



Acutrak 2® Headless Compression Screw System
Micro, Mini, and Standard Screws

Supplemental Use Guide—Four Corner Fusion



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



Acumed® Acutrak 2® Headless Compression Screw System—Micro, Mini and Standard Screws

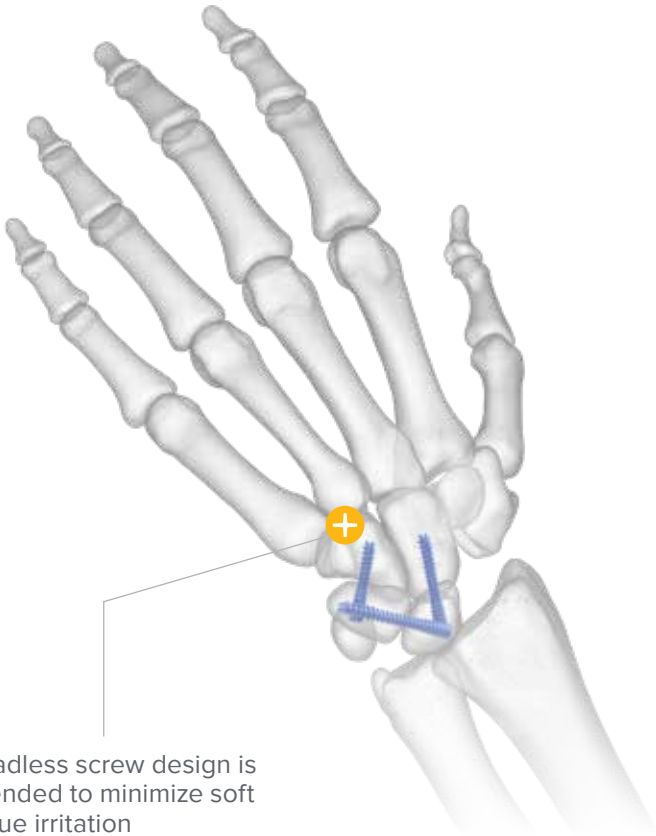
This guide is intended for supplemental use only and is not intended to be used as a stand-alone surgical technique. Reference the Acumed Acutrak 2 Headless Compression Screw System Surgical Technique (SPF00-02) for more information.

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

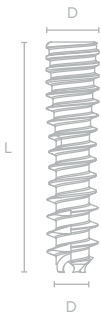
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System Features



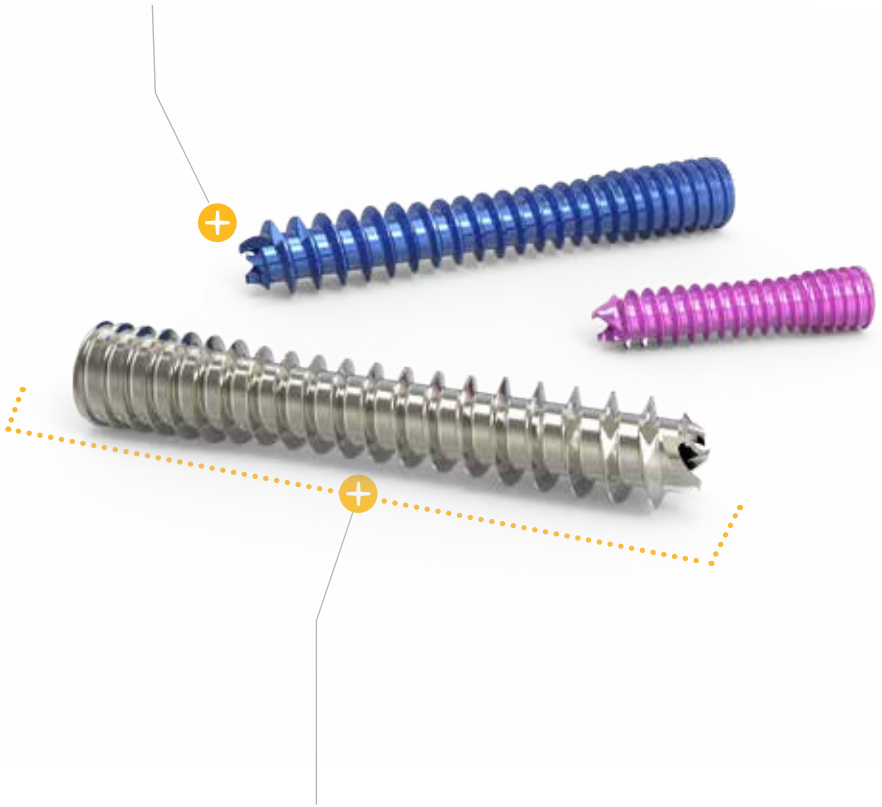
Headless screw design is intended to minimize soft tissue irritation



