RADIAL HEAD PLATE SURGICAL TECHNIQUE GUIDE

PROTEAN®

fragment plating technology

skeletal dynamics®

UNDERSTANDING THE UPPER EXTREMITY

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PROTEAN®
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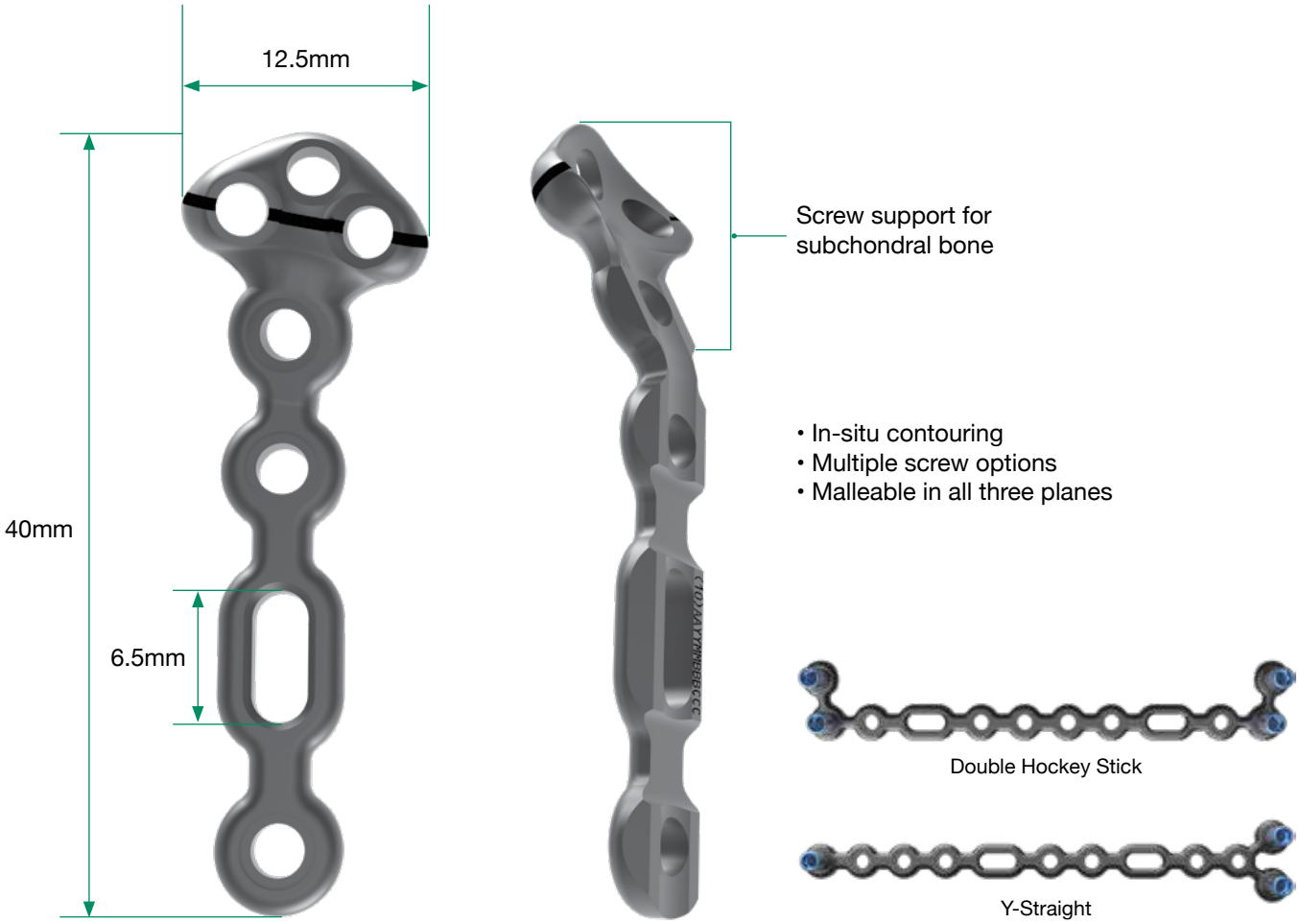
Description

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 – 104mm.

