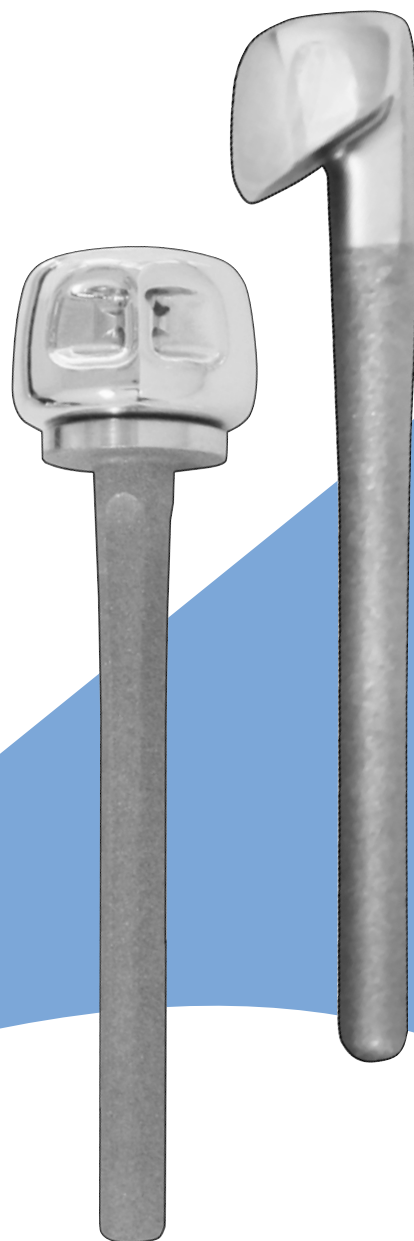
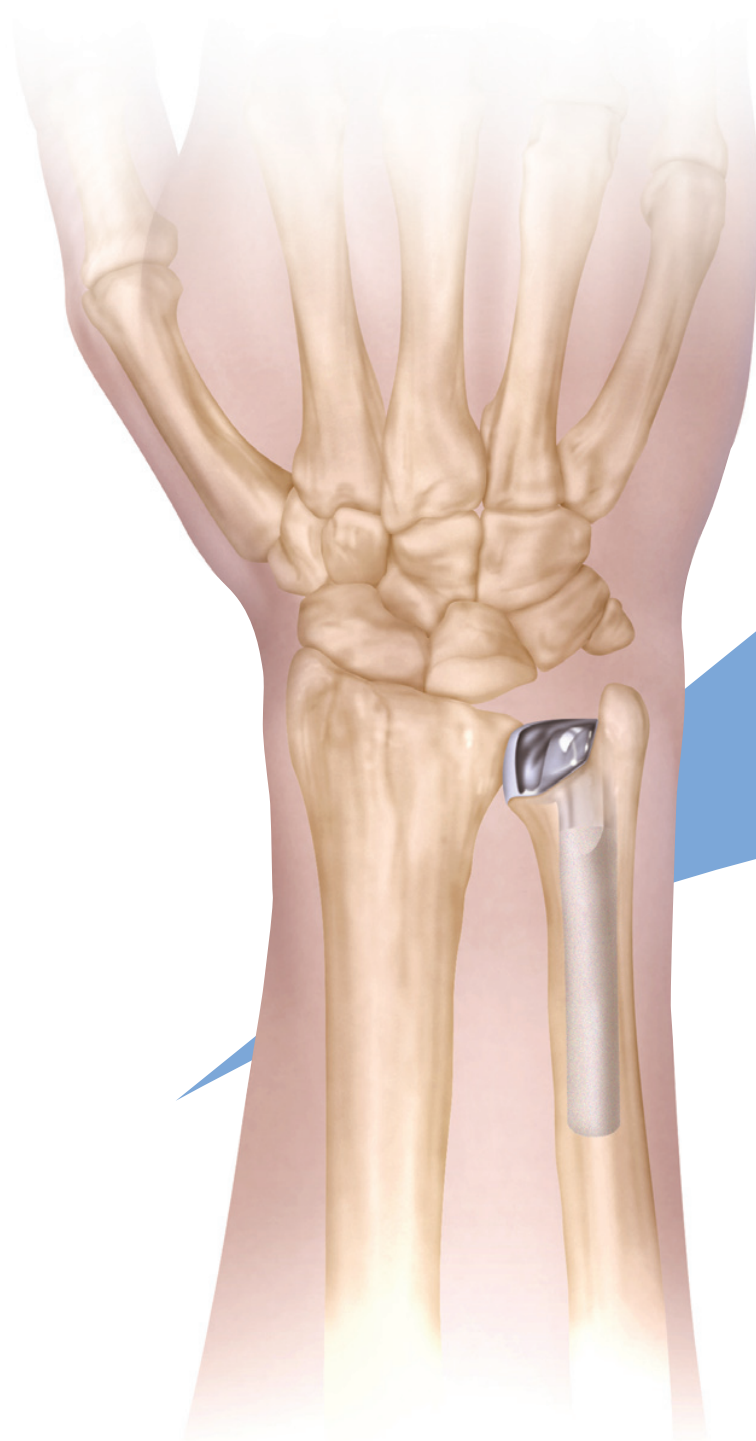
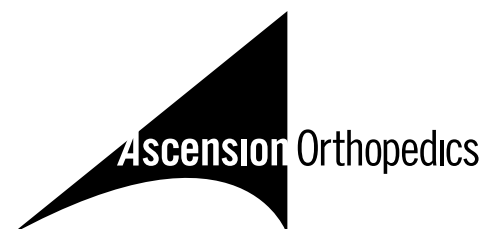


