

Surgical Technique



Acumed® is a global leader of innovative orthopaedic and medical solutions.



We are dedicated to developing products, service methods, and approaches that improve patient care.



Acumed Anatomic Radial Head Solutions 2

The Acumed Anatomic Radial Head Solutions 2 system is designed to provide an anatomic implant to replace the patient's native radial head. Designed in conjunction with Shawn W. O'Driscoll, MD, PhD, the Acumed Anatomic Radial Head Solutions 2 system includes 924 head and stem combinations and system-specific instrumentation to help streamline the surgeon's experience in the operating room.

Indications for Use:

Replacement of the radial head for degenerative or post-traumatic disabilities presenting pain, crepitation, and decreased motion of the radiohumeral and/or proximal radio ulnar joint with joint destruction and/or subluxation, resistance to conservative treatment.

- ▶ Replacement of the radial head for degenerative or post-traumatic disabilities presenting pain, crepitation, and decreased motion at the radiohumeral and/or proximal radioulnar joint with:
 - joint destruction and/or subluxation
 - resistance to conservative treatment
- ▶ Primary replacement after fracture of the radial head
- ▶ Symptomatic replacement after radial head resection
- ▶ Revision following failed radial head arthroplasty

In addition to the Anatomic Radial Head Solutions 2 system, this set may include the Acutrak 2® Mini and Micro instruments and the Radial Head Plating System at the base of the tray to provide multiple solutions all in one set. For the Acutrak 2 Headless Compression Screw System surgical technique, please reference part number SPF00-02. For the Radial Head Plating System surgical technique, please reference part number ELB00-02.

	Definition
Warning	Indicates critical information about a potential serious outcome to the patient or the user.
Caution	Indicates instructions that must be followed in order to ensure the proper use of the device.
Note	Indicates information requiring special attention.



Table of Contents

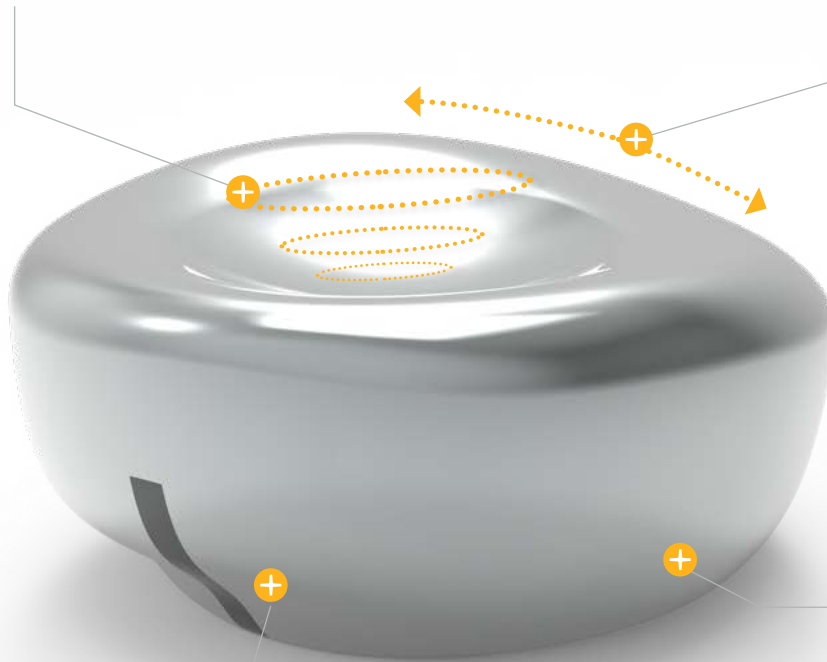
System Features	2
Instrument Overview	6
Surgical Technique Overview	8
Surgical Techniques	10
Anatomic Radial Head—Standard Stem	10
Anatomic Radial Head—Long Stem	16
Anatomic Radial Head Removal	22
Ordering Information	23
References	33

System Features

Radial Head Implants

The dish depth increases with head diameter, which is designed to help improve radiocapitellar wear characteristics over nonanatomic heads and the first generation Acumed Anatomic Radial Head^{1,2}

The implant's medial surface is contoured to better replicate the lateral trochlear ridge facet, which may help avoid cartilage erosion²



The radial head is available in six sizes ranging from 18 to 28 mm, in 2 mm increments

