

WristMotion® Hemiarthroplasty System

Surgical Technique Guide





WristMotion introduction

The WristMotion® Hemiarthroplasty System restores mobility and maintains native biomechanics using a dual curved implant designed to articulate with the natural radius bone. The WristMotion Implant System is used in conjunction with a Proximal Row Carpectomy (PRC) to replace an arthritic or incongruent capitate and expands the treatment options for:

- Type II and III scapholunate advanced collapse (SLAC) or scaphoid nonunion advanced collapse (SNAC) wrists
- Four corner fusion non-unions or failed PRC

The WristMotion System consists of a contoured capitate articular implant designed to articulate with the native radius bone, a taper post and set of instruments used for implant site preparation and delivery. The capitate articular components are manufactured using implant grade cobalt-chrome alloy and are offered in six implant options. The taper post is manufactured using implant grade titanium alloy and is offered in one fixed size designed to work with all capitate articular components.

Materials

Carpal Articular Component:	Cobalt-Chrome Alloy (Co-Cr-Mo)
Surface Coating:	Titanium (CP Ti)
Taper Post Component:	Titanium Alloy (Ti-6Al-4V)

Indications

Indicated for use as a partial replacement of wrist joint(s) disabled by pain, deformity and/or limited motion caused by:

- 1) Non-inflammatory degenerative joint disease including osteoarthritis, traumatic arthritis and avascular necrosis
- 2) Rheumatoid arthritis
- 3) Revision where other devices or treatments have failed
- 4) Scapholunate Advanced Collapse (SLAC) and other functional deformities
- 5) Trauma, including fractures of the carpal bones

The device is a single use implant intended to be used with bone cement.

Contraindications

Absolute contraindications include:

- 1) Significant bone demineralization or inadequate bone stock
- 2) Inadequate skin, musculotendinous or neurovascular system status
- 3) Infection, sepsis and osteomyelitis
- 4) Patients that have a known sensitivity to cobalt-chrome and titanium alloys typically used in prosthetic devices

Relative contraindications include:

- 1) Uncooperative patient or patient incapable of following pre-operative and post-operative instructions
- 2) Osteoporosis
- 3) Metabolic disorders which may impair the formation or healing of bone
- 4) Infections at remote sites which may spread to the implant site
- 5) Rapid joint destruction or bone resorption visible on x-ray
- 6) Chronic instability or deficient soft tissues and other support structures
- 7) Vascular or muscular insufficiency
- 8) Absent or insufficient wrist extensor tendons

Surgical technique

WristMotion® Hemiarthroplasty System

Step 1

Begin with a dorsal longitudinal approach through the third compartment. Transpose the extensor pollicus longus tendon and reflect the retinaculum over the second and fourth dorsal compartment. Enter the radiocarpal joint through a dorsal ligament sparing incision.

Step 2

Inspect the lunate fossa and head of the capitate for degenerative changes. Preserve the radioscapohcapitate ligament.

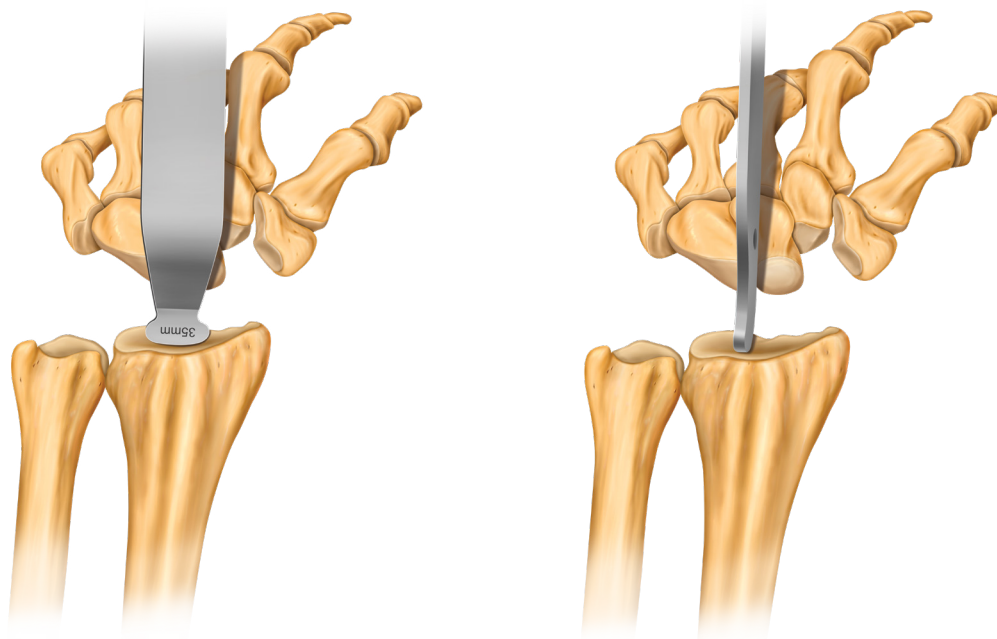
Step 3

Perform a proximal row carpectomy removing the scaphoid, lunate and the triquetrum. Take care to avoid injury to palmar wrist ligaments, TFCC, capitate and pisiform.