First Choice® DRUJ System

# surgical technique



*Transforming* Extremities™

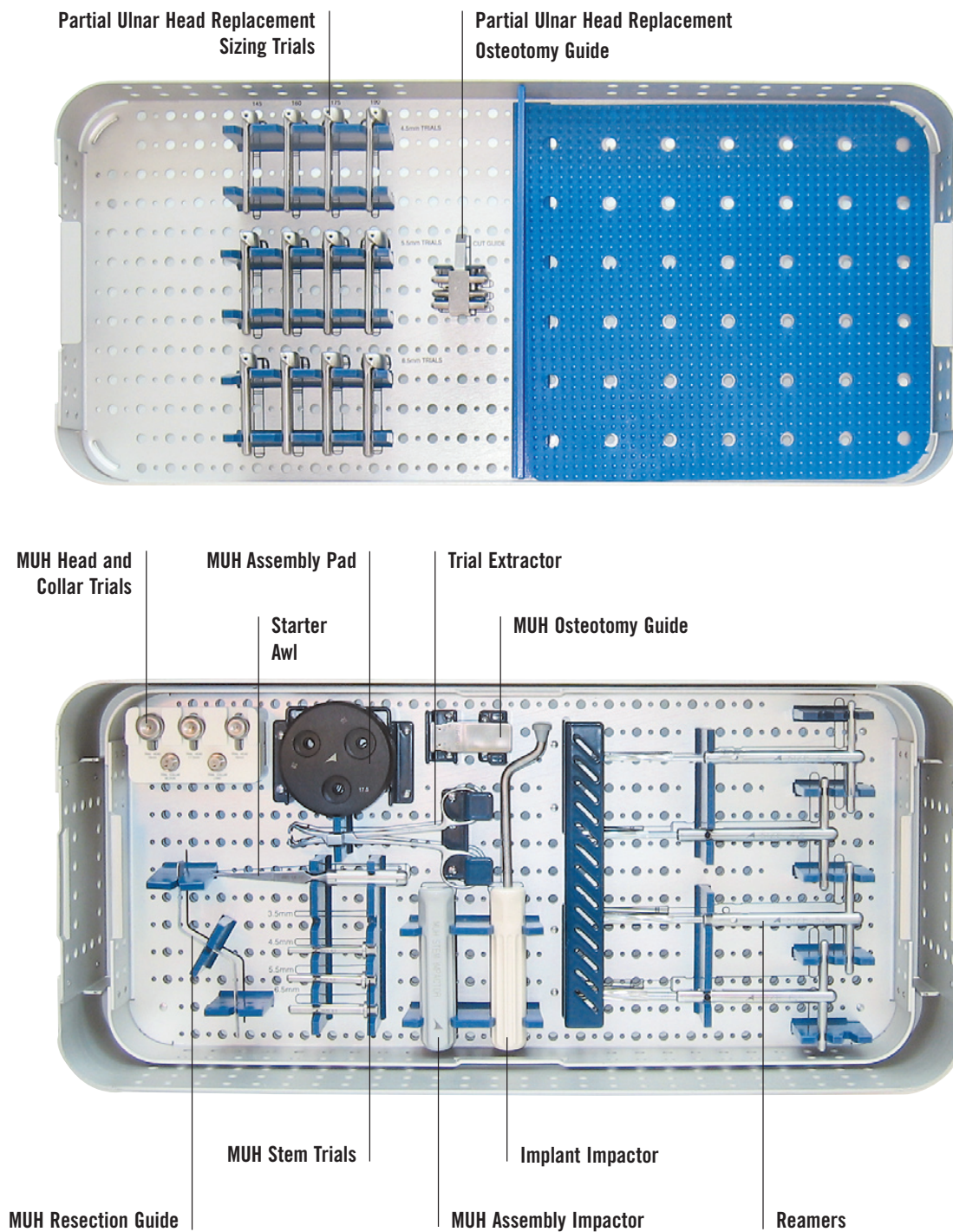


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# first choice<sup>®</sup> druj system instrumentation

(See page 13 for complete catalog number listing.)



# system overview

The **Ascension® First Choice® DRUJ System** was developed through the international collaboration of several prominent extremity surgeons. Design surgeons include Drs. Philippe Kopylov and Magnus Tagil from Lund, Sweden, Dr. Brian Adams from Iowa City, Iowa, Dr. Robert Beckenbaugh from Rochester, Minnesota, and Professor John Stanley from Wigan, England. These surgeons all shared the desire to bring an innovative distal radioulnar joint (DRUJ) system to the market that is easy to use and addresses both primary and revision cases with reproducibility.

The **Ascension® First Choice® DRUJ System** consists of a partial ulnar head replacement and a total modular ulnar head replacement. The instrumentation set provides surgical instrument trays for both techniques.

The **First Choice® Partial Ulnar Head Replacement** allows retention of the ulnar neck, ulnar styloid, extensor carpi ulnaris groove, ulnocarpal ligament attachments, extensor carpi ulnaris sheath, and the triangular fibrocartilage complex attachments to the ulnar styloid. Therefore, while all articular surfaces of the ulnar head are replaced, nearly all of the ligaments and bony anatomy responsible for the DRUJ stability are maintained, and thus, joint mechanics are preserved. The procedure is performed with minimal exposure and immediate implant fixation can be achieved, allowing for the possibility of rapid rehabilitation. The **First Choice® Partial Ulnar Head** features a cobalt chrome implant with a grit blasted stem and comes in four head sizes and three stem sizes, providing intra-operative choices to match patient anatomy.

The **First Choice® Modular Ulnar Head (MUH)** is designed to replace the ulnar head and restore DRUJ function. The **First Choice® MUH** features a cobalt chrome alloy head with a titanium stem and comes in three head sizes with nine stem and collar size combinations, providing the best fit intra-operatively.



The **Ascension® First Choice® DRUJ System** is intended for replacement of the distal ulna for rheumatoid, degenerative, or post-traumatic arthritis presenting with any of the following possible findings:

- Pain and weakness of the wrist joint not improved by conservative treatment
- Instability of the ulnar head with x-ray evidence of subluxation and erosive changes
- Failed previous ulnar head resection (Total MUH)



# partial ulnar head replacement surgical technique

## Step One: Pre-Operative Assessment

Use the x-ray sizing template on a PA x-ray to estimate the prosthetic stem and head size to best match the patient's distal radioulnar joint (DRUJ) anatomy. Note the presence and magnitude of any ulnar variance. An ulnar-plus variance will require insertion of the reaming instrument to a more proximal position during preparation of the medullary canal, while ulnar-minus variance may require insertion of the reaming instrument to a more distal position during preparation.

## Step Two: Patient Position

The patient should be supine with the shoulder abducted to 90°, elbow flexed to 90°, and palm down, thus presenting the wrist in near neutral pronation/supination.