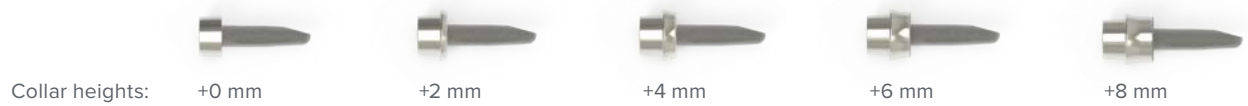
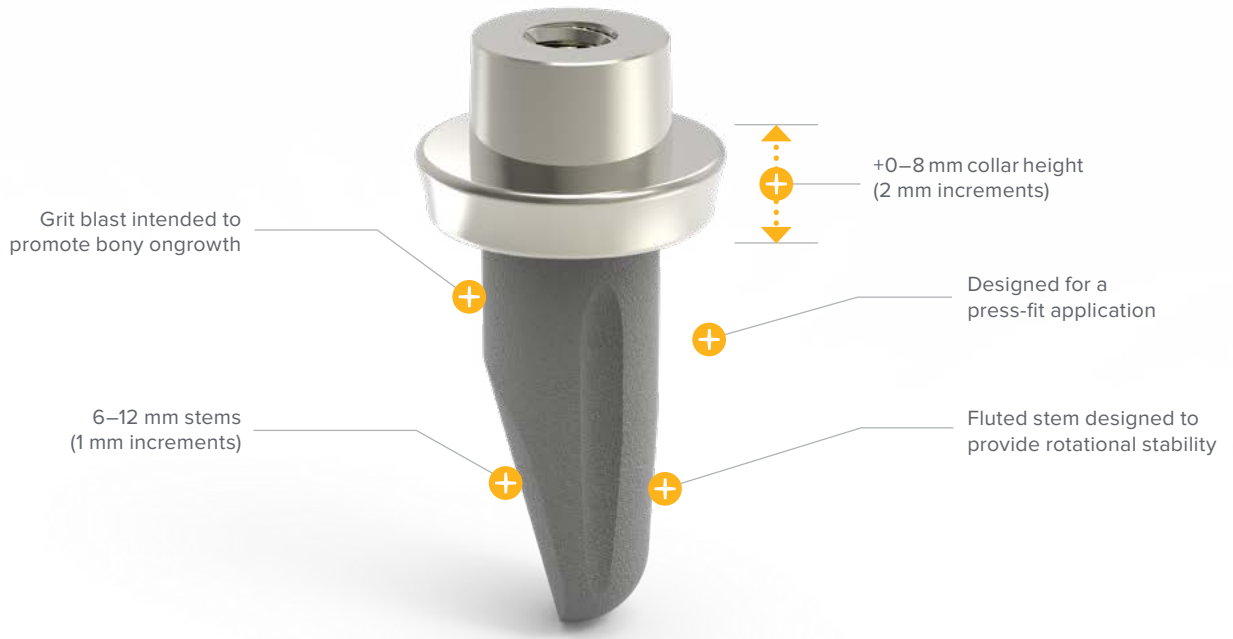
Contouring of the medial side of the head has been further refined to track against the radial notch of the ulna²



Head Implants: 18–28 mm
(5001-05XXX-S)

System Features [continued]

Standard Stem Implants



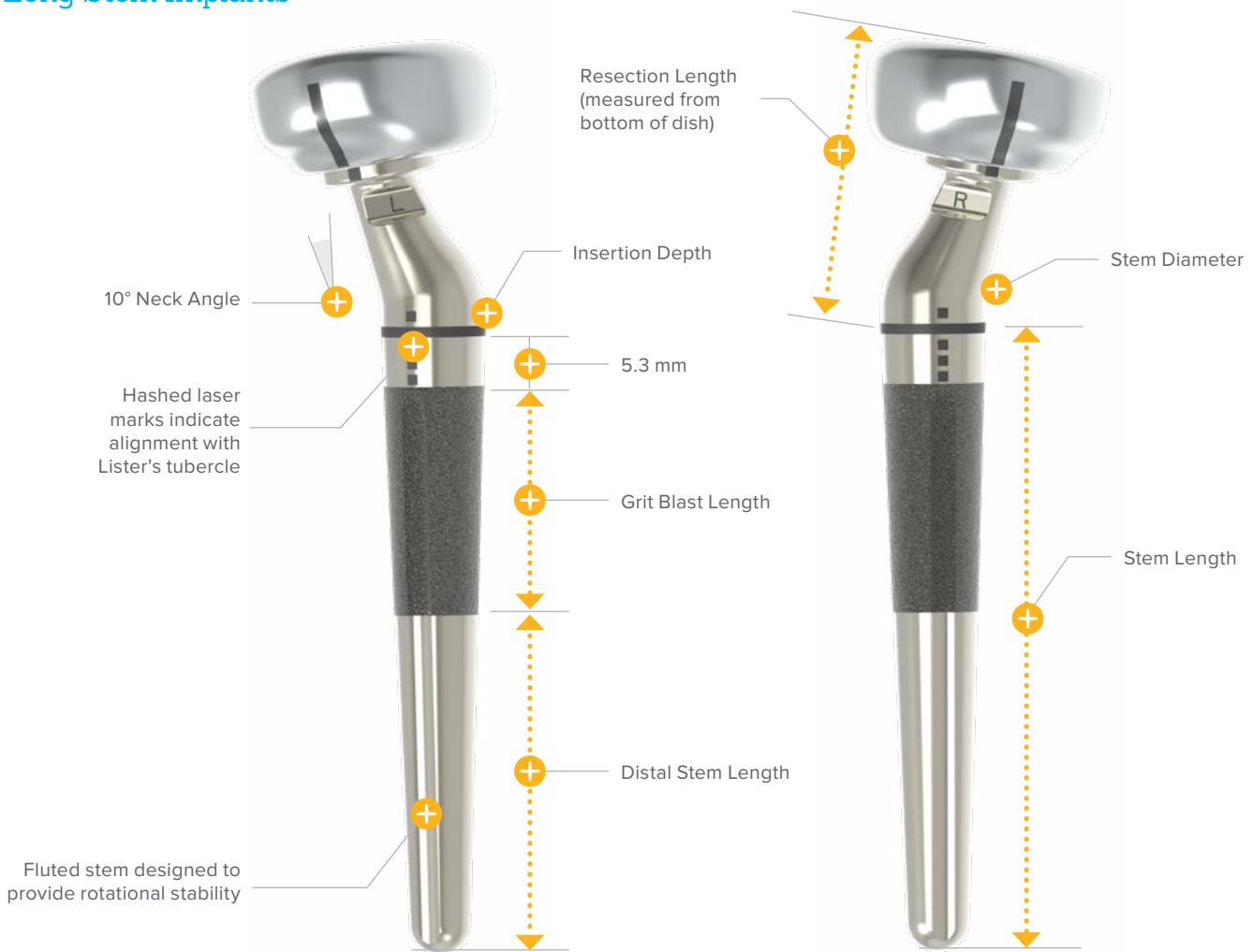
Standard Stem Implants: 6-12 mm diameters (TR-SXXXX-S)