Step 4

Using the **Coronal Radius Template** and the **Sagittal Radius Template** determine the appropriate curvatures of the articular surfaces of the distal radius. This combination corresponds with a prescribed WristMotion articular implant. Use the decision matrix below to determine the indicated implant.

Note: the **12mm Articular Component** is only available with a sagittal curvature of 17mm.



Coronal	
Radius Curvature (Measured)	Capitate Curvature (Indicated)
If 34mm Measured	Use 22mm
If 56mm Measured	Use 35mm

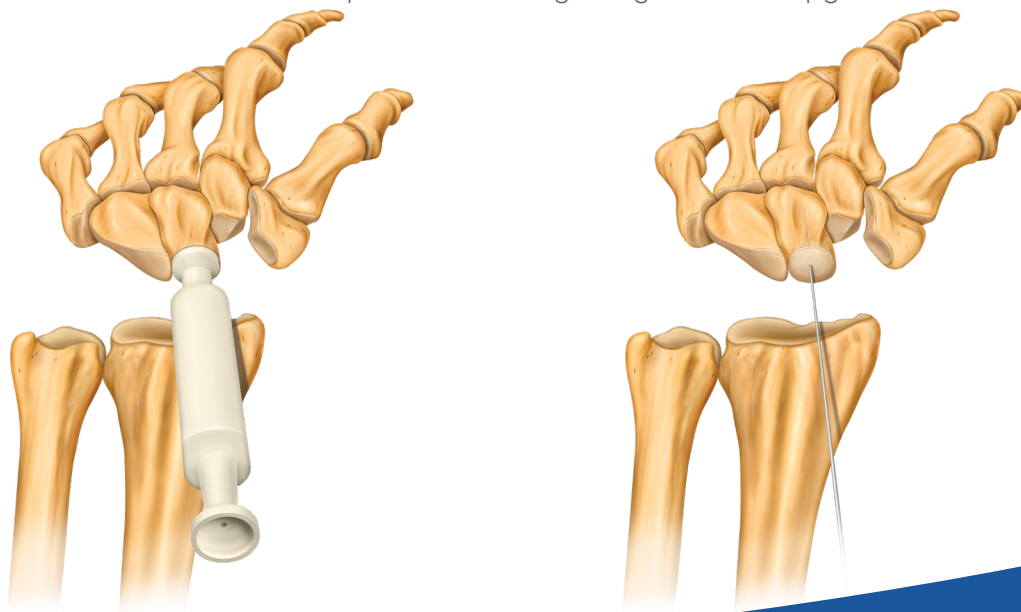
Sagittal	
Radius Curvature (Measured)	Capitate Curvature (Indicated)
If 18 mm Measured	Use 17 mm
If 25 mm Measured	Use 23 mm

Capitate Articular Sizes	
12mm CAP	22mm x 17mm Curvature
12mm CAP	35mm x 17mm Curvature
15mm CAP	22mm x 17mm Curvature
15mm CAP	35mm x 17mm Curvature
15mm CAP	22mm x 23mm Curvature
15mm CAP	35mm x 23mm Curvature

Step 5

With the **Drill Guide**, locate the capitate's axis normal to the articular surface. Use the **Drill Guide** to determine which WristMotion articular component diameter matches the surface diameter. Place **1.5mm Guide Pin** into a cannulated power drill. Advance the **1.5mm Guide Pin** into the bone making sure that is central to the articular surface. It is important to verify that the **Drill Guide** is seated on the surface such that all 4 points of contact are established on the articular surface. A normal axis and correct diameter measurement are necessary for proper implant fit.

