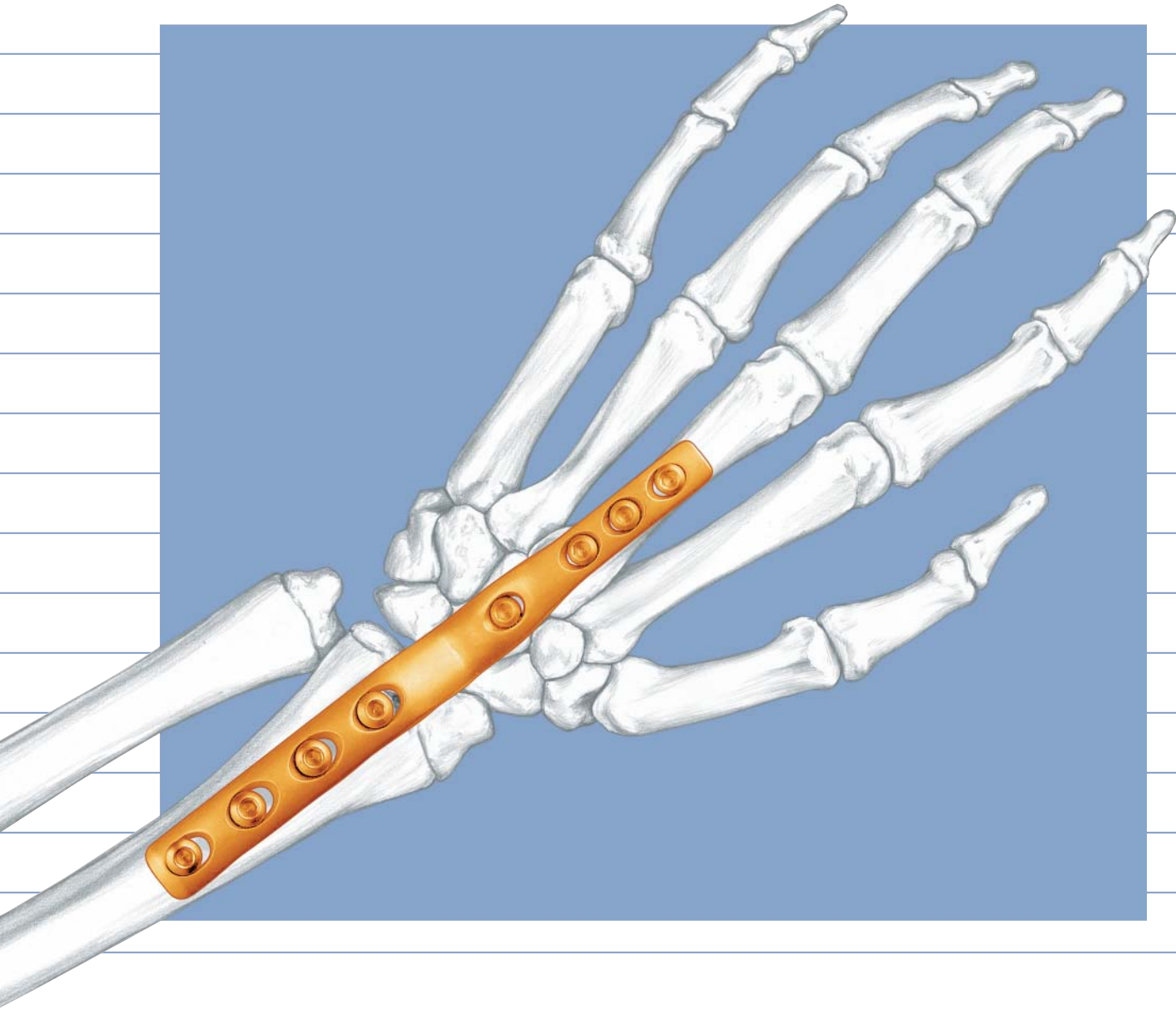


The Wrist Fusion Set

Stainless Steel and Titanium

TECHNIQUE GUIDE



Three Plate Options

Stainless Steel or Titanium*

Standard Bend

Stainless Steel [242.510]

Titanium [442.51]

- Accommodates average-sized individuals.



