



## **CONTOURS VPS-3 VOLAR PLATING SYSTEM**

## CONTENTS

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<b>PLATE DIMENSIONS AND SPECIFICATIONS</b>	<b>1</b>
<b>CONTENTS OF THE CONTOURS VPS-3 SYSTEM</b>	<b>3</b>
<b>ANATOMICAL LANDMARKS</b>	<b>5</b>
<b>OPERATIVE TECHNIQUE</b>	<b>6</b>
<b>POST-OPERATIVE MANAGEMENT</b>	<b>13</b>

**14 TOTAL PLATE OPTIONS**

- 7 Left and 7 Right plates

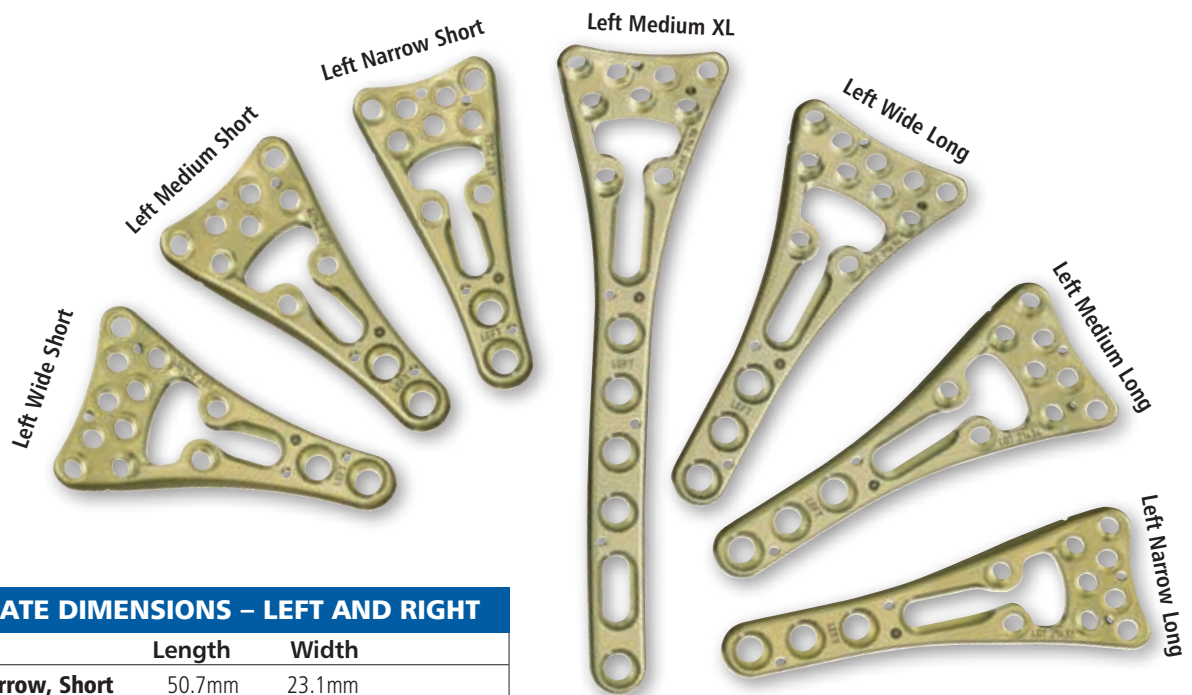
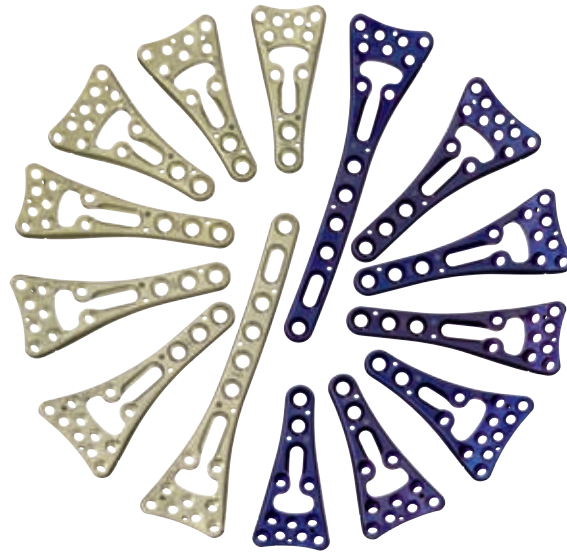


PLATE DIMENSIONS – LEFT AND RIGHT		
	Length	Width
<b>Narrow, Short</b>	50.7mm	23.1mm
<b>Narrow, Long</b>	65mm	23.1mm
<b>Medium, Short</b>	50.7mm	26.5mm
<b>Medium, Long</b>	65mm	26.5mm
<b>Medium, X-Long</b>	101.5mm	26.5mm
<b>Wide, Short</b>	50.7mm	30mm
<b>Wide, Long</b>	65mm	30mm

Plate thickness averages 2.3mm (distal section) and 3.4mm (proximal section)

**SPECIFICATIONS**



NARROW & MEDIUM SCREW ANGLES LEFT & RIGHT PLATES		
	Distal/Proximal	From Midline
1	30.4°	10.0°
2	13.0°	3.0°
3	9.0°	1.0°
4	10.2°	10.0°
5	34.3°	8.0°
6	25.0°	0°
7	30.1°	4.5°
8	25.0°	0°
9	10.0°	0°

WIDE SCREW ANGLES LEFT & RIGHT PLATES		
	Distal/Proximal	From Midline
1	30.4°	10.0°
2	13.0°	3.0°
3	9.0°	1.0°
4	10.2°	10.0°
5	34.3°	8.0°
6	25.0°	0°
7	30.1°	4.5°
8	25.0°	0°
9	10.0°	0°
10	10.0°	0°
11	25.0°	0°

TEMPLATE	
Code	Description
VP666CE	Template for VPS3 Plate

## CONTENTS OF THE CONTOURS VPS-3 SYSTEM



All screws listed below are self-tapping.

