ZIMMER BIOMET
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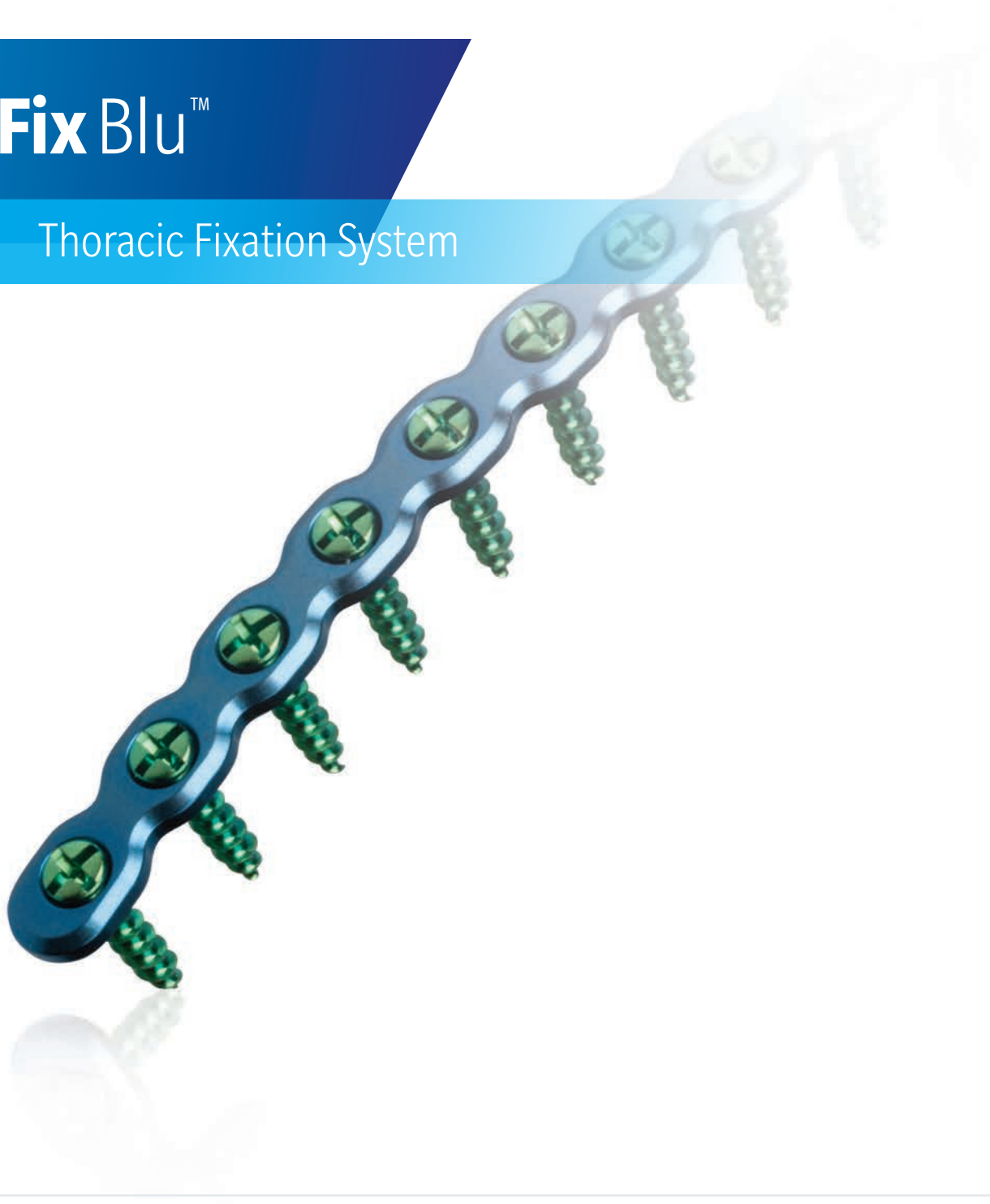
RibFix Blu™

