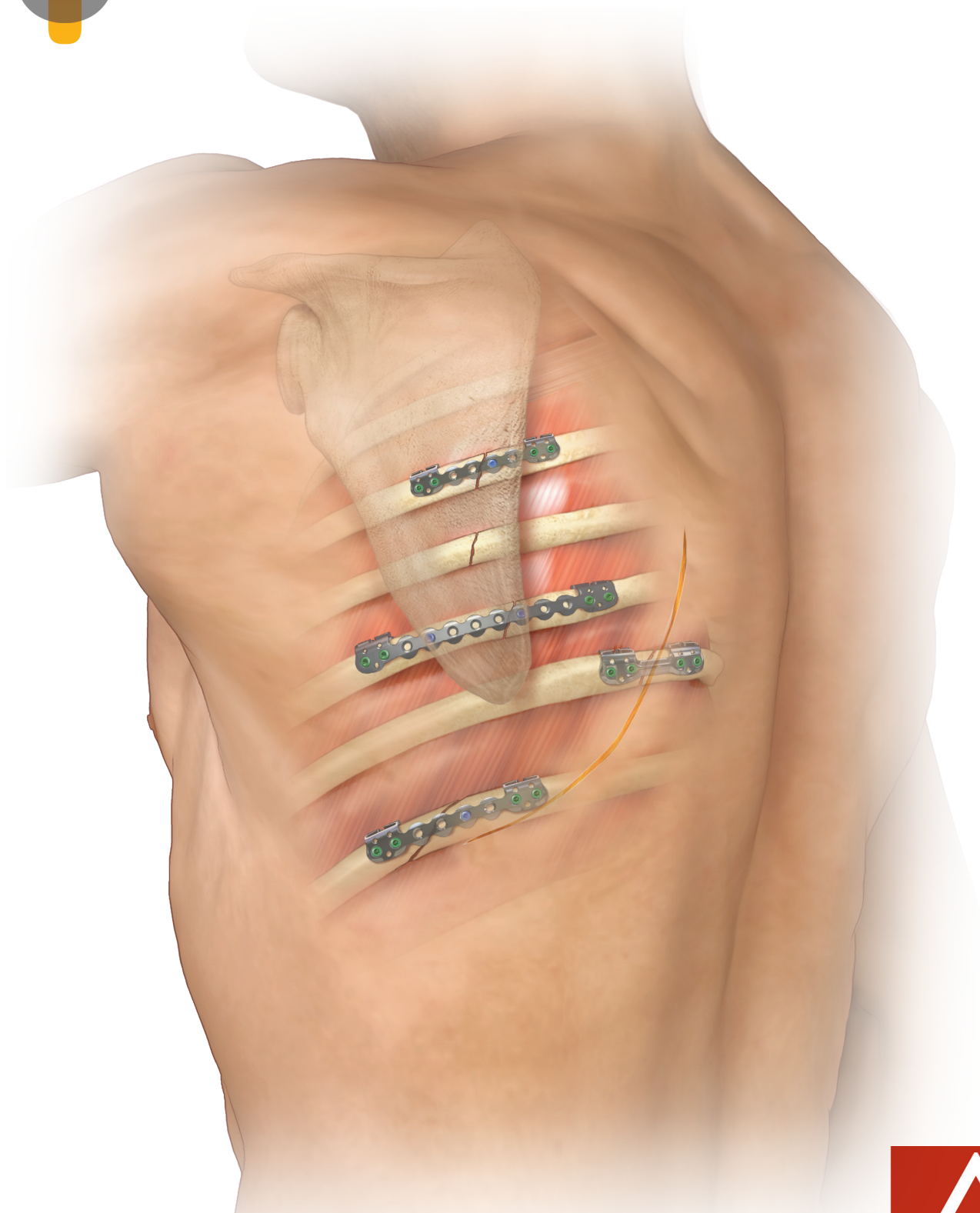




TECHNIQUE  
**RibLoc® U+ 90**  
Instrumentation



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



## U PLUS 90 INSTRUMENTATION OVERVIEW

### Low-profile Primary Guides

- Compresses the U-clip to match rib thickness
- Clamps implant in place and maintains fracture reduction while drilling and installing screws
- Indicates correct screw size



### Color-Coded Drills



### Driver



### Handheld Drill Guide



### Color-Coded Drill Guides

- Allows for one-handed guided drilling



### Motor Extension Handle



### Forward Ratchet Driver



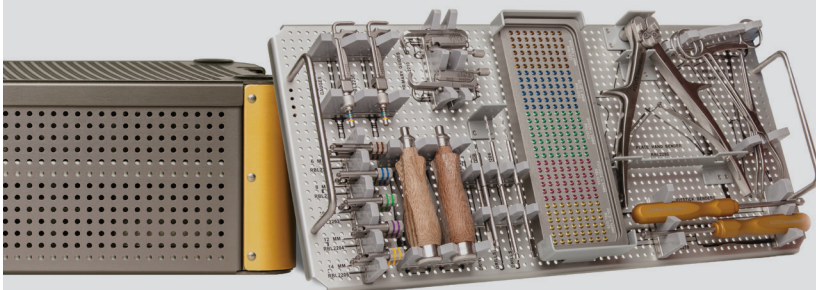
### Reverse Ratchet Driver



### Wrench

### RibLoc U Plus Chest Wall Plating System

RibLoc U Plus 90 Instrumentation is intended for use in conjunction with the RibLoc U Plus Chest Wall Plating System implants and instruments.