442.51

Short Bend

Stainless Steel [242.520]

Titanium [442.52]

- Fits small-statured individuals or patients with previous proximal row carpectomy.



442.52

Straight Plate

Stainless Steel [242.530]

Titanium [442.53]

- May be contoured to unusual anatomy or the severely deformed wrist joint.
- For patients with severe bone loss requiring a corticocancellous strut from the iliac crest.



442.53

* 316L stainless steel or
CP (commercially pure) titanium

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Indications

- Post-traumatic arthritis of the joints of the wrist
- Rheumatoid wrist deformities requiring restoration
- Complex carpal instability
- Destruction of the wrist joint by infection
- Post-septic arthritis of the wrist
- Severe unremitting wrist pain related to motion
- Brachial plexus nerve palsies
- Tumor resection
- Spastic deformities



Features of the Wrist Fusion Plates



Precontoured plates reduce the need for intraoperative bending



Reduced-profile plates with tapered ends minimize plate prominence; LC-DCP® plate design minimizes periosteal contact



Built-in fusion angle of 10° dorsiflexion provides optimum hand position



3.5 mm screws fit the proximal holes and 2.7 mm screws fit the distal holes for appropriate use in the carpals and metacarpals

Surgical Technique

Preoperative Evaluation

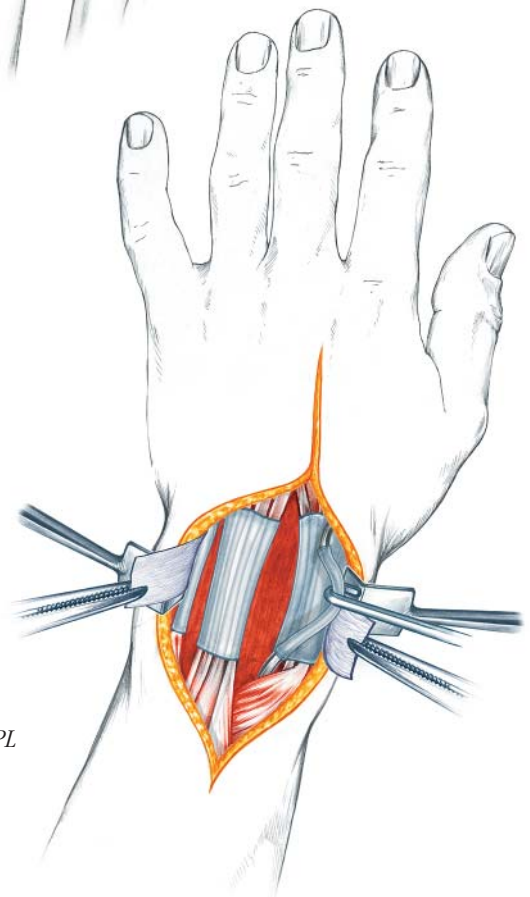
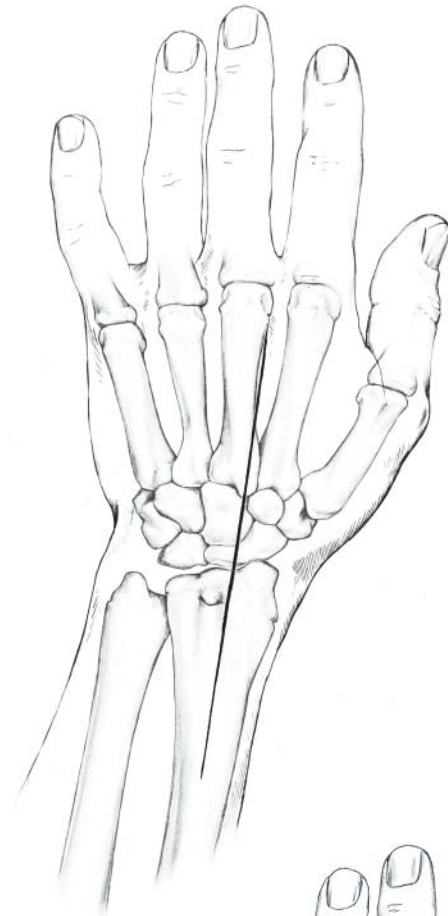
Evaluate the condition of the soft tissues. Compare the standard bend, short bend and straight plates to the patient's wrist, and determine which plate to use for fusion. See discussion of the use of each implant on page 7, "Wrist Fusion Implants."

