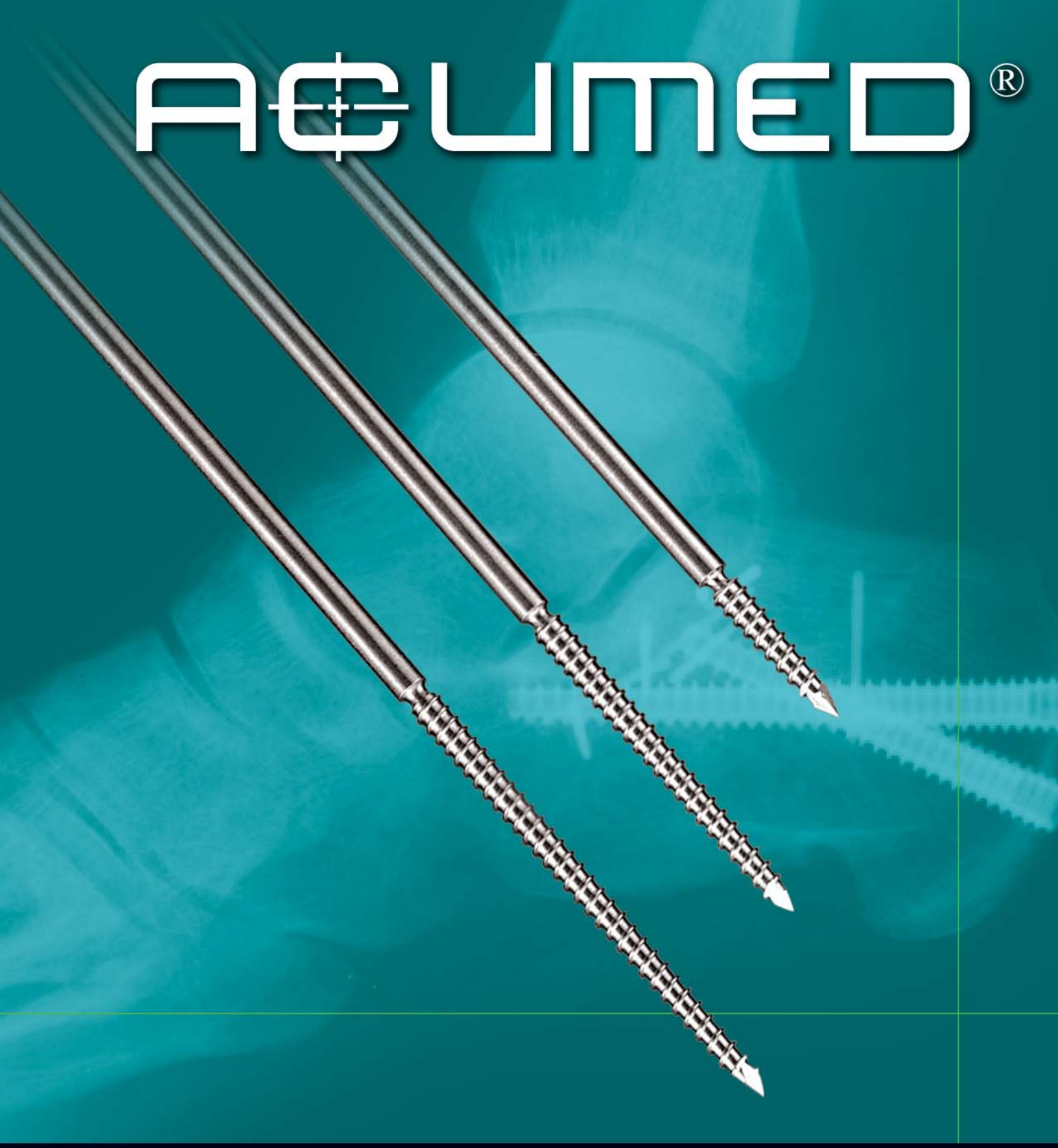
ACUMED®



ACUTWIST®

Acutrak® Compression Screw

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Acutrak® Compression Screw

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

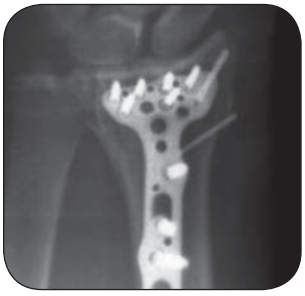
Applications

by Greg Horton, M.D.

