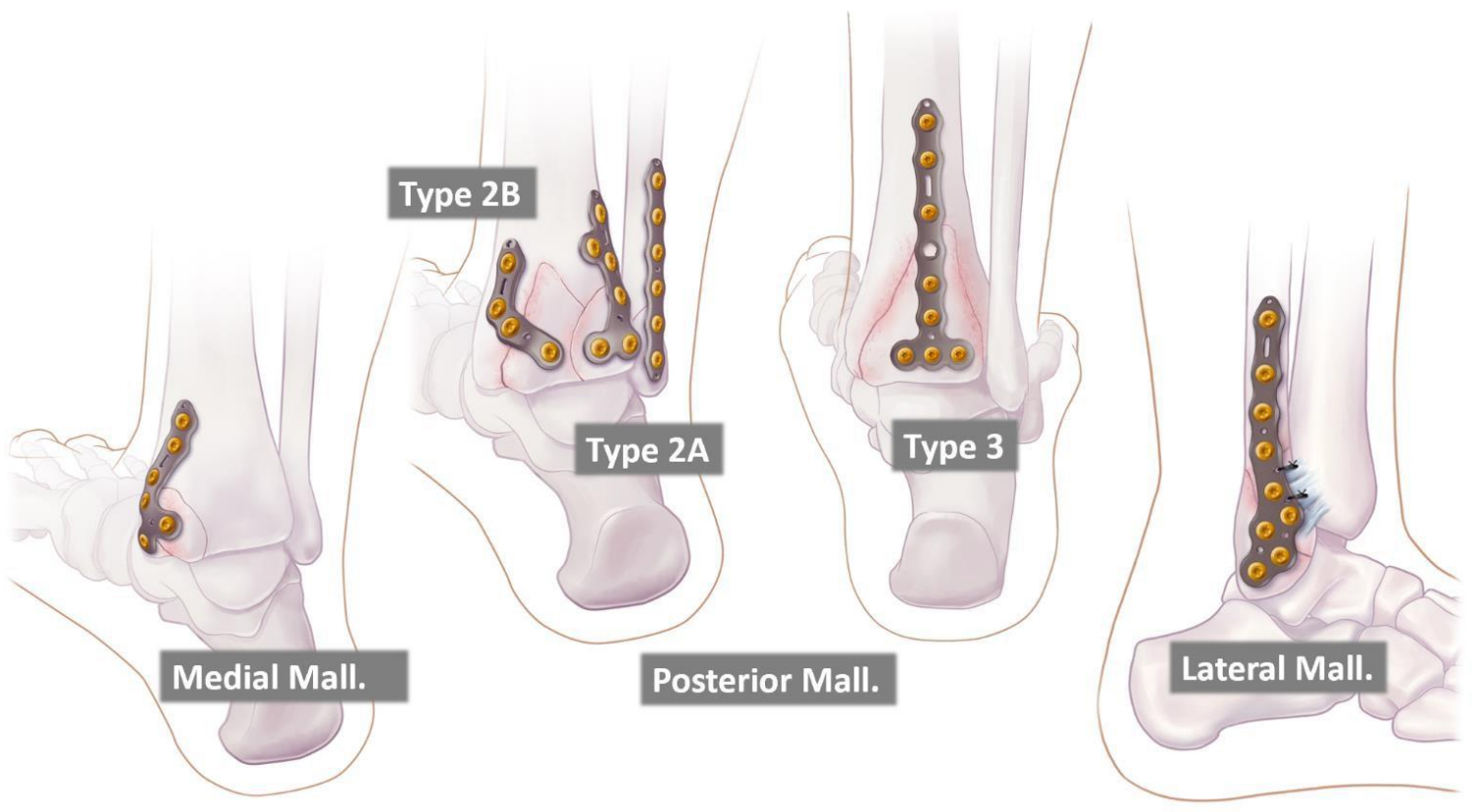


# VOLITION™

## PLATING SYSTEM

### Ankle Fracture Plates

### Surgical Technique



Caution: Federal law (USA) restricts this device to sale by or on the order of a physician.