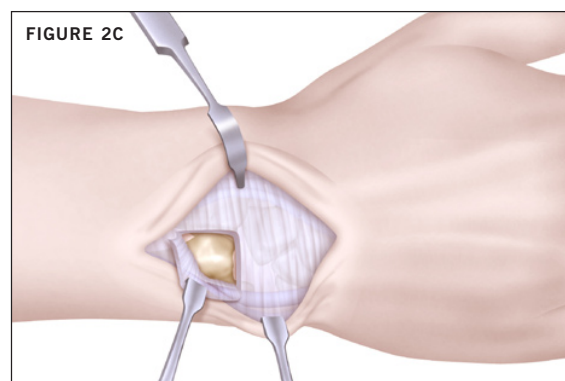
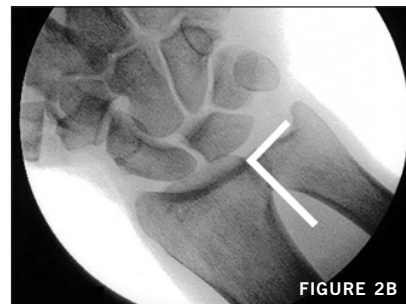
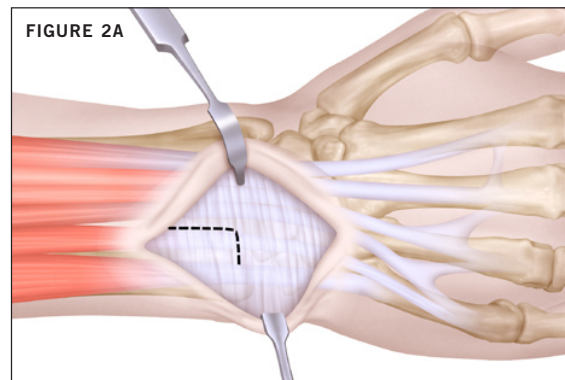
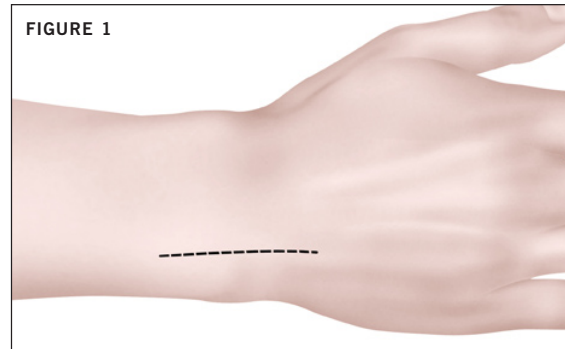
## Step Three: Initial Incision

Make a straight 5 cm dorsal skin incision centered over the dorsal aspect of the ulnar head and neck.

FIGURE 1

## Step Four: Retinaculum and Capsule Incision

Using a combination of blunt and sharp dissection, elevate the skin and subcutaneous tissues. Identify the ECU and the EDM. Avoid injuring the dorsal branch of the ulnar sensory nerve. The 5th extensor compartment is opened and the EDM extracted. An "L" or "C"-shaped dorsal capsulotomy flap is made over the DRUJ extending distally to the end of the ulna and ulnarly to the styloid with care to preserve the dorsal radioulnar ligament of the TFCC and the ECU sheath. Leave a small rim of capsule attached to the sigmoid notch to facilitate ease of closure. The TFCC fibers inserting into the ulna fovea are sharply released at their insertion but all other ligament attachments can be retained. FIGURES 2A, 2B, 2C



### Step Five: Medullary Canal Preparation

The forearm is hyperpronated while the wrist is flexed acutely over a bump. A Hohmann retractor is placed under the ulnar head at a 45° angle to the head on the radial side. Elevate the ulnar head.

**CAUTION:** Improper placement of the retractor can lead to ulnar styloid fracture or avulsion of the TFCC from the ulnar head.

Using the starter awl or k-wire, penetrate at or near the fovea in alignment with the medullary canal of the ulna shaft. **FIGURE 3A** Insert the 3.5 mm starter reamer using a 360° forward twisting motion until the appropriate reamer marking is flush with the articular surface of the distal ulna. **FIGURES 3B, 3C** Repeat with increasing size reamers until cortical contact is obtained.

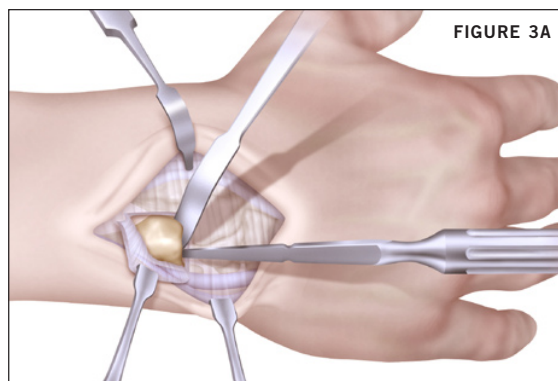


FIGURE 3A

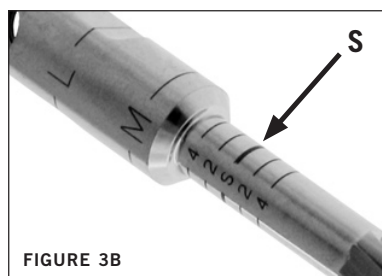


FIGURE 3B

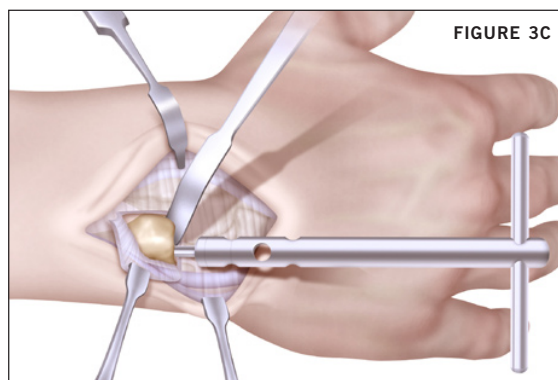


FIGURE 3C

### Step Six: Osteotomy Guide Placement

With reamer in place, snap on the partial ulnar replacement osteotomy guide. Care is taken to ensure the proper side of the guide (right or left) corresponds to the DRUJ being resurfaced. For proper alignment of the osteotomy guide, use the true subcutaneous border of the ulnar head, which is defined by the ulnar styloid and olecranon tip.

**NOTE:** Native ulnar positive or negative variance can be either reproduced or altered towards neutral variance, as is usually recommended for ulnar positive variance to reduce the risk of ulnar impaction syndrome.

While maintaining the reamer in proper position, insert one or two 0.045" (1.1 mm) k-wires through the osteotomy guide to secure the guide to the ulna. A wire cutter can be used to trim the k-wires.