Partial Grit Blast Stem Implants (Optional): 6-12 mm diameters (50-00XX-S)

System Features [continued]

Long Stem Implants



Long Stem Implants: 6–12 mm diameters (TR-SLXX-S)

Stem Diameter	Resection Length	Stem Length	Grit Blast Length	Distal Stem Length
6 mm	19 mm	50 mm	18 mm	26.5 mm
7 mm	20.5 mm	52.5 mm	19 mm	28 mm
8 mm	22 mm	55 mm	20 mm	29.5 mm
9 mm	23.5 mm	57.5 mm	21 mm	31.1 mm
10 mm	25 mm	60 mm	22 mm	32.7 mm
11 mm	26.5 mm	62.5 mm	23 mm	34.2 mm
12 mm	28 mm	65 mm	24 mm	35.7 mm

System Features [continued]

Head and Stem Trials



Trial Head: 18–28 mm
(TR-TH2XX)
Left trial heads are blue, right trial heads are green



Standard Stem Trials: 6–12 mm
(TR-TSXX)



Long Stem Trials: 6–12 mm (1 mm increments)
(TR-TSLXXX)
Left trial stems are blue, right trial stems are green

Instrument Overview



Standard Stem Reamer 6 mm
(80-1606)



Standard Stem Reamer 7 mm
(80-1607)



Standard Stem Reamer 8 mm
(80-1608)



Standard Stem Reamer 9 mm
(80-1609)



Standard Stem Reamer 10 mm
(80-1610)



Standard Stem Reamer 11 mm
(80-1611)



Standard Stem Reamer 12 mm
(80-1612)



Long Stem Reamer 6 mm
(80-1706)



Long Stem Reamer 7 mm
(80-1707)



Long Stem Reamer 8 mm
(80-1708)



Long Stem Reamer 9 mm
(80-1709)



Long Stem Reamer 10 mm
(80-1710)



Long Stem Reamer 11 mm
(80-1711)



Long Stem Reamer 12 mm
(80-1712)



6 mm Collar Reamer
(TR-CRA06)



7 mm Collar Reamer
(TR-CRA07)



8 mm Collar Reamer
(TR-CRA08)



9 mm Collar Reamer
(TR-CRA09)



10 mm Collar Reamer
(TR-CRA10)



11 mm Collar Reamer
(TR-CRA11)



12 mm Collar Reamer
(TR-CRA12)

Instrument Overview [continued]



**ARH Solutions 2
Impactor Block**
(80-3058)



Head Impactor
(TR-MS05)



**Morse Taper Long Stem
Alignment Guide**
(80-2127)



**ARH Solutions 2 Height
Gauge +0/+2 mm**
(80-3649)



**ARH Solutions 2 Height
Gauge +4/+6 mm**
(80-3651)



**ARH Solutions 2 Height
Gauge +8 mm**
(80-3654)



**Medium Ratcheting Driver
Handle**
(80-0663)



Ratcheting T-Handle
(BG-8043)



**Long Stem Resection Guide
6 mm, 8 mm, 10 mm, 12 mm**
(80-1512)



**Long Stem Resection Guide
7 mm, 9 mm, 11 mm**
(80-3658)



5.5 mm Quick Release Awl
(TR-0206)



