The First, and **Still the Only One** of Its Kind

Acutrak® Headless Compression Screw Solutions

Trusted Over 2 Million Times
Often Imitated, Never Duplicated

Acumed’s engineering know-how and manufacturing skill have forged a legacy of **Acutrak quality based on a quarter-century of expertise.**

Trusted 2 Million Times by Surgeons Worldwide
The Acutrak Advantage

Acutrak technology produced the first and still the only continuously variable thread pitch headless compression screw on the market.

Excellence, Backed by Evidence

More than 2 million Acutrak family screws have been implanted since 1994, supported by more than 100 publications, including clinical and biomechanical studies.

For more information:
go.acumed.net/2Million
888.627.9957
Acutrak® Headless Compression Screw System

**Continuously Variable Thread Pitch**
The Acutrak fully threaded continuously variable thread pitch screw design provides greater compression and a larger window of compression compared to partially threaded Herbert-style screw designs. This feature allows a fracture or osteotomy site to lie almost anywhere along the length of the screw.

**Fully Threaded Length**
Biomechanical studies have shown that fully threaded screws better handle cyclic loading compared to AO and Herbert screws in cadaveric and synthetic bone material.1

**Cutting Flutes**
At the screw’s distal tip, these flutes are engineered to make the screw self-tapping and facilitate insertion into hard bone.

Hammertoe Fusion
Fixation using the Acumed Hammertoe Fusion System
An Industry First

**Acutrak Headless Compression Screw System**

Released in 1994, the original Acutrak Headless Compression Screw was the first fully threaded headless compression screw on the market with continuously variable thread pitch.

**Acutrak Applications**

- Upper Extremity Solutions
  - Radial Head Fixation
  - Capitellum Fixation
  - Olecranon Fracture
  - MCP Fusion
  - Scaphoid Fracture/Nonunion
  - DIP & PIP Fusion
  - Four-corner Fusion
  - Ulnar & Radial Styloid Fracture
- Lower Extremity Solutions
  - Femoral Condyle Fracture
  - Patella Fixation
  - Triple Arthrodesis
  - Ankle Arthrodesis
  - Calcaneal Osteotomy
  - MTP & TMT Fusion
  - Subtalar Fusion
  - Jones Fracture
  - DIP & PIP Fusion
The AcuTwist Acutrak Compression Screw is designed to provide compressive fixation for use in fractures, fusions, and osteotomies.

**Fully Threaded Length**
The fully threaded screw length has shown greater push-out strength when compared to differential pitch screws.

**Headless Design**
The screw’s headless design is intended to minimize the risk of impingement or soft tissue irritation.

**Optional Accessories**
These include the 2.0 mm Hex Wrench, Ratchet T-Handle A/O Connection and Tri-Lobe Quick Release, and AcuTwist Screw Handle.
Break-off Groove
When the screw is inserted, a gentle back-and-forth bend breaks off the excess at the groove.

AcuTwist Applications
- Upper Extremity Solutions
  - Radial and Ulnar Styloid Fractures
  - Radial Head Fractures
  - Periarticular Fractures
  - Fixation of Cortical Fracture Fragments
- Lower Extremity Solutions
  - Metatarsal Fractures
  - PIP & DIP Fusions
  - Phalangeal Fractures
  - Medial Mal Fractures
  - Bunionectomy
  - Chevron and Proximal Crescentic Osteotomies
The system is designed for use in a wide variety of indications in the upper and lower extremities, including many fractures, fusions, and osteotomies.

**Completely Resorbable**
Biotrak fixation devices are made from 100% poly L-lactic acid (PLLA), allowing the implant to resorb as the bone heals.

**Minimized Image Interference**
Composed of radiolucent PLLA, Biotrak devices are designed to reduce radiographic scatter/obstruction compared to metal bone fixation devices.

**Specialty Instrumentation**

**Minimally Invasive**
The cannulated pin and system instrumentation—including the plunger, micro drill, cannula, and single and double trocar guide wires—facilitates insertion.
**Ejector**

The ejector releases the driver from the screw in a controlled manner. Laser marks on the ejector indicate the depth of the proximal end of the screw beneath the bone’s surface.

