

RADIAL HEAD PLATE SURGICAL TECHNIQUE GUIDE

PROTEAN[®]

fragment plating technology



As described by:

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PROTEAN®

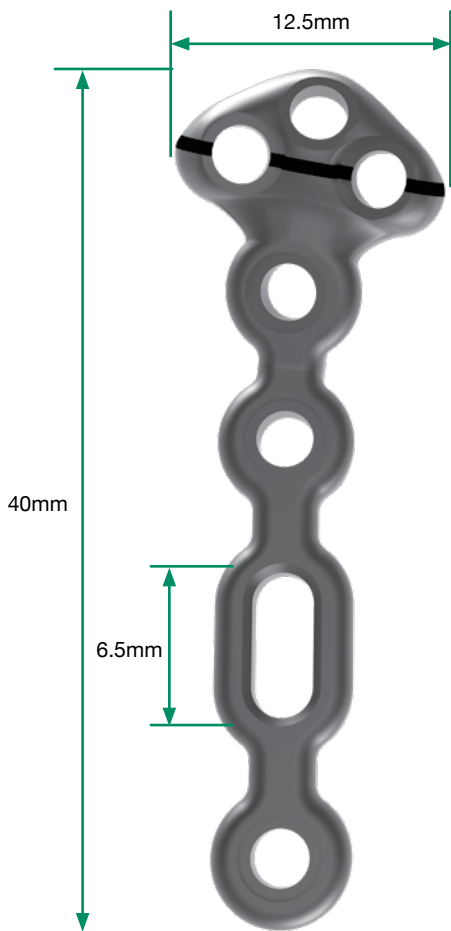
fragment plating technology

Description

The Skeletal Dynamics PROTEAN® Radial Head Plate Module consists of titanium alloy plates (right and left), screws, and specialized instrumentation. The screws are available in both locking and non-locking configurations and are provided in lengths from 10mm – 40mm, with increments of 2mm.

Indications

The Skeletal Dynamics PROTEAN® Radial Head Plates are intended for fixation of fractures, fusions, osteotomies and non-unions of the radius, particularly in osteopenic bone.



Screw support for subcondrial bone

- In-situ contouring
- Multiple screw options
- Malleable in all three planes

Additional fragment plating options:



Double Hockey Stick



Y - Straight

1

ELBOW LANDMARKS



It is recommended to perform a lateral approach (Kaplan or Kocher) to the elbow using the respective tissue plane.

With the elbow flexed 90°, palpate and mark the lateral epicondyle.

Make an 8 - 10cm line through the marked point.

2

SUPERFICIAL EXPOSURE



Open the joint and gain access to the radial head. Pronate the forearm and limit distal dissection to protect the posterior interosseous branch of the radial nerve.

Note:

The posterior interosseous branch of the radial nerve is located ~4cm distal to the lateral epicondyle.

Caution:

Limit periosteal stripping to reduce the incidence of avascular necrosis.

LOADING AIMing GUIDES

3

Using the peg driver, insert an A.I.M.ing guide into the most proximal pre-loaded drill guide (PDG) on the plate. Insert a second A.I.M.ing guide at the most appropriate location to maintain proper reduction.