ARH Removal Tool Shaft
(80-2018)



Radius Retractor
(80-1509)



Cross Bar
(80-1771)

Optional Components



**Osteotomy Saw Blade Hub
Style L**
(80-0739-S)



**Osteotomy Saw Blade Hub
Style S**
(80-0740-S)

Surgical Technique Overview

ARH—Standard Stem Surgical Technique

Incision and Dissection



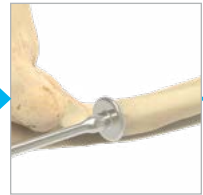
Radial Head Resection



Determine Stem Diameter



Ream With Collar Reamer

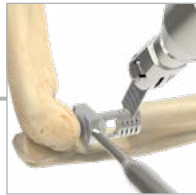


ARH—Long Stem Surgical Technique

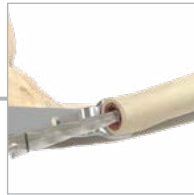
Incision and Dissection



Radial Head/Collar Resection



Determine Stem Diameter



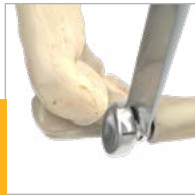
Final Resection



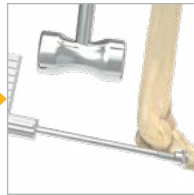
Confirm Stem Diameter

Anatomic Radial Head and Stem Removal

Head Removal



Stem Removal



Determine Head Diameter



Determine Collar Height



Trial Implant Insertion



Implant Assembly



Implant Insertion



Determine Head Diameter



Select Trial Implants and Assemble



Trial Implant Insertion



Implant Assembly



Implant Insertion



Anatomic Radial Head—Standard Stem Surgical Technique

Shawn W. O’Driscoll, MD, PhD

Figure 1

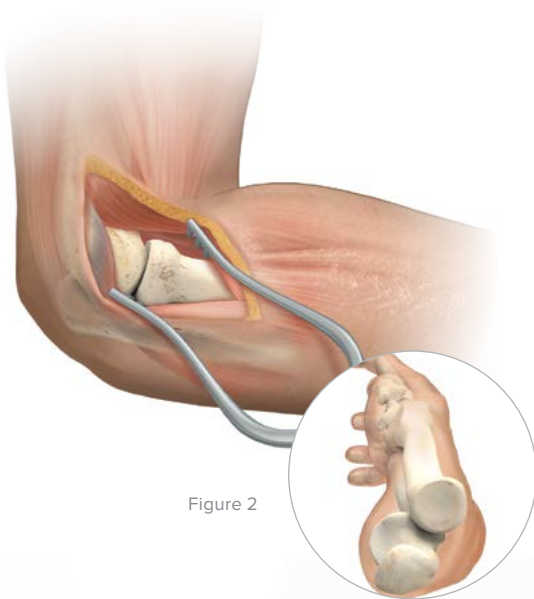


Figure 2

1 Incision and Dissection

There are several exposure options, depending on the integrity of the lateral soft tissues. In fracture-dislocations, the exposure is through the traumatic opening in the ligament complex. For delayed reconstructions, and in those acute cases in which the lateral collateral ligament is intact, the Kaplan interval permits the ligament to be left intact. The deep incision is placed in a line from the lateral epicondyle toward Lister’s tubercle, with the forearm in neutral rotation. Proximally, the extensor carpi radialis longus (ECRL) origin is released with the anterior capsule to permit direct access to the front of the radial head.

Figure 3



2 Radial Head Resection

Resect the radial head with a microsagittal saw at the distal limit of the fracture, or as proximal as possible without leaving a significant collar defect. A maximum length of 17 mm of the radius can be replaced. This 17 mm includes the radius length reamed with the collar reamer in Step 4. If longer than 17 mm resection is needed, long stems are available. A minimum resection of 9 mm is required to accommodate the shortest implant height.

Anatomic Radial Head—Standard Stem Surgical Technique [continued]

3 Determine Stem Diameter

Insert the 5.5 mm Quick Release Awl (TR-0206) to the depth mark to initially enter the canal. Assemble the Ratcheting T-Handle (BG-8043) to the Standard Stem Reamer 6 mm (80-1606) and prepare the canal for the stem using sequentially larger Standard Stem Reamers (80-1606 through 80-1612) until a “cortical chatter” and a tight fit are achieved. The proper reaming depth is achieved when the laser mark band on the reamer is flush with the level of resection. A Radius Retractor (80-1509) is available to elevate the radius.

Note: The standard stem reamers are 0.5 mm undersized from the implants.

Warning: The Standard Stem Reamers (80-16XX) are not intended to be used under power. Using the reamers under power may result in fracturing the radial canal.

Note: Confirm the fit by rotating the reamer inside the forearm. If the forearm rotates when the reamer is turned, a sufficiently tight fit has been achieved.