1 Incision

Place the patient in the supine position with the hand and arm on a hand table. Make a longitudinal incision from the radial aspect of the third metacarpal across Lister's tubercle to the dorsum of the distal radius.

Open the third dorsal compartment, and transpose the extensor pollicis longus (EPL) radially. Retract the digital extensors of the index and middle fingers to expose the dorsal aspect of the third metacarpal.

Make an incision through the wrist capsule and extend it proximally to the radius along its dorsal surface. Elevate the capsule and second dorsal compartment radially, and the capsule and fourth dorsal compartment ulnarly.



Radial transposition of the EPL

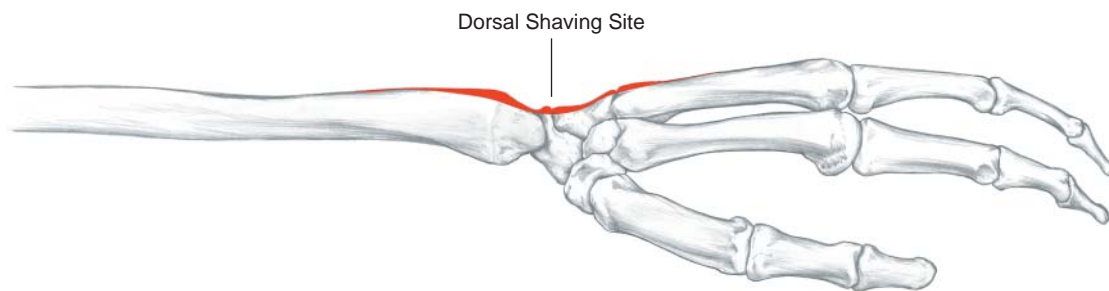
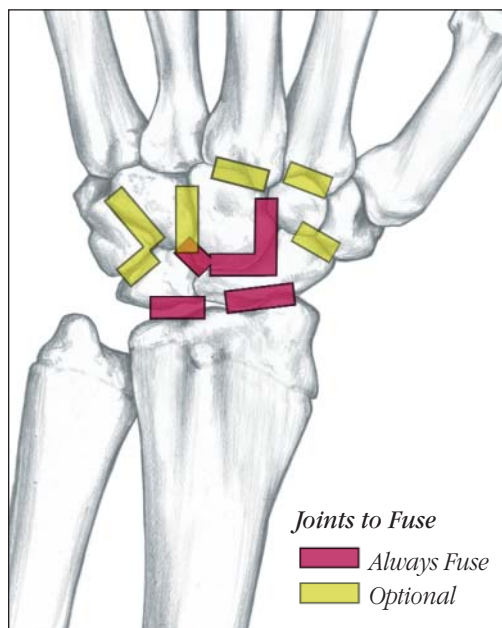
Surgical Technique (continued)

2 Joint preparation

Expose and decorticate the joint surfaces to be included in the fusion. These include the scaphocapitate joint, capitulunate joint, radioscaphoid joint and radiolunate joint. In some cases, the ulnar midcarpal, luno-triquetral and second and third carpometacarpal joints may be included.

Remove Lister's tubercle and the dorsal distal aspect of the radius with an osteotome. Decorticate the dorsal surfaces of the scaphoid, lunate, and capitate.

The dorsal shavings can be saved for later use as cancellous bone graft. Cancellous bone can also be harvested from the radius, radial to the most distal screw position. If more bone is needed, it may also be obtained from the olecranon or iliac crest.

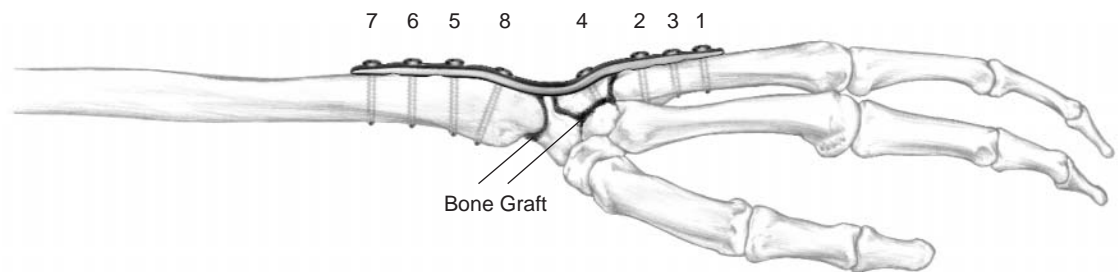


Surgical Technique (continued)

3 Plate fixation

Pack all joints to be fused with cancellous bone prior to plate fixation. Fix the plate to the third metacarpal and then to the radius. Insert screws in the sequence shown.