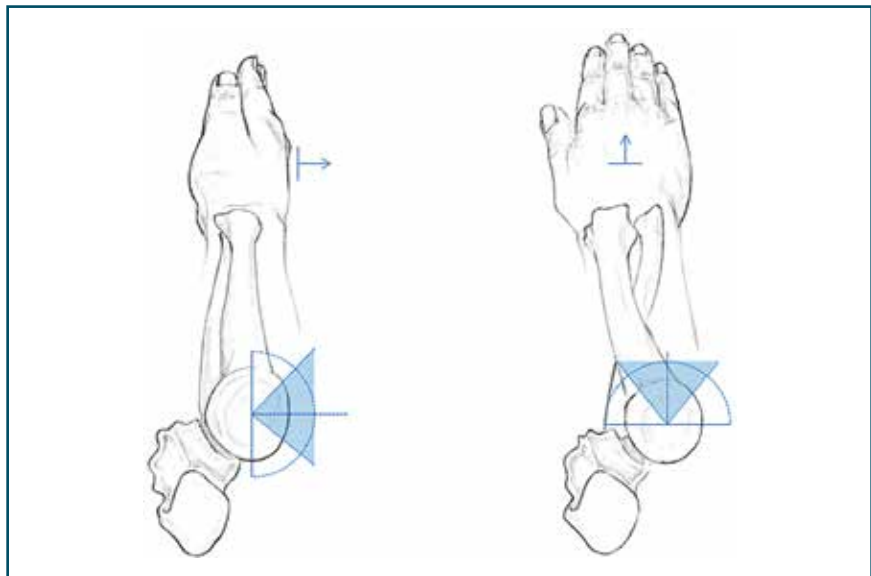


PDG-AIM-015: A.I.M.ing Guides, 1.5mm DRVR-AOS-S20: Driver, Peg, Torque Limiting

SAFE ZONE

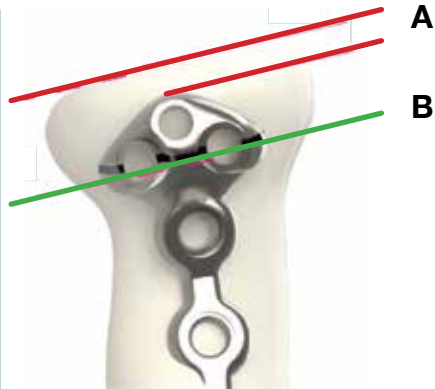
4

The nonarticulating portion is the safe zone for the application of implants to the radial head. It consistently encompasses a 90 degree angle localized by palpation of the radial styloid and Lister's tubercle or approximately perpendicular to the plane of the metacarpals.



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PLATE POSITIONING



Reduce the fracture.

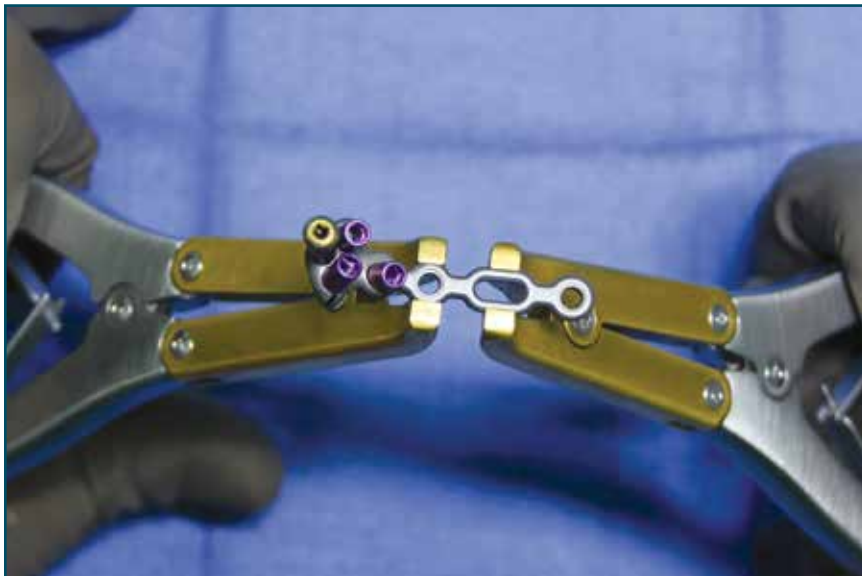
With the forearm in neutral rotation, maintain radial head reduction and place the plate in the center of the “safe zone”.

A: The proximal end of the plate should be 4-5mm distal to the proximal rim of the radial head.

B: To ensure proper axial alignment of the plate, position the laser mark on the head of the plate parallel to the proximal rim of the radial head.

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PLATE CONTOURING

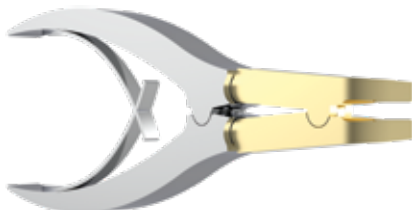


Contour the plate as needed using the PROTEAN® Bending Pliers. Proper contouring should allow the plate to sit flush on the bone.

Refer to step 5 for proper plate positioning.

Caution:

Excessive contouring may weaken or cause the plate to break.



PRT-BND-PLR: PROTEAN® Bending Pliers

DISTAL PLATE FIXATION

7

Using the tissue protector, drill through the center of the oblong hole using the 2.0mm drill bit.

Note:
Laser etching on the drill can be used to estimate screw length.



TPDG-SSD-20: Tissue Protector / Drill Guide, Single Sided, 2.0mm



DRLL-SSC-20040: Drill, Solid Side Cutting, 2.0mm x 40mm

SECURE PLATE TO DISTAL FRAGMENT

8

Using the depth gauge, measure hole depth and then insert the appropriate length 2.7mm non-locking screw.