Note: confirm **1.5mm Guide Pin** placement using x-ray or fluoroscopy



Step 6

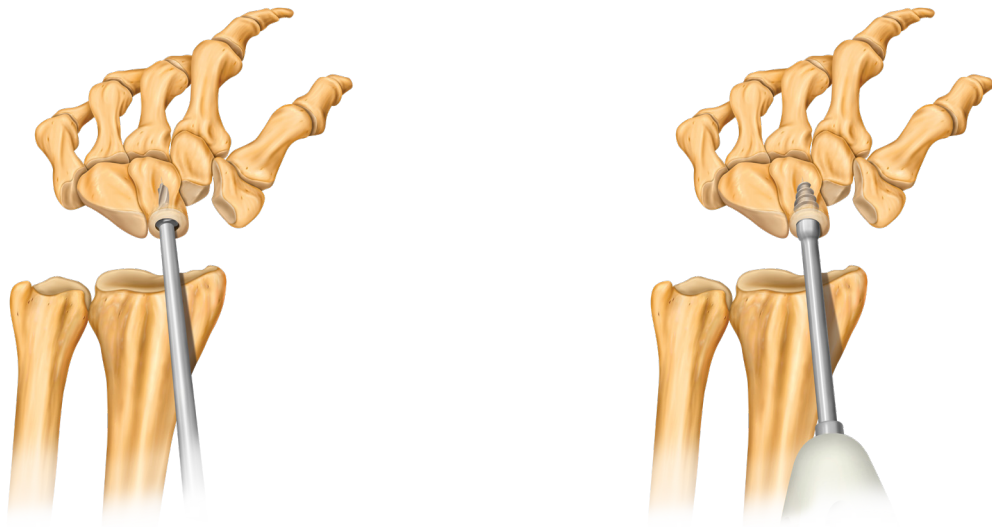
Place cannulated **Drill** over **1.5mm Guide Pin** and drive until the proximal shoulder of the Drill is flush to the articular surface. (Use lavage during drilling to prevent possible tissue damage from heat effects.) Should the **1.5mm Guide Pin** loosen, use the **Drill** to re-center the **1.5mm Guide Pin** in the pilot hole and advance into bone

Step 7

Tap hole to etched depth mark on **Tap**. Insert bone cement into pilot hole.

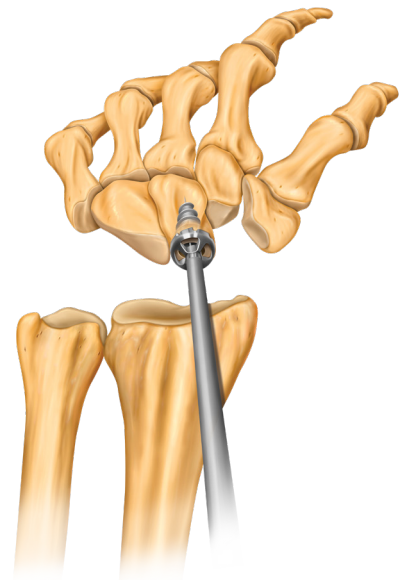
Step 8

Place the **Hex Driver** over the **Taper Post** and advance the **Taper Post** until the line on the **Hex Driver** is flush with the articular surface.



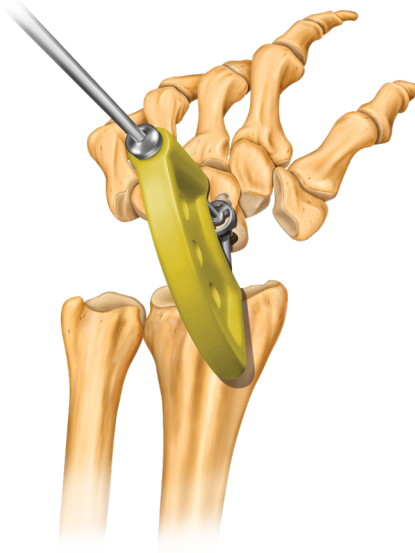
Step 9

Choose the appropriate **Capitate Reamer** based on the diameter measured by the **Drill Guide** in Step 5. Drive **Capitate Reamer** over **1.5mm Guide Pin** until it contacts the top surface on the **Taper Post** (Use lavage during drilling to prevent possible tissue damage from heating effects). Make sure not to bend the **1.5mm Guide Pin** during drilling as it may result in Articular Component malalignment.



Step 10

Place the **Dorsal Reamer Guide** into the taper of the **Taper Post**. The **Dorsal Reamer Guide** should be oriented such that the dorsal ream is at the 12 o'clock position. Using a cannulated power drill, advance the **Dorsal Reamer** to the stop depth. Once the **Dorsal Reamer** has advanced to its stop depth, immediately remove the power drill and the **Dorsal Reamer Guide**.



Step 11

Clean taper in **Taper Post** with **Taper Cleaner** and remove any debris from the surrounding implant bed.