Position the plate directly over the dorsal aspect of the third metacarpal. Mark the position of the most distal hole. Remove the plate and drill the hole with the 2.0 mm Drill Bit [310.19] being sure to drill precisely in the midline, dorsal to volar. Reposition the plate and measure the depth of the hole through it. If using non-self-tapping screws, tap the hole with a 2.7 mm Tap [311.26]. Insert the correct length 2.7 mm cortex screw.



Order of screw placement

Insert the most proximal of the three metacarpal screws, and then the middle metacarpal screw.

Fix the plate to the capitate in a similar manner.

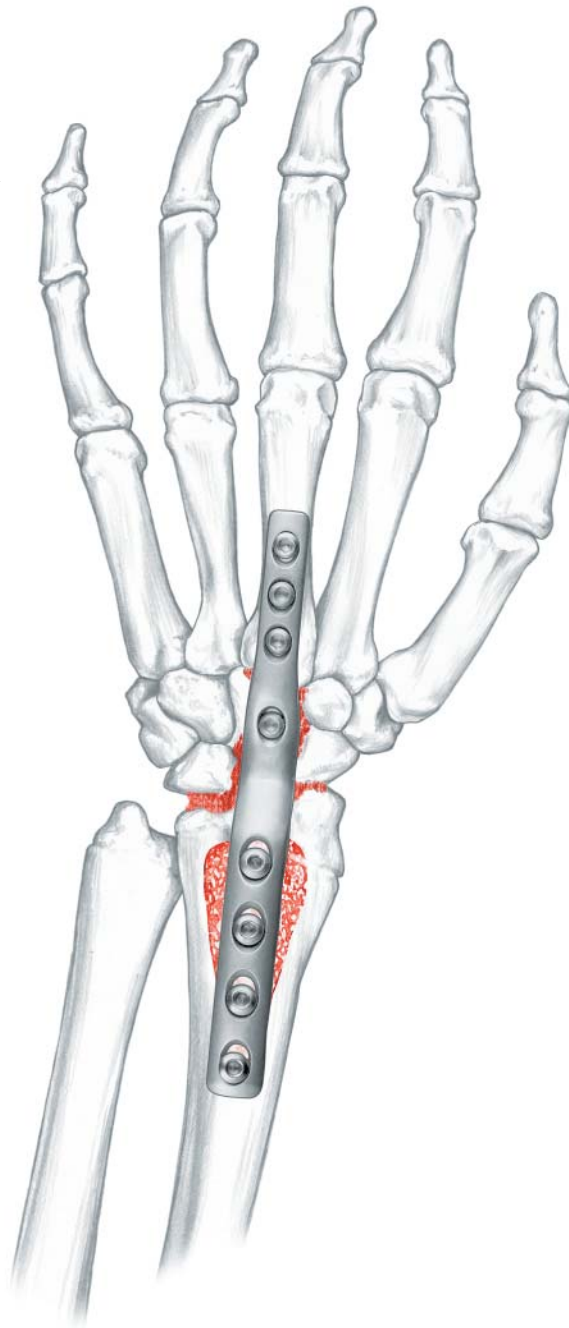
Note: If the plate sits off of the dorsal capitate, be careful not to lag the capitate up to the plate. This would distort the carpal canal and lead to volar screw prominence.

In aligning the plate over the radius, a small amount of ulnar deviation may be preferred. With the plate aligned and the hand properly oriented, begin fixation to the radius with the second-most distal hole. Place the screw in the **load** position. Drill with the 2.5 mm Drill Bit [310.25], tap, if needed, with the 3.5 mm Tap [311.32], and insert a 3.5 mm cortex screw. Continue fixing the plate to the radius with 3.5 mm screws in the order shown, using compression or load placement if desired.