Thoracic Fixation System



THORACIC

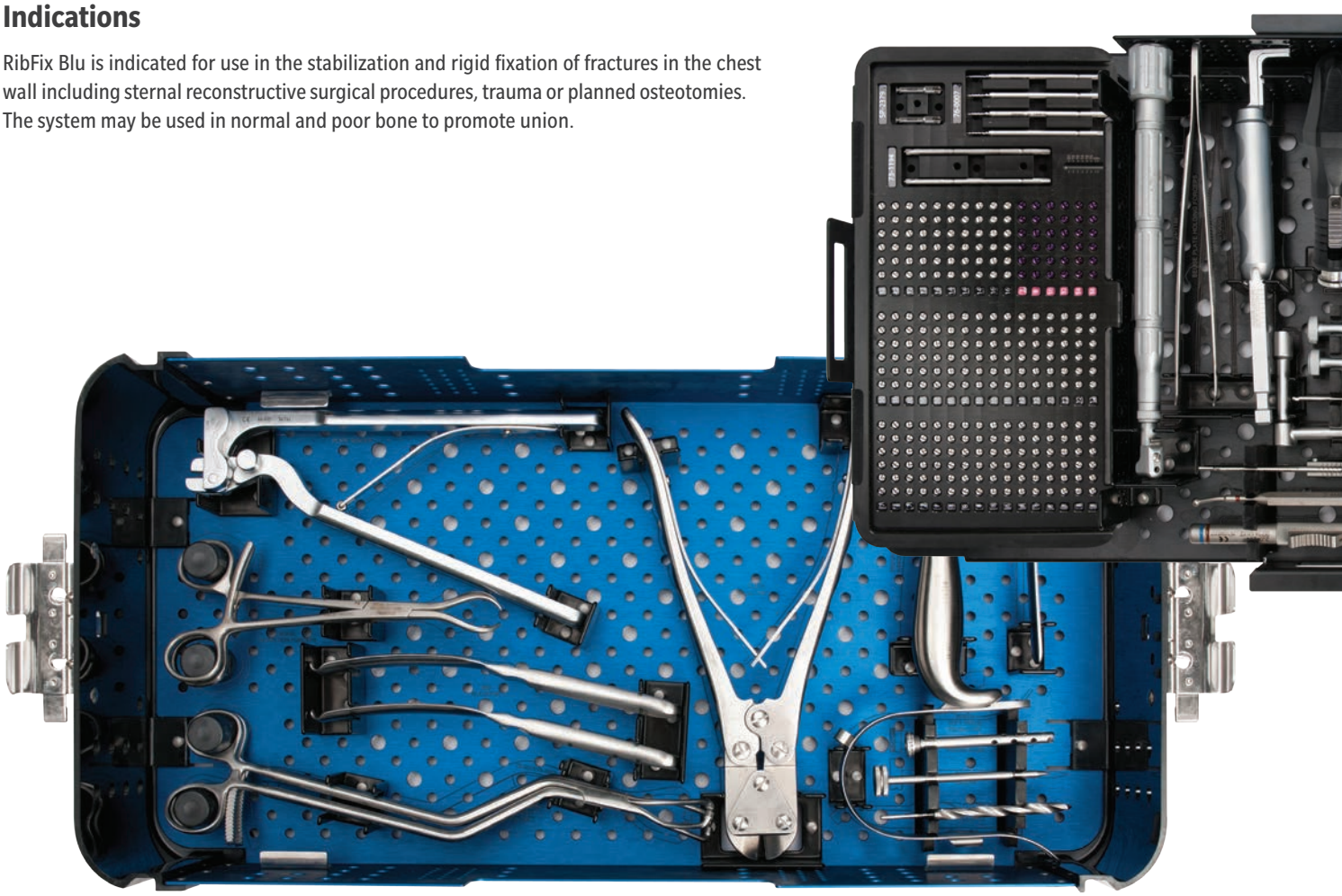
The New Era of Rib Fixation Begins Now

Designed by Trauma Surgeons for Trauma Surgeons

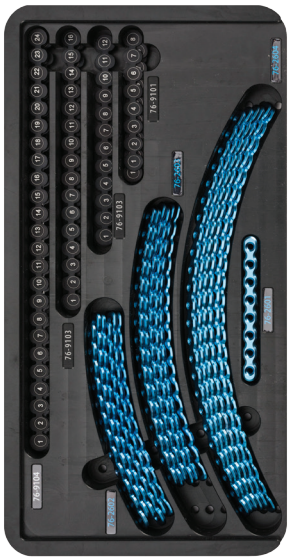
Your work matters and so do your patients. We are continually engineering new tools and techniques to help improve your efficiency in the operating room. The RibFix Blu Thoracic Fixation System is designed with this in mind. The system's innovative plate-to-bone approximation tools allow for the precise placement of plates along the rib, and unique plate-contouring instrumentation eliminates the need to remove the implant from the surgical field - saving you precious time when minutes matter.