**FIGURE 4**

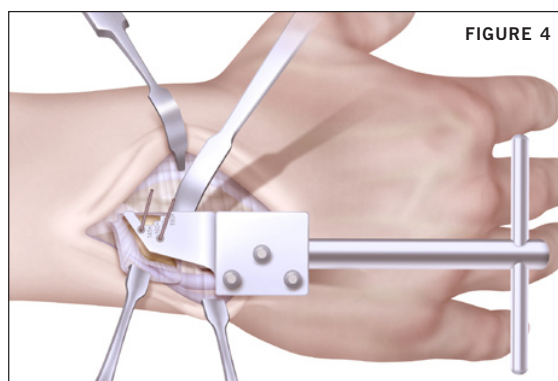


FIGURE 4

### Step Seven: Resection of the Radial Aspect of the Distal Ulna

Using a sagittal saw with the blade held flush against the surface of the osteotomy guide, perform the ulnar oblique cut that extends distally through the ulnar head and proximally to the corner of the guide. **FIGURE 5A**

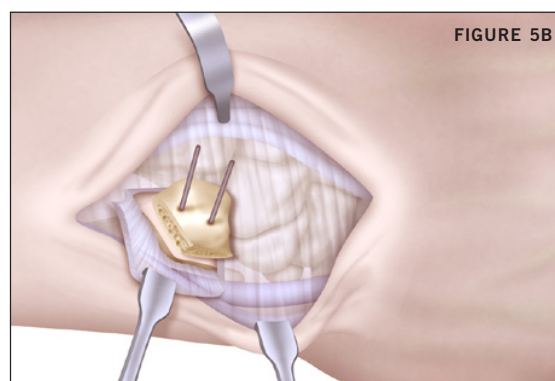
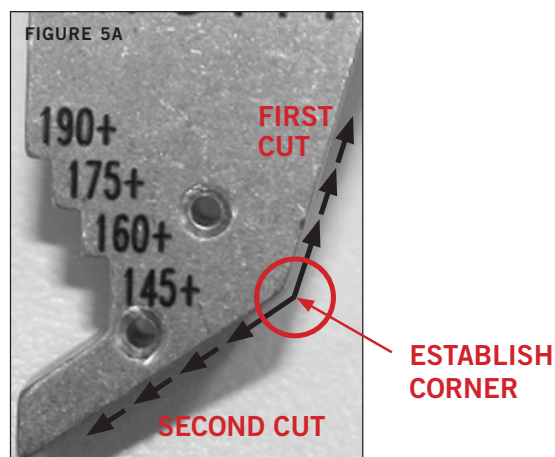
**CAUTION:** Do not extend this first cut proximally beyond the corner of the guide as this will create an unwanted notch and potentially weaken the ulnar styloid.

Perform a second cut that extends from the proximal end of the first osteotomy through the radial aspect of the ulna.

Remove the osteotomy guide and reamer, and complete the osteotomy. Sharply dissect the articular fragment from any remaining soft tissue attachments. **FIGURE 5B**

### Step Eight: Sigmoid Fossa Inspection and Trial Placement

Upon removal of the articular fragment, visualize the sigmoid fossa of the radius and remove osteophytes, if present. Select the appropriate stem/head size trial and insert into the medullary canal. During trial insertion, ensure proper rotation of the implant so that the collar aligns with the ulnar head cuts. Gently impact the trial into place.



### Step Nine: Trial Reduction

Reduce the trial into the sigmoid notch and evaluate DRUJ stability and forearm pronation and supination. Proper positioning should be checked by x-rays. If the prosthesis is too distal, mark the amount of required additional bone resection on the ulna, attach the osteotomy guide to the reamer and advance the reamer into the medullary canal so that the edge of the guide is aligned with the mark and is parallel to the existing cuts. Complete the revision cuts similar to the initial cuts.

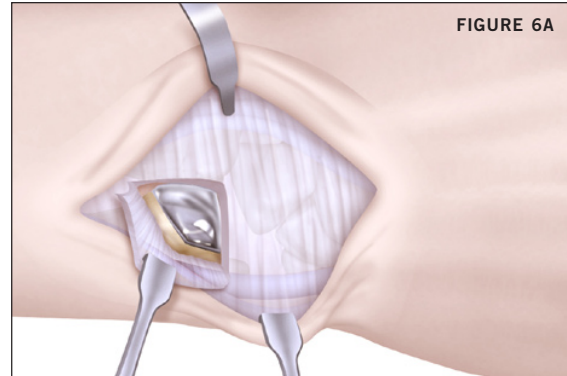


FIGURE 6A

### Step Ten: Implant the DRUJ

Upon successful trial reduction and assessment, use the trial extractor to remove the trial. Insert the final DRUJ implant, ensuring proper rotation of the implant so that the collar aligns with the ulnar head cuts, and impact into place. **FIGURE 6A** Reduce implant into the sigmoid notch and evaluate DRUJ stability and forearm pronation and supination. Final x-rays may be used to verify that anatomic alignment of the DRUJ has been achieved. **FIGURE 6B**



FIGURE 6B

### Closure and Stabilization

Close the capsule and retinaculum either separately or together. Imbricate if needed to improve DRUJ stability, avoiding excessive imbrication as this will decrease joint motion. Place a subcutaneous drain, if desired. The patient is placed in sugar tong splint with wrist and forearm in neutral positions.

### Post-Operative Management

**2 Weeks Post-Op:** The sugar tong splint is converted to a well-molded short arm cast applied with the forearm in neutral rotation. The cast will allow a short arc of forearm rotation, but will prevent full rotation.

**4 Weeks Post-Op:** The cast is removed. A removable wrist splint is applied and used for an additional 3-4 weeks while gentle motion exercises are initiated. The splint is removed for active but not passive forearm rotation and wrist motion during this time.

**6-8 Weeks Post-Op:** The patient is released from splint wear and activities gradually increased as tolerated. However, additional splint wear may be used for more stressful activities.



# modular ulnar head surgical technique

The **First Choice® Modular Ulnar Head** implant has three stem diameters (4.5mm, 5.5mm, 6.5mm), three head diameters (16mm, 17.5mm, 19mm) and three collar heights (standard, medium, and long). There are a total of 27 sizing options. **FIGURE 7**

First Choice® Modular Ulnar Head Sizing Chart			
	Head Sizes		
Stem Sizes	16.0 mm	17.5 mm	19.0 mm
4.5 mm	S/M/L collar	S/M/L collar	S/M/L collar
5.5 mm	S/M/L collar	S/M/L collar	S/M/L collar
6.5 mm	S/M/L collar	S/M/L collar	S/M/L collar

The medium and long collar options are provided for previous resections of the distal ulna such as partial resections of the articular surface (e.g., Bowers and Watson procedures), for complete resections of the distal ulna (e.g., Darrach resection), or for a failed Sauve-Kapandji procedure.

