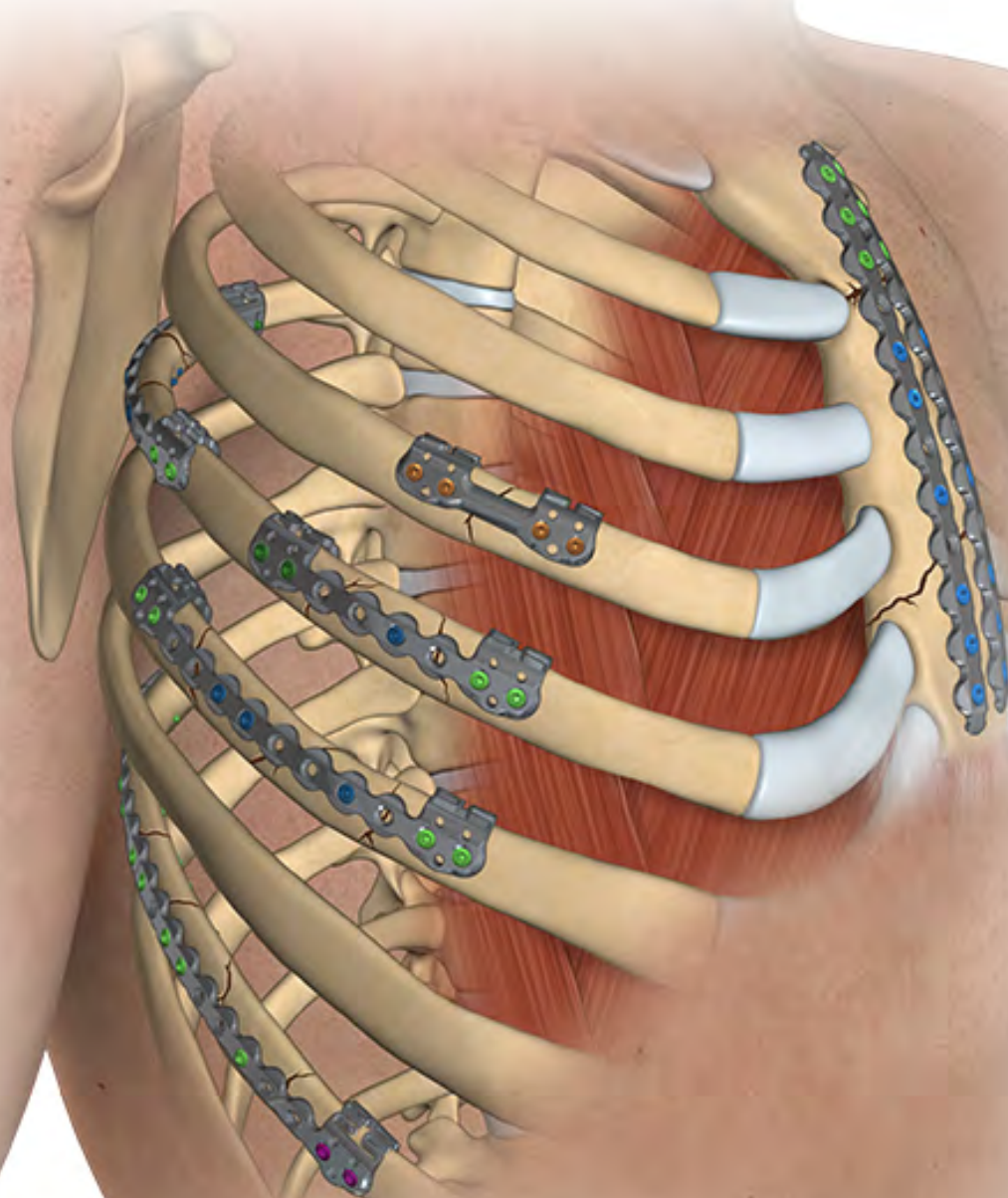




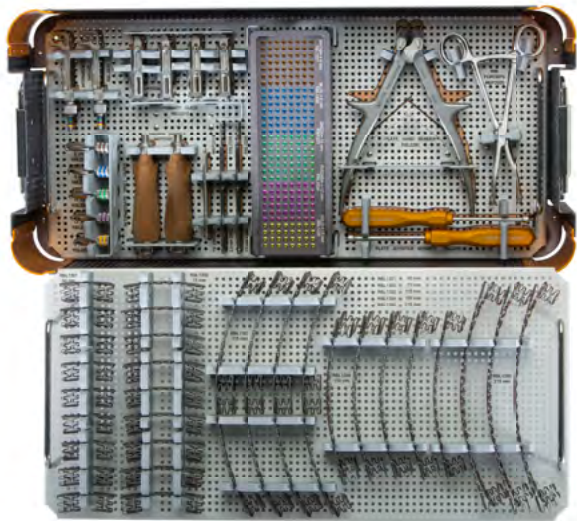
RibLoc® U+

Chest Wall Plating System



System Overview

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.¹ 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 OR. Features include:

- ▶ Subscapular access as high as the second rib²
- ▶ Power for installation, including screw insertion
- ▶ LED light that improves visibility
- ▶ Torque limits

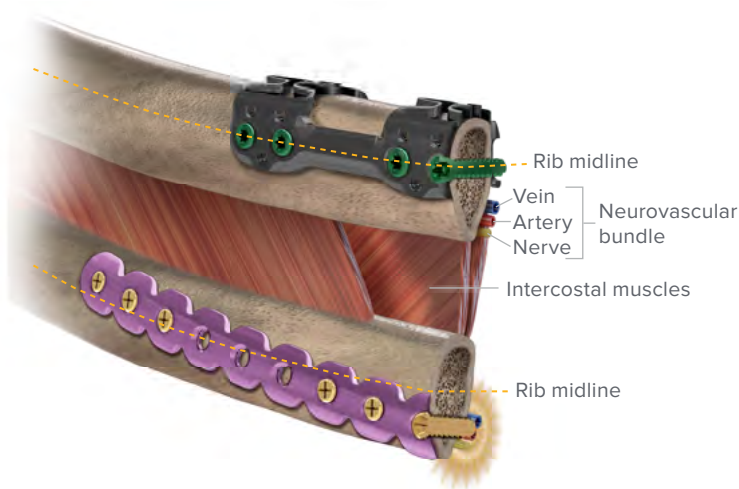


System Overview [continued]



Custom Fit to the Rib

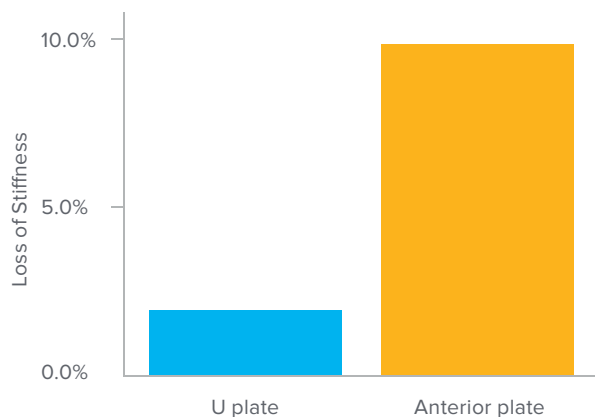
The RibLoc U Plus plate was designed to be customizable to the individual patient. The plates range in length from 50–215 mm, which allows the surgeon to address a broad range of fracture patterns. The advanced design of the plate offers a compressible U-clip for a perfect fit to a broad range of rib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



U Plus Placement on the Rib

The U-shape design of the U Plus plate aids in consistent and straightforward placement through the thickest portion of the rib while avoiding the neurovascular bundle.³

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



Performance of RibLoc Versus Anterior Plating

A biomechanical study was performed using cadaver ribs plated with a 4.6 cm 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

System Overview [continued]

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.