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**Biotrak Applications**

- Biotrak Screws
  - Femoral Condyle
  - Interphalangeal Fractures
  - Humeral Condyle Fractures
  - Radial Styloid Fractures
  - Patella
  - Radial Head Fractures
  - Hammertoes
  - Avulsion Fractures
  - Phalangeal Fractures
  - Small Bone Fragments
  - Small Bone Arthrodesis
  - Small Bone Osteotomies
- Biotrak Helical Nail
  - Osteochondral Defects
  - Radial Head Fractures
  - Bunions
  - Shear Capitellum
  - Radial Styloid Fractures
  - Ulnar Styloid Fractures
  - Small Bone Chevron Osteotomies
  - DIP & PIP Fusions
  - Hammertoes
- Biotrak Pin
  - Osteochondral Dissecans & Fragments
  - Radial Styloid Fractures
  - Ulnar Styloid Fracture
  - Chevron Osteotomies
  - DIP & PIP Fusions
  - Hammertoes
Case Studies

**Acute Right Radial Head Fracture**

Richard S. Moore, MD

The surgeon used the Acutrak 2 Micro screws to treat an acute right radial head fracture in a 64-year-old female following a mechanical fall onto an outstretched hand.

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**X-Rays**

- **Biotrak Headless Resorbable Compression Screw System**
  - MRI medial view of an OCD lesion fixated

- **Acutrak 2 Mini**
  - Dorsal view of scaphoid fracture

- **Acutrak 2 Standard and Mini**
  - Dorsal view of a radial styloid fracture and scaphocapitate fusion
Bunion Deformity
Hammertoe Deformity

Brett R. Fink, MD
These two case studies show use of the Biotrak® Helical Nail to address a hammertoe in a 53-year-old male having presented with long-standing discomfort and a hallux valgus deformity in a 59-year-old female (shown right).

Acutrak 2 7.5 and Acutrak 2 4.7
Lateral view of a triple arthrodesis

Acutrak 2 5.5
Dorsal view of a Jones fracture

AcuTwist Acutrak Compression Screws
Dorsal view of MTP fusion
**Acumed vs the Competition**

Not All Headless Compression Screws are Alike

### Continuously Variable Thread Pitch

The **first and only continuously variable thread pitched** headless screw currently on the market is threaded over half of its length, and a "short thread" version, which is threaded over one-fourth of its length. The DARCO™ 4.3mm Headless Screw is indicated for fixation of bone fractures or for bone reconstruction. Examples include:

- Weil osteotomy
- Fixation of osteotomies for Hallux Valgus treatment (such as Scarf, Chevron, etc.)
- Akin type osteotomy
- Arthrodesis base first metatarsal cuneiform joint to reposition and stabilize
- Calcaneus / cuboid arthrodesis

### Variable Pitch (Noncontinuous)

Noncontinuously variable thread pitched designs consist of variable stepped-pitch and fixed-pitch designs in specified zones. With each step or thread pitch change, compression also changes.

### Differential Pitch

Differential, Herbert-style screws provide compression primarily when the proximal threads interact with the bone cortex.

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**HEADLESS COMPRESSION SCREW QUICK REFERENCE CHART**

<table>
<thead>
<tr>
<th>Acumed</th>
<th>DePuy Synthes</th>
<th>Stryker</th>
<th>Smith &amp; Nephew</th>
<th>Zimmer Biomet</th>
<th>Wright Medical</th>
<th>Arthrex</th>
<th>Medartis</th>
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**Product in Portfolio** ✓  **Product Not in Portfolio** X
A Larger Window of Compression
Acutrak technology has a wide window of compression that is less sensitive to loss of compression due to stripping the bone and is more flexible in its placement depth, enabling a maximum amount of compression.\(^1\)

Fracture Location Flexibility
The location and pitch and of each screw thread determines the rate of compression across a fracture site. As the pitch changes, the rate of compression changes, especially when screw pitch varies on either side of a fracture. Noncontinuously pitched screws, with gaps or “steps” between thread patterns, will not have continuous compression.