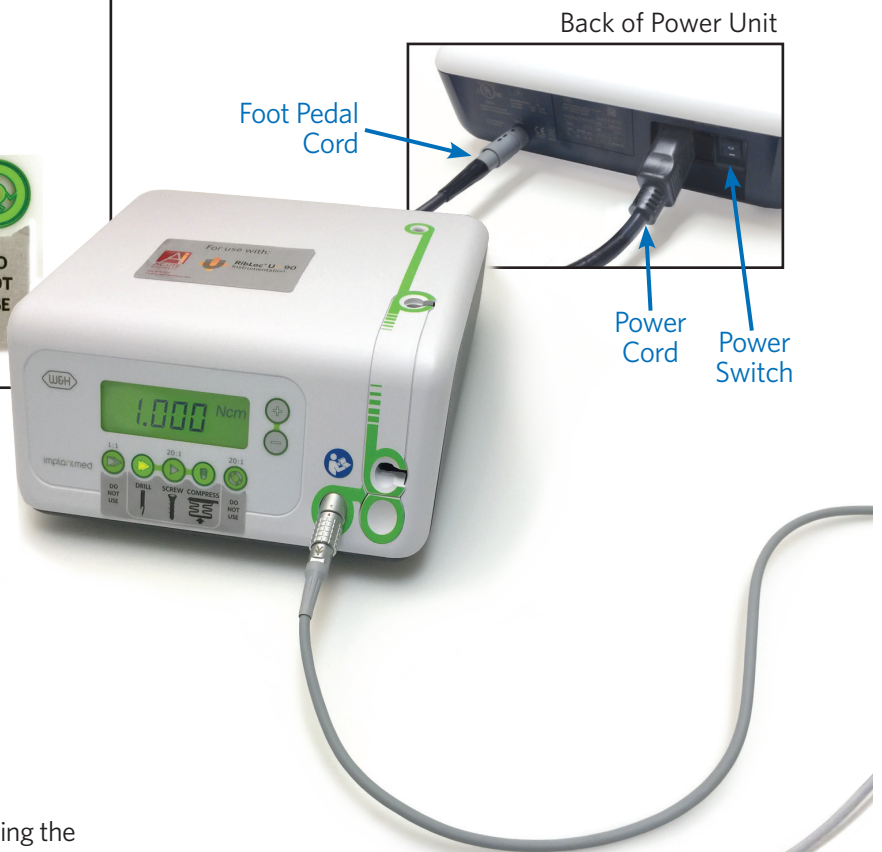


## W&H IMPLANTMED POWER UNIT OVERVIEW

### W&H Implantmed Power Unit

Pre-set speed and torque settings for:

- Compressing the U-clips
- Drilling
- Driving screws



### Handpieces

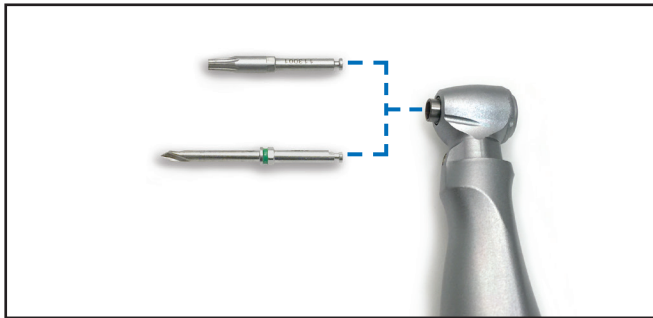
- Contra-angle allows access while clearing the chest wall
- LED light for enhanced visibility when drilling
- Two handpieces allow for rapid switching between drilling and driving without changing out small bits



Motor



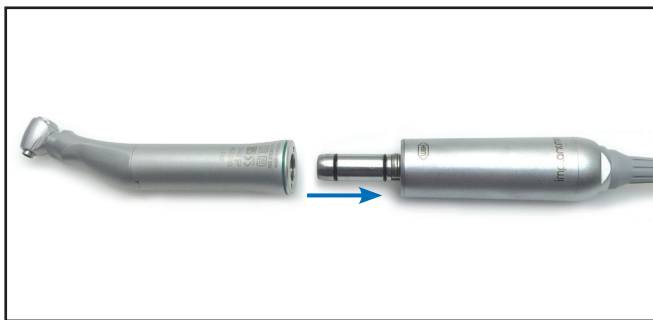
The W&H Implantmed motor, foot pedal and handpiece should be set up according to the W&H Instructions For Use (IFU).



### Attaching Drill or Driver

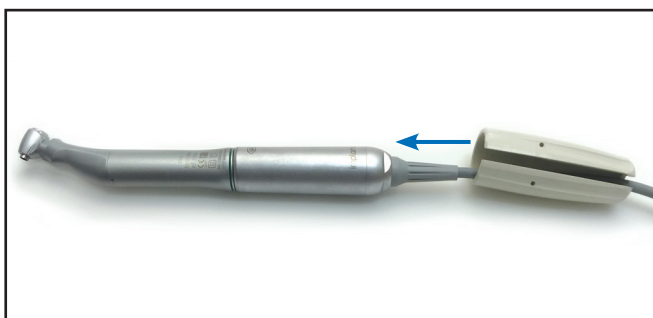
- Insert the Drill or Driver bit until it stops.
- Rotate the bit until it engages and clicks into place fully.
- Check that the fit is secure by gently pulling on the bit.
- To **remove**, push the button on the top of the head and release bit.

**TIP:** Prepare one handpiece with a Driver bit, and reserve the second handpiece for drilling. This allows for rapid switching between drilling and driving.



