Innovative Solutions for Challenging Thoracic Procedures

RibLoc® U+
Chest Wall Plating System
ACUTE Innovations® has developed U-shaped plate technology to provide stability with anterior and posterior locking screws while avoiding the neurovascular bundle. The RibLoc system does not rely on the rib cortex alone for fixation; instead, the screw locks into the anterior and posterior aspects of the plate and rib to provide added stability. Using this technology, the U Plus system provides a solution for rib fracture repair that is stable, efficient, versatile, and customizable to each patient and situation. The low-profile instrumentation of U Plus 90 facilitates fixation of subscapular, posterior, and anterolateral fractures through minimally invasive approaches.

**U Plus Chest Wall Plating System**

The RibLoc U Plus Chest Wall Plating System offers straightforward, color-coded instrumentation for ease of use. It also includes:
- U-clips that compress to match the rib thickness
- Plates that address diverse fracture patterns
- Custom bending instrumentation
- Multi-purpose instrumentation
- NEW implant for sternal fracture repair

**U Plus 90 Instrumentation**

The RibLoc U Plus 90 Instrumentation works in conjunction with the U Plus system providing power for limited access areas to ensure efficiency in the O.R. Features include:
- Subscapular access as high as the second rib
- Power for installation, including screw insertion
- LED light that improves visibility
- Torque limits
The U-shape design of the U Plus plate aids in consistent and straight-forward placement through the thickest portion of the rib while avoiding the neurovascular bundle.3

The RibLoc U Plus plate was designed to be customizable to the individual patient. The plates range in length from 50mm–215mm, which allows the surgeon to address a broad range of fracture patterns. The advanced design of the plate offers a compressible U-clip for a perfect fit to a broad range of rib thicknesses (6mm-14mm).

During installation, the anterior plate can track superiorly-inferiorly along the rib surface, which can lead to neurovascular bundle impingement and reduce screw purchase.

A biomechanical study was performed using cadaver ribs plated with a 4.6cm long RibLoc plate and 4 screws. It was superior in durability to an anterior plate of over twice the length and 6 screws after only 50,000 breathing cycles (typically two days of breathing).1

This was evaluated based on stiffness loss, as shown in the graph. Additionally, the reduced length of the RibLoc plate may facilitate a less invasive technique.1
**Anterior and Posterior Locking**

The RibLoc® system does not rely on the rib cortex alone for fixation; instead, the screw locks into the anterior and posterior aspects of the plate and rib to provide added stability.\(^1\)

The U-clips are designed to minimize the stress on the rib by distributing physiologic loads over a greater surface area. While the screws engage and fixate to the cortices of the bone, they also lock both anteriorly and posteriorly into the plate. An additional benefit to the U-clip design is that fewer screws are needed to anchor the plate to the bone, lessening the degree of dissection needed on the rib itself\(^4\), as well as reducing cost.

**Plate Variety**

The RibLoc U Plus system offers U-shaped plates for rib fixation as well as a straight plate to stabilize sternum fractures.

The U-shaped plates are available in 55mm, 75mm, 115mm, 155mm, and 215mm. The straight plate has a length of 126mm.

All plates have been designed to work with existing RibLoc U Plus and U Plus 90 instrumentation.

**Sternum Fracture Fixation**

The straight plate is a new implant that offers fixation for transverse sternal fractures while using U Plus instrumentation.

Image courtesy of Bruce Harn, MD, Associate Professor of Surgery, Division of Trauma, Critical Care and Acute Care Surgery, School of Medicine
STRaight-FORward INSTALLATION

With the use of a hex driver and drill bit, a rib plate installation can occur in as little as three steps for a simple fracture using the U Plus plate, Primary Guide, and screws.

a) Compress one Primary Guide to hold onto rib.

b) To reduce the fracture, grasp the rib and guide it towards the uncompressed Primary Guide (forceps can be helpful).

c) Compress the second Primary Guide to hold fracture reduction in place.

Note:
- This technique can also be done using the U Plus 90 Instrumentation.

Primary Guides assist with Reduction
**Power for Efficiency**

The 90 degree system was designed for low-profile access while allowing the use of power to compress, drill, and install screws — all with efficiency.

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**Sub Scapula Access**

Images courtesy of Jose J Diaz, MD, Professor of Surgery at Shock Trauma Center in Baltimore, MA, University of Maryland.
Additional Instrumentation

**RibLoc® U+**

**BENDING TOOLS:**
- In-plane hand bender
- Out-of-plane hand bender
- Joystick bender

**INTERMEDIATE INSTRUMENTATION:**
- Intermediate Gauge

**RIB FORCEPS, DRILL, AND DRIVER:**
- Rib Forceps
- Drill
- Driver

**RibLoc® U+ 90**

**DRILL GUIDES, DRILL BITS, AND DRIVER:**
- Low-profile Drill Guide
- Individual Drill Guides and Drill Bits
- Driver Bit

**RATCHETS AND EXTENSION HANDLE:**
- Ratchets
- Extension Handle

**W&H Implantmed, Motor and Handpieces:**


2. Acute data on file