Some noncontinuous pitch screws can function like differential pitch screws. Compression only occurs when the tail of the screw enters the near cortex or when the variable pitched threads enter the fracture site. This presents the surgical challenge of location sensitivity in relation to the fracture site.

The continuously variable thread pitch design of the Acutrak screws allows for gradual, consistent compression along the entire length of the screw. This means the fracture can lie almost anywhere along the length of the screw. This unique feature directly addresses surgical challenges of location sensitivity, allowing greater flexibility in relation to the fracture site.
A Comparison of Two Headless Compression Screws for Operative Treatment of Scaphoid Fractures

**Publication Excerpt**
“Our study demonstrates that the Synthes headless compression screw experienced a greater loss of interfragmentary compressive force from the time of installation to the final steady state compression level. The higher post-installation compression of the Acutrak 2 Standard may be attributable to the greater number of threads throughout the entire length of the screw. The clinical significance of these results, are, at this point uncertain. We do demonstrate that a fully threaded design offers a more reliable compression that may translate to more predictable bony union.”

**Reference**

Acutrak vs Herbert Screw Fixation for Scaphoid Nonunion and Delayed Union

**Publication Excerpt**
“The Acutrak screw enabled more accurate screw placement and achieved higher union rates and modified Mayo wrist scores than the Herbert screw did.”

**Reference**

Biomechanical Assessment of Compression Screws

**Publication Excerpt**
“The Acutrak variable pitch, tapered, headless, compression screw performed significantly better than did the Herbert compression screw and often better than did the AO lag screw. These ex vivo biomechanical results indicate the Acutrak compression screw may perform better than other screws under dynamic loading conditions.”

**Reference**
**Torsional Stiffness After Subtalar Arthrodesis Using Second Generation Headless Compression Screws: Biomechanical Comparison of 2-Screw and 3-Screw Fixation**

**Publication Excerpt**
“Performance of the tapered, fully threaded, variable pitch screws exceeded that of conventional lag screws regardless of whether two or three screws were used. Additional resistance to internal rotation afforded by a third screw placed anteriorly may offer some advantage in patients at risk for nonunion.”

**Reference**

**Lateral Fixation of AO Type-B2 Ankle Fractures: the Acutrak Plus Compression Screw Technique**

**Publication Excerpt**
“Lateral fixation of AO type-B2 ankle fractures by the APCS (Acutrak Plus compression screw) is a safe and effective technique. It offers several advantages including stable fixation, a small surgical wound, less dissection of soft tissue, a headless device without palpable hardware, and easy applications with a short operating time.”

**Reference**

**AcuTwist® Headless Compression Screw System**

**Arthrodesis of the Thumb IPJ and Finger DIPJ with a Headless Compression Screw**

**Publication Excerpt**
“Distal digital joint arthrodesis with the AcuTwist resulted in a fusion rate of 94% with a complication rate of 9%. Our rate of fusion compares favorably with prior series using other methods of fixation.”

**Reference**
*Competitive data on file with Acumed. GEN00-30-B; 2020 and GEN00-28-E; 2020

References

Competitor Image Sources
DePuy Synthes Cannulated Compression Headless Screw (CCHS) System (120405-200407 DSUS) 4/20
Stryker www.stryker.com
Smith & Nephew Small Cannulated Screw System with QFX Screws Surgical Technique (7118-1405 REV0.2) 05/10
Zimmer Biomet MAX VPC Screw System Product Brochure (0925.1-GLBL-en-REV0916)
Wright Medical DARCO 3.2mm and 4.3mm Headless Compression Screw Surgical Technique (011183C_09-Jan-2017)
Arthrex Compression FT Screw System Hand, Wrist, and Elbow (LBI-00010-EN_D)
Medartis SpeedTip CCS 5.0, 7.0 Cannulated Compression Screws Product Information (APTUS-02000001_v2) 2019-06
Paragon 28 Monster Screw System Brochure (MCSS-01 RevB)
TriMed Large Headless Screw Surgical Technique (LC-72-0002-002 REV-A) 02-18
Skeletal Dynamics REDUCT-Sales-Sheet (MKT-00092-00RAB)

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