Surgical Technique (continued)

4 Wound closure

Close the wound in a routine fashion. Close the capsule over the plate as completely as possible. Leave the EPL radially transposed and check that it does not rub against the plate. Apply a soft, bulky dressing and/or splint to protect the wrist.



Wrist Fusion Implants

Stainless Steel and Titanium Wrist Fusion Plates

Standard bend

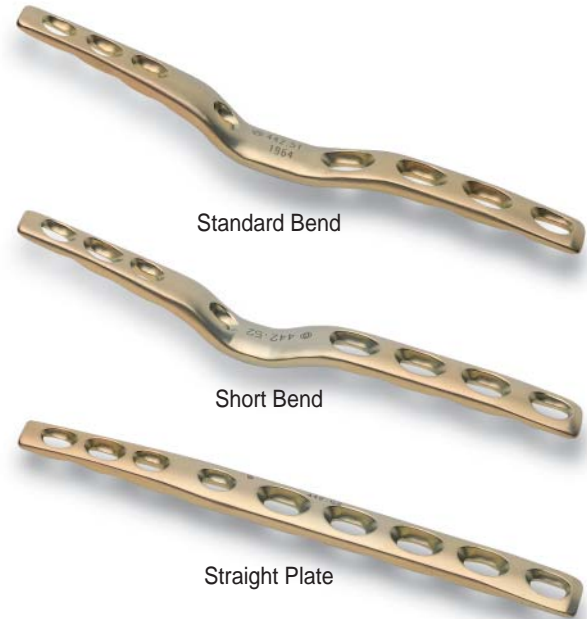
Stainless Steel [242.510] and Titanium [442.51] is used for medium to large wrist fixation.

Short bend

Stainless Steel [242.520] and Titanium [442.52] is used for smaller wrist fixation and for fusion following proximal row carpectomy.

Straight

Stainless Steel [242.530] and Titanium [442.53] is used for wrist fixation when the standard and short bend plates do not fit the anatomy. This plate can be contoured to the anatomy of the patient's wrist.



Stainless Steel and Titanium Self-tapping Screws in sets [105.458], [105.459], [145.458] and [145.459]



2.7 mm Cortex Screws, self-tapping **Stainless Steel [202.810–202.824] and Titanium [402.810–402.824]** attach the wrist fusion plate distally to the metacarpal; 10 mm to 24 mm lengths in 2 mm increments, 5 each.



3.5 mm Cortex Screws, self-tapping **Stainless Steel [204.812–204.828] and Titanium [404.812–404.828]** attach the wrist fusion plate proximally to the radius; 12 mm to 28 mm lengths in 2 mm increments, 5 each.

Titanium Non-Self-tapping Screws in sets [145.45] and [145.451]



2.7 mm Titanium Cortex Screws [402.010–402.024] attach the wrist fusion plate distally to the metacarpal; 10 mm to 24 mm lengths in 2 mm increments, 5 each.



3.5 mm Titanium Cortex Screws [404.012–404.028] attach the wrist fusion plate proximally to the radius; 12 mm to 28 mm lengths in 2 mm increments, 5 each.

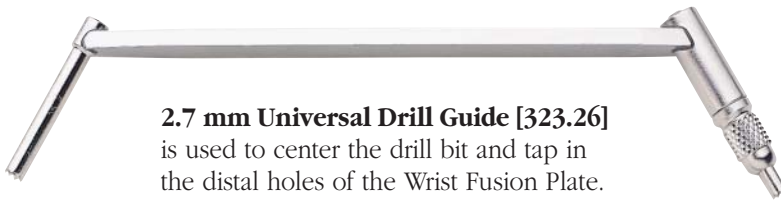
Wrist Fusion Instruments



2.0 mm Drill Bit, quick coupling, 100 mm [310.19]
is used to drill holes for 2.7 mm screws

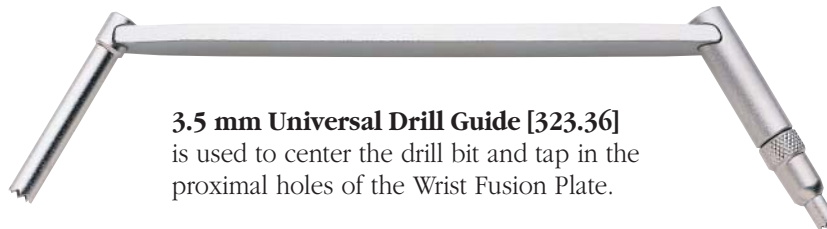


2.5 mm Drill Bit, quick coupling, 110 mm, gold [310.25]
is used to drill holes for 3.5 mm screws



2.7 mm Universal Drill Guide [323.26]
is used to center the drill bit and tap in the distal holes of the Wrist Fusion Plate.