Indications

RibFix Blu is indicated for use in the stabilization and rigid fixation of fractures in the chest wall including sternal reconstructive surgical procedures, trauma or planned osteotomies. The system may be used in normal and poor bone to promote union.



RibFix Blu Thoracic Fixation System



A Comprehensive, Customizable Rib Fixation System

The RibFix Blu Thoracic Fixation System includes a selection of straight and pre-contoured plates and self-drilling as well as self-tapping screws, making the system easy to master in any surgical setting.

Unique Instruments

Plate-to-Bone Approximation Tools

Innovative temporary fixation screws and bayoneted plate-holding forceps reduce the plate flush to bone and aid with precise placement along the midline of the rib - freeing your hands to implant self-drilling screws.

Temporary Fixation Screws

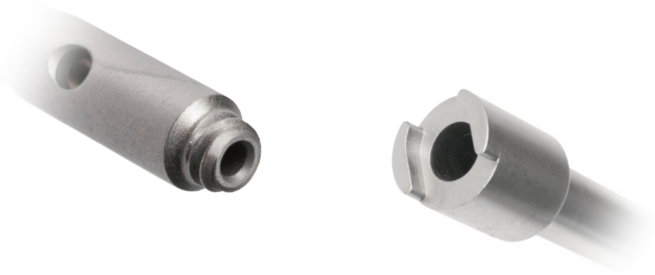
Temporary Fixation Screw in Place Without Driver

Bayoneted Plate-Holding Forceps

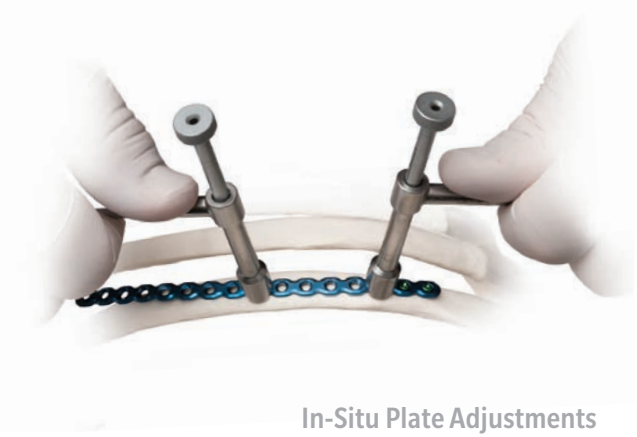
Plate-Contouring Tools

Engineered with the goal of expanding bend options, the RibFix Blu Thoracic Fixation System includes threaded and in-situ plate benders. The benders allow for adjustments to the plate in all planes - including torsional - eliminating the need to remove the implant from the surgical field.

Threaded Plate Benders



In-Situ Plate Benders



In-Situ Plate Adjustments

MIS Instrumentation

The RibFix Blu Thoracic Fixation System offers minimally-invasive solutions for plating hard-to-reach rib fractures. Proximal posterior fractures that are generally inaccessible can be plated via trans-scapular or sub-scapular approaches using the MIS instrumentation. Both methods mobilize the scapula for easier maneuverability.

