

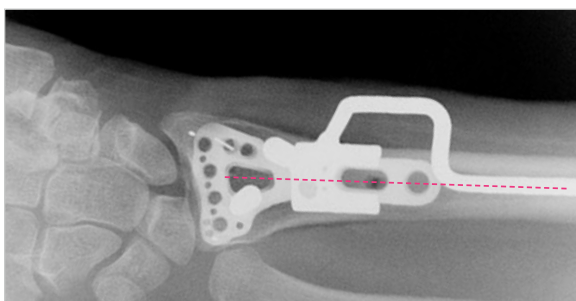
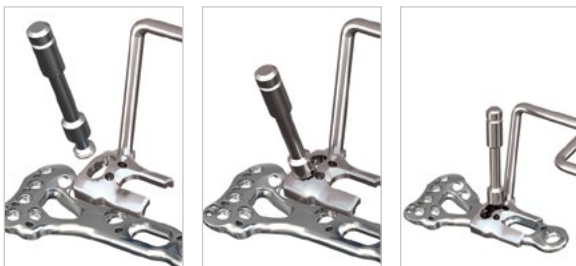


Figure 3



The low-profile radiolucent targeting guides allow the surgeon to target and insert all distal screws. Radiopaque positioning posts have been integrated into the targeting guides to assist with plate placement under fluoroscopy.

### Styloid Positioning Post (figures 1A and 1B):

To verify plate placement, a radiopaque styloid post is utilized in an anteroposterior (A/P) view to project the trajectory of the most distal styloid screw. To align styloid screw placement, position the wrist under fluoroscopy in an A/P view and adjust the plate so that the positioning post targets the styloid tip. This verifies correct trajectory of the styloid screw prior to drilling.

**Note:** The .054" x 6" K-wire (WS-1406ST) can also be used to verify styloid screw trajectory by inserting the .054" K-Wire into .054" K-wire Guide (80-0688) through the targeting guide screw holes.

### Distal Screw Placement (figures 2A and 2B):

To verify plate placement from a lateral view, line up the two parallel radiopaque posts. A single plane is created by the goal posts beneath the subchondral bone, showing trajectory of the distal screw row. If the posts do not target into the joint, then the distal screw row will not either. This can be achieved by lifting the hand in neutral rotation so that the forearm is 20 degrees to the surgical table.

The distal K-wire holes in the targeting guides and Acu-Loc 2 VDR plates allow placement of K-wires to also verify plate placement. The K-wire holes are in line with the distal screws of all Acu-Loc 2 VDR plates, allowing the surgeon to verify screw placement.

The plate's position can then be secured proximally with a .054" x 6" K-wire or Plate Tack (PL-PTACK) and distally with a .054" x 6" K-wire.

## VDR Plate Positioning Handle

The VDR Plate Positioning Handle (80-0729) (Figure 3) assists with Acu-Loc 2 VDR plate placement while keeping the surgeon's hands out of the fluoroscopy beam. Under fluoroscopy, the handle should line up with the center of the plate and radial shaft to show a true A/P view. This is used to help accurately place the proximal shaft of the plate in alignment with the center axis of the radial diaphysis.

**Note:** The design of the Acu-Loc 2 Plate Positioning Handle maintains access to the K-wire holes and 3.5 mm screw slot on the proximal end of the Acu-Loc 2 VDR plate.

## VDR Plate Positioning Handle Assembly

- ▶ The Locking Bolt 10–32 (80-0738) is threaded into the left side of the keyhole of the plate positioning handle base.
- ▶ Once engaged, the locking bolt toggles to fit left and right plates.
- ▶ Thread the locking bolt into the most distal 3.5 mm locking hole on the shaft of any Acu-Loc 2 VDR plate.