Acutrak 2 Screws	Diameter	Length
Micro	Tip: 2.5 mm	1 mm increments 8–14 mm
	Tail: 2.8 mm	2 mm increments 14–30 mm
Mini	Tip: 3.5 mm	2 mm increments 16–30 mm
	Tail: 3.6 mm	
Standard	Tip: 4mm	2 mm increments 16–34mm
	Tail: 4.1mm	

System Features

Self-cutting and self-tapping screw is designed to facilitate insertion into hard bone



Fully threaded, continuously variable thread pitch allows each thread along the entire length of the screw to aid in the reduction and compression of the fracture

Four Corner Fusion Technique: Acutrak 2® Mini



Figure 1

1 Dorsal Approach

The dorsal Berger-Bishop approach is one method of exposure, but the choice of approach is at the surgeon's discretion. Exposure to the radial side is needed to allow for the excision of the scaphoid and to the ulnar side in order to facilitate bone preparation for the ultimate fusion.

Four Corner Fusion Technique: Acutrak 2® Mini



Figure 2

2 Scaphoid Excision

The scaphoid is exposed with sharp dissection and can be removed using osteotomes and rongeurs. Trim back any osteophytes or bone spurs from the radial dorsal lip and styloid process and save the pieces, along with the excised scaphoid, for later use as bone graft if the use of a bone graft is warranted.

Four Corner Fusion Technique: Acutrak 2® Mini

3 Decorticate Bone

Begin with the mid-carpal joint, preparing the opposing articular surfaces between capitate and lunate, then prepare the adjacent surfaces of the triquetrum and hamate. Temporary guide wires can be used as joysticks to facilitate exposure.

Note: It may not always be necessary to include the ulnar column and some surgeons prefer to restrict the fusion to the central column alone (capitate/lunate).

Four Corner Fusion Technique: Acutrak 2® Mini

Figure 3

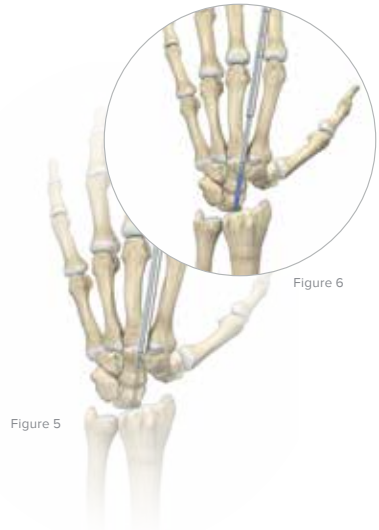


4 Capitulum Screw Fixation

Before fixation, the dorsal intercalated segment instability (DISI) deformity may need to be corrected. The capitate must be brought back from its position of dorsal subluxation to align with the reduced position of the lunate. Hold the position of the lunate with a wire introduced through the distal radius into the lunate and then provisionally pin the capitate.

Reduce and align the capitate onto the lunate and then advance the guide wire through the distal pole of the capitate into the lunate and the length measured using the Acutrak 2 Percutaneous Screw Sizer (AT2-AMCZ).

Four Corner Fusion Technique: Acutrak 2® Mini



4 Capitulate Screw Fixation [continued]

The guide wire may then be advanced distally into the radius. If desired, pack any gaps in the fusion site with the harvested cancellous bone graft from the excised scaphoid. Drill to appropriate length and insert appropriate size screw. Confirm placement and length of the screw under fluoroscopy, ensuring that both the leading and the trailing edges of the screw are beneath the articular surfaces, and remove the guide wires.