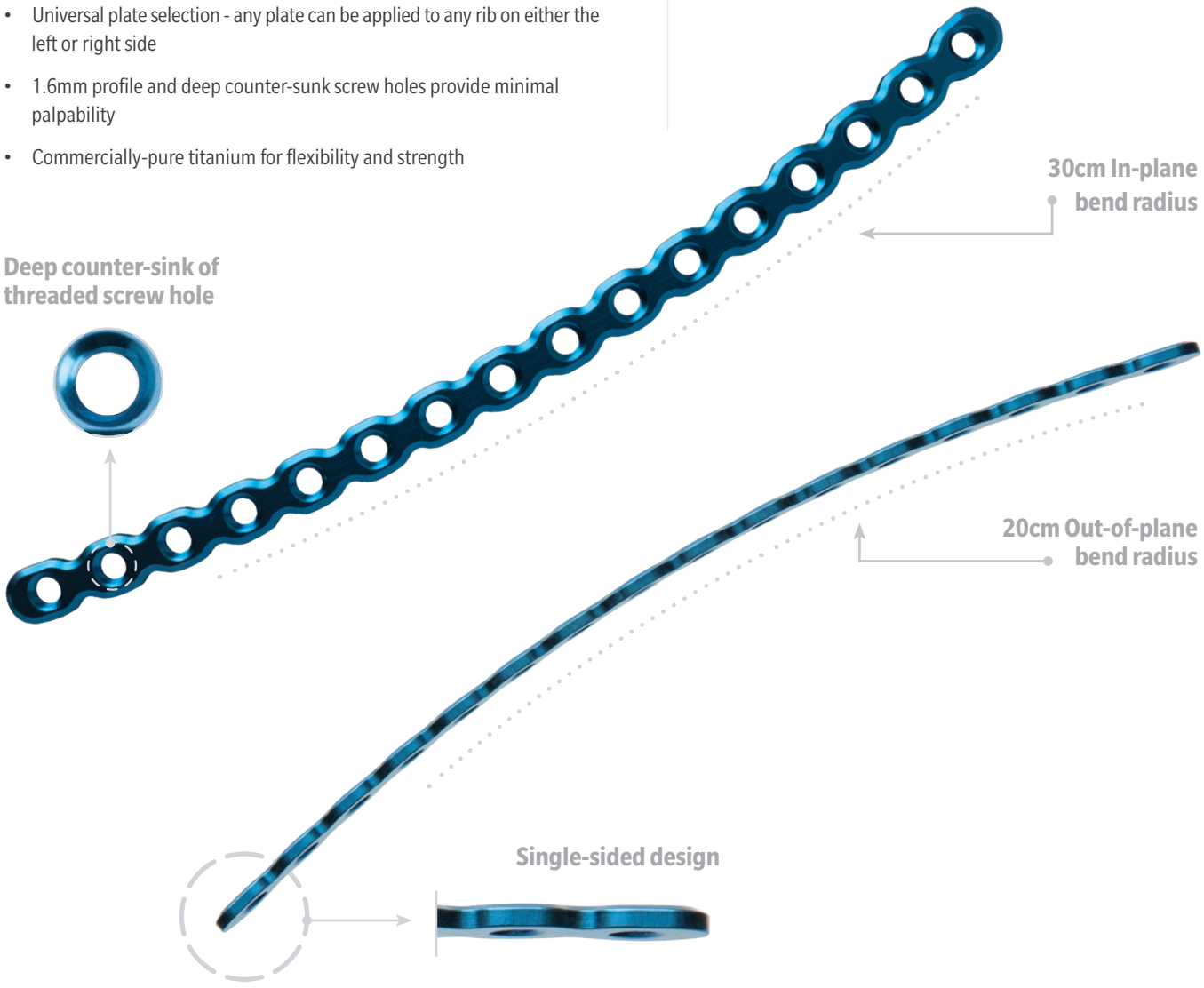
Contra-Angle Screwdriver

Trocar Assembly

Innovative Implant and Screw Design

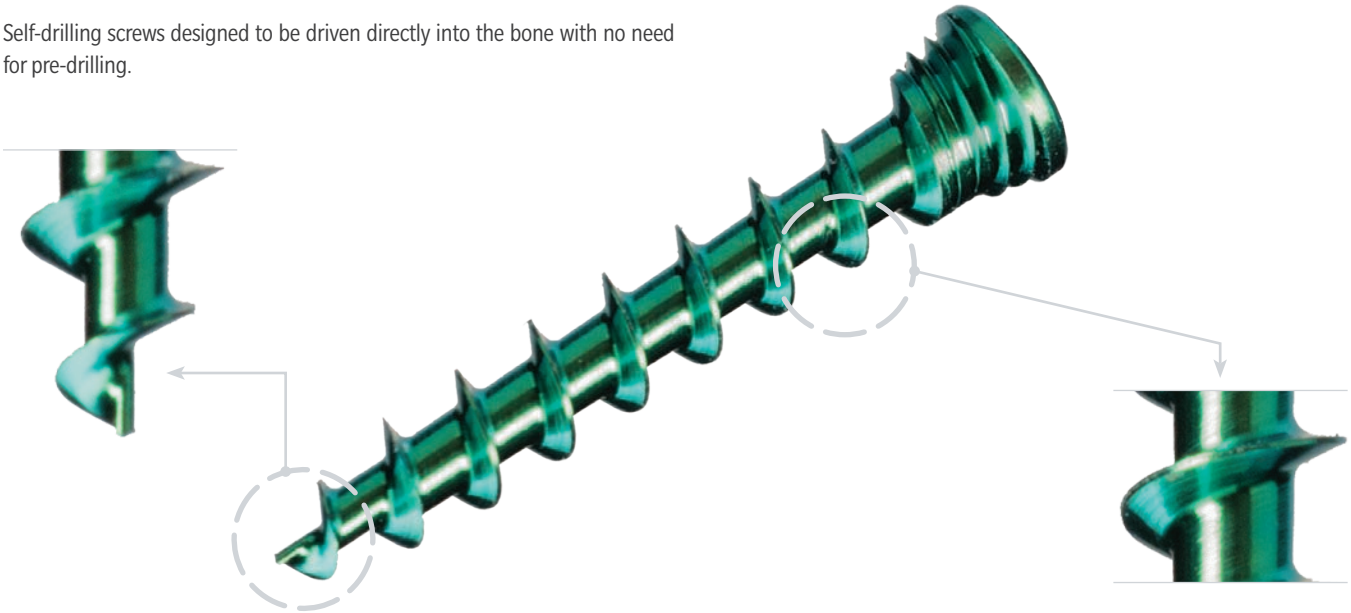
Implant Design Features

- Pre-contoured in two planes to fit the average anatomical rib shape
- Narrow plate design for easy alignment and minimal intra-operative contouring
- Universal plate selection - any plate can be applied to any rib on either the left or right side
- 1.6mm profile and deep counter-sunk screw holes provide minimal palpability