OrthoSolutions  
Group



## System Overview

1. Volition™ Ankle Fracture Plates are available in six varieties: anatomic fibula plate, straight fibula plate, anatomic medial malleolar plate, posteromedial tibial plates (Type IIB), posterolateral tibial plates (Type IIA) and posterior tibial plates (Type III). The specific posterior tibial fracture plates are designed in conformance to the Mason & Molloy classification [Mason et al. Foot Ankle Int. 2017 Nov;38(11):1229-1235].
2. Volition™ Plating System non-locking screws are compatible with washers and any screw hole in the plates.
3. Volition™ Plating System locking screws are compatible with any screw hole. Locking screws are not compatible with washers.
4. Olive wires may be inserted in any screw hole. Alternatively, k-wires may be used to temporarily affix the plate to the bone through specific k-wire holes or wire slots within the plates.
5. All plate screws (**Figure 1**) may be inserted through the screw holes in a  $\pm 15^\circ$  conical range of trajectories. All plate screws utilize the same size driver. Each driver has a non-working AO-quick connect and a standard sized torx working end.



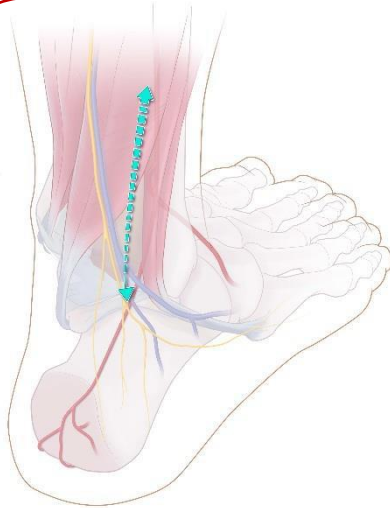
**Figure 1**

6. Pilot hole drill bits & drill guides include a single-stripe colored band denoting the color of their intended screw. Lag drill bits & drill guides are differentiated with a double-stripe colored band.
- Note 1:** Depth gauge extensions are compatible with all 3 diameters of pilot hole drill bits and therefore do not have any colored bands.
- Note 2:** Drill guide devices are pictured in **Figures 4, 5 & 7** and correlate specifically to the diameter of screw which is intended to be used.

## Approach & Fracture Reduction

7. Use standard approaches and techniques for medial and lateral malleolar fracture fixation. Suggested various posterior tibial approaches depicted below (**Figure 2**) may be used to optimize appropriate exposure relative to specific posterior tibial fracture classifications, based on the fracture specific plates, in accordance with the M&M algorithm. Expose the anatomy and then clean and reduce the fracture as per standard fracture care and protocols.

Figure 2



Posterolateral approach  
advised for Type IIA frx



Posteromedial approach  
advised for Type III frx



Medial-Posteromedial approach  
advised for Type IIB frx

8. Use an appropriately sized powered k-wire driver to advance k-wires to temporarily hold the reduced bone fragments in place, if desired.

**Warning:** The k-wires & olive wires are not intended to be left as permanent implants.

#### Screw and Washer Fixation (Without Plate)

9. Volition™ non-locking, solid plate screws may be used to stabilize fractures without a plate and compatible washers are also provided for optional use. Alternatively, partially threaded S26 4.0mm cannulated screws are provided within the set for use if desired.
10. The Volition™ plate screws are fully threaded so, when used without a plate, lag-drill techniques (**Figure 3**) should be used to apply compression between two bone fragments.