### LEFT PLATES

Catalog #	Width	Length
VPL0401CE	Narrow	Short
VPL0402CE	Narrow	Long
VPL0403CE	Medium	Short
VPL0404CE	Medium	Long
VPL0405CE	Medium	XL
VPL0406CE	Wide	Short
VPL0407CE	Wide	Long

### RIGHT PLATES

Catalog #	Width	Length
VPR0501CE	Narrow	Short
VPR0502CE	Narrow	Long
VPR0503CE	Medium	Short
VPR0504CE	Medium	Long
VPR0505CE	Medium	XL
VPR0506CE	Wide	Short
VPR0507CE	Wide	Long

### 2.4MM PARTIALLY THREADED LOCKING SCREWS

Catalog #	Length
PSC24P12TCE	12mm
PSC24P14TCE	14mm
PSC24P16TCE	16mm
PSC24P18TCE	18mm
PSC24P20TCE	20mm
PSC24P22TCE	22mm
PSC24P24TCE	24mm

### 2.7MM PARTIALLY THREADED LOCKING SCREWS

Catalog #	Length
PSC2712TCE	12mm
PSC2714TCE	14mm
PSC2716TCE	16mm
PSC2718TCE	18mm
PSC2720TCE	20mm
PSC2722TCE	22mm
PSC2724TCE	24mm
PSC2726TCE	26mm

### 2.0MM MICRO-THREADED LOCKING SCREWS

Catalog #	Length
PSC2012TCE	12mm
PSC2014TCE	14mm
PSC2016TCE	16mm
PSC2018TCE	18mm
PSC2020TCE	20mm
PSC2022TCE	22mm
PSC2024TCE	24mm

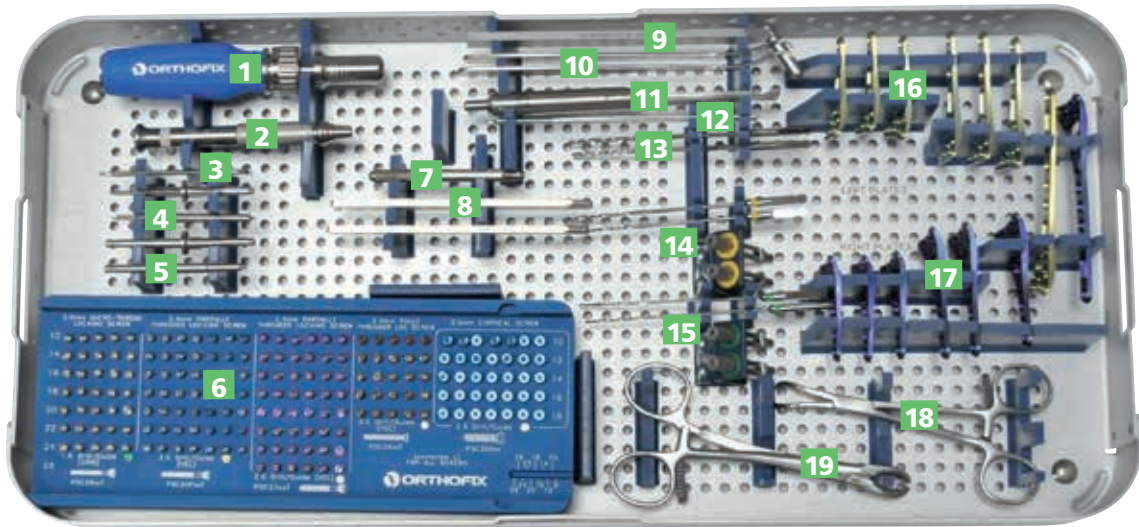
### 2.4MM FULLY THREADED NON-LOCKING SCREWS

Catalog #	Length
PSC2412TCE	12mm
PSC2414TCE	14mm
PSC2416TCE	16mm
PSC2418TCE	18mm
PSC2420TCE	20mm

### 3.5MM NON-LOCKING CORTICAL SCREWS

Catalog #	Length
PSC35D10CE	10mm
PSC35D12CE	12mm
PSC35D14CE	14mm
PSC35D16CE	16mm
PSC35D18CE	18mm

**NOTE:** All implantable components are also available single-packed and sterile. They are manufactured by Orthofix Srl and can be ordered using the above code numbers preceded by 99- (e.g. 99-VPL0401). However sterile components may not be available in all countries, please refer to your local representative.