### Step One: Pre-Operative Assessment

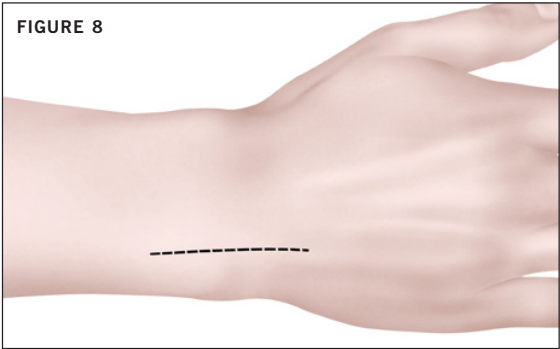
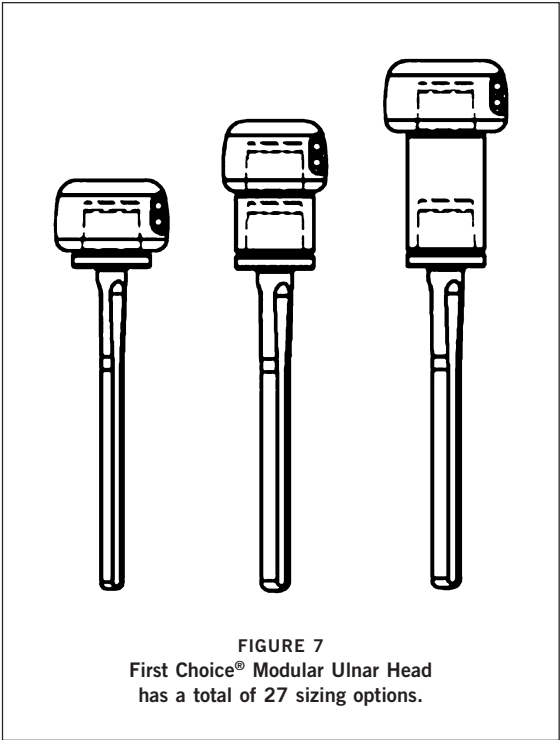
Use the x-ray sizing template on a PA x-ray to estimate the proper size prosthetic stem and head to best match the patient’s distal radioulnar joint (DRUJ) anatomy.

### Step Two: Patient Position

The patient should be supine with the shoulder abducted to 90°, elbow flexed to 90°, and palm down, thus presenting the wrist in near neutral pronation/supination.

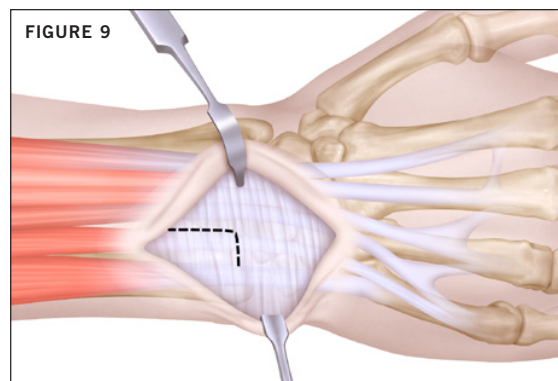
### Step Three: Initial Incision

Make a straight 5 cm dorsal skin incision over the dorsal aspect of the ulnar head and neck. If an associated procedure is planned for the radio-carpal joint, a longer, more central incision can be used. **FIGURE 8**



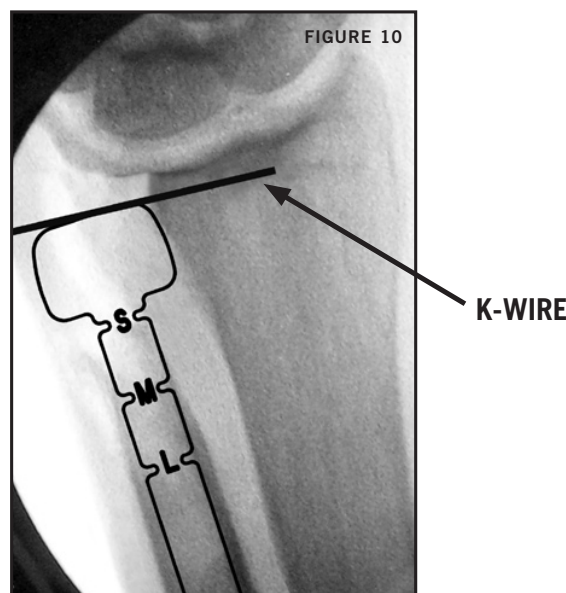
#### Step Four: Extensor Retinaculum Incision

Using a combination of blunt and sharp dissection, elevate the skin and subcutaneous tissues. Identify the ECU and the EDM. Avoid injuring the dorsal branch of the ulnar sensory nerve. The 5th extensor compartment is opened and the EDM extracted. An “L” or “C”-shaped dorsal capsulotomy flap is made over the DRUJ extending distally to the end of the ulna and ulnarly to the styloid. Continue to raise the flap ulnarly and volarly around the distal ulna, going beneath the ECU sheath and releasing soft tissue attachments to the ulnar styloid. The dissection will create a continuous sleeve for subsequent closure over the implant. **FIGURE 9**

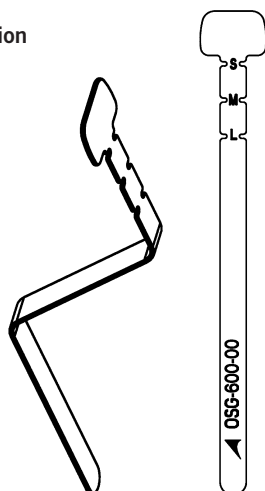


#### Step Five: K-wire Placement

To determine the best position for the ulnar osteotomy, insert a 0.045” (1.1 mm) k-wire at the most distal point of the sigmoid notch articulating surface. The k-wire is placed perpendicular to the long axis of the radius. Place the resection guide next to the sigmoid notch and aligned with the previously inserted k-wire. It should lie very near to where the native ulnar head resided to recreate the appropriate anatomy. Use a pen or osteotome to mark the resection level (S / M / L). **FIGURE 10**



**OSG-600-00**  
**MUH Resection**  
**Guide**

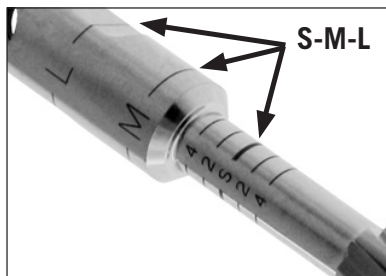


## Step Six: Medullary Canal Preparation

The forearm is hyperpronated while the wrist is flexed acutely over a bump. Place a Hohmann retractor under the ulnar head **at a 45° angle to the head on the radial side**. This will allow proper visualization of the medullary canal of the ulna. Using the starter awl or k-wire, penetrate the center of the medullary canal approximately 1.5-2.0 cm.