### Attaching Handpiece to Motor

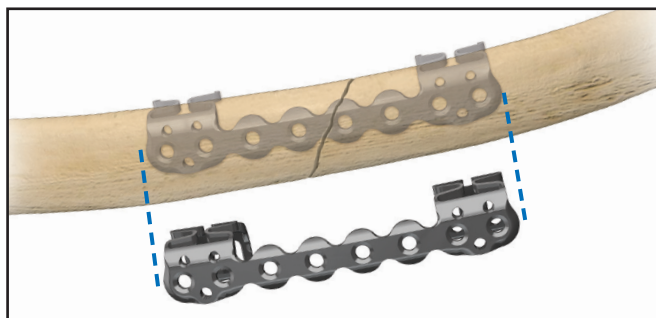
- Push the handpiece onto the motor until it clicks into place.
- Check that the handpiece is secure. There should be no gap between the handpiece and motor.
- To **remove**, pull the handpiece from the motor.



### Attaching the Motor Extension Handle

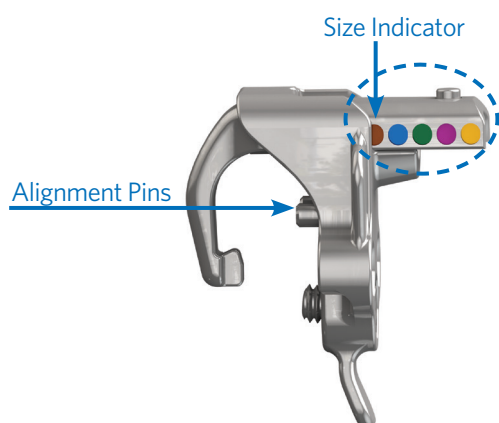
If additional length to hold the motor is desired, attach the Motor Extension Handle by laying the motor cable in the slot and pushing the handle onto the motor until it clicks into place.



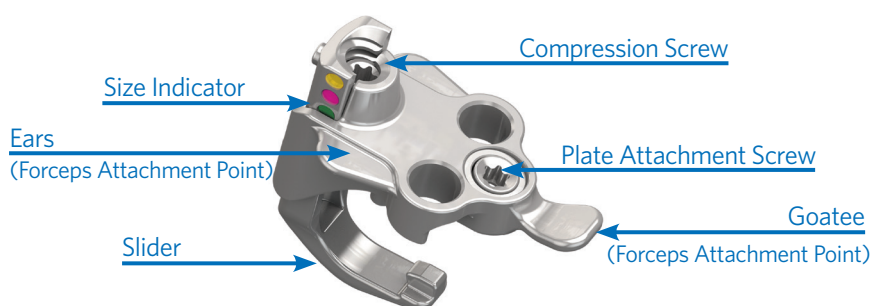


## 1 Select the Plate

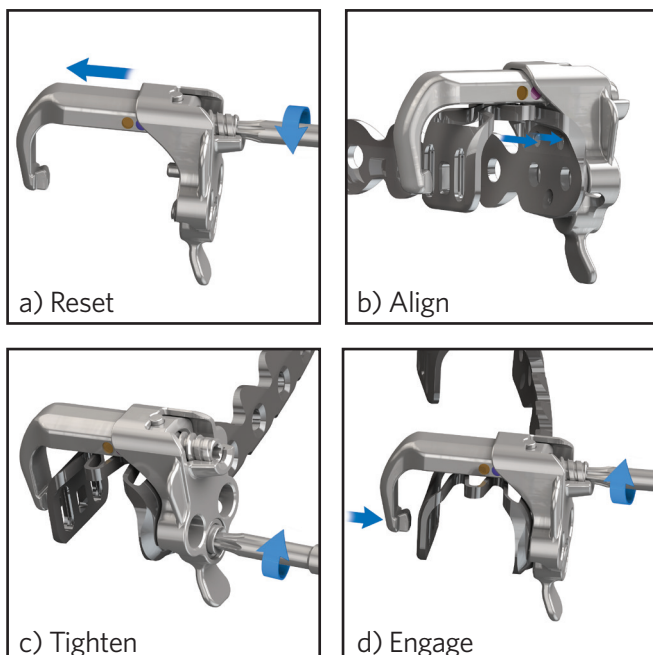
- After exposing the fracture, select the desired plate length and prepare for placement.
- Select a plate that allows at least 5 mm between the fracture and the nearest U-clip.