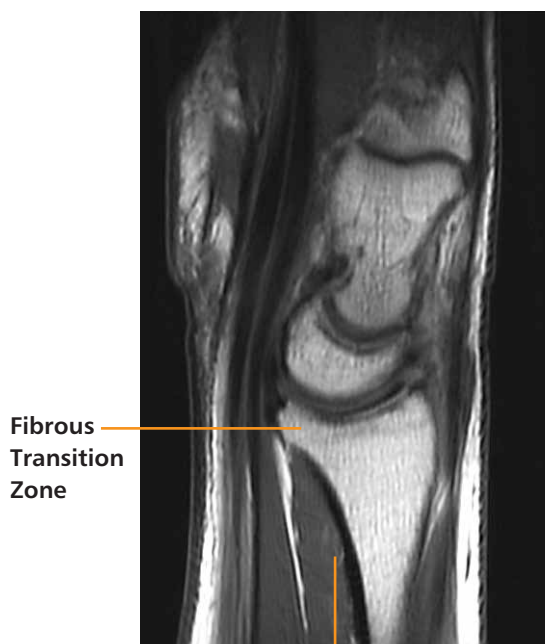
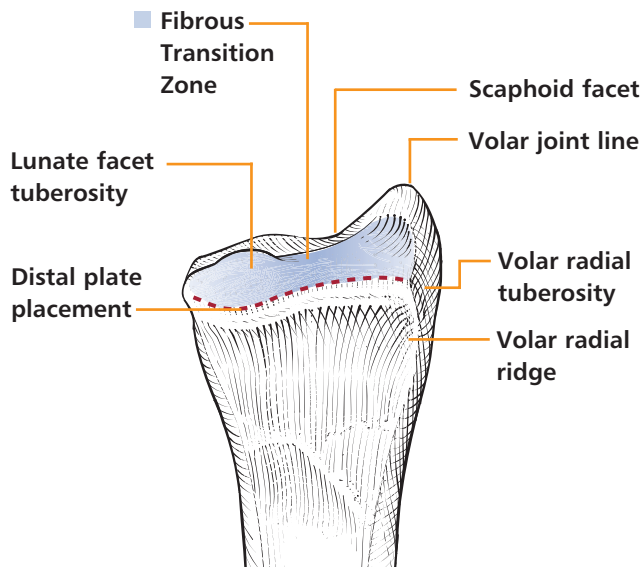
**INSTRUMENT TRAY CONTENTS**

1	Micro Ratcheting Handle	DH0455CE
2	1.5mm Hex Driver Handle	DH0429CE
3	Hex Key, 1.5mm, L Pattern	DH0422CE
4	2.5mm Hex Driver Tip	DH0459CE
4	2.5mm Hex Driver Screw Sleeve	DH0452CE
5	1.5mm Hex Driver Tip	DH0437CE
5	1.5mm Hex Driver Screw Sleeve	DH0478CE
6	Screw Caddy	
7	Plate Bender, Threaded	DH0413CE
8	Plate Bender, Straight	DH0412CE
9	2.5mm Drill Guide	DH0416CE
10	Hohmann Retractors 6mm	DH0463CE
10	Hohmann Retractors 8mm	DH0472CE
11	50mm Depth Gauge	DH0450CE
12	1.4mm K-wires	DH0460CE
13	2.5mm Drill Bits	DH0436CE
14	2.0mm Fast Read Drill Bit	DH0448CE
14	2.0mm Fast Read Drill Guide	DH0451CE
15	1.6mm Fast Read Drill Bit	DH0471CE
15	1.6mm Fast Read Drill Guide	DH0470CE
16	Left Plates, 7 total	
17	Right Plates, 7 total	
18	Bone Reduction Forceps, pointed	DH0462CE
19	Bone Reduction Forceps, serrated	DH0461CE

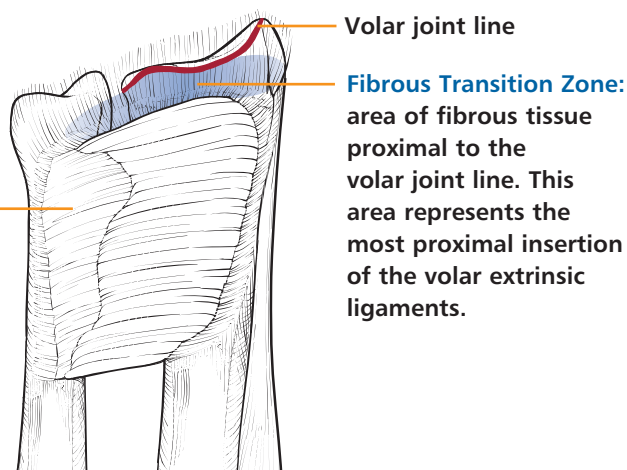
- Fast Read Drill Guides can be used as an intraoperative handle for the plate.
- Threaded Plate Bender protects the integrity of the screw hole when choosing to adjust the radial styloid's scored corner.

### ANATOMICAL LANDMARKS

The volar surface at the distal radius has substantial variability, most notably in the prominence of the lunate facet (called the lunate facet tuberosity), the volar radial tuberosity and the volar radial ridge. The area of fibrous tissue proximal to the volar joint line is referred to in this guide as the fibrous transition zone. This area contains the volar extrinsic ligaments that are most proximal to the joint line.



Pronator quadratus (PQ) muscle



### POSITIONING

1. Place patient in supine position with hand extended on arm board. Prep hand, and apply finger trap traction if desired.

### INCISION AND DISSECTION

2. Make an incision using the flexor carpi radialis (FCR) approach, extending the incision distally if necessary. The FCR tendon is palpable in a location radial to the palmaris longus and is approximately centered over the radius. The skin incision should be centered over the FCR tendon and approximately 6-8cm in length.