Any application that benefits from interfragmentary compression is potentially appropriate. Given the size and break-off nature of the device, applications of the hand/wrist and foot/ankle are readily apparent. Indeed, any small joint arthrodesis site or small bone osteotomy may be an appropriate indication. Fracture fixation in a wide variety of anatomic locations can benefit from the interfragmentary compression provided by the AcuTwist compression screw.

Periarticular fractures with critical articular fragments may benefit from the size and break-off nature of the AcuTwist. Frequently these fragments, while critical, are too small to preclude standard screw fixation. Examples would include central and lateral posterior facet fragments in calcaneal fractures, marginally impacted fragments of an acetabular fracture, and depressed articular segments of a tibial plateau fracture requiring elevation.

In fact, any articular fracture with critical fragments may be an appropriate indication for the AcuTwist compression screw. Fixation of cortical fracture fragments and securing structural pieces of bone graft are other potential applications of the AcuTwist compression screw.



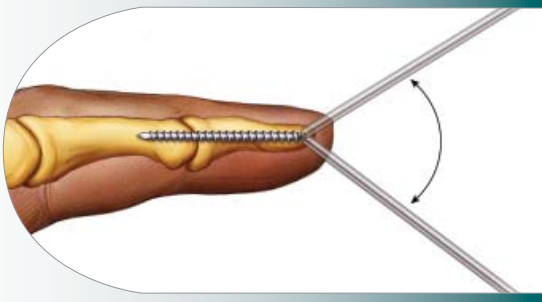
Acumed's AcuTwist is the latest addition to the Acutrak® family of headless compression screws. Sterile-packed, these innovative screws provide compression fixation for use in fusions, osteotomies, and small periarticular fractures.

Like all Acutrak screws, the key to the AcuTwist design is the patented, variable thread pitch and tapered profile. The fully threaded length assists in maintaining compression through cyclic loading.

Speed and versatility are other hallmarks of the AcuTwist. Using only a power driver, these screws are driven flush to the near cortex and "snapped off" at the integrated break-off groove point. As a compression fixation option, AcuTwist is indispensable for both upper and lower extremity indications.

Compression is achieved through our patented, variable thread pitch and tapered profile found in all Acutrak® screws. The fully threaded length assists in maintaining compression through cyclic loading.

Snap-off groove allows the AcuTwist® to be broken off flush with the cortex. The screw is driven with a standard power driver into the bone until the break-away groove is flush with the cortex. By tilting the driver to one side and then the other, the screw will break at the groove.



Versatility may be the best feature of the AcuTwist. Initially developed for IP fusions, AcuTwist has been successfully applied in multiple indications such as Chevron and proximal crescentic osteotomies, radial & ulnar styloid fractures, and radial head fractures. For periarticular fractures and fixation of cortical fracture fragments, AcuTwist is indispensable in the OR.

Headless: Allows the titanium screws to be implanted in and around articular regions with minimal risk of impingement or soft tissue irritation.

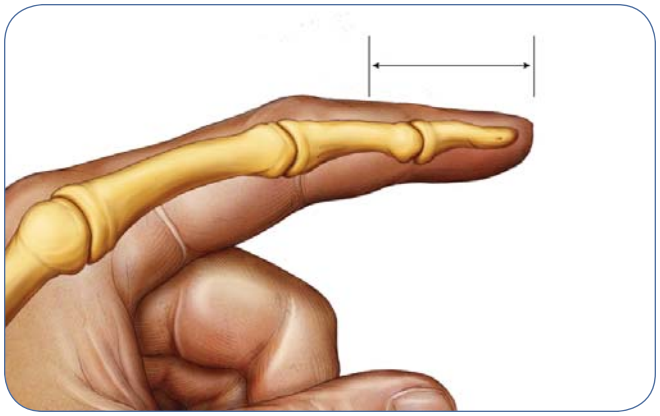
Fully Threaded Length: Biomechanical studies have shown that fully-threaded screws better handle the cyclic loading that may occur during healing.

Break-away Groove: Designed to snap off by tilting the power driver to one side and then the other. The break should be flush with the cortex.