4 Ream With Collar Reamer

Select the Collar Reamer (TR-CRAXX) that matches the stem diameter determined by the reamer in the previous step. Power ream the collar to create a surface with at least 60% of the radial shaft in contact with the reamer.

The risk of fracturing the radius can be lessened by reaming initially in the reverse direction, such that the reamer acts more as a power rasp. If there is concern about risk of fracture (e.g. if a notch exists), a cerclage wire can be placed around the collar and removed after inserting the prosthesis.

Caution: Avoid fracturing the radial collar, which can occur if the reamer catches on irregular bone in the fracture surface.

5 Determine Head Diameter

Determine head diameter by placing the resected head upside down in the sizing pockets on the ARH Solutions 2 Impactor Block (80-3058). If between sizes, select the smaller diameter.



Figure 4



Figure 5



Figure 6



5.5 mm Quick Release Awl (TR-0206)



Ratcheting T-Handle (BG-8043)



Standard Stem Reamer (80-1606 through 80-1612)



Radius Retractor (80-1509)



Collar Reamer (TR-CRAXX)



ARH Solutions 2 Impactor Block (80-3058)

Anatomic Radial Head—Standard Stem Surgical Technique [continued]

Figure 7



6 Determine Collar Height

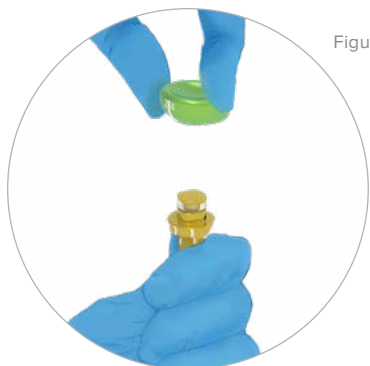
Determining the appropriate collar height is critical to restoring the joint space. It must be done with the ulnohumeral joint reduced, which can best be performed by compressing the olecranon against the distal humerus with the elbow flexed 90°. It is critical that the coronoid contacts the trochlea during this process.

Insert the +0 end of the ARH Solutions 2 Height Gauge +0/+2 mm (80-3649) and determine if the gauge simultaneously contacts the resected radius and capitellum. If there is no contact, sequentially insert a taller size until it contacts the radius and the capitellum.

The number on the height gauges (+0, 2, 4, 6, and 8 mm) will correspond to the stem's collar height.

Warning: If between sizes, select the shorter height. Implantation of components that are too large may result in a joint that is "overstuffed."

Figure 8



7 Select Trial Implants and Assemble

After selecting the Trial Head (TR-TH2XX) and Trial Stem (TR-TSXX or TR-TSXXX), align laser marks on the head and stem and assemble using hand pressure. The stem laser mark is indicated Left or Right ("L" or "R") for proper orientation. If the trial head and stem are difficult to connect, apply saline solution prior to assembling.

Note: Left-specific trials are blue and right-specific trials are green

Figure 9



ARH Solutions 2 Height Gauge (80-36XX)



Trial Head (TR-TH2XX)



Trial Stem (TR-TSXX or TR-TSXXX)

Anatomic Radial Head—Standard Stem Surgical Technique [continued]

8 Trial Implant Insertion

Rotate the forearm to a neutral position. Mark the lateral aspect of the radial neck with a cautery, in line with Lister's tubercle.

Insert the trial implant into the radius. Ensure that the laser marks on the head and stem are aligned with the cautery mark. Lister's tubercle may also be used as a landmark for laser mark orientation.

Check for proper articulation with the capitellum and the coronoid (figures 11 and 12). The line along the articular margin of the radial head (blue line) should fall between parallel lines that pass through the central ridge and lateral edge of the coronoid (gold lines).³ Check for proper articulation with the capitellum and the coronoid. The coronoid needs to be in contact with the trochlea to ensure proper positioning of the trial.

Warning: Trial components are NOT designed to be implanted.

Note: The trial stem diameters are 0.5 mm undersized from the reamers for ease of insertion.



Figure 10

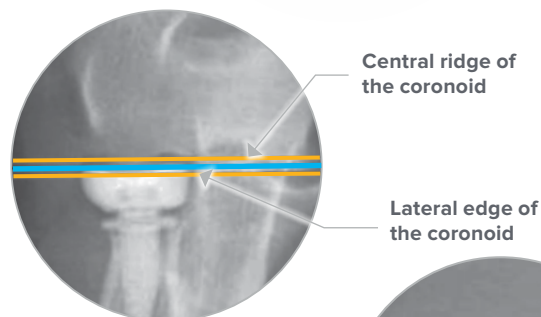


Figure 11

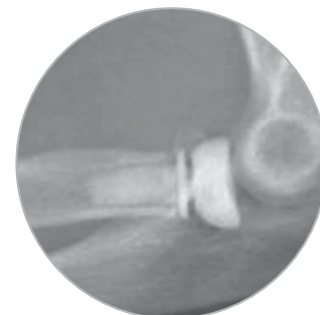


Figure 12



Head Impactor
(TR-MS05)