Step 12

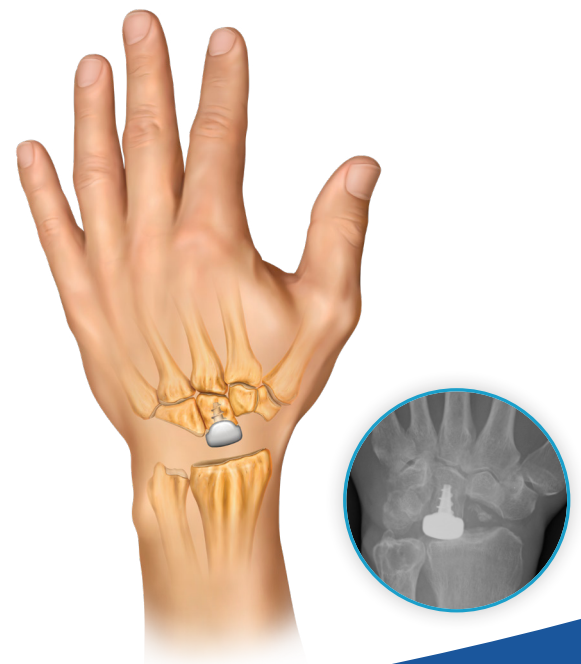
Place the **Sizing Trial** that matches the chosen **Articular Component** at the reamed implant site. Confirm the fit of the **Sizing Trial** so that it is congruent with the edge of the surrounding articular surface or slightly recessed.

Step 13

Before placing the **Articular Component** on the **Suction Holder** make sure that sufficient suction is present to hold the device on the distal suction cup. Align the **Articular Component** on the **Suction Holder**. Align the **Articular Component** with the appropriate offsets. Insert into the taper of **Taper Post**.