## Primary Guide Overview



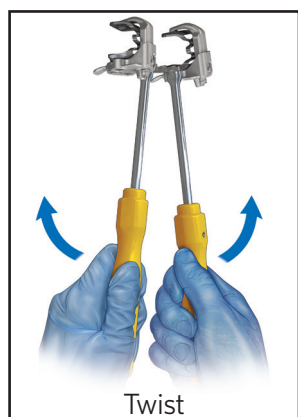
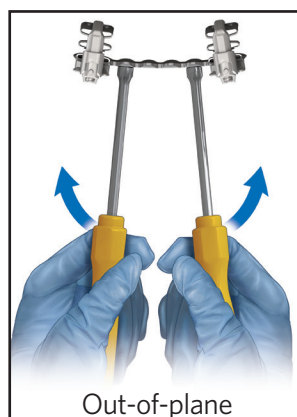
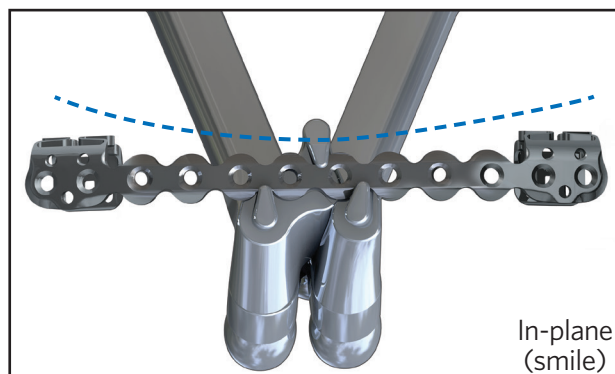
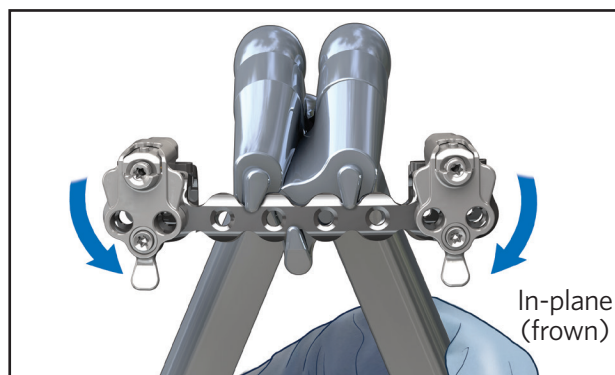
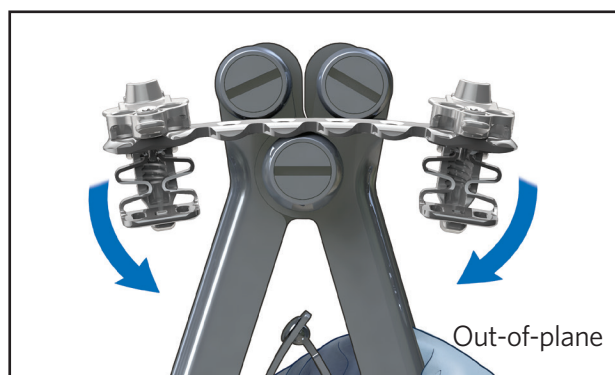
## 2 Attach the Primary Guides



- Reset the Primary Guide by turning the Compression Screw counterclockwise using the driver from the U Plus tray until it stops.
- Align the Primary Guide pins with the corresponding holes on the front of each U-clip.
- Tighten the Attachment Screw with the driver.
- Rotate the Compression Screw until the slider is engaged with the posterior rectangular slot of the U-clip.

**ATTENTION:** Visually ensure slider is engaged with posterior rectangular slot of U-clip. Adjust alignment by hand if necessary.

**Do not start compressing the U-clip at this point.**



## 3 Contour the Plate

**If needed**, contour the plate to match the rib's geometry using the bending tools provided in the U Plus tray.

### a) Hand Benders

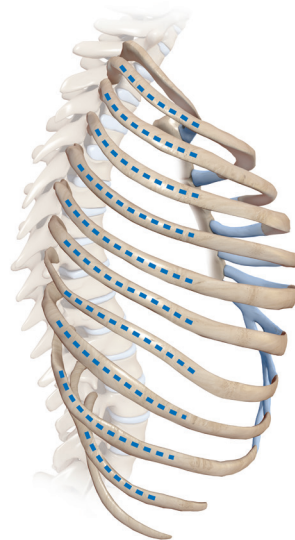
1. For out-of-plane bending, place the plate between the rollers.
2. For in-plane bending, place the plate within the teardrop features.

### NOTES:

Contouring is typically needed for plates placed under the scapula.

Contouring the plate with Acute's bending template (RBL2294) can be helpful when installing onto the rib.

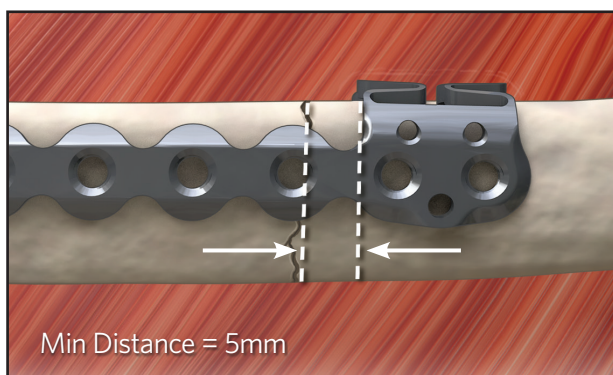
**TIP:** Typical in-plane rib curvature is in the direction of a "smile" in higher rib levels and a "frown" in lower rib levels.



### b) Joystick Benders

1. Thread the two benders into plate holes on either side of the desired contour location.
2. Use the handles to bend, twist or straighten the plate.