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.



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

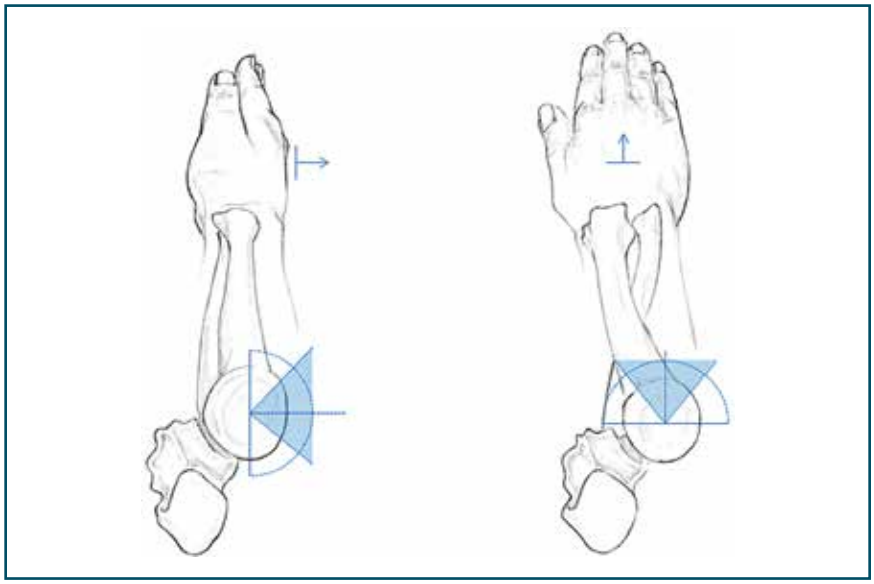
Using the Peg Driver, insert an A.I.M.ing Guide into the most proximal pre-loaded drill guide (PDG) on the plate. Insert a second A.I.M.ing Guide at the most appropriate location to maintain proper reduction.

PDG-AIM-015: AIMing Guides, 1.5mm

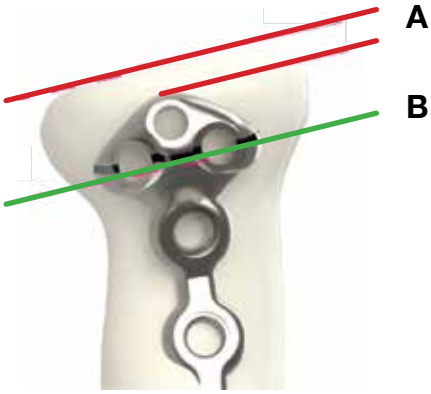
DRVR-AOS-S20: Driver, Peg, Torque Limiting

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.



5 PLATE POSITIONING



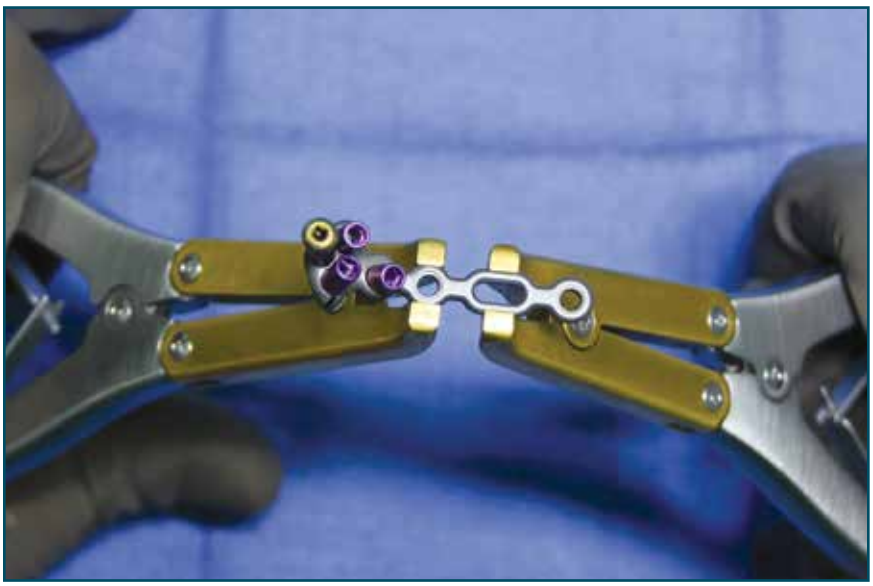
Reduce the fracture.