**TIP:** Generally, exposure may be facilitated by incising the septum between the FCR and the flexor pollicis longus (FPL).

**REMARK:** Care should be taken to avoid the palmar cutaneous branch of the median nerve (**Fig. 1**).

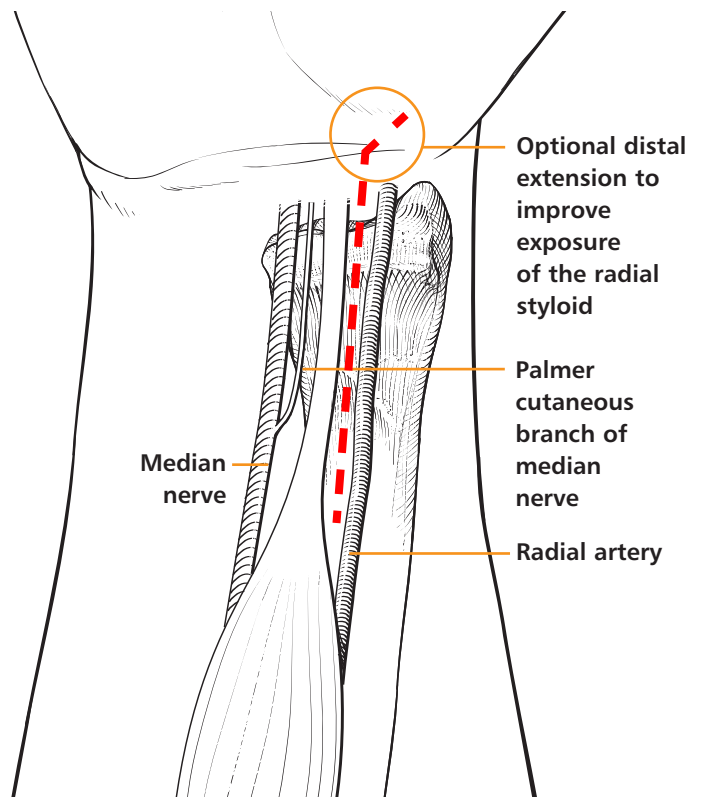


Fig. 1



3. Incise the fascia over the FCR and mobilize the tendon ulnarly to protect the radial nerve. Divide the floor of the FCR sheath, continuing the dissection distal to the skin incision for about 0.5cm distal to the wrist crease.

(Fig. 2)

**REMARK:** Take care to avoid both the median nerve (in some cases, it may be very close to the field) and the radial artery (in some cases, a branch of it may cross just below the FCR tendon distally). The floor of the FCR distally forms a thick septum between the FCR and the FPL. Failure to obtain enough distal exposure of the radius is usually due to inadequate division of this septum far enough distally.

**TIP:** Radial column exposure may be facilitated by releasing the brachioradialis insertion from the radial styloid (Fig. 3).

**TIP:** With intra-articular fractures, it may be helpful to release the FCR within the tunnel as it goes towards the trapezium and inserts on the base of the second metacarpal.

4. Mobilize the FPL ulnarly, releasing the muscle fibers from the radius. The median nerve is ulnar to the area of dissection, and the mobilized FPL will protect the nerve. The pronator quadratus (PQ) will be directly visualized with the distal portion usually obscured by the pre-muscular fat pad. The distal portion of the pronator quadratus is often torn (Fig. 4).