- Commercially-pure titanium for flexibility and strength



Self-Drilling Screw

Self-drilling screws designed to be driven directly into the bone with no need for pre-drilling.



Cancellous Screw Design

Deeper screw threads provide optimal engagement into the cancellous bone of the chest wall.

Innovative Locking Technology

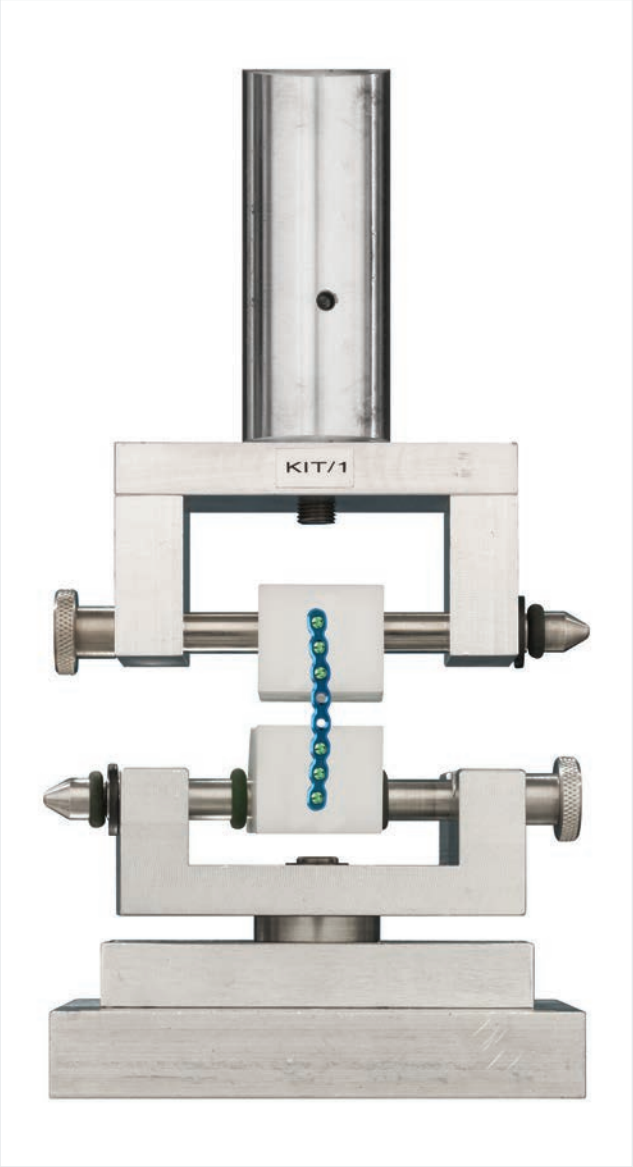
Screw threads lock into the plate while the tip engages the posterior cortex of the rib. These dual points of stability are crucial for the dynamic motions of the chest wall.