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.

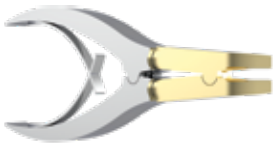
6 PLATE CONTOURING



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

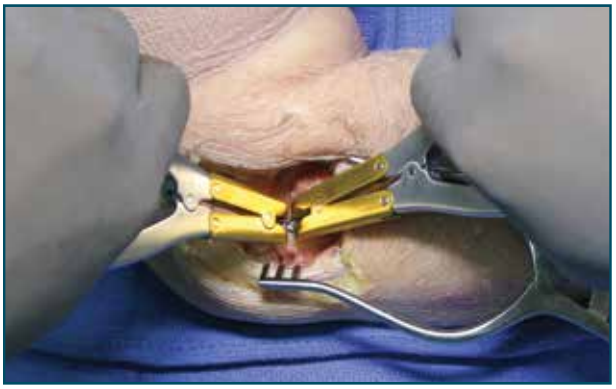
9 PROXIMAL FIXATION

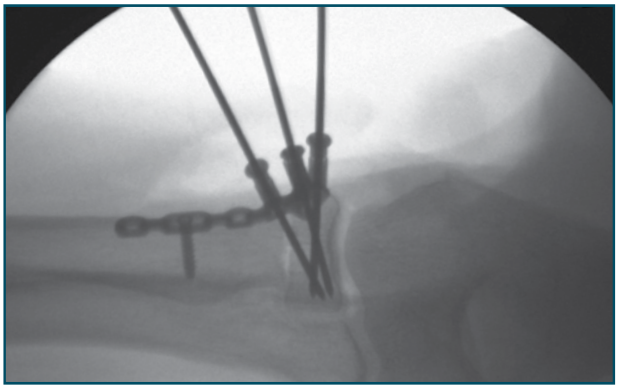
Secure the proximal fragment(s) to the plate using two 1.5mm k-wires through the A.I.M.ing Guide.

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

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

10 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

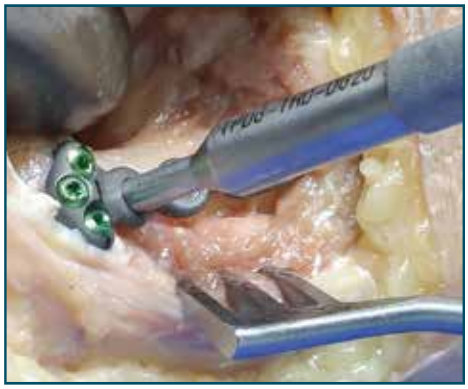
Using the 2.0mm bit, drill through the pre-loaded drill guide and measure hole depth.

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.

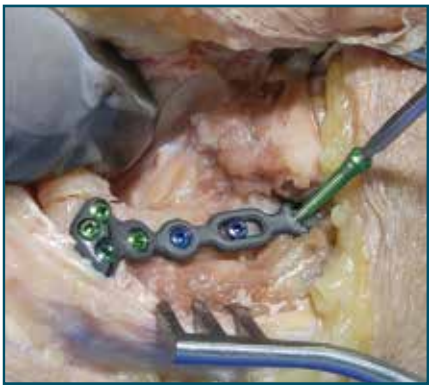
Remove the k-wire and A.I.M.ing Guide from the most proximal hole, drill and measure hole depth.

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

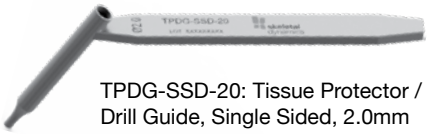


Using the thread-in drill guide, drill through the shaft holes of the plate.