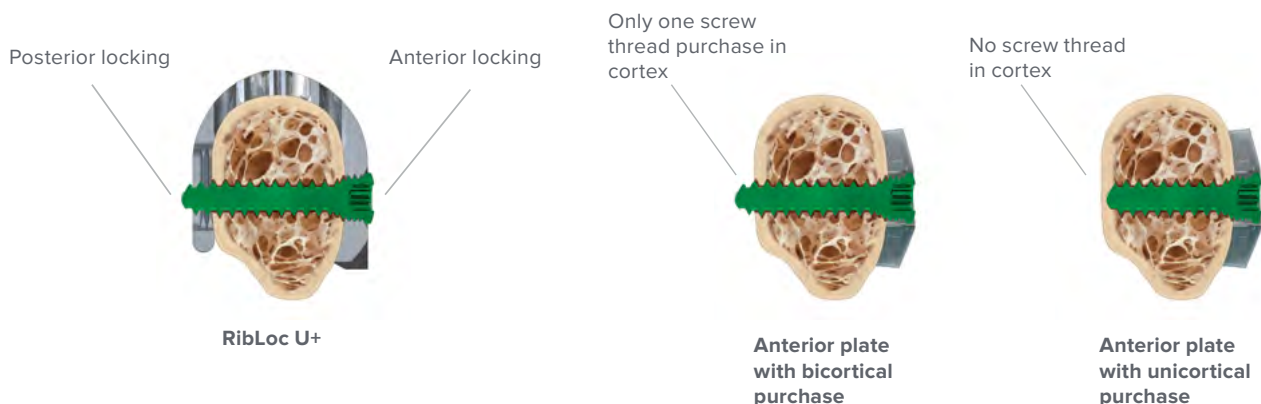


Plate Variety

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 50 mm, 75 mm, 115 mm, 155 mm, and 215 mm. The straight plate has a length of 126 mm.

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.

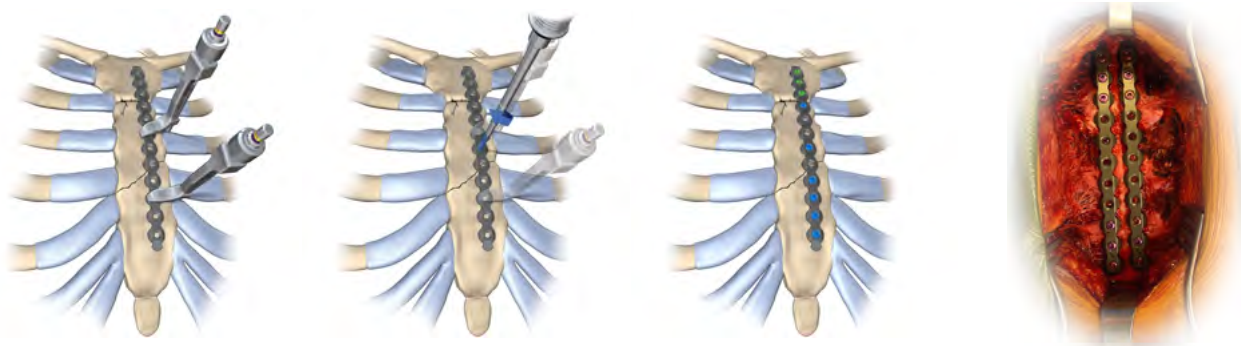


Image courtesy of Bruce Ham, MD, Associate Professor of Surgery, Division of Trauma, Critical Care and Acute Care Surgery, School of Medicine, Oregon Health Sciences University

System Overview [continued]

Straightforward 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.