# Instrument Overview

## Frag-Loc® Instrumentation



**Frag-Loc 2.5 mm Drill Guide**  
(80-0730)



**Frag-Loc 1.5 mm Cannulated Driver**  
(80-0758)



**Frag-Loc 2.5 mm Drill**  
(80-0724)



**Frag-Loc Depth Gauge**  
(80-0726)



**Frag-Loc Compression Sleeve**  
(30-0370)



**Frag-Loc Compression Screw**  
(30-0371)



**Frag-Loc Compression Screw, Long**  
(30-0372)



**Heiss Retractor**  
(80-0756)



**.035" x 5.75" ST Guide Wire**  
(WS-0906ST)

## Instrument Overview [continued]



**8" Bone Reduction Forceps**  
(MS-1280)



**Bone Reduction Forceps 6 3/4"**  
(80-0723)



**15 mm Hohmann Retractor**  
(MS-46827)



**VDR Plate Positioning Handle Assembly**  
(80-0729)



**Periosteal Elevator 7.5" x 6 mm Straight Edge**  
(80-0693)



**Sharp Hook**  
(PL-CL06)



**Fragment Reduction Tool**  
(80-0725)



**Plate Tack**  
(PL-PTACK)



**1.5 mm Easyout, Quick Release**  
(80-0598)



**2.5 mm Easyout, Quick Release**  
(80-0600)



**.054" x 6" Guide Wire**  
(WS-1406ST)



**Medium Ratcheting Driver Handle**  
(80-0663)



**2.0 mm/2.8 mm Thin Drill Guide**  
(PL-2118)



**Depth Gauge 6-65 mm**  
(80-0623)



**Cruciform Driver Handle**  
(MS-2210)



**Acu-Loc 2 VDR Targeting Guide Locking Bolt**  
(80-0682)



**Acu-Loc 2 VDR Targeting Guide Narrow Left**  
(80-0697)



**Acu-Loc 2 VDR Targeting Guide Standard Left**  
(80-0695)



**Acu-Loc 2 VDR Targeting Guide Wide Left**  
(80-0699)



**Acu-Loc 2 VDR Targeting Guide Wide Right**  
(80-0698)



**Acu-Loc 2 VDR Targeting Guide Standard Right**  
(80-0694)



**Acu-Loc 2 VDR Targeting Guide Narrow Right**  
(80-0696)



**Acu-Loc 2 VDR Proximal Targeting Guide Narrow Left**  
(80-0703)



**Acu-Loc 2 VDR Proximal Targeting Guide Standard Left**  
(80-0701)

## Instrument Overview [continued]



**Acu-Loc 2 VDR Proximal Targeting Guide Wide Left**  
(80-0705)



**Acu-Loc 2 VDR Proximal Targeting Guide Wide Right**  
(80-0704)



**Acu-Loc 2 VDR Proximal Targeting Guide Standard Right**  
(80-0700)



**Acu-Loc 2 VDR Proximal Targeting Guide Narrow Right**  
(80-0702)



**2.8 mm Hexalobe Locking Drill Guide 6–65 mm**  
(80-0668)



**T15 Stick Fit Hexalobe Driver**  
(80-0760)



**2.8 mm Quick Release Drill**  
(80-0387)



**2.3 mm Screw Sleeve, Locking Tab**  
(80-0727)



**1.5 mm Hex Driver Tip, Locking Groove**  
(80-0728)



**2.0 mm Locking Drill Guide 4–32 mm**  
(80-0249)



**.054" K-wire Guide**  
(80-0688)



**Drill Guide/Depth Gauge for 2.0 mm Drill**  
(MS-DG23)



**Distal Radius Probe**  
(MS-DRPB)



**2.0 mm Quick Release Drill**  
(80-0318)

### Optional



**2.8 mm x 5" Quick Release Drill**  
(80-2008)



**2.8 mm Locking Drill Guide 6–26 mm**  
(80-2006)



**3.5 mm Locking Screw Bone Tap**  
(80-2126)



# Surgical Technique Overview

## Acu-Loc 2 VDR Surgical Technique

Exposure



Fracture Reduction

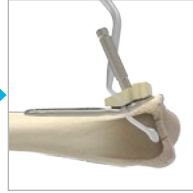


Plate Selection and Placement

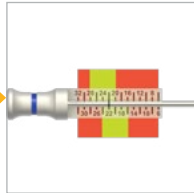


## Frag-Loc® Compression Screw Surgical Technique

Drilling Bicortical



Measuring to Determine Screw Type



Drilling Unicortically



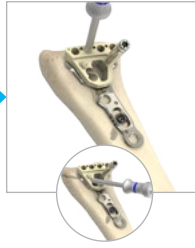
Frag-Loc Sleeve Insertion



Proximal Screw Placement



Distal Screw Holes



Proximal Screw Placement



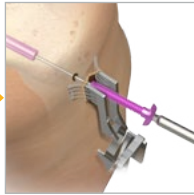
Closure and Postoperative Protocol



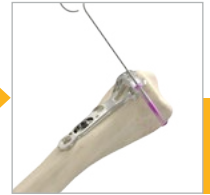
Guide Wire Insertion



Frag-Loc Wire Insertion



Final Confirmation



# Acu-Loc 2 VDR Surgical Technique

William B. Geissler, MD  
 David S. Ruch, MD  
 Mr. Daniel J. Brown, FRCS

## Acu-Loc 2 Plate Reference Chart

<b>Silver Colored</b>	VDR Plates offer more distal plate coverage and subchondral support
<b>Gold Colored</b>	VDR Proximal Plates are designed to sit approximately 2 mm more proximal than the Standard plates

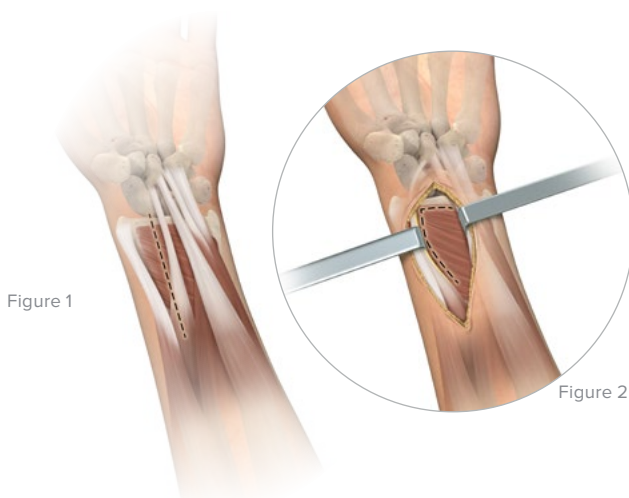


Figure 1

Figure 2

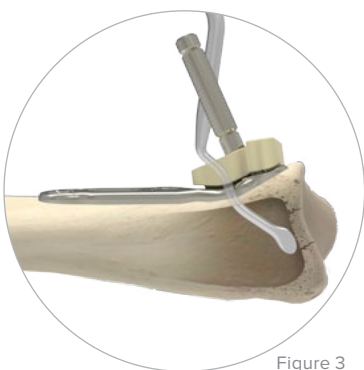


Figure 3

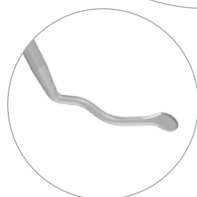


Figure 4

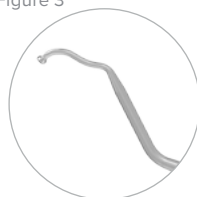


Figure 5

## 1 Exposure

Supinate the patient's forearm to expose the surgical site. To maximize exposure, place a towel under the wrist, supporting it in extension. Make a longitudinal incision approximately 6 cm in length just radial to the flexor carpi radialis (FCR) tendon to protect against injury to the palmar cutaneous branch of the median nerve.

Open the sheath and retract the FCR tendon radially to protect the radial artery. Identify the flexor pollicis longus (FPL) muscle by passive flexion/extension of the thumb interphalangeal joint and retract ulnarly to protect the median nerve. Next, identify the pronator quadratus by its transverse fibers and release radially to ulnarly to expose the fracture site.

## 2 Fracture Reduction

The brachioradialis may need to be released from its insertion on the radial styloid to facilitate reduction and visualization of the fracture. Reduce the fracture using manual techniques. Provisional stability can be achieved with K-wires and evaluated under fluoroscopy.

### Fragment Reduction Tool (80-0725):

Use this tool for articular reconstruction. A broad mallet (Figure 4) and narrow thin (Figure 5) tip provide the ability to lift and position articular fracture fragments through the plate window when possible.

### Fixating Small Volar Ulnar Corner Fragments:

This Technique uses the Acu-Loc 2 VDR Plate (70-03XX). The volar ulnar fragment is typically rotated with its capsular attachment and de-rotated under direct visualization. Multiple sutures are placed in the capsule, rotating the fragment back anatomically.

Once the fragment is de-rotated, the sutures are passed through the suture holes in the volar ulnar corner of the plate. A plate-specific nonlocking screw is placed through the oblong slot in the plate. The plate is positioned onto the distal radius, with the preferred placement confirmed using fluoroscopy. The sutures are tied, securing the volar ulnar fragment with the plate, and the remaining screws are placed.<sup>1</sup>



Fragment Reduction Tool (80-0725)



Acu-Loc 2 VDR Plate (70-03XX)

## Acu-Loc 2 VDR Surgical Technique [continued]

### 3 Plate Selection and Placement

The Acu-Loc 2 VDR Plate (70-03XX) is made to sit along the distal aspect of the radius to support articular fracture fragments. There are two volar plate families to select from: the Acu-Loc 2 VDR Standard Plates and the Acu-Loc 2 VDR Proximal Plates, which are designed to sit 2 mm more proximal than the standard plates. If a longer plate is needed, choose the appropriate Acu-Loc 2 VDR Extension Plate (70-0364, 70-0365, 70-0366) and assemble as described below.

Once the appropriate size plate is selected, attach the corresponding Acu-Loc 2 VDR Targeting Guide (80-06XX) or 80-07XX) using the Acu-Loc 2 VDR T-Guide Locking Bolt (80-0682). Thread the cannulated locking bolt into the proximal ulnar 2.3 mm screw hole. The plate should be placed parallel to the radial shaft.

For styloid and distal screw placement using the patented markers in the targeting guides, refer to Plate Placement Instrumentation on page 8.

### Extension Plate Assembly Steps

Slide the desired Acu-Loc 2 Extension Plate (70-0364, 70-0365, 70-0366) onto the shaft of the Acu-Loc 2 Proximal Plate.

Using a 2.5 mm Quick Release Hex Driver (HPC-0025) or a T15 Stick Fit Hexalobe Driver (80-0760), insert and tighten the Hex or Hexalobe Acu-Loc 2 VDR Extension Link Screw (30-0XXX) into the distal hole of the extension plate and lock into both plates.

Assembly can be done prior to plate placement or intraoperatively.

**Note:** The VDR Plate Positioning Handle (80-0729) can be used at this time for plate placement. Refer to Plate Placement Instrumentation on page 8 for assembly and technique.