Variable Thread Pitch: The wider thread pitch at the tip of the screw penetrates the bone faster than the finer trailing threads, compressing the two fragments gradually as the screw is advanced.

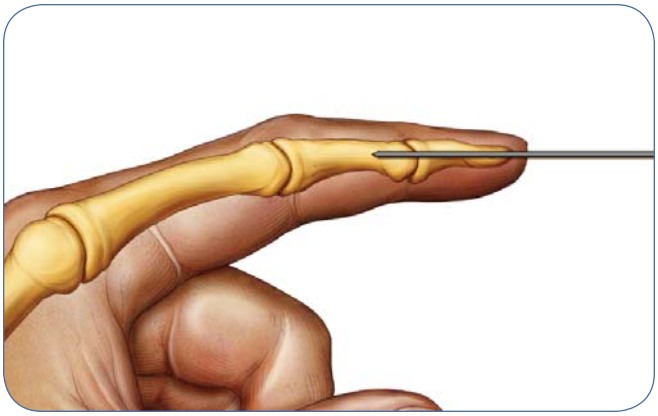
SURGICAL TECHNIQUE

Greg Horton, M.D.



Step 1:

Prior to use, provisional reduction of the proposed arthrodesis site, osteotomy, or fracture fragment is achieved. To avoid potential loss of reduction, the provisional use of a bone holding clamp or K-wire is recommended throughout preparation and insertion of the compression screw. As the device is designed with a break-off fatigue point, it is necessary to prepare a track for accurate insertion of the compression screw.



Step 2:

A pilot hole is required prior to insertion of the implantable compression screw. A non-threaded guide wire is advanced across the fixation site. Bicortical fixation, if possible, is desirable. Measurement of the desired length is performed either with the depth gauge or by utilizing a second guide wire to gauge the inserted distance. If the tip of the guide wire is not readily accessible, the use of image intensification is mandatory to assure the proper length.

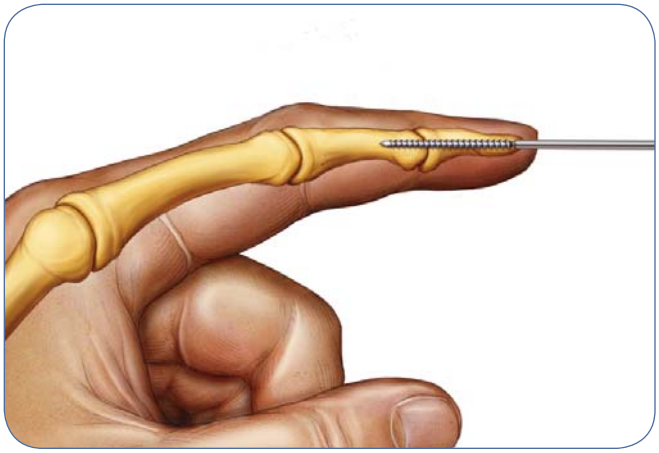
Why tapping?

Use of a tap prior to insertion of the actual implant is imperative. The tap (AI-NG30) has the same pitch and geometry as the actual implant.

The maximum threaded distance of 30 mm on the tap correlates to the longest threaded length of the actual implant.

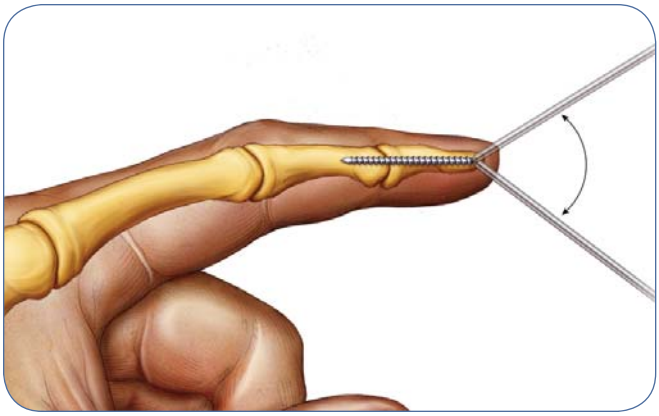
As with any tapered compression device, over-insertion of the tap may result in failure of the implant to provide compression at the desired length. The tap is advanced with the use of a pin driver. Alternatively, a hand driven option is available.