RibFix Blu - **Bench Testing**

The RibFix Blu Thoracic Fixation System was tested in plastic blocks under dynamic motion testing using ASTM F1717 as a guide and subjected to bending loads of 400Nmm[1] for 1,000,000 cycles[2]. This is equivalent to 10X the normal respiratory loading and more than six weeks of fracture healing. All constructs were able to withstand the exaggerated loading without any failures.

Dynamic Motion Bending Test

RibFix Blu plates and screws were fixated onto plastic blocks. Side supports were then connected to the plastic blocks with hinge pins. The inferior support was attached to the load cell base plate while the superior support was rigidly attached to the hydraulic actuator. The load cell base plate remained stationary while the hydraulic actuator pushed downward creating rotation in the vertical axis. ASTM F1717 was used as a guide because the dynamic compression motion of the test simulates the motion that a rigid implant for the ribs would experience.



[1]Internal Testing Report, LT1474, Fatigue testing of RibFix Blu plate and screw constructs. [2]The estimate for the amount of cycles representative of fracture healing is based on 14.1 breaths per minute. • [3]Internal Testing Report, LT1476, RibFix Blu plate and screw construct in cadaver bone testing • [4]Internal Testing Report, LT1477, RibFix Blu plate and screw construct in cadaver bone testing • Bench testing is not indicative of clinical performance.

Test Summary

The RibFix Blu Thoracic Fixation System was tested in human cadaveric osteopenic rib bones. Fractured ribs were stabilized with the RibFix Blu Fixation System and subjected to 5X the normal respiratory loads for 360,000 cycles, simulating a two-week fracture healing period. All constructs were able to withstand the exaggerated loading without any failures.

Figure 1.
The intact osteopenic rib was situated in the frame for biomechanical cadaveric testing.[3]

Figure 2.
Compressive loads were applied to create a realistic fracture pattern within the rib.[3]

Figure 3.
The rib was measured, and the fracture segments were reduced and plated using the appropriate size RibFix Blu plate and appropriate length screws, ensuring a minimum of three screws were implanted on both sides of the fracture.[3]

Figure 4.
Biomechanical testing was repeated on the fixated rib in a humid environment resembling physiologic conditions.[4]