Figure 6

Figure 7

### Available Plate Length Combinations

Plate Lengths with Extension	Wide	Narrow Long	Standard Long
Neutral Extension	100 mm	108 mm	108 mm
Long Extension	167 mm	176 mm	176 mm



Acu-Loc 2 VDR Extension Plate (70-036X)



Acu-Loc 2 VDR Targeting Guide (80-06XX)



Acu-Loc 2 VDR Proximal Targeting Guide (80-07XX)



Acu-Loc 2 VDR T-Guide Locking Bolt (80-0682)



2.5 mm Quick Release Hex Driver (HPC-0025)



T15 Stick Fit Hexalobe Driver (80-0760)



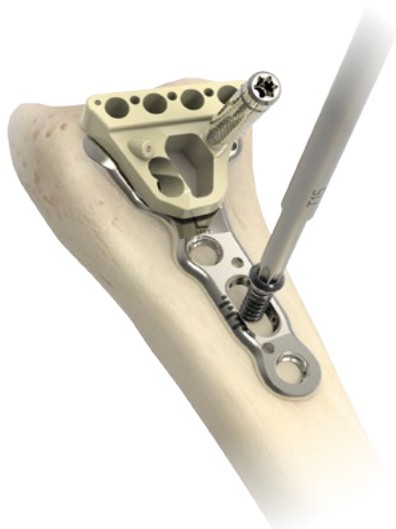
Acu-Loc 2 VDR Extension Link Screw (30-0XXX)



VDR Plate Positioning Handle (80-0729)

## Acu-Loc 2 VDR Surgical Technique [continued]

Figure 8

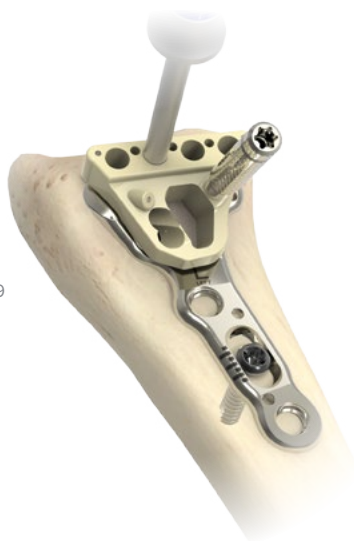


### 4 Proximal Screw Placement

The first screw to be placed is a 3.5 mm Nonlocking Hex or Hexalobe Screw (CO-31XX or 30-02XX) through the slot in the plate. Using the 2.8 mm Quick Release Drill (80-0387) and the 2.0 mm/2.8 mm Thin Drill Guide (PL-2118), drill through the far cortex. Then measure the drill depth with the Depth Gauge 6–65 mm (80-0623). Insert a 3.5 mm nonlocking hex or hexalobe screw. The screw may need to be downsized after the plate has been reduced down to the bone.

**Note:** An optional 3.5 mm Locking Screw Bone Tap (80-2126) may be necessary if encountering hard cortical bone.

Figure 9



### 5 Distal Screw Holes

Utilizing the radiopaque positioning posts in the targeting guide, the position of the plate relative to the radiocarpal articular surface can be fine-tuned by sliding the plate proximally or distally, under fluoroscopy. If the radiopaque posts don't target the joint, the distal K-wires and 2.3 mm screws will not either. To further assess the position of the distal 2.3 mm screws relative to the radiocarpal articular surface, place a .054" x 6" K-wire (WS-1406ST) through one of the K-wire holes in the targeting guide closest to the joint and assess its location under fluoroscopy.

Upon satisfactory reduction and anatomic fit, insert the 2.0 mm Drill Guide/Depth Gauge (MS-DG23) into one of the distal screw holes and drill using the 2.0 mm Quick Release Drill (80-0318). Measure screw length by using the laser mark on the drill or Distal Radius Depth Probe (MS-DRPB) against the scale on the drill guide.

**Note:** Screw insertion of the proximal ulnar 2.3 mm hole should be performed after all other distal 2.3 mm screws are placed. Drilling can be performed through the locking bolt. To measure screw length, remove the locking bolt and use the drill guide and depth probe, or the orange and blue-banded 2.3 mm screw depth gauge.



3.5 mm Nonlocking Hex (Cortical) Screw (CO-31XX)



3.5 mm Nonlocking Hexalobe Screw (30-02XX)



2.8 mm Quick Release Drill (80-0387)



2.0 mm/2.8 mm Thin Drill Guide (PL-2118)



Depth Gauge 6–65 mm (80-0623)



3.5 mm Locking Screw Bone Tap (80-2126)



.054" x 6" Guide Wire (WS-1406ST) Also used as a K-wire



2.0 mm Drill Guide/Depth Gauge (MS-DG23)



2.0 mm Quick Release Drill (80-0318)



Distal Radius Depth Probe (MS-DRPB)



## Acu-Loc 2 VDR Surgical Technique [continued]

**Distal Screw Options:** The four options of 2.3 mm screws that can be used distally are fully threaded Locking Cortical Screws (gold) (CO-T23XX), Locking Cortical Pegs (bronze) (CO-S23XX), Nontoggling Cortical Screws (silver) (CO-N23XX), and the Frag-Loc® Compression Screw (30-037X). All 2.3 mm screws are inserted using the 1.5 mm Hex Driver Tip, the Locking Groove (80-0728), the 2.3 mm Screw Sleeve, the Locking Tab (80-0727), and the silver Cruciform Driver Handle (MS-2210).

**Styloid Screw Placement:** The radial styloid screws are designed to specifically target and support the radial styloid. Insert the drill guide into either styloid hole located in the dual slot on the back of the targeting guide and continue the same screw measurement and placement process for both styloid screws.

**Note:** It is recommended that the entire distal row and the two radial styloid holes be filled with screws.

**Note:** An individual 2.0 mm Locking Drill Guide 4 mm–32 mm (80-0249) is available in the system as an alternative for drilling the distal holes. Screw length can be read using the depth probe or 2.3 mm screw depth gauge.

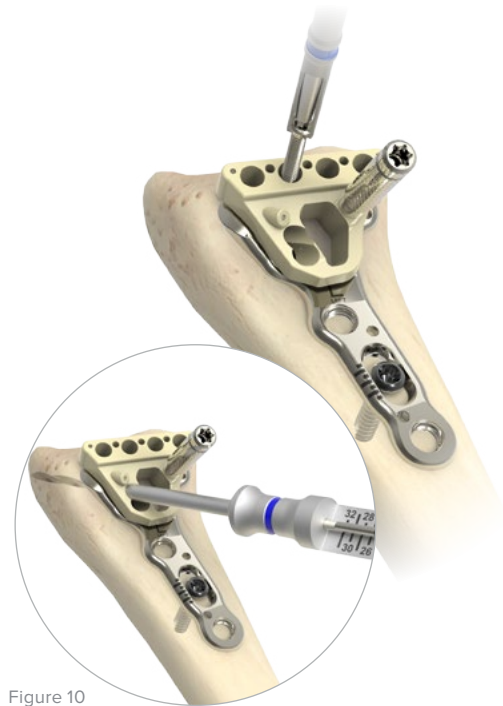


Figure 11

## 6 Proximal Screw Placement

Insert the threaded 2.8 mm Locking Drill Guide (80-0384 or 80-0668) into the screw hole distal to the slot, drill with the 2.8 mm Quick Release Drill (80-0387), and measure with the depth gauge. Insert the proper length 3.5 mm Locking Hex or Hexalobe Screw (COL-30XX or 30-023X). Take care that the screw does not exit the bone dorsally. Using the same process, drill and place the final locking screw.

**Note:** 3.5 mm locking or nonlocking hex or hexalobe screws can be used in the proximal round locking holes. Depending on the bone quality of the patient and at the surgeon's discretion, 3.5 mm nonlocking hex or hexalobe screws may be preferred to use in the round locking holes.

An optional 3.5 mm Locking Screw Bone Tap (80-2126) may be necessary if encountering hard cortical bone.