Note:
The orientation of the hook on the depth gauge probe corresponds to the flat portion on the depth gauge handle.

The depth gauge has a dual scale to reflect measurements either through the pre-loaded drill guides (top scale) or without pre-loaded drill guides (bottom scale).



DPGA-UNV-030: Depth Gauge, Universal, 30mm



PANL-27XXX-TS: Threaded Peg, Cortical Non-Locking, 2.7mm x XXmm, Ti

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PROXIMAL FIXATION



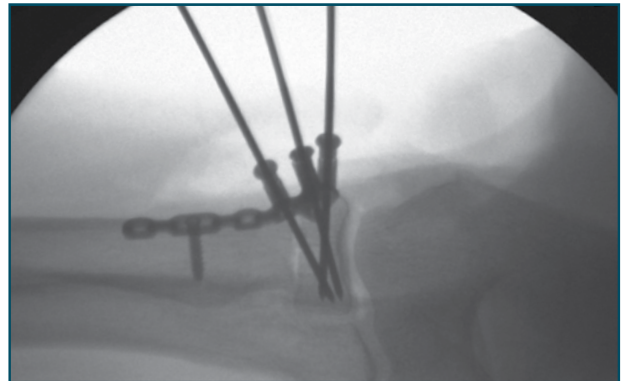
Secure the proximal fragment(s) to the plate using two 1.5mm k-Wires through the A.I.M.ing Guide.

Additional k-wires may be used to secure remaining fragments.

KWIR-DES-15127: K-Wire, 1.5mm x 127mm

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CONFIRM REDUCTION



Confirm reduction and proper k-wire placement 2mm distal to the subchondral plate using fluoroscopy.

If additional plate contouring is necessary, use the PROTEAN® Bending Pliers for in-situ contouring.

PILOT HOLE PREPARATION

11

Using the 2.0mm bit, drill through the pre-loaded drill guide and measure hole depth.

Caution:

Be careful not to drill through any articular surfaces.



PROXIMAL FIXATION

12



PANL-27XXX-TS: Threaded Peg, Cortical Non-Locking, 2.7mm x XXmm, Ti



TPFL-23XXX-TS: Threaded Peg, Fluted, Locking, 2.3mm x XXmm, Ti



Remove the pre-loaded drill guide using the peg driver, then insert the appropriate length screw.

Remove the k-wire and A.I.M.ing Guide from the most proximal hole, drill and measure hole depth.

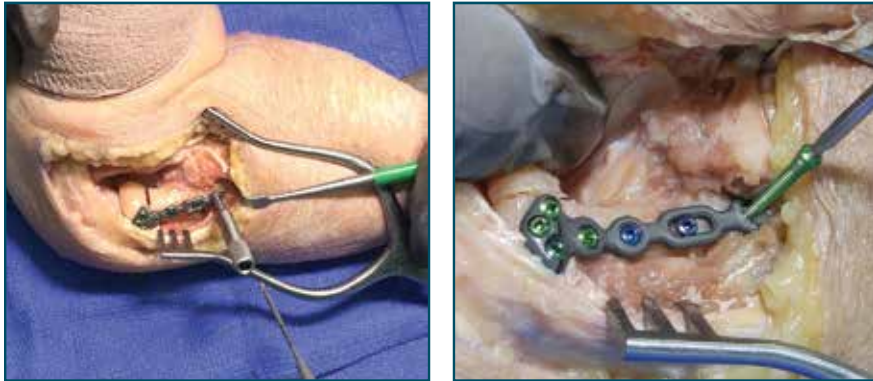
Then remove the pre-loaded drill guide and insert an appropriate length 2.3mm locking screw.

Repeat for the remaining proximal holes.

Note:

Locking and non-locking screws may be used.

13 DISTAL FIXATION



Using the thread-in drill guide, drill through the shaft holes of the plate.

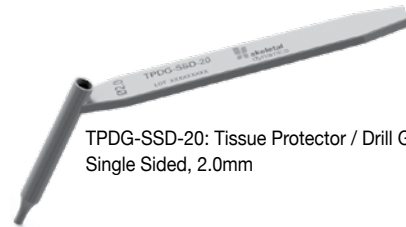
Using the depth gauge, measure the depth of the hole and insert a screw of appropriate length (locking or non-locking).

Note:

If using locking screws, the thread-in drill guide must be used to drill each hole.