Fig.1

Fig. 2

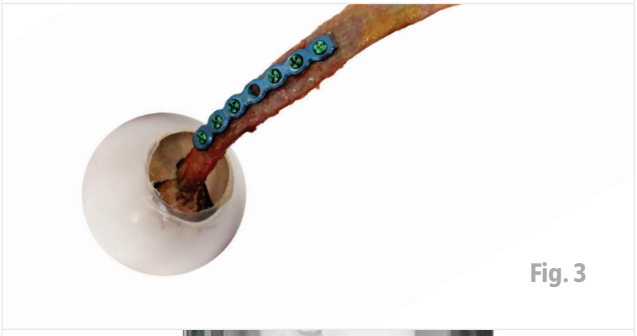


Fig. 3

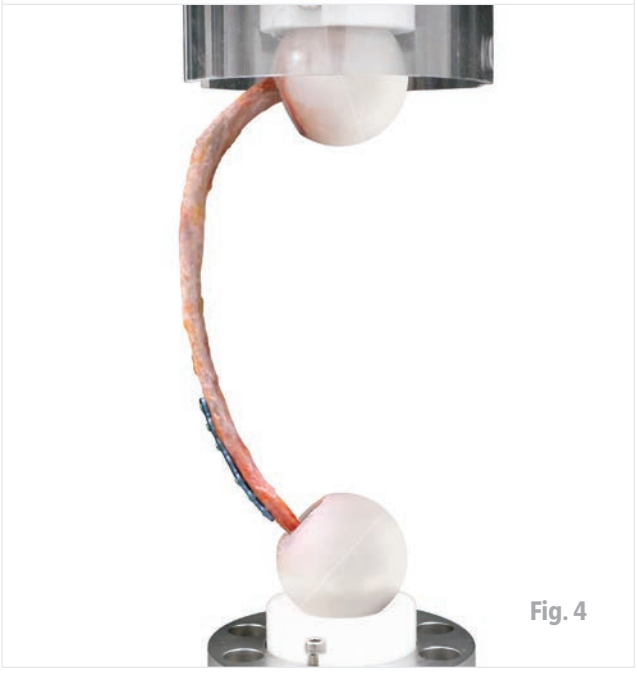


Fig. 4

RibFix Blu - **Instruments**

Bayoneted Plate-holding Forceps, Left
76-0001

Bayoneted Plate-holding Forceps, Right
76-0002

Rib Elevator
76-0004

Screw Sizer
76-0005

Trocar Handle
76-0012

Soft-tissue Retractor
76-0014

Non-threaded Drill Guide
76-0013

Trocar Cannula
76-0015

Scapula Drill Guide
76-0011

Items not to scale

Trocar, Long
76-0016

Threaded Plate Bender, Cannulated
76-1195

In-Situ Plate Bender
76-1196

Contra-angle Screwdriver Torque Handle
76-0008

Contra-angle Screwdriver
24-1189

2.4mm Plate-holding Wand
76-0006

Depth Gauge, 45mm Long
01-9125

Plate-holding Forceps
01-9095

Fiber Optic Cable
01-0371

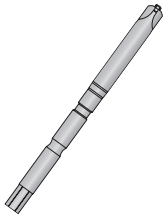
Items not to scale

Plate Cutter
46-0002

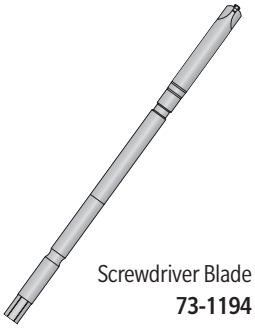
Large Plate Bender
76-0003

Bone-reduction Forceps
24-1112

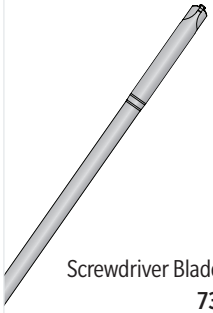
Drills, Blades, Drivers



Power Driver™ Blade
73-1191



Screwdriver Blade
73-1194



Screwdriver Blade, Long
73-1196

Contra-angle
Screwdriver Blade
SP-2379

1.3mm Adjustable
Drill Bit, Short
76-2001

1.3mm Adjustable Drill Bit,
Long
76-2010

Temporary Fixation Screw
76-0007

Items not to scale

Scapula Drill
76-0010

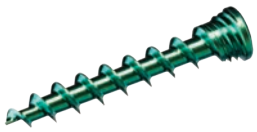
Black Ratcheting Handle
46-0008

Power Driver
50-1000

Power Driver Battery
50-1010

2.4mm/2.7mm Screws

Self-Drilling Locking Screws (Green)



Part No.	Description
76-2407	2.4 x 7mm
76-2408	2.4 x 8mm
76-2410	2.4 x 10mm
76-2412	2.4 x 12mm
76-2414	2.4 x 14mm
76-2416	2.4 x 16mm

Self-Tapping Screws (Silver)

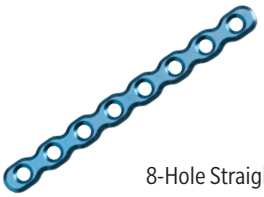
Part No.	Description
76-2507	2.4 x 7mm
76-2508	2.4 x 8mm
76-2510	2.4 x 10mm
76-2512	2.4 x 12mm
76-2514	2.4 x 14mm
76-2516	2.4 x 16mm

Rescue Screws (Purple)

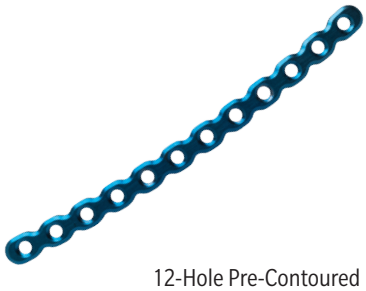
Part No.	Description
76-2707	2.7 x 7mm
76-2708	2.7 x 8mm
76-2710	2.7 x 10mm
76-2712	2.7 x 12mm
76-2714	2.7 x 14mm
76-2716	2.7 x 16mm