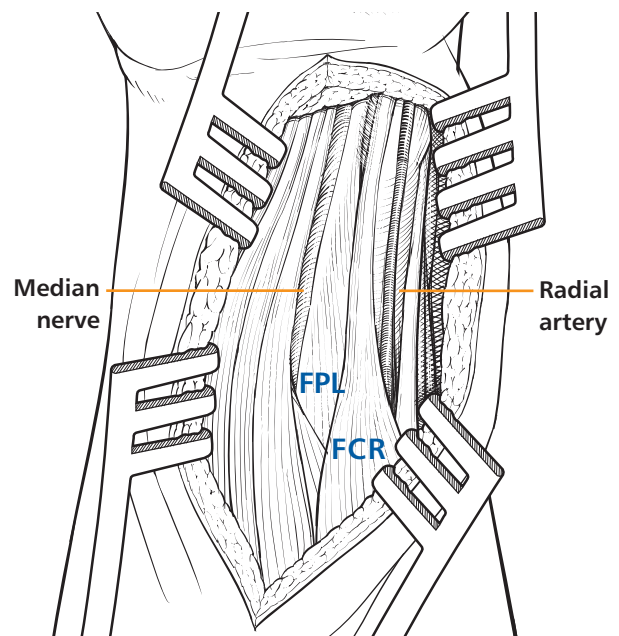


Fig. 2

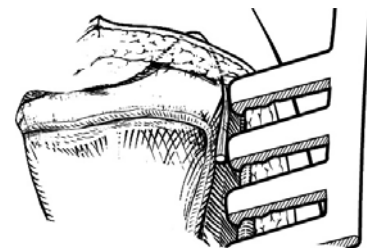


Fig. 3

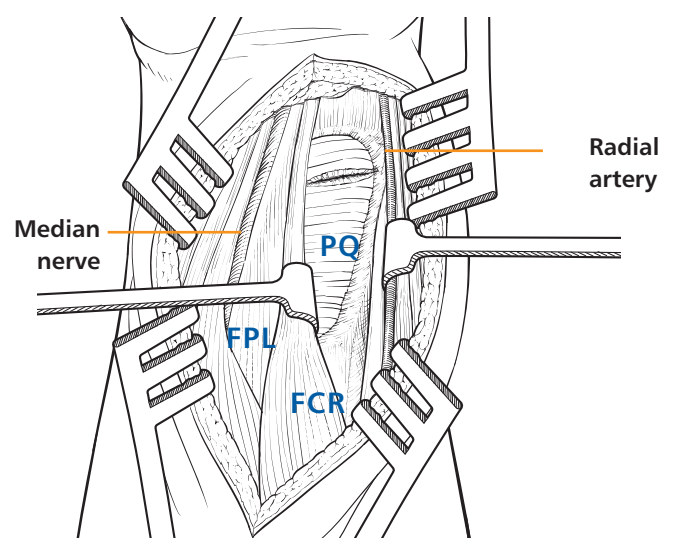


Fig. 4

5. Incise distally 1-2mm distal to the PQ distal border and release the PQ muscle from its radial attachment.

**TIP:** Preserving 1-2mm of fibrous tissue radially may facilitate repair of the PQ at the end of the surgery (Fig. 5).

**TIP:** Elevating the PQ from its radial border (with the insertion on the radius) all the way distally to the area of the watershed line will facilitate plate placement.

6. Reflect the PQ, clearing off enough of the radius to visualize from the volar radial tuberosity and volar radial ridge on the radial side to the distal radial ulnar joint (DRUJ) on the ulnar side, as well as the entire fracture site. Take care to protect the radial artery on the radial side and the median nerve on the median side. Distal exposure is dependent upon the fracture characteristics. In the presence of small distal fracture lines, the fibrous transition zone (FTZ) may need to be elevated to achieve exposure of the fracture.

**TIP:** Failure to visualize the entire width of the radius is generally due to lack of adequate release of the septum between the FCR and the FPL distally.

**REMARK:** Care should be taken to avoid complete detachment of the volar extrinsic ligaments of the wrist from the palmar lip of the radius (Fig. 6a-c).