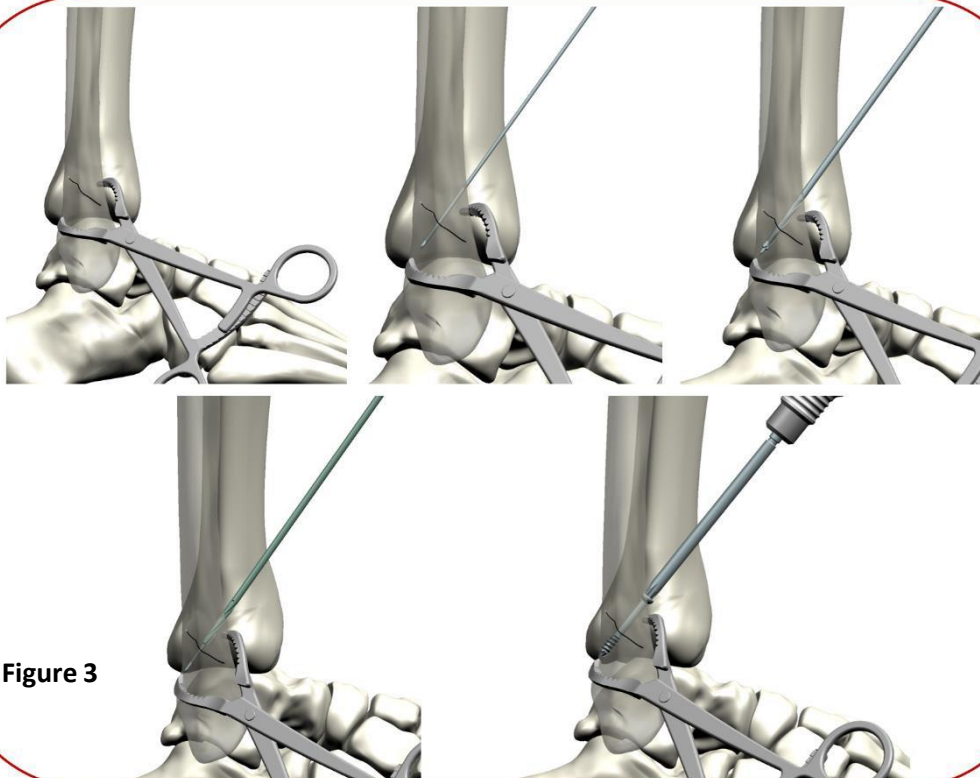
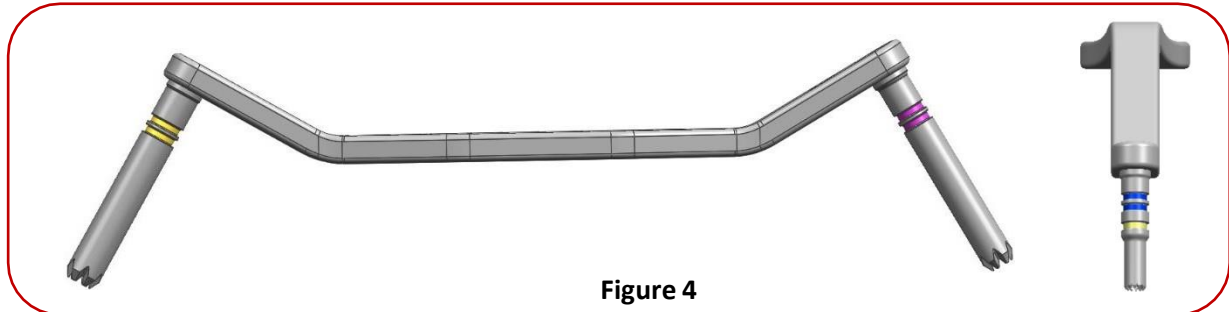


Figure 3

11. Drill pilot holes and lag (glide) holes for the screw using appropriately sized drill bits and handheld drill guides per the drill bit size compatibility table below. Drill bits feature an AO connector to attach to powered drills with AO couplers and lag guides indicated with double epoxy color bands (**Figure 4**).



**Figure 4**

- Precaution:** When intending to use a washer, do not exceed the  $\pm 15^\circ$  conical range of compatible trajectories.
- Precaution:** Do not attempt to read depth measurements from the top of the drill guides. Use depth measurement instruments only as instructed in this technique.

Screw Dia. (mm)	Pilot Drill Bit Dia. (mm)	Lag Drill Bit Dia. (mm)
$\varnothing 2.7$	$\varnothing 1.9$	$\varnothing 2.7^1$
$\varnothing 3.5$	$\varnothing 2.4$	$\varnothing 3.5$
$\varnothing 4.0$	$\varnothing 2.7^1$	$\varnothing 4.0$