**FIGURE 11A**

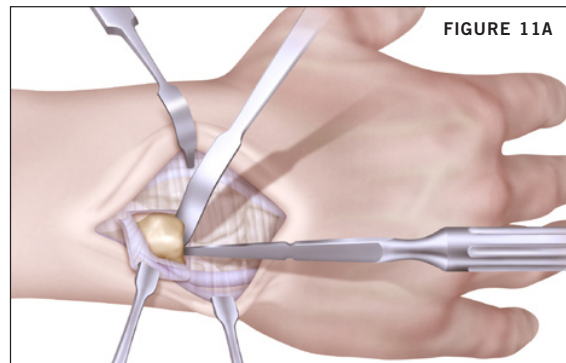
Insert the 3.5 mm starter reamer, using a 360° forward twisting motion until the appropriate mark on the reamer (S,M,L as determined by the resection level guide) lines up with the k-wire placed at the sigmoid notch. **FIGURES 11B, 11C**



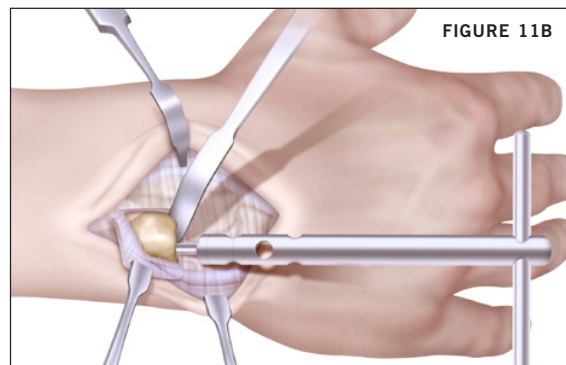
Repeat as necessary with increasing size reamers until cortical contact is obtained.

**CAUTION: Do not over-advance the reamer; over-advancing the reamer may reduce the press-fit of the implant stem in the medullary canal.**

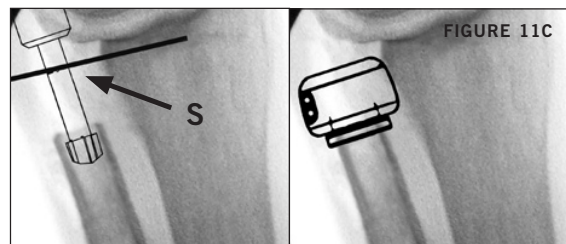
If desired, an ulnar-negative variance or an ulnar-positive variance can be achieved by inserting the reamer to a more proximal or distal position during preparation of the medullary canal.



**FIGURE 11A**

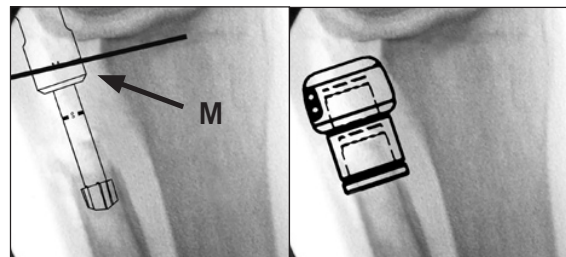


**FIGURE 11B**

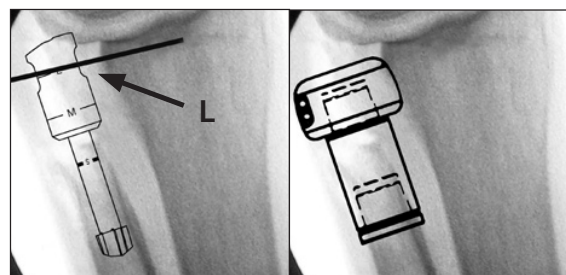


**FIGURE 11C**

▲ Placement of reamer for standard collar implant



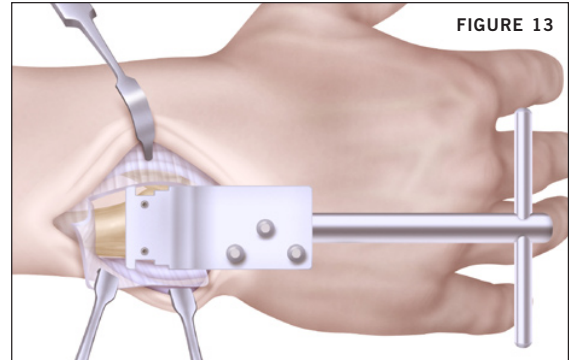
▲ Placement of reamer for medium collar implant