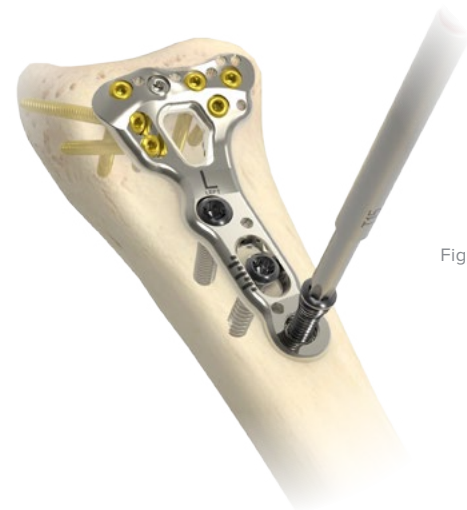


Figure 12



## Acu-Loc 2 VDR Surgical Technique [continued]

Figure 13

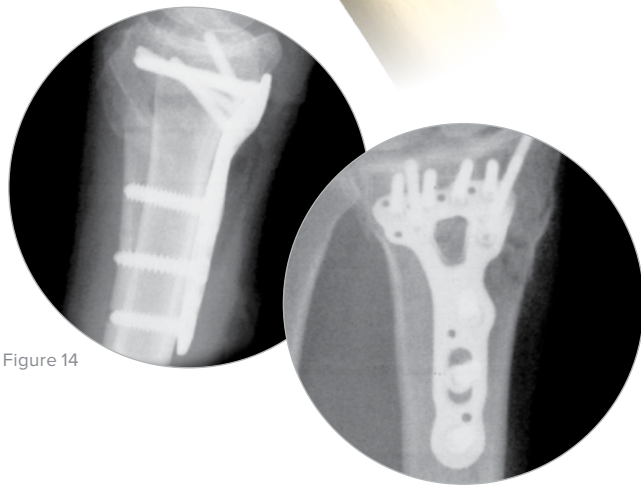


Figure 14

Figure 15

### 7 Closing and Postoperative Protocol

Perform a thorough radiographic evaluation checking fragment reduction, alignment, and screw placement. Verify that there is no gap between the bone and the plate in the lateral view and that the distal screws have not penetrated the radiocarpal joint. Close the wound and support the wrist according to bone quality and stability.

Allow for early functional use of the hand and start immediate finger range of motion and forearm rotation postoperatively.

Closing and postoperative protocol are at the discretion of the surgeon.

### 8 Optional: Implant Removal Instructions

To extract an Acu-Loc 2 VDR Plate, use the 2.5 mm Hex Driver Tip (HPC-0025) or T15 Stick Fit Hexalobe Driver Tip (80-0760) and Medium Ratcheting Driver Handle (80-0663) to remove all the 3.5 mm screws in the plate. Use 1.5 mm Hex Driver Tip, Locking Groove (80-0728) with Cruciform Driver Handle (MS-2210) for the 2.3 mm screws.

Referencing the Screw Removal Brochure (SPF10-00) may aid in implant extraction if difficulty is experienced.



2.5 mm Hex Driver Tip (HPC-0025)



T15 Stick Fit Hexalobe Driver Tip (80-0760)



Medium Ratcheting Driver Handle (80-0663)



1.5 mm Hex Driver Tip, Locking Groove (80-0728)



Cruciform Driver Handle (MS-2210)

# Frag-Loc® Compression Screw Surgical Technique

## 1 Drilling Bicortically

With the targeting guide attached, drill bicortically, using the 2.0 mm Quick Release Drill (80-0318) through the 2.0 mm Locking Drill Guide 4 mm–32 mm (80-0249) or the 2.0 mm Drill Guide/Depth Gauge (MS-DG23).



Figure 1

## 2 Measuring to Determine Screw Type

Measure screw length using the Distal Radius Depth Probe (MS-DRPB).

### Probe Guidelines:

**16–24 mm**—acceptable to use with the Frag-Loc Compression Sleeve (30-0370) and the Frag-Loc Compression Screw (30-0371).

**20–28 mm**—acceptable to use with the Frag-Loc Compression Sleeve and the Frag-Loc Compression Screw, Long (30-0372).

### Caution:

- ▶ Do not use the Frag-Loc outside of 16–24 mm range.
- ▶ Do not use the Frag-Loc, Long outside of 20–28 mm range.

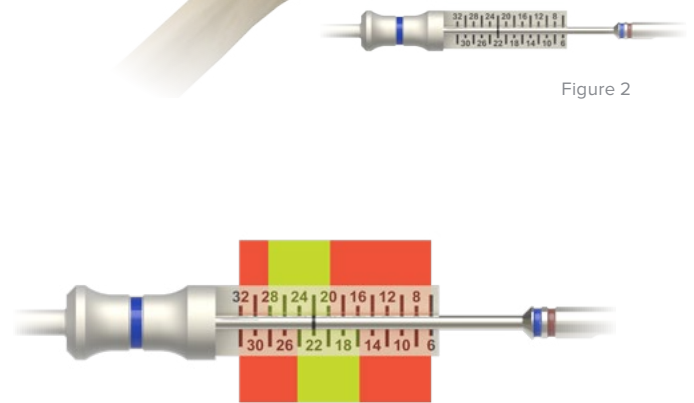


Figure 2

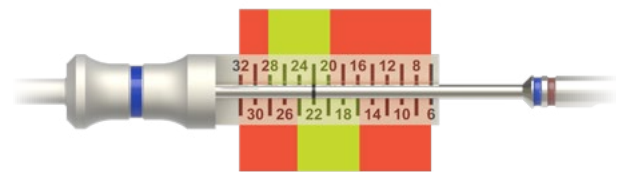


Figure 3

## 3 Drilling Unicortically

Drill using the Frag-Loc 2.5 mm Drill (80-0724). The shoulder of the drill must stop against top of drill guide.

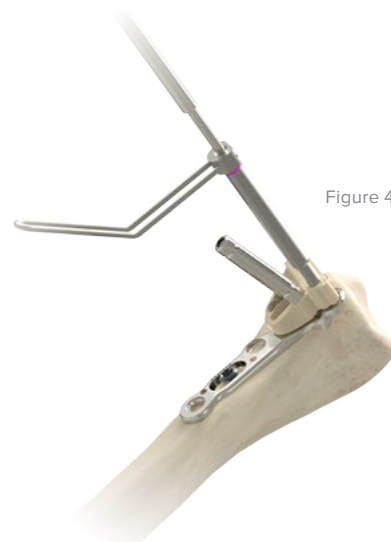


Figure 4



2.0 mm Quick Release Drill (80-0318)



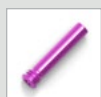
2.0 mm Locking Drill Guide 4 mm–32 mm (80-0249)



2.0 mm Drill Guide/Depth Gauge (MS-DG23)



Distal Radius Depth Probe (MS-DRPB)



Frag-Loc Compression Sleeve (30-0370)



Frag-Loc Compression Screw (30-0371)



Frag-Loc Compression Screw, Long (30-0372)



Frag-Loc 2.5 mm Drill (80-0724)

# Frag-Loc® Compression Screw Surgical Technique [continued]

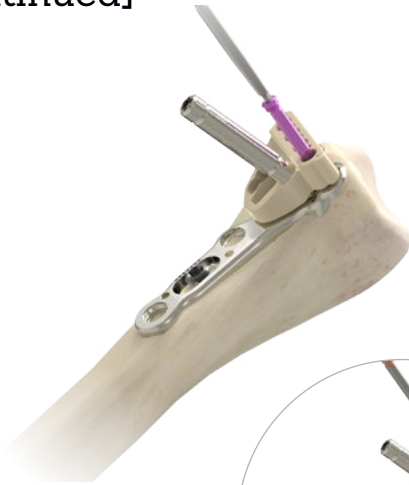


Figure 5



Figure 6

## 4 Frag-Loc Sleeve Insertion

Insert the Frag-Loc Compression Sleeve (30-0370) into the plate using the silver Cruciform Driver Handle (MS-2210) with the 1.5 mm Hex Driver Tip and Locking Groove (80-0728).