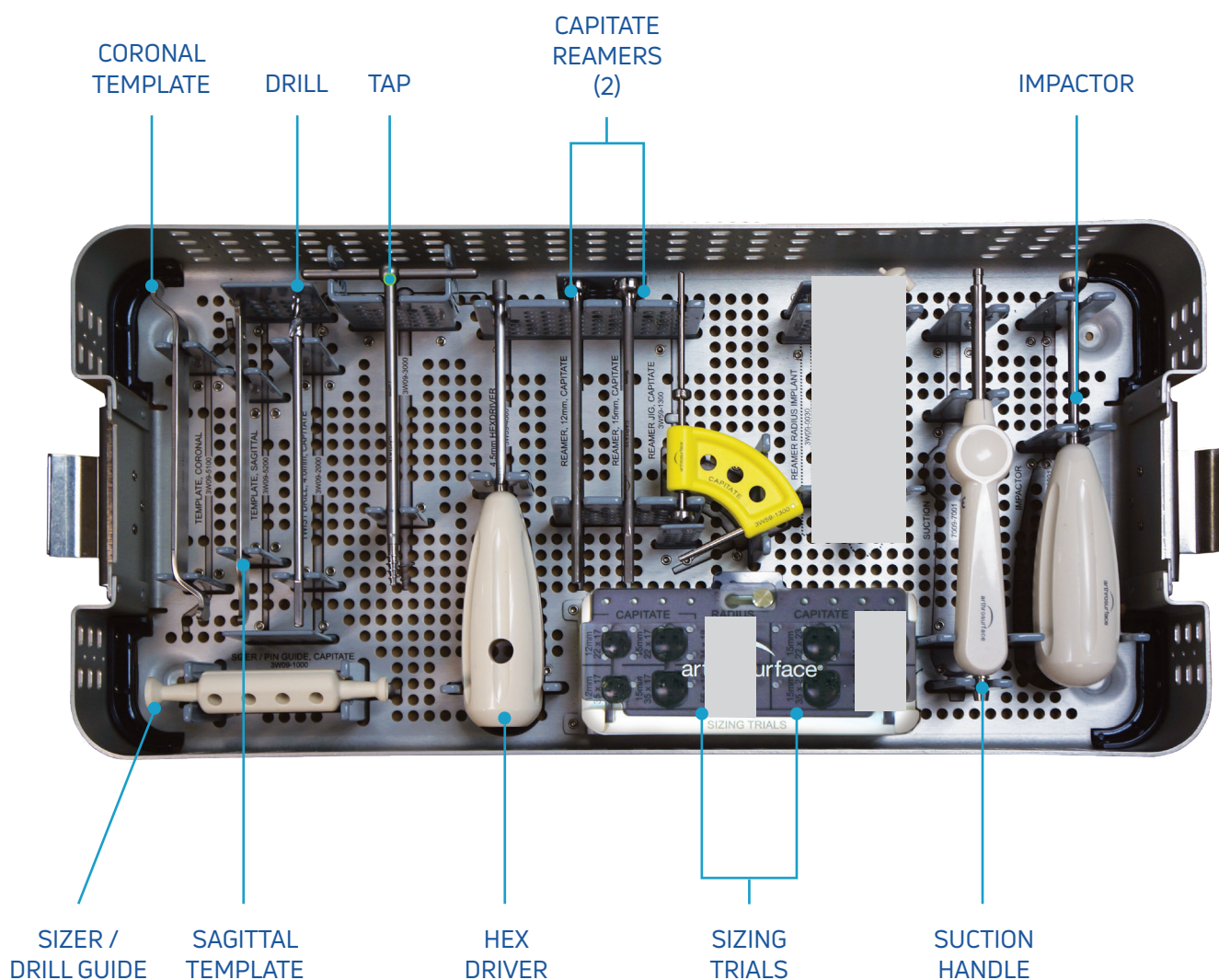
Step 14

Use a slight tap on the **Impactor** to seat **Articular Component**. Progressively tap the Impactor until the **Articular Component** is firmly seated on the bone and the morse taper is engaged.



Instrumentation

WristMotion® Hemiarthroplasty System



System catalog

Instrumentation System

8W00-1000	Instrumentation Kit
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Taper Post (Fixation Component)

8W95-0016-W	Taper Post, 7.5mm x 16mm
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Capitate Articular Component

8W12-2217-W	12mm CAP (22mm x 17mm Curvature)
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8W12-3517-W	12mm CAP (35mm x 17mm Curvature)
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8W15-2217-W	15mm CAP (22mm x 17mm Curvature)
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8W15-2223-W	15mm CAP (22mm x 23mm Curvature)
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8W15-3517-W	15mm CAP (35mm x 17mm Curvature)
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8W15-3523-W	15mm CAP (35mm x 23mm Curvature)
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Warnings & Precautions

- Improper selection, placement, positioning, alignment, and fixation of the implant components may reduce the service life of the prosthetic components.
- Inadequate preparation and cleaning of the implant components mating surfaces may result in improper fixation of the device. Improper handling of the implants can produce scratches, nicks or dents that may have adverse clinical effects on mating joint surfaces. Do not modify implants. The surgeon shall be thoroughly familiar with the implants, instruments, and surgical technique prior to performing surgery.
- Accepted practices in post operative care should be used. The patient is to be instructed and monitored to ensure a reasonable degree of compliance to post operative instructions and activity restrictions.
- Excessive activity, impact, and weight gain have been implicated in the reduction of the benefit and service life of prosthetic devices.
- Arthrosurface implants are intended to be fitted and installed with the appropriate Arthrosurface instrument set. Use of instruments from other systems may result in improper implant selection, fitting, and placement, which could result in implant failure or poor clinical outcome. The Arthrosurface WristMotion® Wrist Hemiarthroplasty System instrument sets should be regularly inspected for any signs of wear or damage.
- Do not reuse implants. Reuse of single use devices can increase the risk of patient infection and can compromise service life and other performance attributes of the device.
- All surgical implants are subjected to repeated stresses that can result in failure. The use of an implant should be avoided if excessive loading cannot be prevented at or near the implant site.
- No other metallic or non metallic implantable devices are to be used in conjunction with Arthrosurface Inc.'s WristMotion® Wrist Hemiarthroplasty System at the implant site. Doing so may compromise implant performance and patient safety.
- This system has not been evaluated for safety and compatibility in the MR environment. It has not been tested for heating or migration in the MR environment.

Possible Adverse Effects

- Loosening, migration or loss of fixation of implant.
- Infection, both deep or superficial, or allergic reaction.
- Material sensitivity reactions. Implantation of foreign material in tissues can result in histological reactions. Particulate wear debris and mild tissue discoloration from metallic components have been noted in other prosthetic devices constructed from similar materials. Some types of wear debris have been associated with osteolysis and implant loosening.
- Embolism.
- Tissue reactions such as macrophage and foreign body reaction at or near implant site.
- Fretting or crevice corrosion can occur at the interface of articular component and taper post component.
- Fatigue fracture of the implants as a result of bone resorption around the implant components.
- Intraoperative or postoperative bone fracture.
- Post-operative pain or incomplete resolution of pre-operative symptoms.

Sterility

The Arthrosurface WristMotion Wrist Hemiarthroplasty implant components are provided STERILE. All implant components are sterilized by exposure to gamma irradiation. Do not resterilize. Do not use components if packaging is opened or damaged. Do not use components if beyond expiration date. For Single Use Only.

Caution

Federal Law (USA) restricts this device to sale by or on the order of a physician.

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