**⚠ CAUTION:** Repetitive bending of the plate at the same location may fatigue and weaken it.



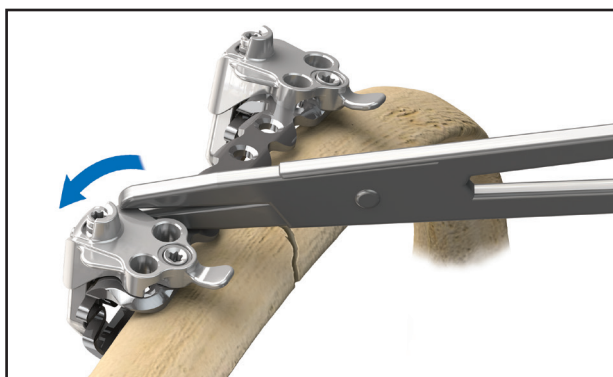
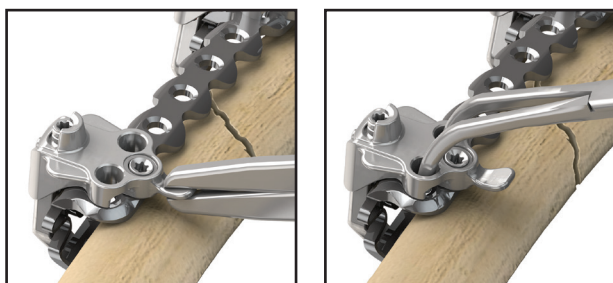
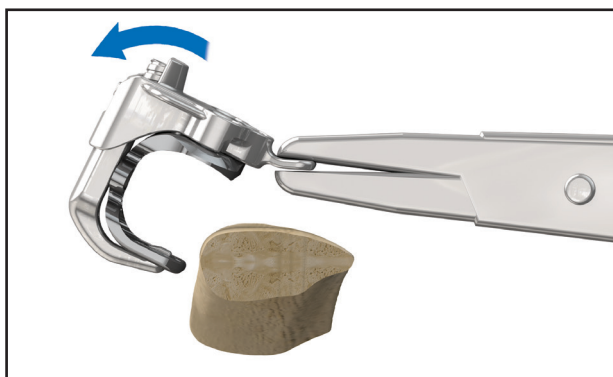
## 4 Introduce the Plate

- At each U-clip location, make a small incision immediately superior to the rib margin.

**TIP:** A curved periosteal elevator or curved forceps can be useful for intercostal dissection.

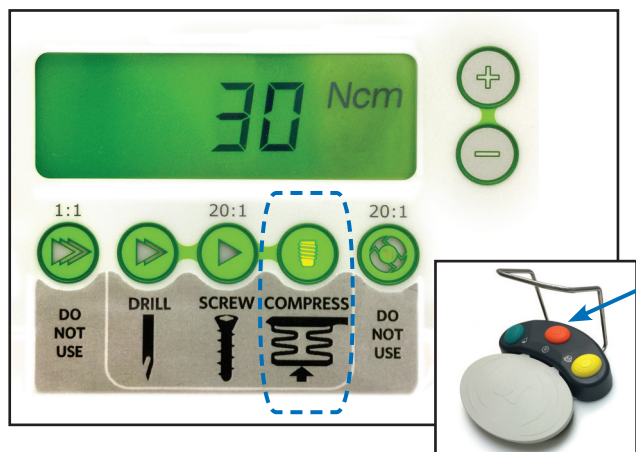
- Place the plate onto the rib at the desired location using forceps to grasp the Primary Guide at attachment points (ears or goatee).
- Using visualization and palpation, the contour and tracking of the plate is assessed. Reposition and re-contour the plate, according to step 3, as necessary.

**TIP:** Using straight or curved forceps can be helpful during plate placement.





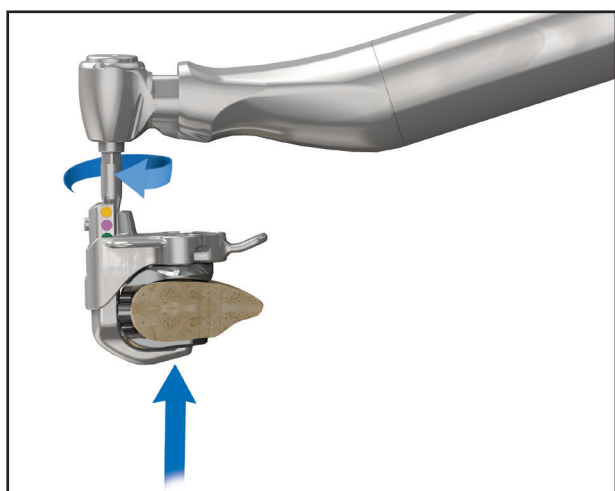
Ensure that the W&H Implantmed motor, foot pedal and handpiece are set up according to the W&H Instructions For Use (IFU).



## 5 Prepare Power Unit to Compress U-clip

Prepare Implantmed power unit for U-clip compression.

- Attach handpiece with the installed Driver bit to the motor.
- Put the power unit in Compress mode by stepping on the orange pedal until Compress mode is selected.
- Ensure the power unit is set to a torque of 30 Ncm. If necessary, use the +/- buttons to adjust.

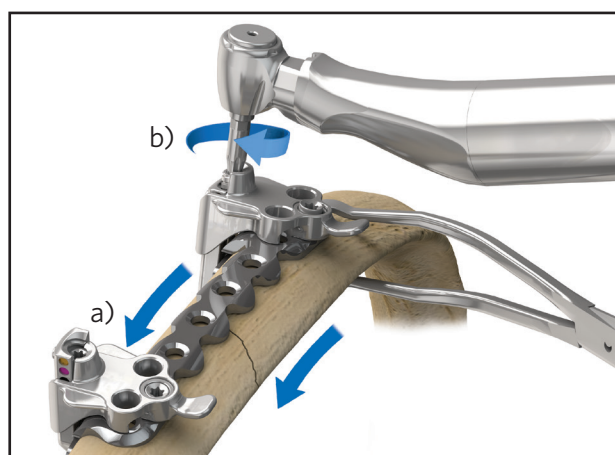


## 6 Compress One U-clip to Rib

- Drive the Compression Screw, compressing the U-clip to match the thickness of the rib, until the power unit stops and beeps once.
- Assess the compression of the U-clip by moving the U-clip relative to the bone. Little to no motion should be present.