As the tap generates some torque during insertion, it is necessary to keep the proposed fixation site held with a K-wire or bone holding forceps during insertion and removal. The tap is advanced across the distal fragment and placement is confirmed radiographically. The use of a second tap or the depth gauge is then used to confirm the desired length of the actual implant.



Step 3:

The tap is then removed. If utilizing a power driver, care should be taken to assure that it is on reverse to avoid inadvertent advancement of the tap. The implant is then chosen based on the measurement of the pilot wire and/or the tap. The AcuTwist is inserted to the break-off point. Care should be taken to avoid excessive bending of the screw during insertion as this can lead to undesirable premature break-off. After the implant is inserted, image intensification is again utilized to confirm accurate placement of the implant. This should be done prior to performing the break-off.



Step 4:

The fixation site should continue to be secured during the break-off, either by hand or with a bone holding forceps. The smooth end of the screw is gently bent back and forth until the screw fatigues at the break-off site. A longer lever arm can be achieved by utilizing the driver or hand insertion device to assist with the break-off process. Alternatively, a flush wire cutter can be utilized. If more than one AcuTwist compression screw is to be utilized, it is advised to delay the break-off process until two or more of the actual implants have been inserted.

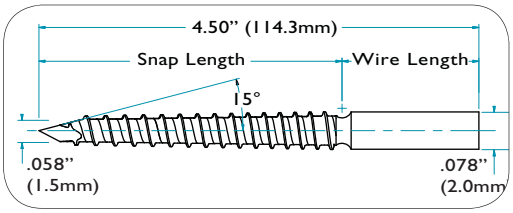
Tips & Pearls:

Care should be taken to minimize the risk of premature break-off of the AcuTwist during insertion.

- Bone quality and tap use are the primary means to avoid premature break-off.
- In dense cortical bone, tap prior to screw insertion. The tap can also be used to create the initial pilot hole instead of the guide wire.
- Avoid driver bending motion during insertion.
- If premature break-off does occur, assess the screw's holding ability. If the screw is providing satisfactory fixation, the protruding portion can be removed with a flush wire cutter. The screw can also be removed.
- Screws can be removed with either the reverse threaded extraction device or with a small needle driver.
- The same insertion site can be used if screw removal has not compromised the bone.
- Use a shorter screw or tap deeper before inserting a new screw through the same insertion site. If the bone at the insertion site has been compromised, then an alternative insertion site will be required.

Using the Extractor Tool:

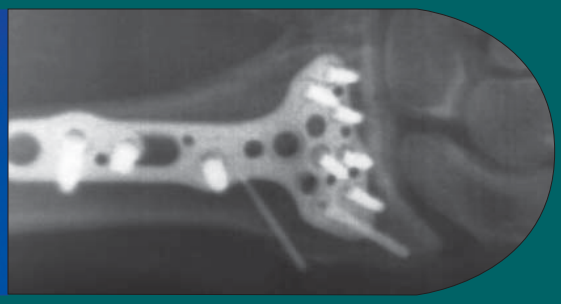
This trephine-style device cores into the bone, over the screw, in a counter-clockwise fashion. This procedure must be done under power. Apply force so that at least four threads are exposed for the extractor to engage. Continue in reverse and under force until the screw is captured by the extractor and the screw reverses out of the bone.



Ordering Information

AcuTwist Compression Screw (sterile)	
AcuTwist, 10mm	AI-0010-S
AcuTwist, 12mm	AI-0012-S
AcuTwist, 14mm	AI-0014-S
AcuTwist, 16mm	AI-0016-S
AcuTwist, 18mm	AI-0018-S
AcuTwist, 20mm	AI-0020-S
AcuTwist, 22mm	AI-0022-S
AcuTwist, 24mm	AI-0024-S
AcuTwist, 26mm	AI-0026-S
AcuTwist, 28mm	AI-0028-S
AcuTwist, 30mm	AI-0030-S

Instrumentation	
AcuTwist Tray	AI-1520
K-wire, .045"	WS-1106ST
AcuTwist, Bone Tap	AI-NG30
Narrow Drill Guide, 2.0/2.8mm	PL-2118
Extractor Tool	AI-EX20
Wire Cutter, Standard	MS-46623
AcuTwist, Demo 22mm	AI-DEMO22



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