Four Corner Fusion Technique: Acutrak 2® Mini

4 Capitulum Screw Fixation [alternative]

If access to the distal capitate is difficult and/or the wires are going too volar, the wire may be introduced on either side of the base of the third metacarpal. Make a small incision over the second web space dorsally, deepen this down to the base of the second/third metacarpals, and retract the soft tissues to allow the drill sleeve to be inserted on the radial side of the third metacarpal. Advance the guide wire down the central axis of the capitate, correct the DISI deformity of the lunate, then pass the wire into the lunate in its reduced position. Check the length of the screw, advance the guide wire into the distal radius, drill and prepare the bones, and insert the appropriate length screw.

Four Corner Fusion Technique: Acutrak 2® Mini

5 Triquetrum-Hamate Screw Fixation

The triquetrum-hamate screw fixation can be performed distally to proximally using either an open or percutaneous technique. Make an incision over the dorsal aspect of the triquetrum just distal to the ulnar styloid. Advance the guide wire through the central portion of the triquetrum and into the center of the hamate and measure the length using the Acutrak 2 Percutaneous Screw Sizer (AT2-SMCZ). Drill to appropriate length, pack cancellous bone graft into any gaps if desired, and insert appropriate size screw. Confirm placement and length of the screw under fluoroscopy, ensuring that both the leading and trailing edges of the screw are beneath the articular surfaces, and remove the guide wires.

A two-column fusion combined with grafting of the articular surfaces is generally sufficient and transverse fixation screws are not always necessary.^{1,2} If additional screws are required, proceed to a lunate/triquetrum fusion.

Four Corner Fusion Technique: Acutrak 2® Mini

Figure 7



6 Lunate-triquetrum Screw Fixation

The lunate to triquetrum screw fixation can be performed transversely. The radial side of the lunate can be accessed by following the scaphoid excision and a guide wire can be advanced through the lunate and into the triquetrum. Measure the length using the Acutrak 2 Percutaneous Screw Sizer (AT2-SMCZ) and advance the wire through the triquetrum and skin on the ulnar side. Make a small stab incision, then drill from the ulnar side in preparation for screw insertion.

Confirm placement and length of the screw under fluoroscopy, ensuring that both the leading and the trailing edges of the screw are beneath the articular surfaces, and remove the guide wires.

Caution: Take care to avoid intersecting the capitulunate screw.

References

1. Ozyurekoglu T, Turker T. Results of a method of 4-corner arthrodesis using headless compression screws. *J Hand Surg.* 2012;37(3):486-492.
2. Slade III JF, Bomback DA. Percutaneous capitulum arthrodesis using arthroscopic or limited approach. *Atlas Hand Clin.* 2003;8:149-162.

Ordering Information

Acutrak 2®—Micro, Nonsterile

Implants

Non-Sterile 8 mm Micro Acutrak 2	AT2-C08
Non-Sterile 9 mm Micro Acutrak 2	AT2-C09
Non-Sterile 10 mm Micro Acutrak 2	AT2-C10
Non-Sterile 11 mm Micro Acutrak 2	AT2-C11
Non-Sterile 12 mm Micro Acutrak 2	AT2-C12
Non-Sterile 13 mm Micro Acutrak 2	AT2-C13
Non-Sterile 14 mm Micro Acutrak 2	AT2-C14
Non-Sterile 16 mm Micro Acutrak 2	AT2-C16
Non-Sterile 18 mm Micro Acutrak 2	AT2-C18
Non-Sterile 20 mm Micro Acutrak 2	AT2-C20
Non-Sterile 22 mm Micro Acutrak 2	AT2-C22
Non-Sterile 24 mm Micro Acutrak 2	AT2-C24
Non-Sterile 26 mm Micro Acutrak 2	AT2-C26
Non-Sterile 28 mm Micro Acutrak 2	AT2-C28
Non-Sterile 30 mm Micro Acutrak 2	AT2-C30