▲ Placement of reamer for long collar implant

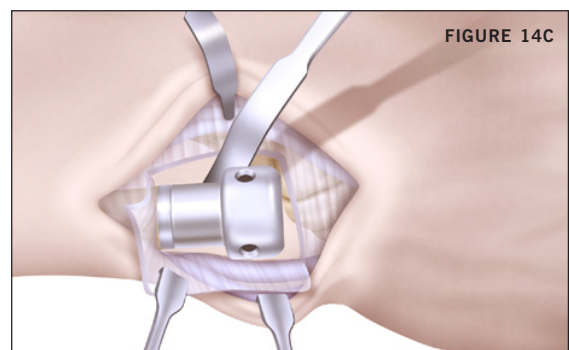
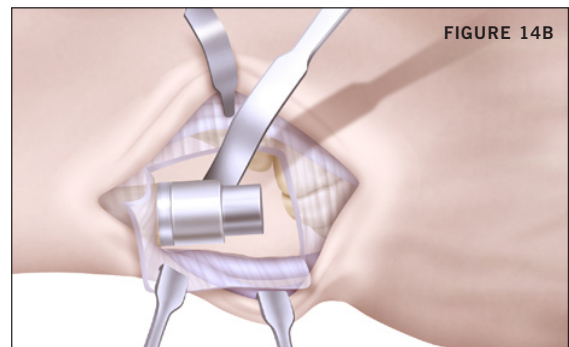
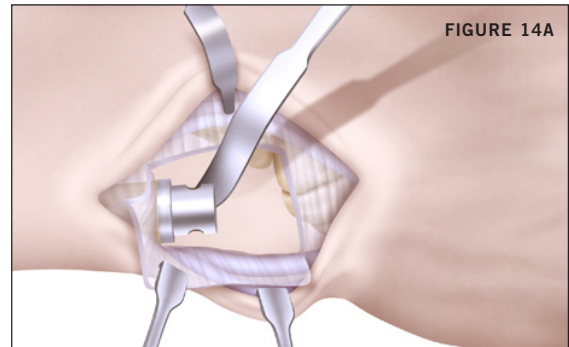
### Step Seven: Osteotomy Guide Placement

Place the **First Choice® Modular Ulnar Head** osteotomy guide on the last reamer used. **FIGURE 13** If sufficient bone stock exists, stabilize the guide with a 0.045" (1.1mm) k-wire. Using a sagittal saw with the blade held flush against the surface of the osteotomy guide, cut to the level of the reamer. Remove the osteotomy guide and reamer, and complete the osteotomy.



### Step Eight: Trial Reduction

Choose the stem trial that corresponds to the last reamer used. **FIGURE 14A** If a medium or long collar resection was made, place the medium or long collar trial onto the trial stem. **FIGURE 14B** Choose the head trial that best fits the sigmoid notch and provides proper DRUJ stability, place it on the neck, and reduce the joint. **FIGURE 14C** **If in between sizes, it is usually best to use the smaller size to prevent overstuffing the joint.**



Reduce the trial into the sigmoid notch and evaluate DRUJ stability and forearm pronation and supination. Proper positioning should be checked by x-rays.

Use the trial extractor to remove the trial implant components. **FIGURE 14D**

### Step Nine: Assemble and Implant the DRUJ

Using the black assembly pad, place the chosen ulnar head implant in the matching hole with its opening facing up. Place the taper portion of the correct stem into the head taper and use the gray stem impactor to impact the stem into the head. Insert, align, and impact the implant into the prepared medullary canal using the white implant impactor.

**NOTE:** Insert with correct orientation of the head to ensure that the suture holes in the implant face the ulnar border to allow for easy attachment of the soft tissues, if desired.

Reduce the implant into the sigmoid notch and evaluate DRUJ stability and forearm pronation and supination. Final x-rays may be used to verify that anatomic alignment of the DRUJ has been achieved.

**FIGURE 15**

### Closure and Stabilization

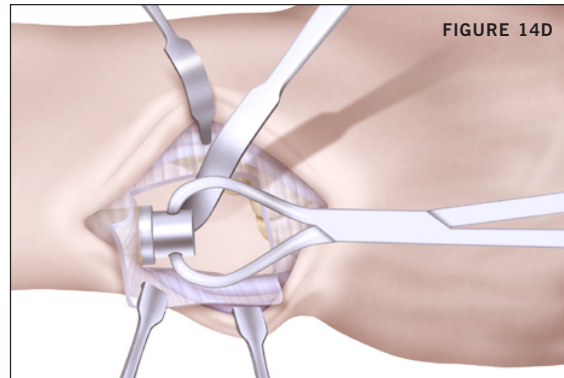
Close the capsule and retinaculum either separately or together. Imbricate if needed to improve DRUJ stability, avoiding excessive imbrication as this will decrease joint motion. Place a subcutaneous drain, if desired. The patient is placed in long arm splint with wrist and forearm in neutral positions. If needed for added joint stability, sutures can be inserted through the holes in the implant head and secured to the capsule during closure.

### Post-Operative Management

**2 Weeks Post-Op:** The long arm splint is removed and the patient is immobilized in a well-molded short arm cast which allows *some* forearm rotation.

**4 Weeks Post-Op:** Cast is converted to removable splint for an additional 4 weeks. Begin gentle ROM exercises of both wrist and forearm. Allow full activities as tolerated beginning at about 9 weeks. Begin mobilization earlier if stiffness occurs or delay as necessary to avoid instability, e.g., rheumatoid cases.

Conduct complete clinical and radiographic assessments at 6-week, 6-month, and yearly intervals.