Figure 7

## 5 K-wire Insertion

Insert the .035" x 5.75" K-wire (WS-0906ST) through the Frag-Loc Compression Sleeve and dorsal skin.



Frag-Loc  
Compression  
Sleeve  
(30-0370)



Cruciform Driver  
Handle  
(MS-2210)



1.5 mm Hex  
Driver Tip,  
Locking Groove  
(80-0728)



.035" x 5.75"  
Guide Wire  
(WS-0906ST)  
Also used as a K-wire

# Frag-Loc® Compression Screw Surgical Technique [continued]

## 6 Frag-Loc Wire Insertion

Make a small incision dorsally over the K-wire and use the Heiss Retractor (80-0756) to maintain clearance of soft tissue and tendons.

Drive the Frag-Loc Compression Screw (30-0371) or the Frag-Loc Compression Screw, Long (30-0372) over the .035" x 5.75" K-wire (WS-0906ST) using the Frag-Loc 1.5 mm Cannulated Driver (80-0758).

Tighten the Frag-Loc Compression Screw into the Frag-Loc Compression Sleeve until the desired compression is achieved.

Ensure the Frag-Loc Compression Screw head is fully seated on the bone and that tendons are clear of screw head.

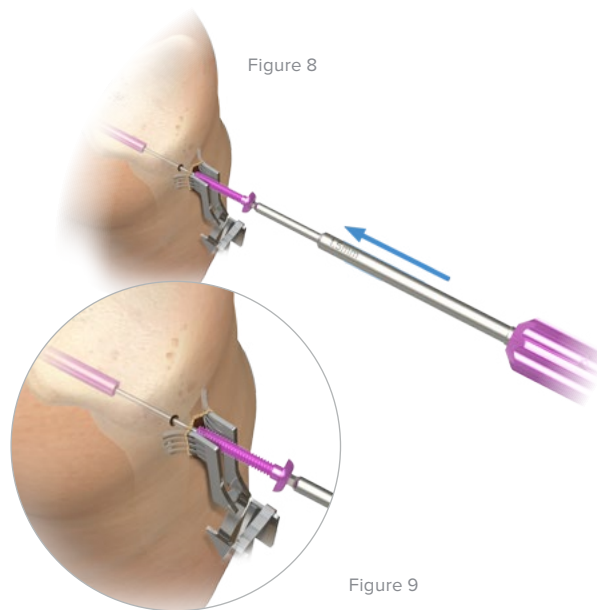


Figure 8

Figure 9

## 7 Final Confirmation

Remove the targeting guide.

Check Frag-Loc thread engagement using the Frag-Loc Depth Gauge (80-0726). The depth gauge ensures that the minimum number of threads are engaged into the Frag-Loc Compression Sleeve.

**Note:** A visible laser band on the depth gauge ensures acceptable Frag-Loc thread engagement.

If the depth gauge laser band is not visible, tighten the Frag-Loc Compression Screw one revolution and recheck. Repeat until the laser band is visible.

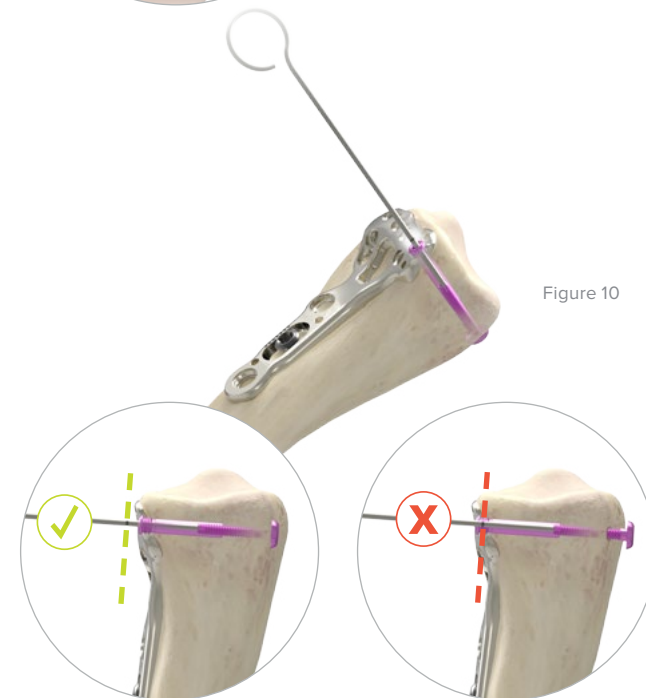


Figure 10

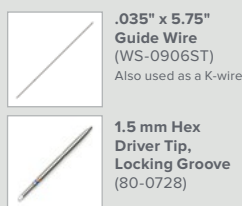
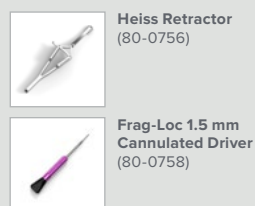
Figure 11

Figure 12

## 8 Optional: Implant Removal Instructions

To extract the Frag-Loc Compression Screw, use 1.5 mm Hex Driver Tip, Locking Groove (80-0728) with Cruciform Driver Handle (MS-2210).

Referencing the Screw Removal Brochure (SPF10-00) may aid in implant extraction if difficulty is experienced.