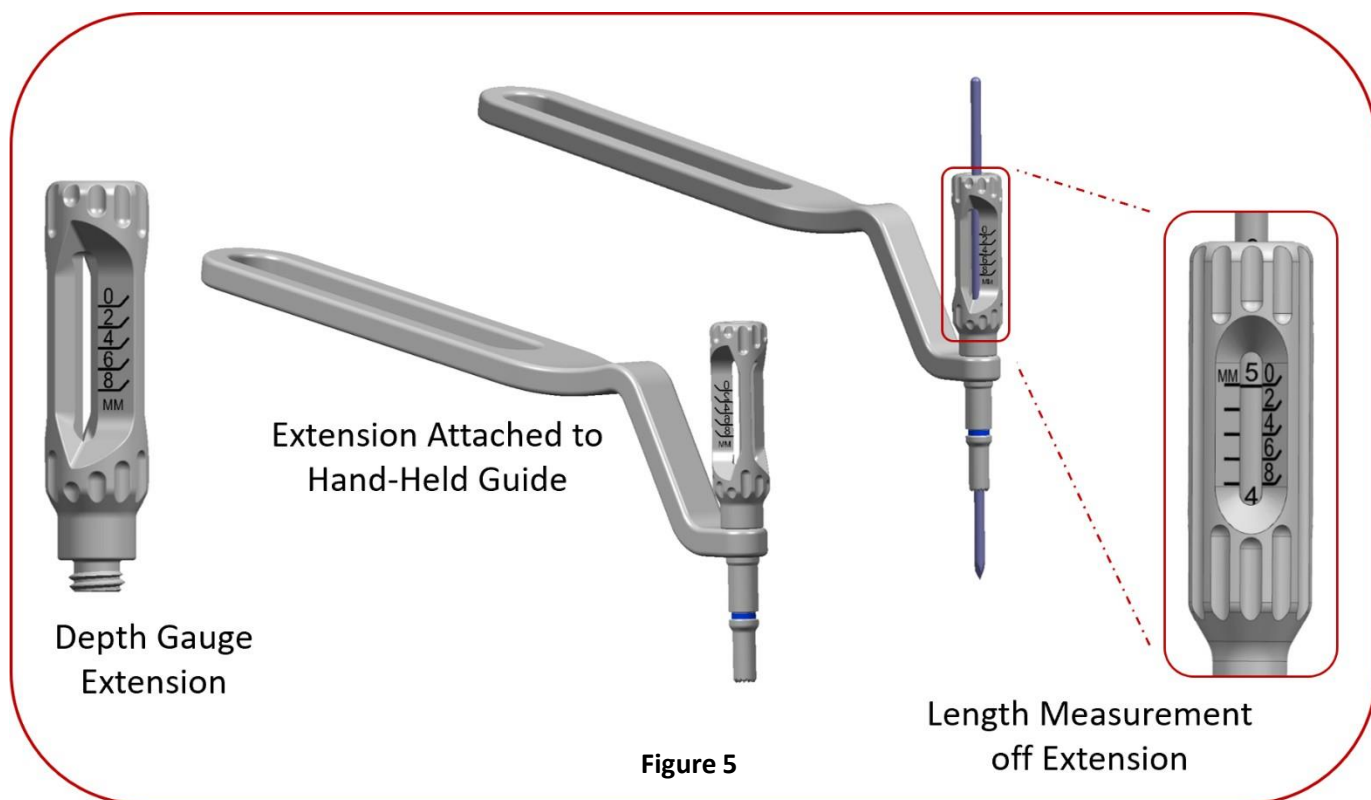
*Drill bit size compatibility*

- Note 3:** A depth gauge extension may be optionally threaded into the top of the handheld pilot hole drill guide to determine the depth during drilling. The depth gauge extension is not compatible with the lag drill guides. The first digit is read from the drill bit and the second digit is read from the drill guide (e.g. “5” on the drill bit and “0” on the guide yields a 50 mm depth) as per **Figure 5**.

12. If the pilot hole depth wasn’t measured during drilling, use the standard depth probe to measure the drilled depth by placing the narrow end of the outer housing directly against the near cortex and sliding the probe to hook on the far cortex.
13. Countersinks are provided to optionally ream the near cortex to minimize screw head prominence when used without a plate or washer. If desired, attach the AO countersink to either AO handle before countersinking the bone.

- Precaution:** Do not use the countersink with powered instruments.