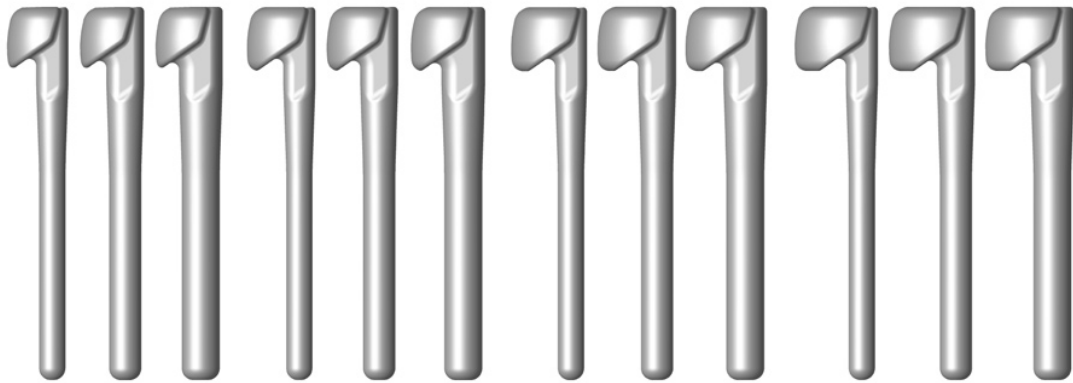


**FIGURE 14D**



**FIGURE 15**





## Partial Ulnar Head Replacement Implants

### AVAILABLE IN 12 SIZES

**4 HEAD SIZES:** 14.5 mm, 16.0 mm, 17.5 mm, 19.0 mm

**3 STEM SIZES:** 4.5 mm, 5.5 mm, 6.5 mm

**MATERIAL:** CoCr

**HEAD DIAMETER SIZE** = Head Chosen

14.5 mm head size = 14.5 mm head diameter

**STEM DIAMETER SIZE** = Stem Chosen

4.5 mm stem size = 4.5 mm stem diameter

**LENGTH OF IMPLANT:** 64.11 mm



## Total Modular Ulnar Head Implants

### AVAILABLE IN 27 SIZES

**3 HEAD SIZES:** 16.0 mm, 17.5 mm, 19.0 mm

**3 STEM SIZES:** 4.5 mm, 5.5 mm, 6.5 mm

**MATERIAL:** CoCr head / Ti stem

**HEAD DIAMETER SIZE** = Head Chosen

16.0 mm head size = 16.0 mm head diameter

**STEM DIAMETER SIZE** = Stem Chosen

4.5 mm stem size = 4.5 mm stem diameter

### LENGTH OF COLLAR + HEAD

S = 13.0 mm

M = 22.0 mm

L = 31.0 mm

### TOTAL LENGTH OF IMPLANT

S = 63.0 mm

M = 72.0 mm

L = 81.0 mm

# first choice® druj system catalog numbers

## Partial Ulnar Head Implants

SIZE / COMPONENT	CATALOG NUMBER
14.5 mm head, 4.5mm standard stem	DRUJ-610-1445
16.0 mm head, 4.5mm standard stem	DRUJ-610-1645
17.5 mm head, 4.5mm standard stem	DRUJ-610-1745
19.0 mm head, 4.5mm standard stem	DRUJ-610-1945
14.5 mm head, 5.5mm standard stem	DRUJ-610-1455
16.0 mm head, 5.5mm standard stem	DRUJ-610-1655
17.5 mm head, 5.5mm standard stem	DRUJ-610-1755
19.0 mm head, 5.5mm standard stem	DRUJ-610-1955
14.5 mm head, 6.5mm standard stem	DRUJ-610-1465
16.0 mm head, 6.5mm standard stem	DRUJ-610-1665
17.5 mm head, 6.5mm standard stem	DRUJ-610-1765
19.0 mm head, 6.5mm standard stem	DRUJ-610-1965

## Modular Ulnar Head Implants

SIZE / COMPONENT	CATALOG NUMBER
16.0 mm head	MUH-600-H160
17.5 mm head	MUH-600-H175
19.0 mm head	MUH-600-H190
4.5mm standard stem	MUH-600-S45S
5.5mm standard stem	MUH-600-S55S
6.5mm standard stem	MUH-600-S65S
4.5mm medium stem	MUH-600-S45M
5.5mm medium stem	MUH-600-S55M
6.5mm medium stem	MUH-600-S65M
4.5mm long stem	MUH-600-S45L
5.5mm long stem	MUH-600-S55L
6.5mm long stem	MUH-600-S65L

## Partial Ulnar Head Instruments

ITEM / DESCRIPTION	CATALOG NUMBER
Instrument Set	INS-610-00
DRUJ Osteotomy Guide	OSG-610-00
DRUJ Trial Size 14.5-4.5	TRL-610-H145-S45
DRUJ Trial Size 16.0-4.5	TRL-610-H160-S45
DRUJ Trial Size 17.5-4.5	TRL-610-H175-S45
DRUJ Trial Size 19.0-4.5	TRL-610-H190-S45
DRUJ Trial Size 14.5-5.5	TRL-610-H145-S55
DRUJ Trial Size 16.0-5.5	TRL-610-H160-S55
DRUJ Trial Size 17.5-5.5	TRL-610-H175-S55
DRUJ Trial Size 19.0-5.5	TRL-610-H190-S55
DRUJ Trial Size 14.5-6.5	TRL-610-H145-S65
DRUJ Trial Size 16.0-6.5	TRL-610-H160-S65
DRUJ Trial Size 17.5-6.5	TRL-610-H175-S65
DRUJ Trial Size 19.0-6.5	TRL-610-H190-S65

## Modular Ulnar Head Instruments

ITEM / DESCRIPTION	CATALOG NUMBER
Instrument Set	INS-600-00
Starter Awl	AWL-100-01
MUH Head Trial Size 16.0	TRL-600-H160
MUH Head Trial Size 17.5	TRL-600-H175
MUH Head Trial Size 19.0	TRL-600-H190
MUH Stem Trial Size 4.5	TRL-600-S45
MUH Stem Trial Size 5.5	TRL-600-S55
MUH Stem Trial Size 6.5	TRL-600-S65
MUH Trial Collar Medium	TRL-600-MED
MUH Trial Collar Long	TRL-600-LNG
MUH Resection Guide	OSG-600-00
MUH Reamer Size 4.5	BRH-600-45
MUH Reamer Size 5.5	BRH-600-55
MUH Reamer Size 6.5	BRH-600-65
MUH Stem Impactor	IMP-600-00
MUH Assembly Pad	IMP-600-01
MUH Osteotomy Guide	OSG-600-01
Implant Impactor	IMP-300-00
Trial Extractor	EXT-200-00
Disposable Pack (Stryker)*	UH-DIS-STR
Disposable Pack (Linvatec/Hall)*	UH-DIS-HAL

\*CONTAIN 2 K-WIRES, 1 SAW BLADE

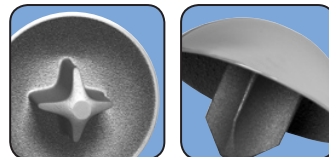
# Transforming Extremities™



At Ascension Orthopedics,  
we are dedicated to *transforming*  
the surgical experience.

## Additional upper extremity solutions:

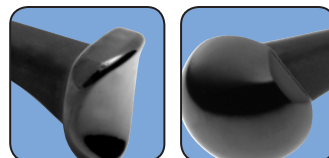
TITAN™  
Humeral  
Resurfacing  
Arthroplasty



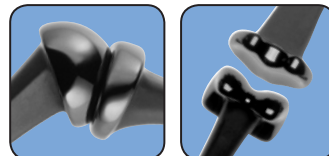
Ascension®  
RADFx®  
Fixation  
System



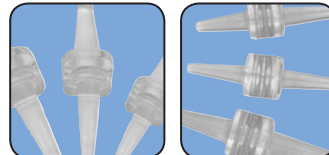
Ascension®  
PyroCarbon  
CMC  
Arthroplasty



Ascension®  
MCP/PIP  
PyroCarbon  
Total Joints



Ascension®  
MCP/PIP  
Silicone  
Joints



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888.508.8081 TFF

Caution: U.S. federal law restricts this device  
to sale by or on the order of a physician.

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