Anatomic Radial Head—Standard Stem Surgical Technique [continued]

Figure 13



Figure 15



Figure 14



Figure 16

9 Implant Assembly

After determining the correctly sized head and stem with the trials, align the laser lines on both the implant head and stem, press them together by hand, and then place the assembled implant stem into the appropriate size hole in the ARH Solutions 2 Impactor Block (80-3058). Ensure that the laser marks are still aligned, then impact the head and stem together with several strong strikes with the Head Impactor (TR-MS05) and a mallet to engage the ARH Solutions 2 Impactor Block.

10a Implant Insertion

Insert the implant into the radius using the Head Impactor (TR-MS05) and a mallet. Ensure that the laser marks on the head/stem are aligned with the lateral aspect of the radius when the forearm is in neutral position. Lister's tubercle may also be used as a landmark for laser mark orientation.

- ▶ Confirm the implants are the appropriate sizes. Consider using the contralateral X-ray as a reference point.
- ▶ Check for proper articulation with the capitellum and the coronoid (figures 11 and 12). The line along the articular margin of the radial head (blue line) should fall between parallel lines that pass through the central ridge and lateral edge of the coronoid (gold lines).³

10b Alternative Implant Insertion With Bone Cement

If desired, the prosthesis may be cemented into position. The same anatomic landmarks as previously described are used to ensure proper alignment. Select an implant that is one size smaller than the reamer to allow for a 0.5 mm cement mantle. A higher viscosity cement should be used to allow precoating of the stem prior to implantation. The precoat is applied while the cement is malleable. Prior to stem insertion, malleable cement may be inserted into the radial canal. Insert into its anatomic position and hold the elbow in a flexed position while the cement hardens. Check for cement extrusion around the radial neck and remove if present. Once the cement is firm and cooled (per the cement IFU), the elbow can be moved freely as needed.

Optionally, a cement restrictor (not available through Acumed) may be inserted approximately 1 cm distal to the tip of the implant to prevent extravasation down the intramedullary canal of the radius and to improve the cement mantle.



ARH Solutions 2 Impactor Block (80-3058)



Head Impactor (TR-MS05)

Anatomic Radial Head—Standard Stem Surgical Technique [continued]

11 Postoperative Protocol

Note: The following protocol may be replaced with an alternative protocol at the performing surgeon's discretion.

Postoperative management is determined by the overall management of the elbow and limb, as though the radial head had never been fractured. For isolated fractures of the radial head and collar without ligament injury, early motion is commenced in flexion and extension as well as pronation and supination. This usually begins within the first few days after surgery.

Note: An ARH Removal Tool Shaft (80-2018) and Cross Bar (80-1771) are available in the system for stem removal if needed. For removal instructions, reference the Anatomic Radial Head and Stem Removal technique on page 22.



Figure 17



ARH Removal
Tool Shaft
(80-2018)



Cross Bar
(80-1771)

Anatomic Radial Head—Long Stem Surgical Technique

Shawn W. O’Driscoll, MD, PhD

Stem Diameter	Resection Length	Long Stem Length
6 mm	19 mm	50 mm
7 mm	20.5 mm	52.5 mm
8 mm	22 mm	55 mm
9 mm	23.5 mm	57.5 mm
10 mm	25 mm	60 mm
11 mm	26.5 mm	62.5 mm
12 mm	28 mm	65 mm

Introduction

This technique typically requires two resection steps to accommodate the 10° collar/shaft angle and proportional change in collar length with stem diameter. The first resection clears a path to insert the reamer and the second resection establishes the appropriate insertion depth for the final stem size. If using the 6 mm stem, only one resection is required. If the reamer’s final size is larger than 6 mm (7, 8, 9, 10, 11, or 12 mm), a second cut and subsequent reaming to the instrument’s laser mark band accommodates the respective size of the implant stem. Refer to the Reference Chart for the amount of resection that corresponds with the long stem’s diameter and length.