# Ordering Information

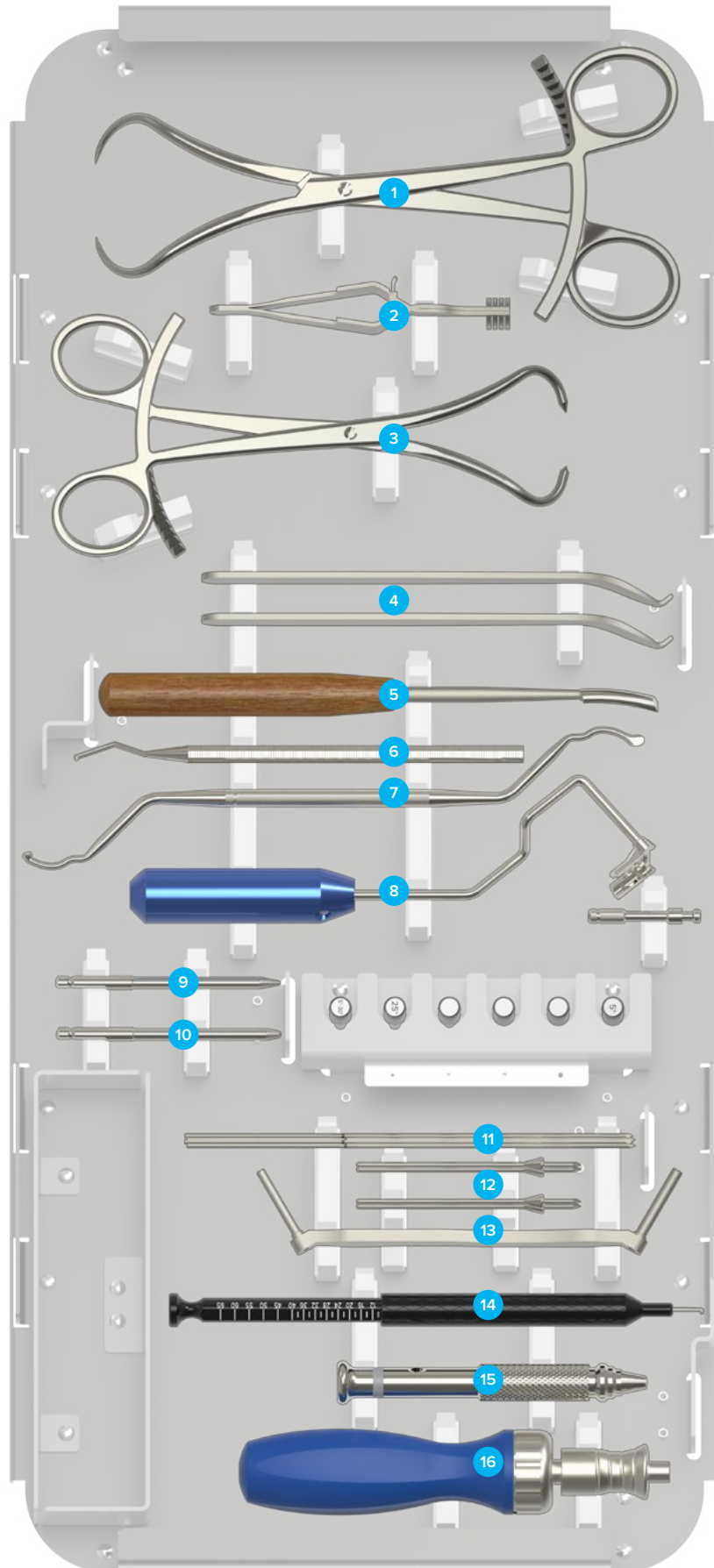
## Tray Components

### Instrumentation

1	8" Bone Reduction Forceps	MS-1280	9	1.5 mm Easyout, Quick Release	80-0598
2	Heiss Retractor	80-0756	10	2.5 mm Easyout, Quick Release	80-0600
3	Bone Reduction Forceps 6 ¾"	80-0723	11	.054" x 6" Guide Wire*	WS-1406ST
4	15 mm Hohmann Retractor	MS-46827	12	Plate Tack	PL-PTACK
5	Periosteal Elevator 7.5" x 6 mm Straight Edge	80-0693	13	2.0 mm/2.8 mm Thin Drill Guide	PL-2118
6	Sharp Hook	PL-CL06	14	Depth Gauge 6–65 mm	80-0623
7	Fragment Reduction Tool	80-0725	15	Cruciform Driver Handle	MS-2210
8	VDR Plate Positioning Handle Assembly	80-0729	16	Medium Ratcheting Driver Handle	80-0663

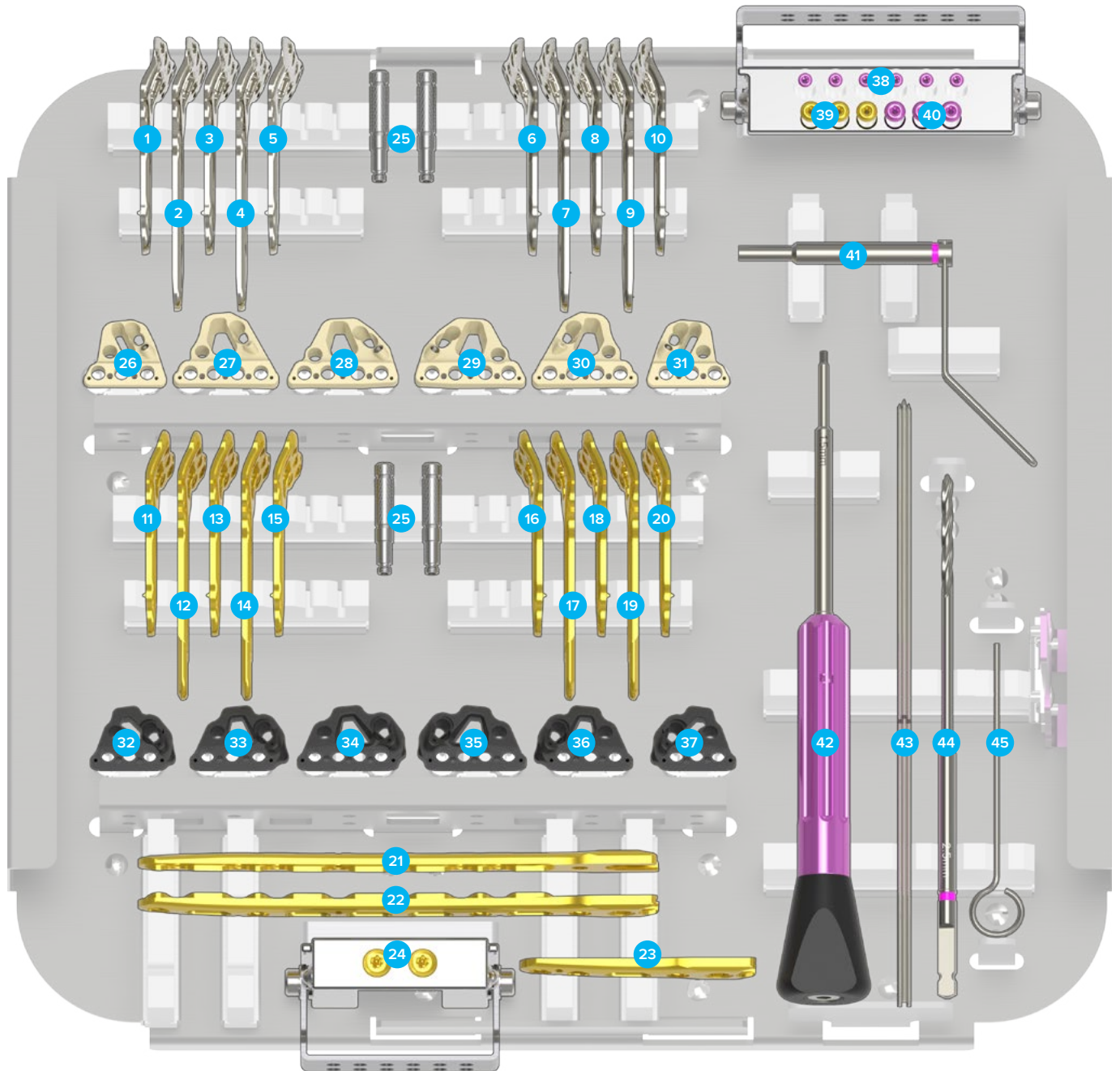
\* Also used as a K-wire

For information about the Acu-Loc Wrist Spanning Plate, please contact your local authorized Acumed distributor, call 888.627.9957, or visit [acumed.net](http://acumed.net).