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

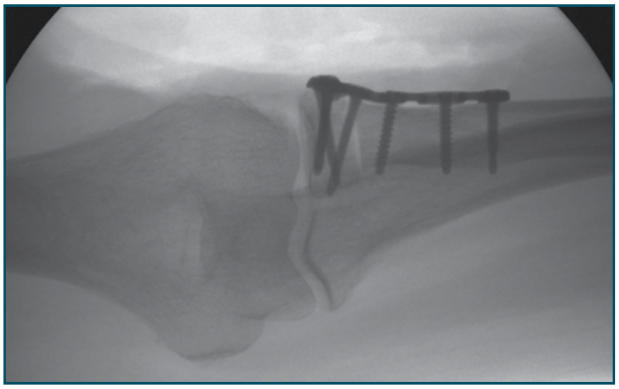
Note:
If using locking screws, the thread-in drill guide must be used to drill each hole.

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



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

14 FINAL RADIOGRAPHS

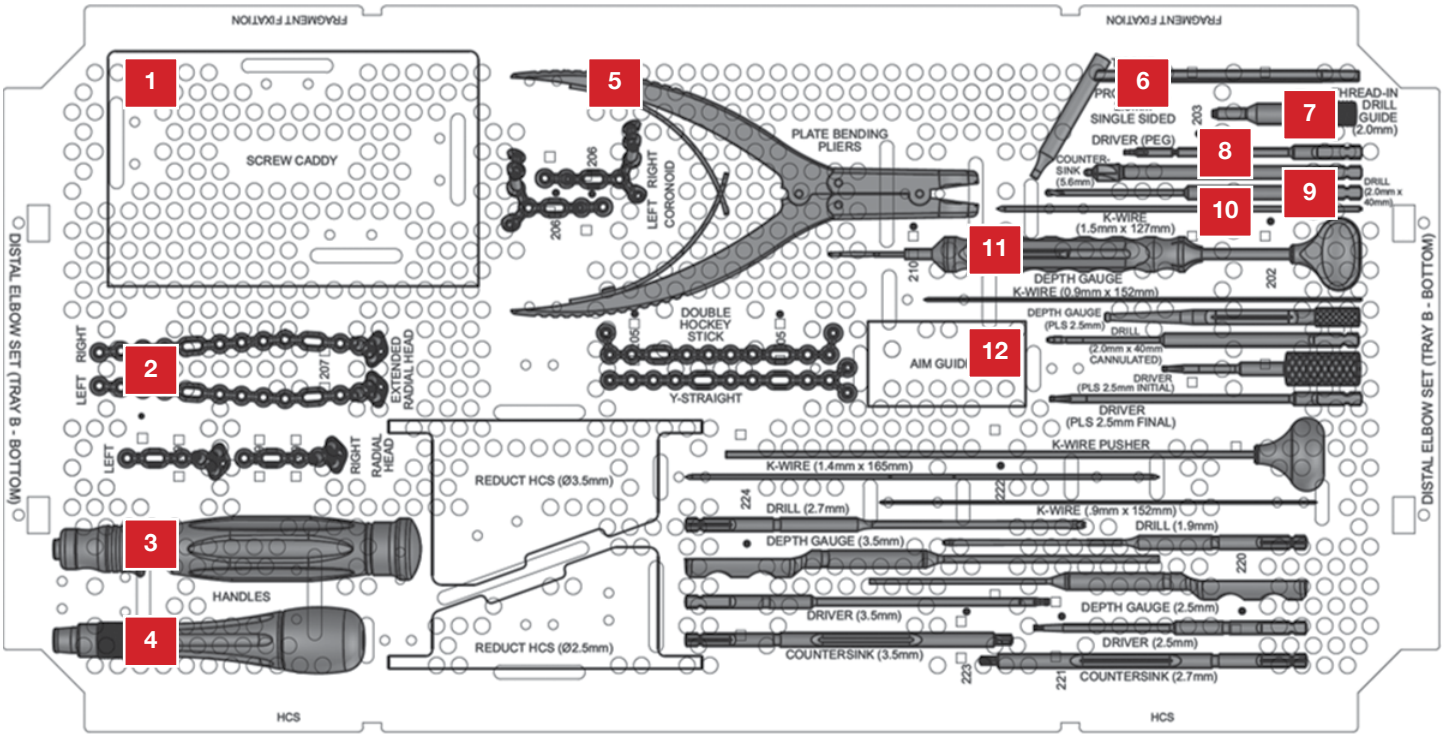


Confirm proper reduction, screw length and placement using fluoroscopy. If satisfied, close the wound in the preferred fashion.