**⚠ CAUTION:** Over-compressing the U-clip may damage the bone.

Compressing the U-clip in a mode other than Compress mode may damage the bone or break the handpiece.

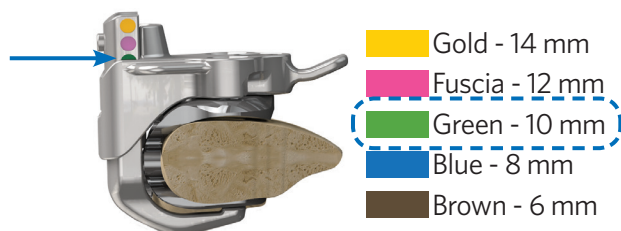


## 7 Approximate the Fracture and Compress Second U-clip

- With one U-clip compressed, manipulate the rib to reduce the fracture.
- Compress the second U-clip to maintain reduction for drilling and screw placement

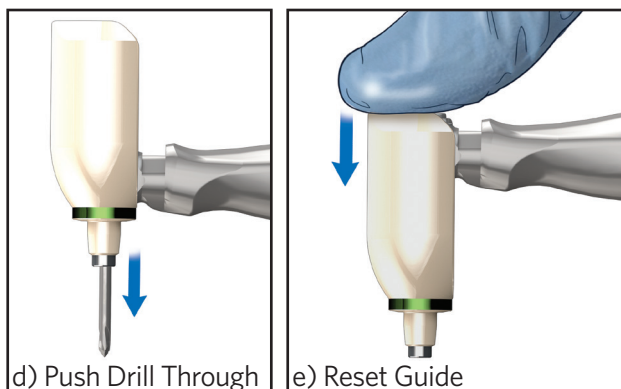
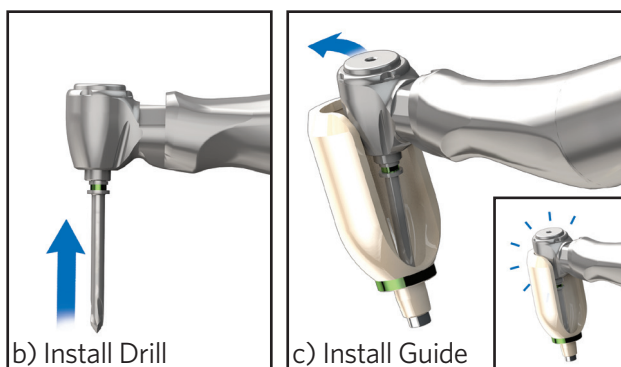


## a) Select Drill Length



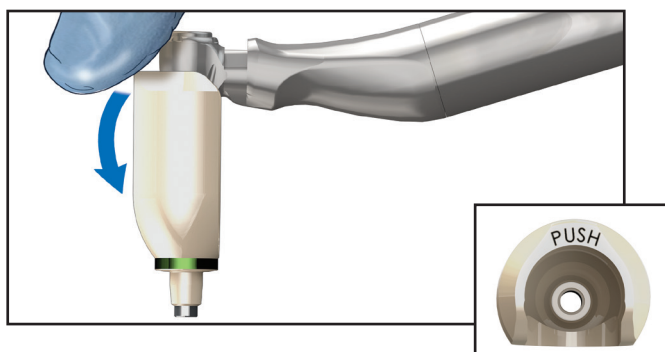
## 8 Prepare Drill and Drill Guide

- Read the size indicator on the Primary Guide by identifying the lowest color marking visible above the top surface of the guide.
- Insert corresponding color-coded Drill into the handpiece and install handpiece onto motor.
- Install the corresponding color-coded Drill Guide onto the head of the handpiece by inserting the tip of the Drill into the nose of the Drill Guide from the side and clicking the head into place.
- Push the Drill all the way through the guide.
- Reset the guide by clicking it into place at the top of the handpiece head. The Drill tip should be fully covered.

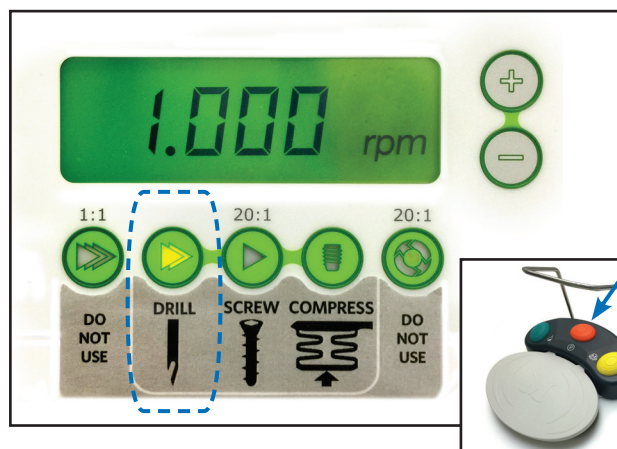


**⚠ CAUTION:** The Drill tip is sharp. Use caution when loading and unloading the Drill Guide.

**NOTE:** If desired, the **Handheld Drill Guide** may be used with any size drill in lieu of the color-coded Drill Guides.



**NOTE:** To remove the Drill Guide, push down on the rim with thumb



## 9 Prepare Power Unit to Drill

Prepare the Implantmed power unit to drill.

- Put the power unit in Drill mode by stepping on the orange pedal until Drill mode is selected.
- Ensure the power unit is set to 1000 rpm. If necessary, use the +/- buttons to adjust.