For neutral screw position, press the drill guide down into the plate.
For load or buttress positions, place the drill guide at either end of the plate hole, without downward pressure. To adjust the load, vary the downward pressure applied.



3.5 mm Universal Drill Guide [323.36]
is used to center the drill bit and tap in the proximal holes of the Wrist Fusion Plate.



Depth Gauge for 2.7 and 3.5 mm screws [319.04]
Measures depths up to 50 mm.



Screw Forceps [319.97]



3 mm width, curved blade, straight edge

Periosteal Elevator [399.48]



Small Hexagonal Screwdriver with Holding Sleeve [314.02]

Additional Instruments in non-self-tapping set [145.45]



Tap for 2.7 mm Cortex Screws, 100 mm [311.26]



Tap for 3.5 mm Cortex Screws, gold, 110 mm [311.32]



Handle with quick coupling [311.43]

Additionally Available



Depth Gauge for 2.7 mm and small screws [319.01]
Measures depths to 60 mm

Wrist Fusion Instrument and Implant Set, with self-tapping screws Stainless Steel [105.458] and Titanium [145.457]



Instruments

Stainless Steel	Titanium	
690.331	690.330	Graphic Case for Wrist Fusion Set, for self-tapping screws
310.19	310.19	2.0 mm Drill Bit, quick-coupling, 100 mm, 2 ea.
310.25	310.25	2.5 mm Drill Bit, quick-coupling, 110 mm, gold, 2 ea.
314.02	314.02	Small Hexagonal Screwdriver with holding sleeve
319.04	319.04	Depth Gauge for 2.7 mm and 3.5 mm screws, to 50 mm
323.26	323.26	2.7 mm Universal Drill Guide
323.36	323.36	3.5 mm Universal Drill Guide
399.48	399.48	Periosteal Elevator, 3 mm width, curved blade, straight edge

Implants and Tray (Stainless Steel Set includes 105.459, Titanium Set includes 145.459 as listed below)

Wrist Fusion Implant Set, with self-tapping screws Stainless Steel [105.459] and Titanium [145.459]



Stainless Steel	Titanium	
305.062	304.363	Wrist Fusion Implant Tray, for self-tapping screws
319.97	319.97	Screw Forceps

Implants

202.810–	402.810–	2.7 mm Cortex Screws, self-tapping,
202.824	402.824	10 mm–24 mm length, 5 ea.
204.812–	404.812–	3.5 mm Cortex Screws, self-tapping,
204.828	404.828	12 mm–28 mm length, 5 ea.
242.510	442.51	Wrist Fusion Plate, 8 holes, standard bend
242.520	442.52	Wrist Fusion Plate, 8 holes, short bend
242.530	442.53	Wrist Fusion Plate, 9 holes, straight

Titanium Wrist Fusion Instrument and Implant Set [145.455], in graphic case [690.329]

Includes implants from set 145.451 (with non-self-tapping screws) and the same instruments as set 145.457, plus:

311.26	Tap for 2.7 mm Cortex Screws, 100 mm	311.43	Handle with quick-coupling
311.32	Tap for 3.5 mm Cortex Screws, gold, 110 mm		

Titanium Wrist Fusion Implant Set [145.451]

304.463	Titanium Wrist Fusion Implant Tray (for non-self-tapping screws)	402.010–	2.7 mm Titanium Cortex Screws,	Wrist Fusion Plates	
		402.024	10 mm–24 mm length	442.51	8 holes, standard bend
319.97	Screw Forceps	404.012–	3.5 mm Titanium Cortex Screws,	442.52	8 holes, short bend
		404.028	12 mm–28 mm length	442.53	9 holes, straight

Additionally Available

319.01	Depth Gauge for 2.7 mm and small screws, to 60 mm
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