<sup>1</sup> The  $\varnothing 2.7$  mm drill bit and drill guides are dual purpose: for use with  $\varnothing 4.0$  mm screws (pilot hole) and for  $\varnothing 2.7$  mm screws (lag).



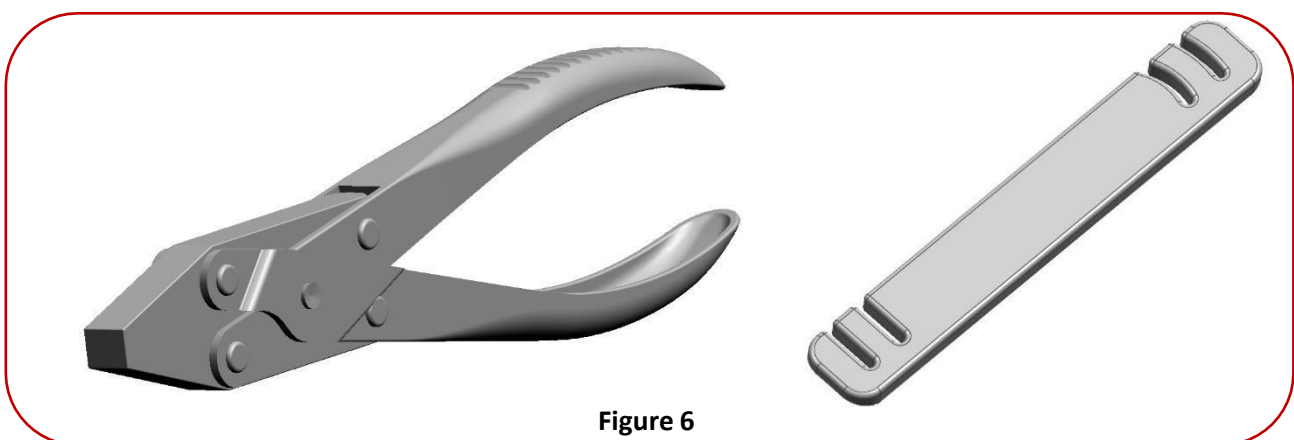
*Figure 5: Example depth gauge extension depiction of 50 mm depth*

14. Attach the AO screwdriver bit to either AO handle to insert the screw.

**Precaution:** Do not use the screwdriver bits with powered instruments.

### Plate Fixation

15. Fit the plate to the bone, if needed, to capture the bone fragments.
16. Two styles of plate bending instruments (**Figure 6**) are provided to optionally contour the plates to fit the bone. Plate bending pliers feature flat jaws to grip various positions on the plates. Plate bending irons feature various flat and curved slots to fit the plates in multiple positions.



**Precaution:** Contouring or bending implants should be avoided, where possible, because it may reduce the device's fatigue strength. If contouring is necessary, avoid sharp bends, reverse bends, or bending the device at a screw hole. When contouring implants, only Ortho Solutions instruments must be used in accordance with the specified protocols.



17. Use two or more olive wires, or  $\varnothing 1.6$  mm k-wires, to temporarily affix the plate to the bone before screw insertion. Olive wires may be inserted through any of the plate's screw holes. Alternatively,  $\varnothing 1.6$  mm k-wires may be inserted through any of the plate's k-wire holes or wire slots. Use an appropriately sized powered k-wire driver to advance the olive wires and k-wires.
  18. Drill pilot holes for the screws using appropriately sized drill bits and drill guides (**Figure 7**). If off-axis screw trajectory is desired, used the appropriately sized conical drill guides by threading them into the plate hole; each screw size has a corresponding drill guide – tower guides for on-axis drilling or conical guides for off-axis drilling. Alternatively, simple hand-held guides may be used to drill for non-locking screws.
- Note 4:** When loading the olive wires into a wire collet, please note that the proximal end of the olive wires is  $\varnothing 2.0$ mm.
- Warning:** Do not use  $\varnothing 2.0$  mm k-wires through the plates.
19. In the instance of an unstable Wagstaffe fragment, it is suggested to pass the suture through the two specific holes adjacent to the Wagstaffe fragment and into the AITFL as illustrated in **Figure 8**.