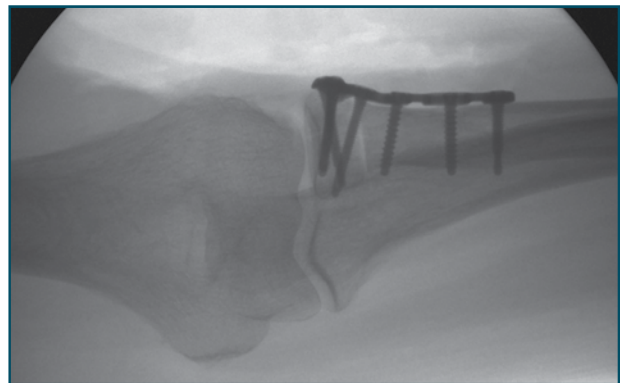


TPDG-THD-DG20: Thread-in Drill Guide, 2.0mm



TPDG-SSD-20: Tissue Protector / Drill Guide, Single Sided, 2.0mm

14 FINAL RADIOGRAPHS



Confirm proper reduction, screw length and placement using fluoroscopy. If satisfied, close the wound in the preferred fashion.

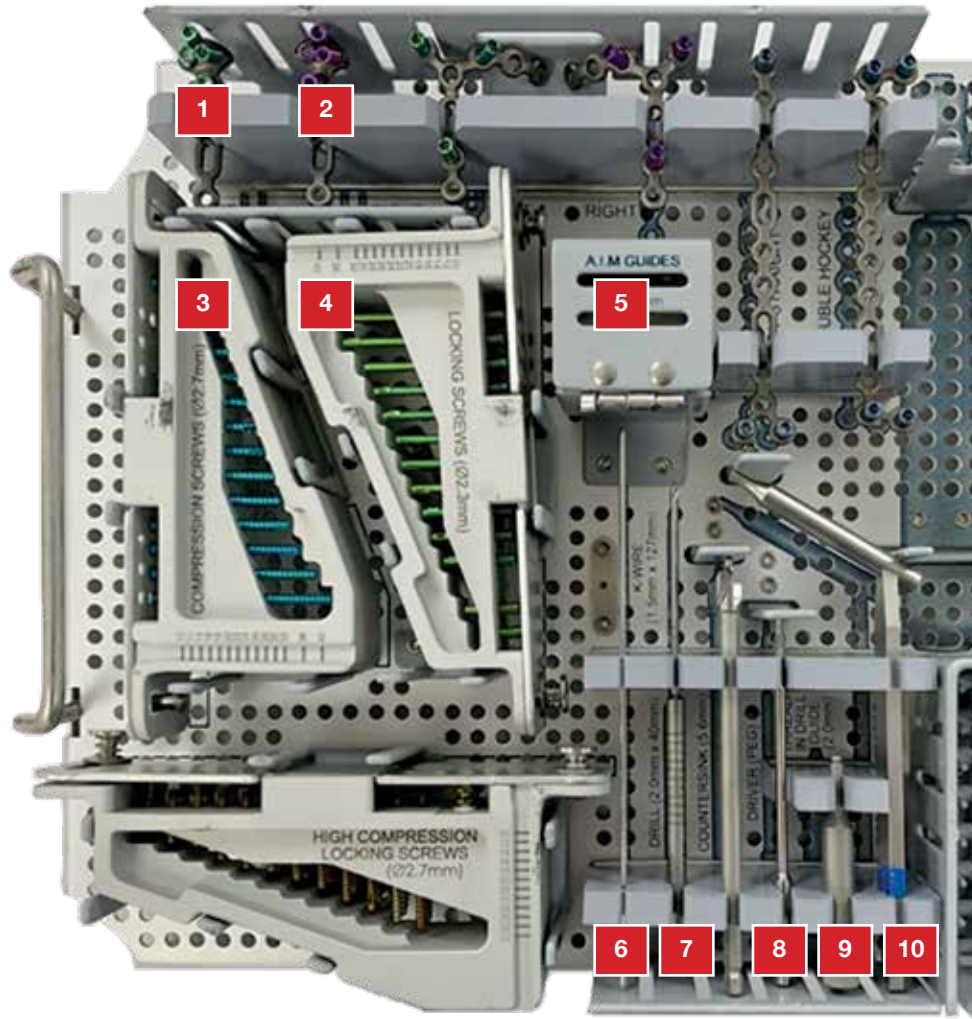
Caution:

Confirm that screws do not violate any of the articular surfaces.

Note:

If necessary, additional screws can be used adjacent to the plate wfor additional fragment reduction.