Figure 1

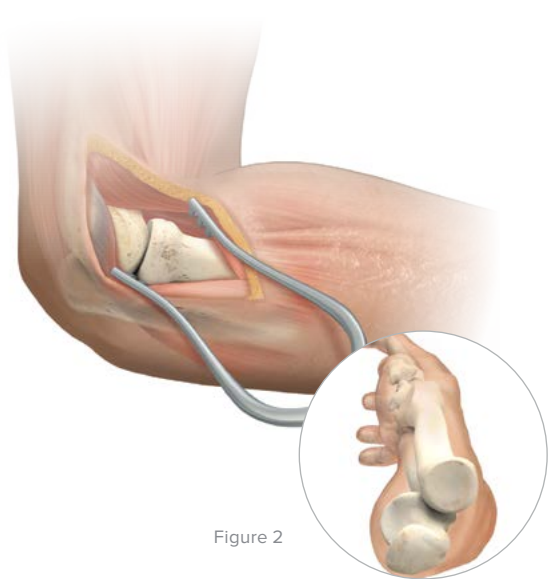


Figure 2

1 Incision and Dissection

There are several exposure options, depending on the integrity of the lateral soft tissues. In fracture-dislocations, the exposure is through the traumatic opening in the ligament complex. For delayed reconstructions, and in those acute cases in which the lateral collateral ligament is intact, the Kaplan interval permits the ligament to be left intact. The deep incision is placed in a line from the lateral epicondyle toward Lister’s tubercle, with the forearm in neutral rotation. Proximally, the extensor carpi radialis longus (ECRL) origin is released with the anterior capsule to permit direct access to the front of the radial head.

Note: Stem removal can be very difficult if a fully porous coated surface is well ingrown with bone. Slap hammers and vice grips may be useful. If revising an Acumed Anatomic Radial Head and Stem, an ARH Removal Tool Shaft (80-2018) and Cross Bar (80-1771) are available for the stem. A removal technique is available on page 22. After stem removal, find the radial canal distal to the end of the primary stem before reaming. This can be done with a small pointed device such as a Rush reamer.

Note: Image intensification (fluoroscopy) can be helpful in avoiding cortical perforation.



ARH Removal Tool Shaft (80-2018)



Cross Bar (80-1771)

Anatomic Radial Head—Long Stem Surgical Technique [continued]

2 Radial Head/Collar Resection

Place the Long Stem Resection Guide (80-1512) against the capitellum and in line with the radial collar.

- ▶ Score the bone with a blade. If there is no bone at the 6 mm level, proceed with sequential reaming.
- ▶ Resect at the 6 mm level within the resection guide using an Osteotomy Saw Blade Hub Style L or S (80-0739-S or 80-0740-S) or 0.6 mm thick blade. This resection level will remove enough collar to allow the reamers to be directly inserted into the radial canal.

Note: The long stem reamers are 0.25 mm undersized from the implants.

3 Determine Stem Diameter

The Radius Retractor (80-1509) is available to elevate the radius. Use the 5.5 mm Quick Release Awl (TR-0206) to initially enter the canal.

- ▶ Starting with the 6 mm Long Stem Reamer (80-1706), prepare the canal for the stem using sequentially larger reamers until a “cortical chatter” and a tight fit are achieved.
- ▶ If the final reamer diameter size is greater than 6 mm, re-cut the radial collar using the Long Stem Resection Guide and microsagittal saw to the length corresponding to the final reamer diameter size.
- ▶ Re-insert the final size reamer until the laser mark band is even with the level of resection.

Note: Confirm the fit by rotating the reamer inside the forearm. If the forearm rotates when the reamer is turned, a sufficiently tight fit has been achieved.

Warning: The Long Stem Reamers (80-17XX) are not intended to be used under power. Using them under power may result in over-reaming or fracturing the radial canal.

Figure 3



Figure 4



6, 8, 10, 12 mm

Figure 5



7, 9, 11 mm



Figure 6



Long Stem
Resection Guide
(80-1512)



Long Stem
Resection Guide
7, 9, 11 mm
(80-3658)



Osteotomy
Saw Blade Hub
Style L or S
(80-0739-S or
80-0740-S)



Radius Retractor
(80-1509)



5.5 mm Quick
Release Awl
(TR-0206)



Long Stem Reamer
(80-1706 to 80-1712)

Anatomic Radial Head—Long Stem Surgical Technique [continued]

Figure 7



4 Determine Head Diameter

Determine head diameter by placing the resected head upside down in the sizing pockets on the ARH Solutions 2 Impactor Block (80-3058). If between sizes, select the smaller diameter.

Figure 8



5 Select Trial Implants and Assemble

After selecting the Trial Head (TR-TH2XX) and Trial Morse Taper Long Stem (TR-TSLXXX), align the laser marks on the head and stem and assemble using hand pressure. The stem laser mark is indicated Left or Right (“L” or “R”) for proper orientation. If the trial head and stem are difficult to connect, apply saline solution prior to connecting.

Note: Left-specific trials are blue and right-specific trials are green.



ARH Solutions 2
Impactor Block
(80-3058)



Trial Head
(TR-TH2XX)



Trial Morse Taper
Long Stem
(TR-TSLXXX)

Anatomic Radial Head—Long Stem Surgical Technique

[continued]

6 Trial Implant Insertion

Rotate the forearm to a neutral rotation. Mark the lateral aspect of the radial collar with the cautery (in line with Lister's tubercle). The stem laser mark is indicated Left or Right ("L" or "R") for proper orientation. Insert the trial into the radius. Insert to the level of the laser mark (line around stem body) or when the appropriate reduction is achieved.