**Figure 7**

- Precaution:** Do not exceed the  $\pm 15^\circ$  conical range of compatible trajectories in any screw hole.
- Note 5:** The drilled depth may also be measured using the fixed angle drill guide using the same technique as described per Note 3 above and depicted per **Figure 5**.

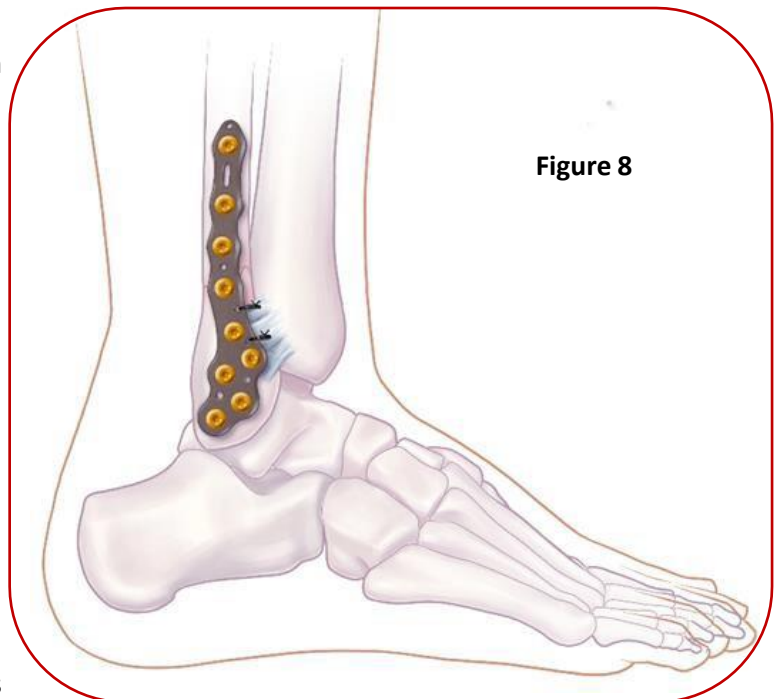
20. If the pilot hole depth wasn't measured during drilling, use the standard depth probe to measure the drilled depth by placing the narrow end of the outer housing directly against the near cortex/plate hole and sliding the probe to hook on the far cortex.
21. Attach the AO screwdriver bit to either AO handle to insert the screw.

**Precaution:** Do not use the screwdriver bits with powered instruments.

22. Implant as many screws as necessary to stabilize the bone fragments. Additional screws may be implanted outside the plate as per **Screw and Washer Fixation (Without Plate)** above.

### Surgery Completion

23. Remove any temporary fixation wires, instruments, or other non-implantable components from the patient prior to the completion of surgery.
24. Check implant positioning in 2 planes using fluoroscopy.
25. Close the surgical incision using the desired technique.



**Figure 8**



Ortho Solutions UK Limited  
West Station Business Park,  
Spital Road, Maldon, Essex.  
CM9 6FF, United Kingdom

Tel: +44 (0)1621 843 599  
Fax: +44 (0)1621 858 953  
Email: sales@orthosol.com

Ortho Solutions Inc - USA  
10901 West Toller Drive  
Suite #205, Littleton  
CO 80127

Tel: +1 (303) 495 5407  
Fax: +1 (303) 495 5408  
Email: us.sales@orthosol.com

Ortho Solutions Pty - Australia  
PO Box 1330,  
Milton,  
QLD. 4064, Australia

Tel: +61 (0)408 846821  
Email: salespty@orthosol.com

**Rx only**

Caution: Federal Law (USA)  
restricts this device to sale by  
or on the order of a physician

[www.orthosolutions.com](http://www.orthosolutions.com)

OS TD 00089\_21 – Rev 02  
Effective Date: October 2023

© 2021 Ortho Solutions UK Ltd. Ortho Solutions and the OS logo are  
trade marks of Ortho Solutions UK Ltd.



Consult  
instructions  
for use

**CE**  
2797<sup>2</sup>



Surgeon must be  
fully trained in the  
surgical technique

<sup>2</sup> CE marking and the notified body number is applied per part number and  
appears on the device packaging, or the device if applicable.