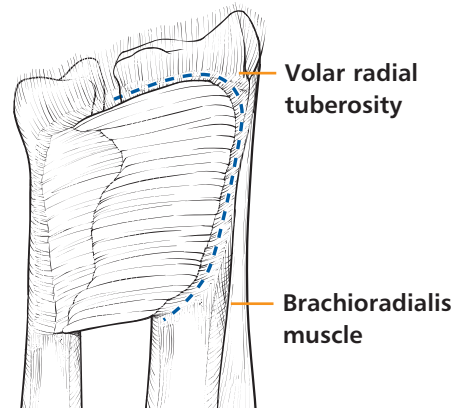


Fig. 5

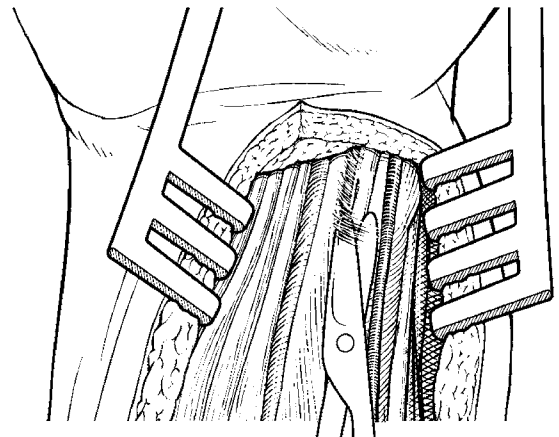


Fig. 6a

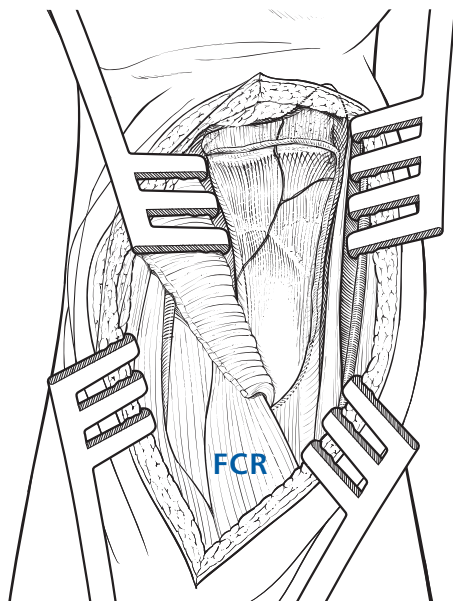


Fig. 6b

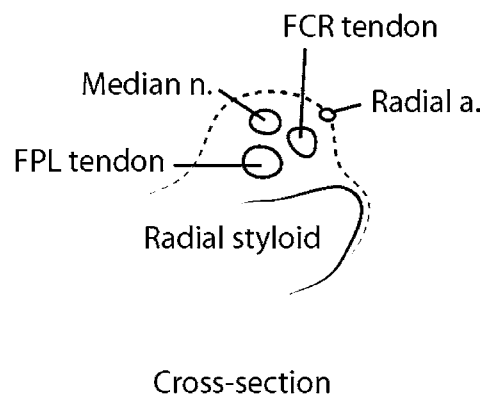


Fig. 6c

## FRACTURE REDUCTION AND PROVISIONAL FIXATION

### REDUCE THE FRACTURE

7. Stabilize the fracture with 1.4mm K-wires (DH0460CE) as needed (**Fig. 7**).

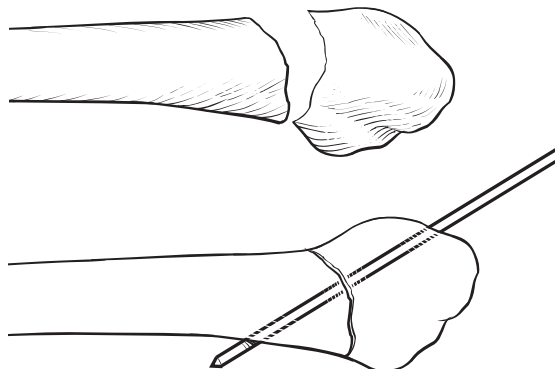


Fig. 7

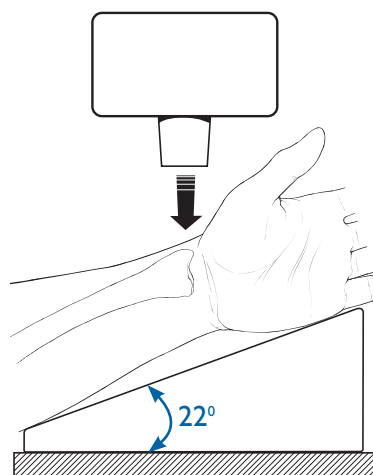
### SELECTION AND PLATE POSITIONING

8. Determine the optimal position for the plate, making sure that it conforms to the watershed line and volar topography.

The plate is designed to be 3-4mm proximal to the volar lip. This ensures the plate is secured within strong subchondral bone but remains proximal to the joint line.

**NOTE:** 1) Refer to page 1, Specifications, for plate selection.  
2) K-wire holes are provided on the plate for provisional fixation.

**TIP:** When using fluoroscopy to view plate, place a pad under the hand to incline the radius by  $22^\circ$  toward the beam to get a true lateral view of the distal radius (**Fig. 8**). This will eliminate the shadow of the radial styloid and provide a clear tangential view of the lunate facet. Employ both the oblique (facet) lateral and oblique PA views.



Eliminates radial styloid shadow

Fig. 8

### INSERT THE PROXIMAL SCREW IN THE OBLONG HOLE

9. With the plate in place, use the 2.5mm drill (DH0436CE) and 2.5mm drill guide (DH0416CE) to drill into the cortex inside the plate's proximal oblong hole, and continue drilling until the bit fully penetrates the cortex on the opposite (dorsal) side of the radius.

10. Use the depth gauge (DH0450CE) to measure the bi-cortical screw. Select a 3.5mm cortical shaft screw that, when fully inserted, will engage both cortices and extend past the opposite cortex by 1mm. Insert this in the CENTER of the oblong hole to allow for adjustment of the plate, as necessary, during final reduction (**Fig. 9**).

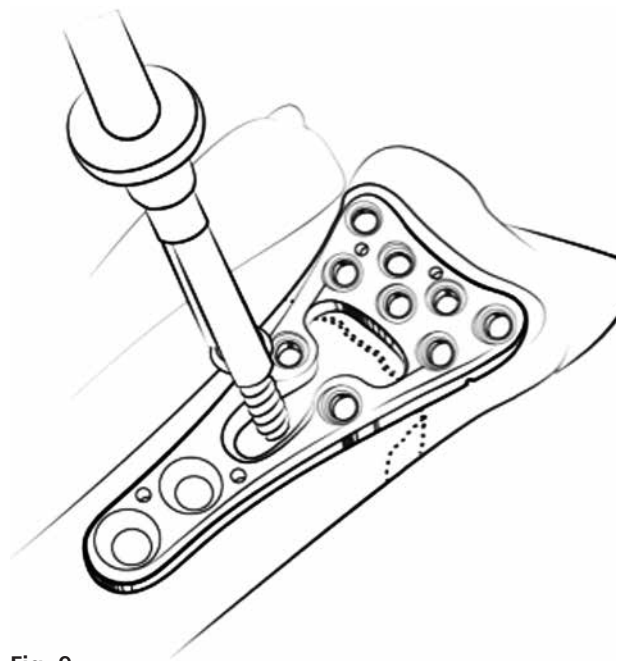


Fig. 9

11. Proper plate positioning can be confirmed by obtaining a 22° lateral fluoroscopy image (**Fig. 8**)

12. Next, while reduction is held, insert a 1.4mm K-wire (DH0460CE) in the designated K-wire hole shown. This K-wire hold mimics the same trajectory as the screw hole on its right. (Fig. 10). Doing so allows the distal screw position to be confirmed before committing to permanent placement, as the K-wire mimics the angle of the first screw. This K-wire should be 1-2mm subchondral to the joint line.



Proper plate positioning can be confirmed by obtaining a 22° lateral fluoroscopy image.