Items not to scale

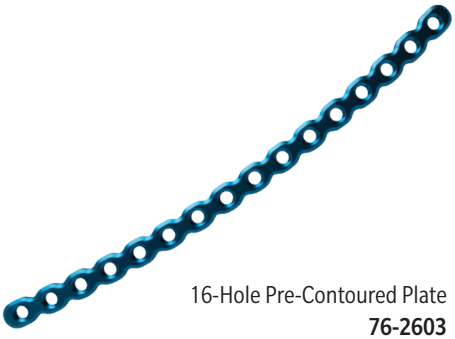
Plates



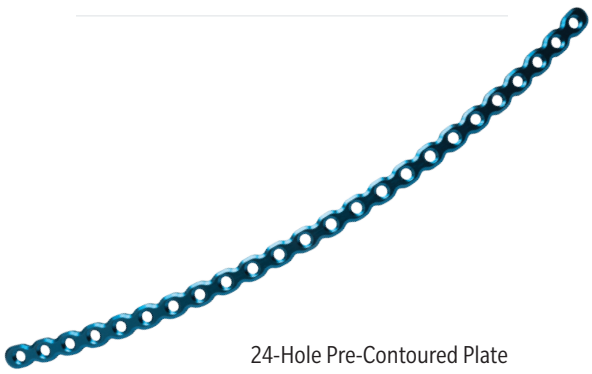
8-Hole Straight Plate
76-2601



12-Hole Pre-Contoured Plate
76-2602



16-Hole Pre-Contoured Plate
76-2603

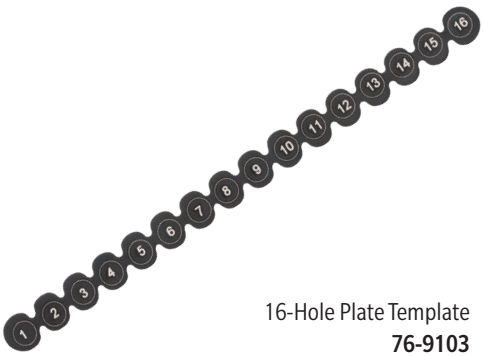


24-Hole Pre-Contoured Plate
76-2604

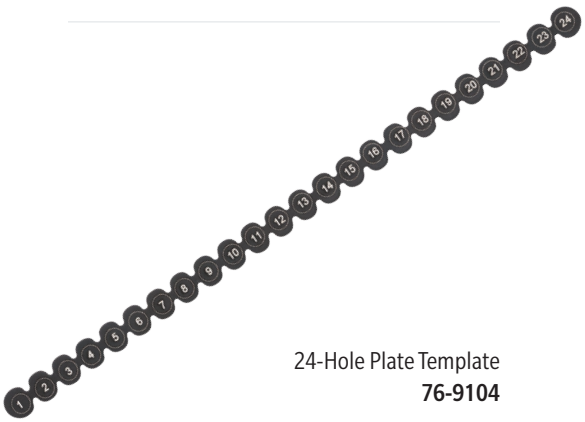
Templates

8-Hole Plate Template
76-9101

12-Hole Plate Template
76-9102



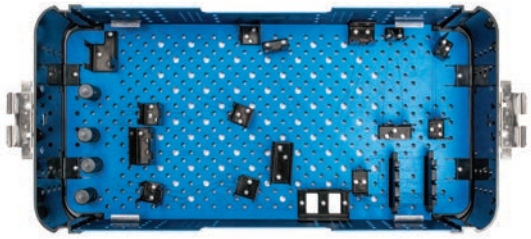
16-Hole Plate Template
76-9103



24-Hole Plate Template
76-9104

Items not to scale

Containers and Tray Components



Outer Container Base
76-5006-02

Screw Caddy*
76-5003

Implant Caddy*
76-5001

Instrument Tray Insert
76-5007

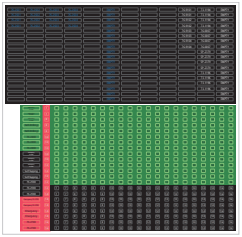
Mat, Short
76-5011

Mat, Long
76-5012

Complete Tray
76-5006

Container Lid
76-5006-01

Power Driver Tray
76-5009
(tray only)



Tray ID Set
76-5010

*Caddies only. No Implants or screws included

Items not to scale

For more information on RibFix Blu and other thoracic fixation solutions, please contact us at:

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