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

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

INSTRUMENT TRAY (Standard Configuration)



Loc #	Catalog #	Description
1	PANL-27100-TS	Threaded Peg, Cortical Non-Locking, 2.7mm x 10mm, Ti
	PANL-27120-TS	Threaded Peg, Cortical Non-Locking, 2.7mm x 12mm, Ti
	PANL-27140-TS	Threaded Peg, Cortical Non-Locking, 2.7mm x 14mm, Ti
	PANL-27160-TS	Threaded Peg, Cortical Non-Locking, 2.7mm x 16mm, Ti
	PANL-27180-TS	Threaded Peg, Cortical Non-Locking, 2.7mm x 18mm, Ti
	PANL-27200-TS	Threaded Peg, Cortical Non-Locking, 2.7mm x 20mm, Ti
	PANL-27220-TS	Threaded Peg, Cortical Non-Locking, 2.7mm x 22mm, Ti
	PANL-27240-TS	Threaded Peg, Cortical Non-Locking, 2.7mm x 24mm, Ti
	PANL-27260-TS	Threaded Peg, Cortical Non-Locking, 2.7mm x 26mm, Ti
	PANL-27280-TS	Threaded Peg, Cortical Non-Locking, 2.7mm x 28mm, Ti
	PANL-27300-TS	Threaded Peg, Cortical Non-Locking, 2.7mm x 30mm, Ti
	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
	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
	TPFL-23320-TS	Threaded Peg, Fluted, Locking, 2.3mm x 32mm, Ti
	TPFL-23360-TS	Threaded Peg, Fluted, Locking, 2.3mm x 36mm, Ti
	TPFL-23380-TS	Threaded Peg, Fluted, Locking, 2.3mm x 40mm, Ti

Loc #	Catalog #	Description
2	PRT-RHP-ERT	PROTEAN Radial Head Plate, Extended Right
	PRT-RHP-RT	PROTEAN Radial Head Plate, Right
	PRT-RHP-ELT	PROTEAN Radial Head Plate, Extended Left
	PRT-RHP-LT	PROTEAN Radial Head Plate, Left
3	HNDL-UQC-FXD	Handle, Universal Quick Connect, Fixed
4	HNDL-SQC-FXD	Handle, Small QC, Fixed
5	PRT-BND-PLR	PROTEAN Bending Pliers
6	TPDG-SSD-20	Tissue Protector/Drill Guide, Single Sided, 2.0mm
7	TPDG-THD-DG20	Thread-in Drill Guide, 2.0mm
8	DRVR-AOS-S20	Driver, Peg
9	DRLL-SSC-20040	Drill, Solid Side Cutting, 2.0mm x 40mm
10	KWIR-DES-15127	K-Wire, 1.5mm x 127mm
11	DPGA-UNV-050	Depth Gauge, Universal, 50mm
12	PDG-AIM-015	AIMing Guides, 1.5mm

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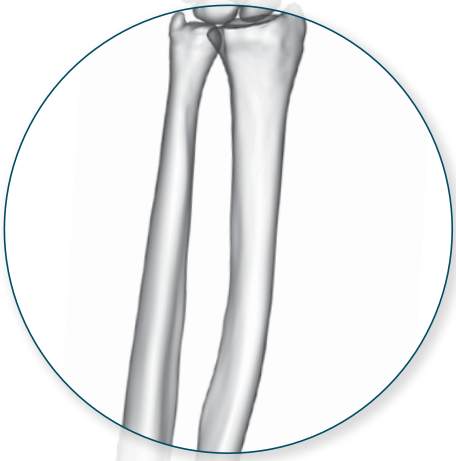

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