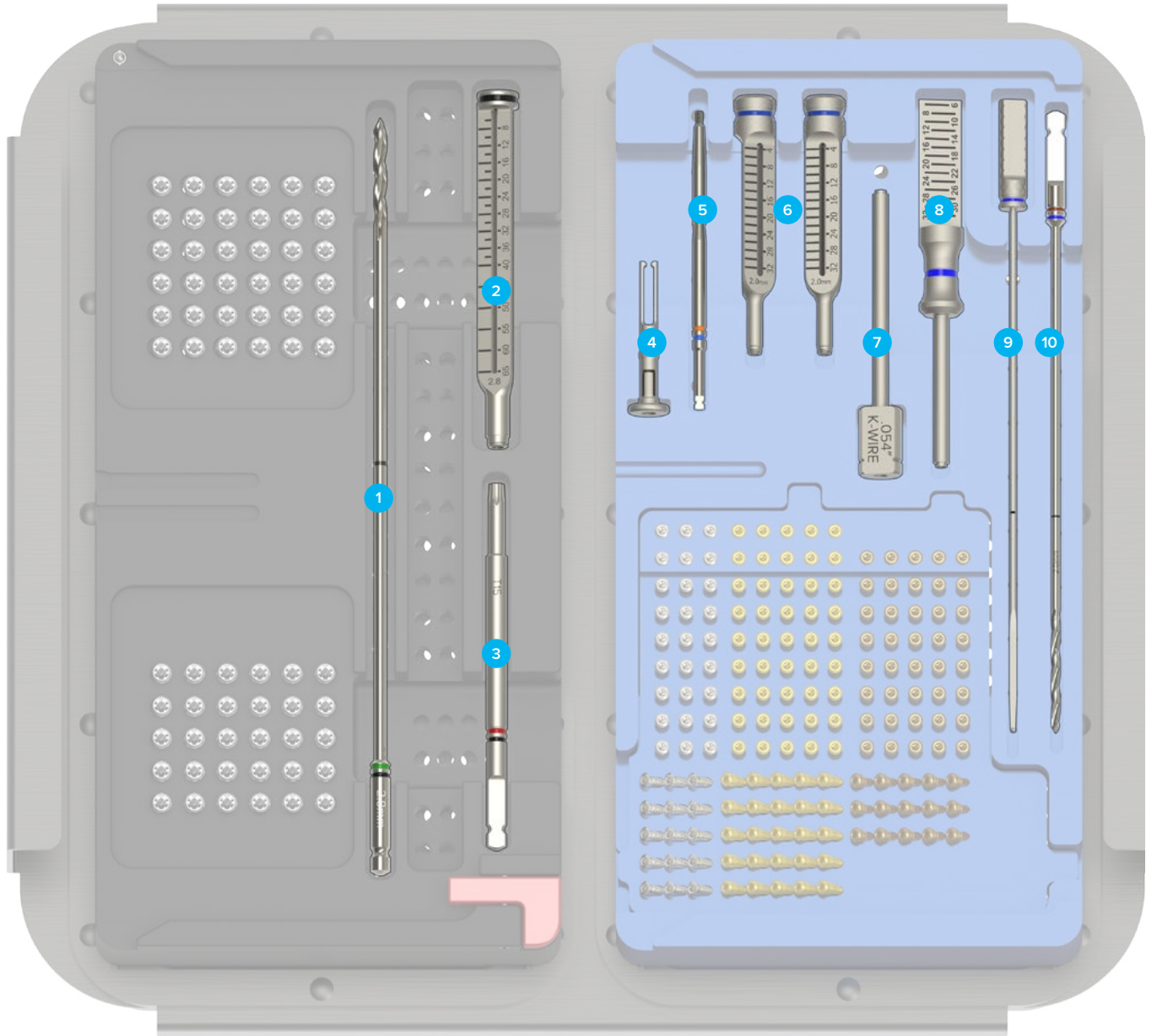
## Ordering Information [continued]

Tray Components					
<b>Acu-Loc 2 VDR Plates</b>		<b>Instrumentation</b>			
1	Acu-Loc 2 VDR Plate Narrow, Left	70-0358	25	Acu-Loc 2 VDR Targeting Guide Locking Bolt	80-0682
2	Acu-Loc 2 VDR Plate Narrow Long, Left	70-0370	26	Acu-Loc 2 VDR Targeting Guide Narrow Left	80-0697
3	Acu-Loc 2 VDR Plate Standard, Left	70-0356	27	Acu-Loc 2 VDR Targeting Guide Standard Left	80-0695
4	Acu-Loc 2 VDR Plate Standard Long, Left	70-0368	28	Acu-Loc 2 VDR Targeting Guide Wide Left	80-0699
5	Acu-Loc 2 VDR Plate Wide, Left	70-0360	29	Acu-Loc 2 VDR Targeting Guide Wide Right	80-0698
6	Acu-Loc 2 VDR Plate Wide, Right	70-0361	30	Acu-Loc 2 VDR Targeting Guide Standard Right	80-0694
7	Acu-Loc 2 VDR Plate Narrow, Right	70-0359	31	Acu-Loc 2 VDR Targeting Guide Narrow Right	80-0696
8	Acu-Loc 2 VDR Plate Standard, Right	70-0357	32	Acu-Loc 2 VDR Proximal Targeting Guide Narrow Left	80-0703
9	Acu-Loc 2 VDR Plate Narrow Long, Right	70-0371	33	Acu-Loc 2 VDR Proximal Targeting Guide Standard Left	80-0701
10	Acu-Loc 2 VDR Plate Standard Long, Right	70-0369	34	Acu-Loc 2 VDR Proximal Targeting Guide Wide Left	80-0705
<b>Acu-Loc 2 Proximal Plates</b>		35		Acu-Loc 2 VDR Proximal Targeting Guide Wide Right	80-0704
11	Acu-Loc 2 VDR Proximal Plate Narrow, Left	70-0352	36	Acu-Loc 2 VDR Proximal Targeting Guide Standard Right	80-0700
12	Acu-Loc 2 VDR Proximal Plate Narrow Long, Left	70-0382	37	Acu-Loc 2 VDR Proximal Targeting Guide Narrow Right	80-0702
13	Acu-Loc 2 VDR Proximal Plate Standard, Left	70-0350	<b>Frag-Loc® Screws</b>		
14	Acu-Loc 2 VDR Proximal Plate Standard Long, Left	70-0372	38	Frag-Loc Compression Sleeve	30-0370
15	Acu-Loc 2 VDR Proximal Plate Wide, Left	70-0354	39	Frag-Loc Compression Screw, Long	30-0372
16	Acu-Loc 2 VDR Proximal Plate Wide, Right	70-0355	40	Frag-Loc Compression Screw	30-0371
17	Acu-Loc 2 VDR Proximal Plate Standard Long, Right	70-0373	<b>Frag-Loc Instrumentation</b>		
18	Acu-Loc 2 VDR Proximal Plate Standard, Right	70-0351	41	Frag-Loc 2.5 mm Drill Guide	80-0730
19	Acu-Loc 2 VDR Proximal Plate Narrow Long, Right	70-0383	42	Frag-Loc 1.5 mm Cannulated Driver Assembly	80-0758
20	Acu-Loc 2 VDR Proximal Plate Narrow, Right	70-0353	43	.035" x 5.75" ST Guide Wire*	WS-0906ST
21	Acu-Loc 2 VDR Extension Plate Long, Left	70-0365	44	Frag-Loc 2.5 mm Drill	80-0724
22	Acu-Loc 2 VDR Extension Plate Long, Right	70-0366	45	Frag-Loc Depth Gauge	80-0726
23	Acu-Loc 2 VDR Extension Plate, Neutral	70-0364	* Also used as a K-wire		
24	Acu-Loc 2 VDR Hexalobe Extension Link Screw	30-0100			