## 10 Drill Primary Holes

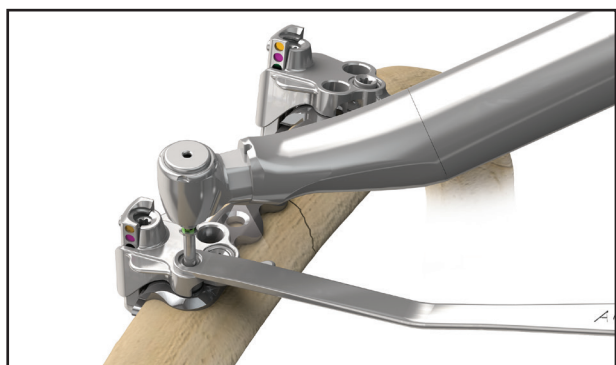
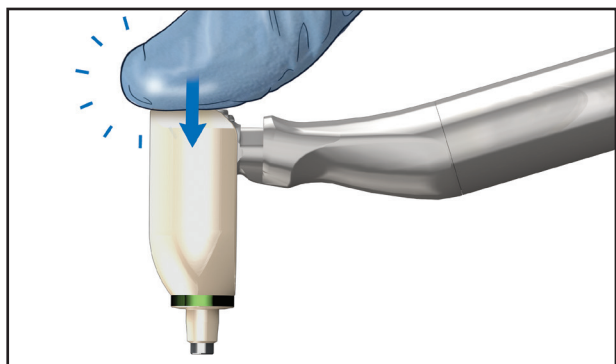
Use the Drill Guide to drill primary holes.

- Fully insert the nose of the Drill Guide into the barrel of the Primary Guide.
- Advance Drill until it bottoms out on the guide.
- Repeat until all primary holes have been drilled.

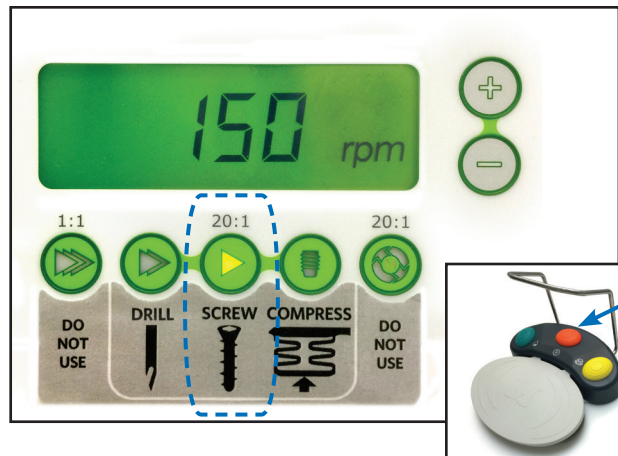
### NOTES:

The color-coded Drill Guide must be reset before drilling each subsequent hole by clicking it into place at the top of the handpiece head, fully covering the Drill tip.

Rib sizing may be different at each U-clip location. Check that the drill length matches the Primary Guide size indicator before drilling.



**If desired**, the Handheld Drill Guide may be used instead of the color-coded Drill Guides.

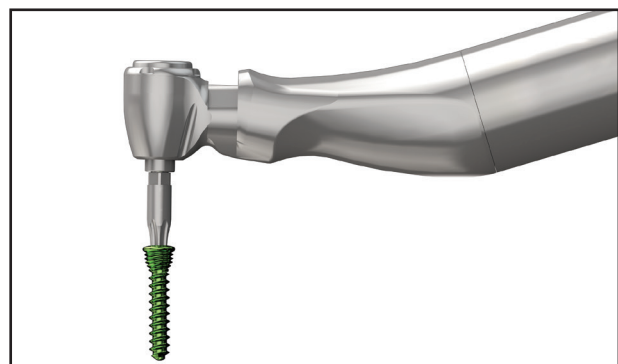


## 11 Prepare Power Unit to Drive Screws

Prepare Implantmed power unit for screw installation.

- Switch handpieces so that the Driver bit is installed.
- Put the power unit in Screw mode by stepping on the orange pedal until Screw mode is selected.
- Ensure the control unit is set to 150 rpm. If necessary, use the +/- buttons to adjust.

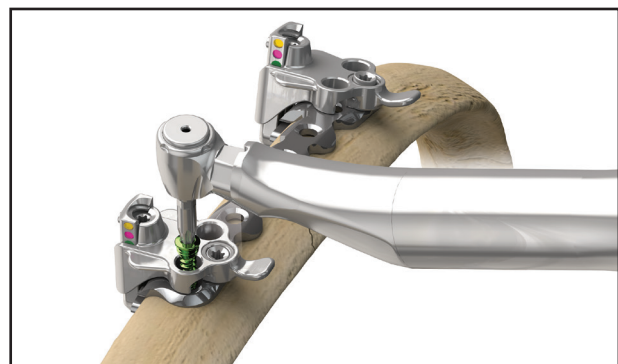
**! CAUTION:** The handpiece can be damaged if a screw is installed while in Drill mode.



## 12 Select Screw

Select appropriate Dual-Lock Screw.

- Use the driver to retrieve the screw length indicated by the Primary Guide.