**INSERT FIRST DISTAL SCREW**

13. Insert a second 1.4mm K-wire (DH0460CE) in the designated K-wire hole shown in (Fig. 11).

14. Select the preferred screw from the selection listed below.

**TIP:** The 2.7mm locking screw may be used to secure large fragments, which typically includes the radial styloid.

15. Based on the diameter of the screw to be used, choose the appropriate drill bit:

DRILL BIT SIZES	
Screw size	Drill size
2.0mm Microthread	1.6mm
2.4mm Locking Screw	2.0mm
2.4mm Non-locking Screw	2.0mm
2.7mm Locking Screw	2.0mm

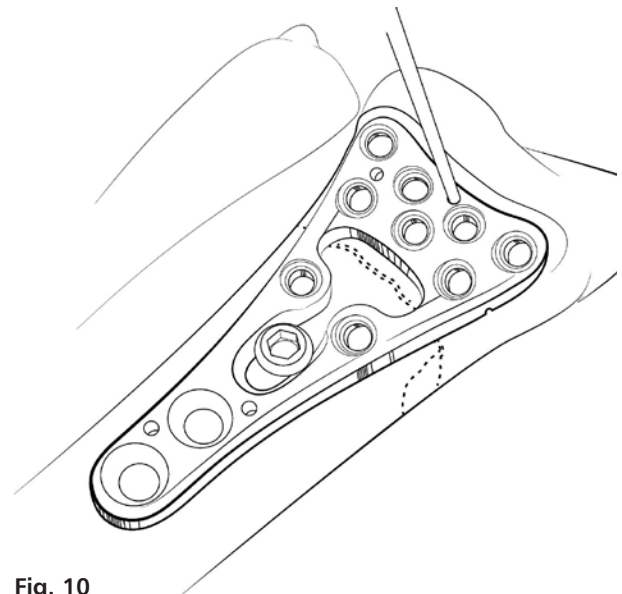


Fig. 10

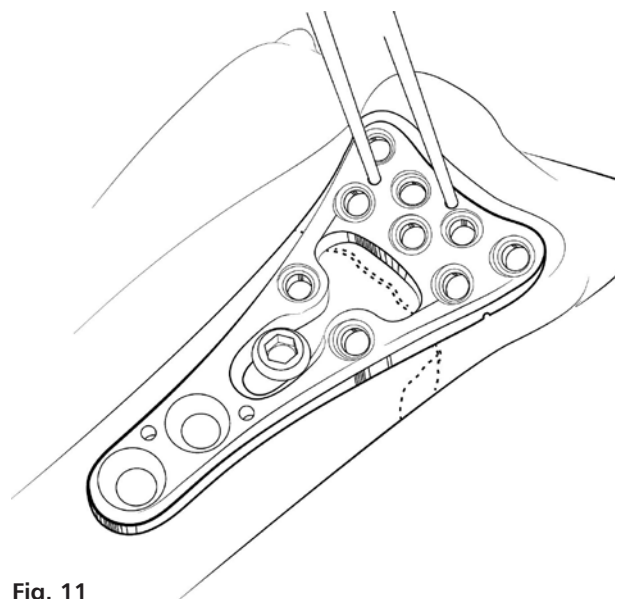
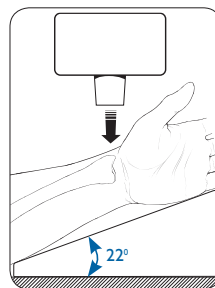


Fig. 11

16. Remove the first K-wire. Using the 2.0mm fast read drill (DH0448CE) and drill guide (DH0451CE), or 1.6mm fast read drill (DH0471CE) and drill guide (DH0470CE), drill into the cortex inside the plate's distal hole, keeping in mind the screw should stop short of penetrating the opposite (dorsal) cortex. Measure the appropriate length of screw (**Fig. 12**).

**REMARK:** If in-between sizes, downsize to ensure the screw tips do not penetrate the far cortex.

17. Insert the appropriate distal screw. Use fluoroscopy to evaluate its length and orientation. Note that Lister's tubercle may impede viewing of the cortex or give a false impression of the far dorsal cortex (**Fig. 13**).