## Ordering Information [continued]

Tray Components					
<b>3.5 mm Instrumentation</b>		<b>2.3 mm Instrumentation</b>			
1	2.8 mm Quick Release Drill	80-0387	4	2.3 mm Screw Sleeve, Locking Tab	80-0727
2	2.8 mm Hexalobe Locking Drill Guide 6–65 mm	80-0668	5	1.5 mm Hex Driver Tip, Locking Groove	80-0728
3	T15 Stick Fit Hexalobe Driver	80-0760	6	2.0 mm Locking Drill Guide 4–32 mm	80-0249
		7		.054" K-wire Guide	80-0688
		8		Drill Guide/Depth Gauge for 2.0 mm Drill	MS-DG23
		9		Distal Radius Probe	MS-DRPB
		10		2.0 mm Quick Release Drill	80-0318
Optional					
<b>3.5 mm Screw Instrumentation</b>					
	2.8 mm x 5" Quick Release Drill	80-2008			
	2.8 mm Locking Drill Guide 6–26 mm	80-2006			
	3.5 mm Locking Screw Bone Tap	80-2126			





## Ordering Information [continued]

### 2.3 mm Screws

#### 2.3 mm Nontoggling Cortical Screws

2.3 mm x 8 mm Nontoggling Cortical Screw	CO-N2308	2.3 mm x 24 mm Nontoggling Cortical Screw	CO-N2324
2.3 mm x 10 mm Nontoggling Cortical Screw	CO-N2310	2.3 mm x 26 mm Nontoggling Cortical Screw	CO-N2326
2.3 mm x 12 mm Nontoggling Cortical Screw	CO-N2312	2.3 mm x 28 mm Nontoggling Cortical Screw	CO-N2328
2.3 mm x 14 mm Nontoggling Cortical Screw	CO-N2314	2.3 mm x 30 mm Nontoggling Cortical Screw	CO-N2330
2.3 mm x 16 mm Nontoggling Cortical Screw	CO-N2316	2.3 mm x 32 mm Nontoggling Cortical Screw	CO-N2332
2.3 mm x 18 mm Nontoggling Cortical Screw	CO-N2318	2.3 mm x 28 mm Nontoggling Cortical Screw	CO-N2328
2.3 mm x 20 mm Nontoggling Cortical Screw	CO-N2320	2.3 mm x 30 mm Nontoggling Cortical Screw	CO-N2330
2.3 mm x 22 mm Nontoggling Cortical Screw	CO-N2322	2.3 mm x 32 mm Nontoggling Cortical Screw	CO-N2332

#### 2.3 mm Locking Cortical Pegs

2.3 mm x 8 mm Locking Cortical Peg	CO-S2308
2.3 mm x 10 mm Locking Cortical Peg	CO-S2310
2.3 mm x 12 mm Locking Cortical Peg	CO-S2312
2.3 mm x 14 mm Locking Cortical Peg	CO-S2314
2.3 mm x 16 mm Locking Cortical Peg	CO-S2316
2.3 mm x 18 mm Locking Cortical Peg	CO-S2318
2.3 mm x 20 mm Locking Cortical Peg	CO-S2320
2.3 mm x 22 mm Locking Cortical Peg	CO-S2322
2.3 mm x 24 mm Locking Cortical Peg	CO-S2324
2.3 mm x 26 mm Locking Cortical Peg	CO-S2326
2.3 mm x 28 mm Locking Cortical Peg	CO-S2328

#### 2.3 mm Locking Cortical Screws

2.3 mm x 8 mm Locking Cortical Screw	CO-T2308
2.3 mm x 10 mm Locking Cortical Screw	CO-T2310
2.3 mm x 12 mm Locking Cortical Screw	CO-T2312
2.3 mm x 14 mm Locking Cortical Screw	CO-T2314
2.3 mm x 16 mm Locking Cortical Screw	CO-T2316
2.3 mm x 18 mm Locking Cortical Screw	CO-T2318
2.3 mm x 20 mm Locking Cortical Screw	CO-T2320
2.3 mm x 22 mm Locking Cortical Screw	CO-T2322
2.3 mm x 24 mm Locking Cortical Screw	CO-T2324
2.3 mm x 26 mm Locking Cortical Screw	CO-T2326
2.3 mm x 28 mm Locking Cortical Screw	CO-T2328
2.3 mm x 30 mm Locking Cortical Screw	CO-T2330
2.3 mm x 32 mm Locking Cortical Screw	CO-T2332

## Ordering Information [continued]

### 3.5 mm Screws

#### 3.5 mm Locking Hexalobe Screws

3.5 mm x 8 mm Locking Hexalobe Screw	30-0232
3.5 mm x 10 mm Locking Hexalobe Screw	30-0233
3.5 mm x 12 mm Locking Hexalobe Screw	30-0234
3.5 mm x 14 mm Locking Hexalobe Screw	30-0235
3.5 mm x 16 mm Locking Hexalobe Screw	30-0236
3.5 mm x 18 mm Locking Hexalobe Screw	30-0237

#### 3.5 mm Nonlocking Hexalobe Screws

3.5 mm x 10 mm Nonlocking Hexalobe Screw	30-0256
3.5 mm x 12 mm Nonlocking Hexalobe Screw	30-0257
3.5 mm x 14 mm Nonlocking Hexalobe Screw	30-0258
3.5 mm x 16 mm Nonlocking Hexalobe Screw	30-0259
3.5 mm x 18 mm Nonlocking Hexalobe Screw	30-0260

These implants are available non-sterile or sterile-packed. Add -S to product number for sterile products. To order, contact your local authorized Acumed distributor.

### Sterile 3.5 mm Screws

#### 3.5 mm Locking Hexalobe Screws

3.5 mm x 9 mm Locking Hexalobe Screw	30-0218-S
3.5 mm x 11 mm Locking Hexalobe Screw	30-0219-S
3.5 mm x 13 mm Locking Hexalobe Screw	30-0220-S
3.5 mm x 15 mm Locking Hexalobe Screw	30-0221-S
3.5 mm x 17 mm Locking Hexalobe Screw	30-0222-S
3.5 mm x 19 mm Locking Hexalobe Screw	30-0223-S

#### 3.5 mm Nonlocking Hexalobe Screws

3.5 mm x 9 mm Nonlocking Hexalobe Screw	30-0224-S
3.5 mm x 11 mm Nonlocking Hexalobe Screw	30-0225-S
3.5 mm x 13 mm Nonlocking Hexalobe Screw	30-0226-S
3.5 mm x 15 mm Nonlocking Hexalobe Screw	30-0227-S
3.5 mm x 17 mm Nonlocking Hexalobe Screw	30-0228-S
3.5 mm x 19 mm Nonlocking Hexalobe Screw	30-0229-S

## Ordering Information [continued]

Optional			
<b>3.5 mm Locking Cortical (Hex) Screws</b>		<b>3.5 mm Cortical (Hex) Screws</b>	
3.5 mm x 8 mm Locking Cortical Screw	COL-3080	3.5 mm x 10 mm Cortical Screw	CO-3100
3.5 mm x 10 mm Locking Cortical Screw	COL-3100	3.5 mm x 12 mm Cortical Screw	CO-3120
3.5 mm x 12 mm Locking Cortical Screw	COL-3120	3.5 mm x 14 mm Cortical Screw	CO-3140
3.5 mm x 14 mm Locking Cortical Screw	COL-3140	3.5 mm x 16 mm Cortical Screw	CO-3160
3.5 mm x 16 mm Locking Cortical Screw	COL-3160	3.5 mm x 18 mm Cortical Screw	CO-3180
3.5 mm x 18 mm Locking Cortical Screw	COL-3180	<b>Acu-Loc 2 VDR Extension Plates Screws</b>	
<b>Instrumentation</b>		Acu-Loc 2 VDR Plate Extension Link Screw	30-0093
2.5 mm Quick Release Hex Driver	HPC-0025		
3.5 mm Screw Driver Sleeve	MS-SS35		

## References

1. Geissler WB, Clark SM. Fragment-specific fixation for fractures of the distal radius. *J Wrist Surg.* 2016;5(1):22–30.









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