Ordering Information

Acutrak 2®—Micro [continued]

Instrumentation

Micro Acutrak 2 Parallel Wire Guide Assembly	AT2-3500
.035" x 6" Guide Wire	WS-0906ST
Micro Acutrak 2 Profile Drill	AT2-1509
Micro Acutrak 2 Long Profile Drill	80-0100
1.5 mm Cannulated Hex Driver	HT-0915
Micro Acutrak 2 Extended Long Drill	80-1522
Micro Acutrak 2 Screw Sizer	80-1523
.035" x 6" Single Trocar Guide Wire	80-1524
.035" x 6" Double Trocar Guide Wire	80-1525

Tray

Micro Acutrak 2 Extension Caddy	80-1526
Micro Acutrak 2 Extension Platter	80-1527
Micro Acutrak 2 Extension Platter Lid	80-1534

X-Ray Template

Acutrak 2 Micro X-ray Template	ACT70-02
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Ordering Information

Acutrak 2®—Mini

Implants

Non-Sterile 16 mm Mini Acutrak 2	AT2-M16
Non-Sterile 18 mm Mini Acutrak 2	AT2-M18
Non-Sterile 20 mm Mini Acutrak 2	AT2-M20
Non-Sterile 22 mm Mini Acutrak 2	AT2-M22
Non-Sterile 24 mm Mini Acutrak 2	AT2-M24
Non-Sterile 26 mm Mini Acutrak 2	AT2-M26
Non-Sterile 28 mm Mini Acutrak 2	AT2-M28
Non-Sterile 30 mm Mini Acutrak 2	AT2-M30

Instrumentation

Mini Acutrak 2 Parallel Wire Guide Assembly	AT2-4500
.045" x 6" Guide Wire	WS-1106ST
Mini Acutrak 2 Profile Drill	AT2M-1813
Mini Acutrak 2 Long Drill	AT2M-L1813
2 mm Cannulated Hex Driver	HT-1120

Ordering Information

Acutrak 2®—Mini [continued]

X-ray Template

Acutrak 2 Mini X-ray Template	ACT70-03
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Acutrak 2® Standard, Mini, and Micro

Additional Instrumentation

Arthroscopic Cannula Assembly	80-0519
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Acutrak 2 Arthroscopic Probe	AT2-0402
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Acutrak 2 Percutaneous Screw Sizer (Standard, Mini, Micro)	AT2-SMCZ
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Plunger Assembly	AT-7060
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Acutrak 2® Standard Implants

Non-Sterile 16 mm Standard Acutrak 2	AT2-S16
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Non-Sterile 18 mm Standard Acutrak 2	AT2-S18
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Non-Sterile 20 mm Standard Acutrak 2	AT2-S20
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Non-Sterile 22 mm Standard Acutrak 2	AT2-S22
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Non-Sterile 24 mm Standard Acutrak 2	AT2-S24
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Non-Sterile 26 mm Standard Acutrak 2	AT2-S26
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Non-Sterile 28 mm Standard Acutrak 2	AT2-S28
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Non-Sterile 30 mm Standard Acutrak 2	AT2-S30
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Non-Sterile 32 mm Standard Acutrak 2	AT2-S32
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Non-Sterile 34 mm Standard Acutrak 2	AT2-S34
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Ordering Information

Acutrak 2® Standard, Mini, and Micro [continued]

Acutrak 2® Standard Instruments

Standard Acutrak Parallel Wire Guide Assembly	AT2-5400
.054" x 7" Guide Wire	WS-1407ST
Standard Acutrak 2 Profile Drill	AT2-2515
Standard Acutrak 2 Long Drill	At2-L2515
2.5 mm Cannulated Hex Driver	HT-1725

Note: All screws are also available sterile-packed. Add an -S to end of product number for sterile product.

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Acumed Headquarters
5885 NE Cornelius Pass Road
Hillsboro, OR 97124
Office: +1.888.627.9957
Office: +1.503.627.9957
Fax: +1.503.520.9618
www.acumed.net

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