**NOTE:** Before continuing with further screw placement, ensure the screw is not violating the joint.

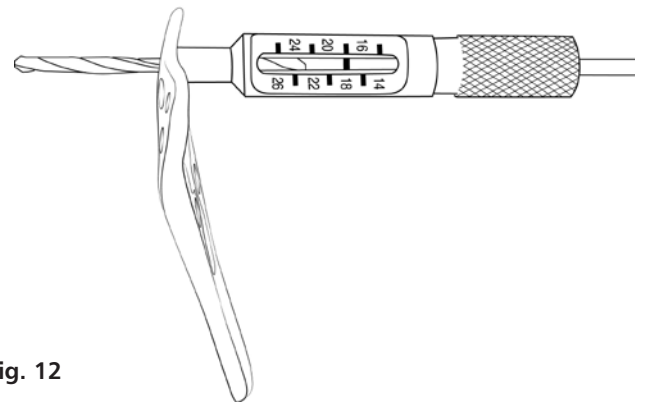


Fig. 12

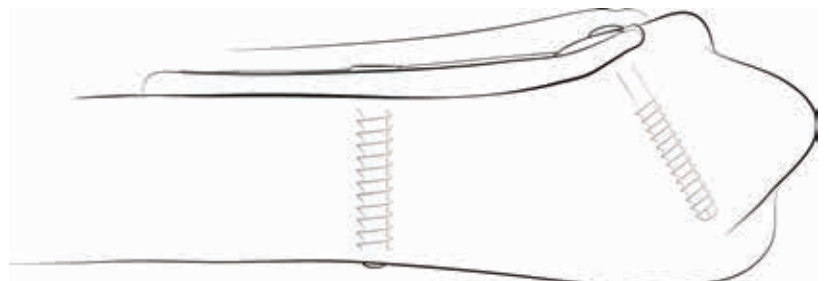
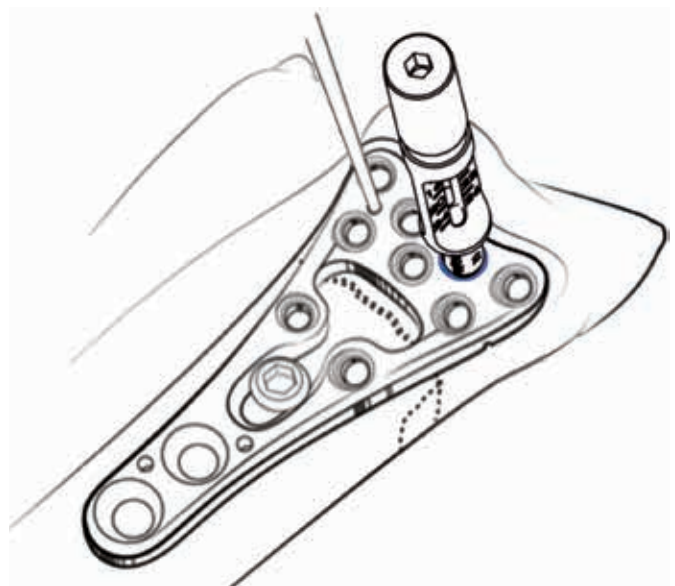


Fig. 13

18. Repeat above steps, inserting the remaining proximal and distal screws as determined by the operating surgeon (Fig. 14, 15). Use fluoroscopy to verify placement.

**NOTE:** The optional metaphyseal holes a) offer additional fixation as warranted. They accommodate the 2.0, 2.4, 2.7mm locking and non-locking options.

**NOTE:** Ensure the 3.5mm non-locking cortical screws engage both cortices.

**TIP:** Palpate the distal radius before closing to ensure screws are not prominent.

**REMARK:** Do not penetrate dorsal cortex (with distal screws). Screw tips may impinge on or damage extensor tendons.

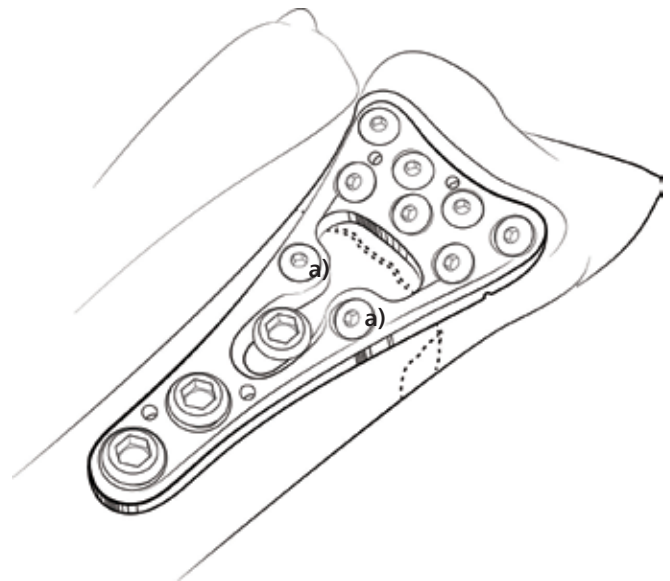


Fig. 14

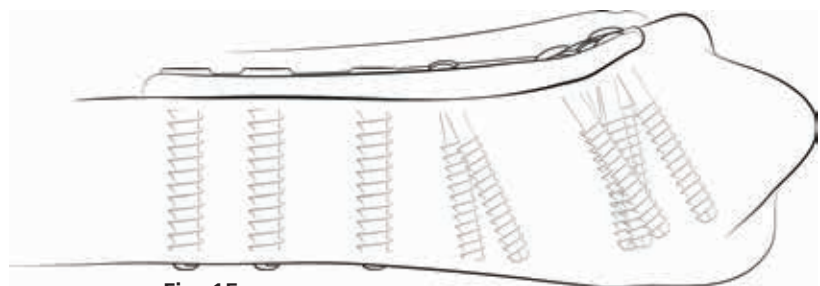


Fig. 15

## POST-OPERATIVE MANAGEMENT

The Contours VPS is designed to allow immediate motion without casts or splints if the surgeon feels the patient can sustain these loads. To obtain the best final range of motion and function, patients should begin hand therapy as soon as tolerable, usually within 3 days of surgery. A block may be used to assist in post-operative pain control and contribute to earlier ROM.

Device System Name:

**Contours VPS® Volar Plating System (bone plate)**

Please refer to the Instructions For Use prior to use the Contours VPS® Volar Plating System (bone plate)



Manufactured by:  
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Instructions for Use: See actual package insert for Instructions for Use.

Caution: Federal law (USA) restricts this device to sale by or on the order of a physician. Proper surgical procedure is the responsibility of the medical professional. Operative techniques are furnished as an informative guideline. Each surgeon must evaluate the appropriateness of a technique based on his or her personal medical credentials and experience. Please refer to the "Instructions for Use" supplied with the product for specific information on indications for use, contraindications, warnings, precautions, adverse reactions and sterilization.

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

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