Compress



Drill



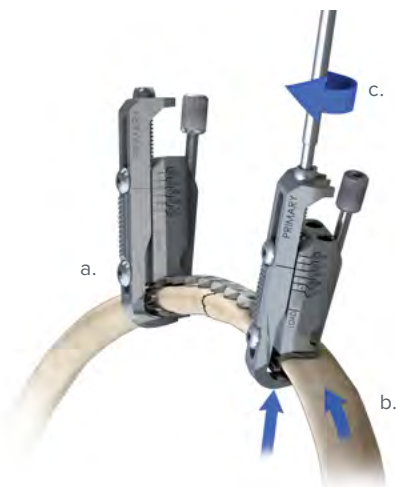
Screw



Compresses onto plate and rib

Color indicator for screw size

Drill guide



Primary Guides Assist with Reduction

- Compress one Primary Guide to hold onto the rib.
- To reduce the fracture, grasp the rib and guide it towards the uncompressed Primary Guide (forceps can be helpful).
- Compress the second Primary Guide to hold the fracture reduction in place.

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

System Overview [continued]

Power for Efficiency

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

Compress



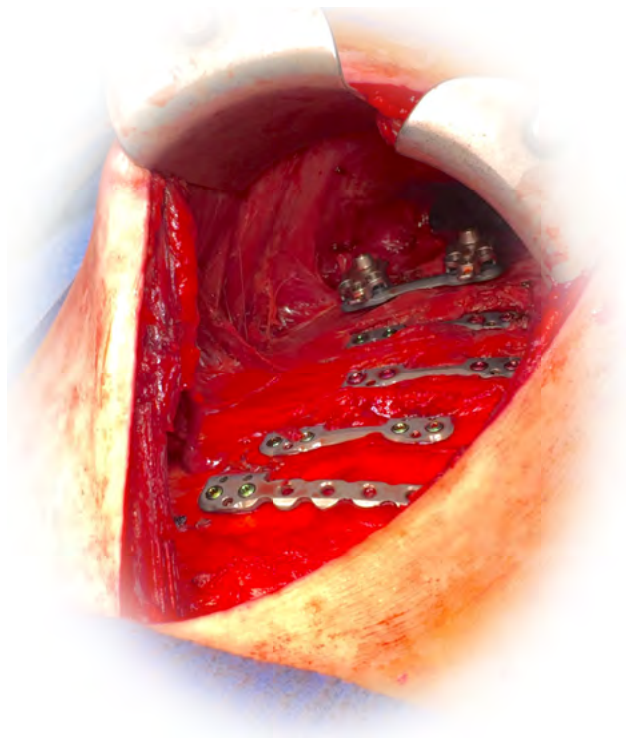
Drill



Screw



Subscapular Access



Additional Instrumentation

RibLoc® U+

Bending Tools



In-plane hand bender



Out-of-plane hand bender

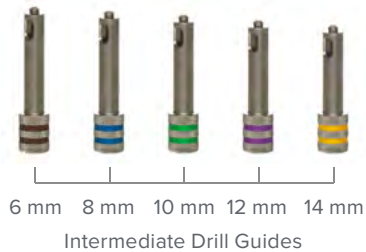


Joystick bender

Intermediate Instrumentation



Intermediate Gauge



Intermediate Drill Guides

Rib Forceps, Drill, and Driver



Rib Forceps



Drill



Driver

Additional Instrumentation [continued]

RibLoc® U+ 90

Drill Guides, Drill Bits, and Driver



Low-profile Drill Guide



Individual Drill Guide and Drill Bits



Driver Bit

Ratchets and Extension Handle



Ratchets



Extension Handle

W&H Implantmed, Motor, and Handpiece



References

1. Sales JR, Ellis TJ, Gillard J, Liu Q, Chen JC, Ham B, Mayberry JC. Biomechanical testing of a novel, minimally invasive rib fracture plating system. *J Trauma* 2008; 64:1270-1274
2. Acute data on file
3. Nirula R, Mayberry JC. Rib fracture fixation: controversies and technical challenges. *Am Surg.* 2010 Aug;76(8):793-802
4. Sarani B, Schulte L, Diaz, JJ. Pitfalls associated with open reduction and internal fixation of fractured ribs. *Injury* 2015 Dec; 46(12):2335-2340

Notes:

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

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Back to health. Back to work. Back to **life.**



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