INSTRUMENT TRAY (Standard Configuration)



Loc #	Catalog #	Description	Loc #	Catalog #	Description
1	PRT-RHP-RT	PROTEAN Radial Head Plate, Right		TPFL-23320-TS	Threaded Peg, Fluted, Locking, 2.3mm x 32mm, Ti
2	PRT-RHP-LT	PROTEAN Radial Head Plate, Left		TPFL-23360-TS	Threaded Peg, Fluted, Locking, 2.3mm x 36mm, Ti
				TPFL-23400-TS	Threaded Peg, Fluted, Locking, 2.3mm x 40mm, Ti
3	PANL-27100-TS	Threaded Peg, Cortical Non-Locking, 2.7mm x 10mm, Ti	5	PDG-AIM-015	AIMing Guides, 1.5mm
	PANL-27120-TS	Threaded Peg, Cortical Non-Locking, 2.7mm x 12mm, Ti	6	KWIR-DES-15127	K-Wire, 1.5mm x 127mm
	PANL-27140-TS	Threaded Peg, Cortical Non-Locking, 2.7mm x 14mm, Ti	7	DRLL-SSC-20040	Drill, Solid Side Cutting, 2.0mm x 40mm
	PANL-27160-TS	Threaded Peg, Cortical Non-Locking, 2.7mm x 16mm, Ti	9	TPDG-THD-DG20	Thread-in Drill Guide, 2.0mm
	PANL-27180-TS	Threaded Peg, Cortical Non-Locking, 2.7mm x 18mm, Ti	8	DRVR-AOS-S20	Driver, Peg, Torque Limiting
	PANL-27200-TS	Threaded Peg, Cortical Non-Locking, 2.7mm x 20mm, Ti	10	TPDG-SSD-20	Tissue Protector / Drill Guide, Single Sided, 2.0mm
	PANL-27220-TS	Threaded Peg, Cortical Non-Locking, 2.7mm x 22mm, Ti		WBTN-2750-T	Washer, Button, Inside Ø2.7mm, Outside Ø5.0mm, Ti
	PANL-27240-TS	Threaded Peg, Cortical Non-Locking, 2.7mm x 24mm, Ti		FRCP-BHM-RTC	Forceps, Bone Holding Medium, Ratcheting
	PANL-27260-TS	Threaded Peg, Cortical Non-Locking, 2.7mm x 26mm, Ti		DPGA-UNV-030	Depth Gauge, Universal, 30mm
	PANL-27280-TS	Threaded Peg, Cortical Non-Locking, 2.7mm x 28mm, Ti		HNDL-SQC-FXD	Handle, Small QC, Fixed
	PANL-27300-TS	Threaded Peg, Cortical Non-Locking, 2.7mm x 30mm, Ti		PRT-BND-PLR	Protean Bending Pliers
	PANL-27320-TS	Threaded Peg, Cortical Non-Locking, 2.7mm x 32mm, Ti			
	PANL-27360-TS	Threaded Peg, Cortical Non-Locking, 2.7mm x 36mm, Ti			
	PANL-27400-TS	Threaded Peg, Cortical Non-Locking, 2.7mm x 40mm, Ti			
4	TPFL-23100-TS	Threaded Peg, Fluted, Locking, 2.3mm x 10mm, Ti			
	TPFL-23120-TS	Threaded Peg, Fluted, Locking, 2.3mm x 12mm, Ti			
	TPFL-23140-TS	Threaded Peg, Fluted, Locking, 2.3mm x 14mm, Ti			
	TPFL-23160-TS	Threaded Peg, Fluted, Locking, 2.3mm x 16mm, Ti			
	TPFL-23180-TS	Threaded Peg, Fluted, Locking, 2.3mm x 18mm, Ti			
	TPFL-23200-TS	Threaded Peg, Fluted, Locking, 2.3mm x 20mm, Ti			
	TPFL-23220-TS	Threaded Peg, Fluted, Locking, 2.3mm x 22mm, Ti			
	TPFL-23240-TS	Threaded Peg, Fluted, Locking, 2.3mm x 24mm, Ti			
	TPFL-23260-TS	Threaded Peg, Fluted, Locking, 2.3mm x 26mm, Ti			
	TPFL-23280-TS	Threaded Peg, Fluted, Locking, 2.3mm x 28mm, Ti			
	TPFL-23300-TS	Threaded Peg, Fluted, Locking, 2.3mm x 30mm, Ti			



skeletal dynamics[®]
UNDERSTANDING THE UPPER EXTREMITY