## 13 Install Screws in Primary Locations

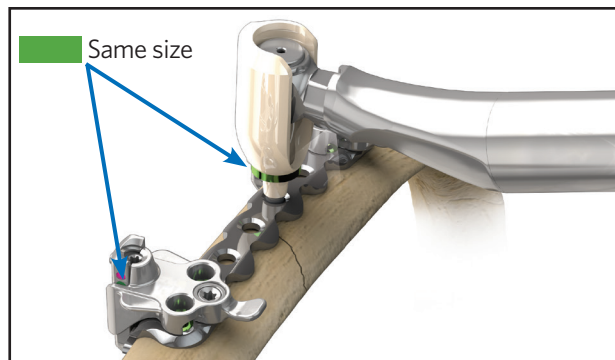
- Place the screw through the barrel of the Primary Guide and advance until the unit stops. A seated screw may be visualized through the window in the Primary Guide.
- The Forward Ratchet only needs to be used when the screw is not seated all the way with the power driver.
- Repeat until all screws have been placed in the U-clips.

**NOTES:** Power unit will **NOT** beep in Screw mode.

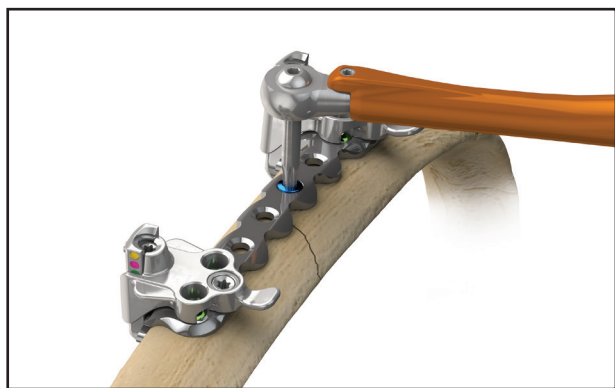
When using the Forward Ratchet, the user should only apply torque until the screw is fully seated. The rep and surgeon should be aware that the ratchet has a long handle and can supply excess torque if not used properly.

**TIP:** Let the handpiece do the work. Significant force is not needed.





**ATTENTION:** Check your Power Unit to ensure it's in the correct mode before your next step.



## 14 Drill Intermediate Holes

- Prepare the Implantmed power unit to drill according to [Step 9](#).
- Use the same Drill length as that indicated by the nearest Primary Guide for the intermediate holes.
- Introduce the nose of the color-coded or Handheld Drill Guide directly into the threaded plate hole.
- Drill until the Drill bottoms out on guide.

**NOTE:** Feel for the drill penetrating both cortices to ensure the correct drill depth has been reached.

## 15 Place Intermediate Screws

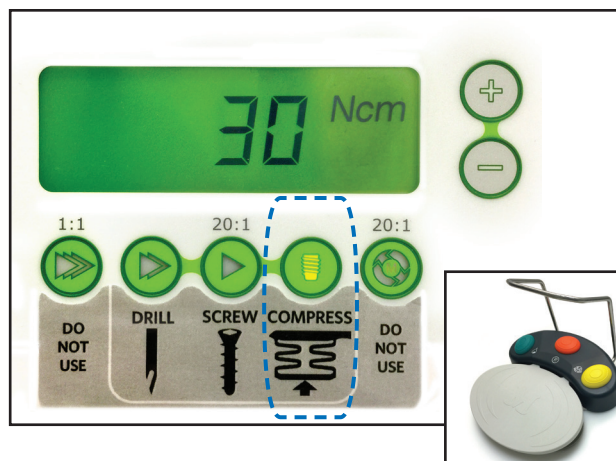
- Prepare the Implantmed power unit to place screws according to [Step 11](#).
- Check the color marking on the nearest Primary Guide and select a screw length that allows bicortical purchase. This is typically one size down, unless the rib is thicker than at the guide location.
- The Forward Ratchet only needs to be used when the screw does not seat all the way with the power driver.

**NOTES:** When using the Forward Ratchet, the user should only apply torque until the screw is fully seated. The rep and surgeon should be aware that the ratchet has a long handle and can supply excess torque if not used properly.

Insert screw min. 5mm from fracture location.

If there is access, manually palpate the posterior rib surface for the screw tip to determine if there is bicortical purchase. If there isn't, replace with a longer screw.

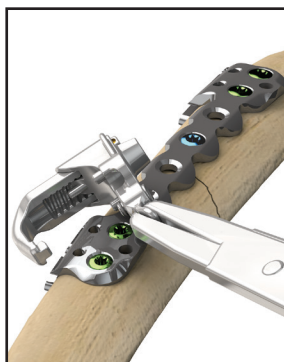




## 16 Remove Primary Guides

- Put the power unit into Compress mode by pressing the orange pedal.
- Set the power unit to reverse by pressing the yellow pedal. The Compress mode light on the power unit will flash repeatedly when in reverse.

**NOTE:** Power unit will beep 3 times before the system begins to drive in reverse.



- Using the Driver bit, release the Primary Guide Compression Screw and Attachment Screw.
- Use forceps to remove the Primary Guides.

## Implant Removal

For implant removal, screws may be removed with the reverse ratchet and Implantmed power unit.

## Additional System Information

If desired, one of the U-clips may be cut off using standard OR plate cutters. Use a minimum of three screws to secure the plate at the cut end.



## RibLoc® U+ Chest Wall Plating System

The Acute Innovations® RibLoc® U plus Rib Fracture Plating System is intended to stabilize and provide fixation for fractures, fusions, and osteotomies of the ribs, and for reconstruction of the chest wall.

Back to health.

Back to work.

Back to **life.**

Not all products may currently be available in all markets.

Please also refer to the package insert(s) or other labeling associated with the devices identified in this reference guide for additional information



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RBL7017\_F | Effective: 10/2019