Note: If restoration length is too long, additional reaming and reinsertion of the trial is suggested.

Ensure the dotted laser mark on the stem is aligned with the cautery mark. The Morse Taper Long Stem Alignment Guide (80-2127) can be used to help with alignment during insertion. Check for proper articulation with the capitellum and the coronoid. The coronoid needs to be in contact with the trochlea to ensure proper positioning of the trial.

Warning: Trial components are NOT designed to be implanted.

Note: The long stem trials are the same diameter as the reamers.

Caution: Do NOT impact the trial long stem into the canal. If the trial cannot be placed at the insertion line without impaction, then recheck the reaming depth or resection cut.



Figure 9

7 Implant Assembly

After determining the correct size head and stem with the trials, place the implant stem into the long stem impaction site on the ARH Solutions 2 Impactor Block (80-3058). Align laser marks and assemble the head and stem using hand pressure, then lock the Morse taper engagement between the head and stem using the Head Impactor (TR-MS05) and a mallet.

Note: The long stem implants are not packaged in separate left and right specific packaging. The "Left" and "Right" designations are marked on the stem.

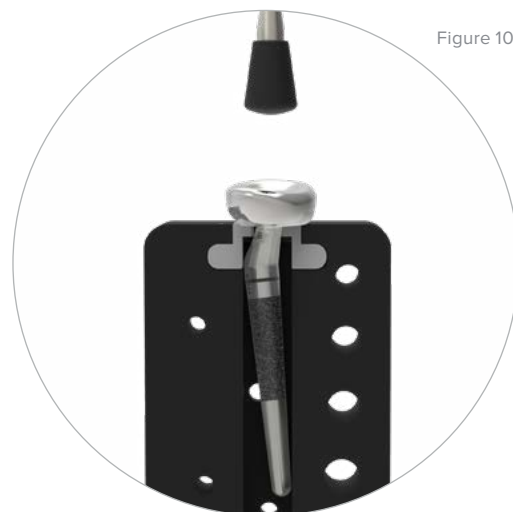


Figure 10



Morse Taper Long Stem Alignment Guide (80-2127)



ARH Solutions 2 Impactor Block (80-3058)



Head Impactor (TR-MS05)

Anatomic Radial Head—Long Stem Surgical Technique [continued]

Figure 11



8a Implant Insertion

Insert the implant into the radius using the Head Impactor (TR-MS05) and a mallet. Insert to the level of the laser mark (line around stem body) or when the appropriate reduction is achieved. Ensure that the dotted laser mark on the stem is aligned with the cautery marking on the lateral aspect of the radius when the forearm is in neutral rotation. The Morse Taper Long Stem Alignment Guide (80-2127) can be used to help with alignment during insertion. Check for proper articulation with the capitellum and the coronoid. Lister's tubercle may also be used as a landmark for laser mark orientation.

Note: The long-stem implants are 0.25 mm larger than the reamers and trials.

8b Alternative Implant Insertion With Bone Cement

If desired, the prosthesis may be cemented into position. The same anatomic landmarks as previously described are used to ensure proper alignment. Select an implant that is one size smaller than the reamer to allow for a 0.5 mm cement mantle. A higher viscosity cement should be used to allow precoating of the stem prior to implantation. The precoat is applied while the cement is malleable. Prior to stem insertion, malleable cement may be inserted into the radial canal. Insert into its anatomic position and hold the elbow in a flexed position while the cement hardens. Insert to the level of the first dot below the laser mark (line around the stem body) or when the appropriate reduction is achieved (Figure 12). Check for cement extrusion around the radial neck and remove if present. Once the cement is firm and cooled (per the cement IFU), the elbow can be moved freely as needed.

Optionally, a cement restrictor (not available through Acumed) may be inserted approximately 1 cm distal to the tip of the implant to prevent extravasation down the intramedullary canal of the radius and to improve the cement mantle.

Figure 12



Head Impactor
(TR-MS05)



Morse Taper Long
Stem Alignment
Guide
(80-2127)

Anatomic Radial Head—Long Stem Surgical Technique

[continued]

9 Postoperative Protocol

Note: The following protocol may be replaced with an alternative protocol at the performing surgeon's discretion.

Postoperative management is determined by the overall management of the elbow and limb, as though the radial head had never been fractured. For isolated fractures of the radial head and collar without ligament injury, early motion is commenced in flexion and extension as well as pronation and supination. This usually begins within the first few days after surgery.

Note: An ARH Removal Tool Shaft (80-2018) and Cross Bar (80-1771) are available in the system for stem removal if needed. For removal instructions, reference the Anatomic Radial Head and Stem Removal technique on page 22.

Figure 13



**ARH Removal
Tool Shaft**
(80-2018)



Cross Bar
(80-1771)

Anatomic Radial Head and Stem Removal Surgical Technique

Shawn W. O'Driscoll, PhD, MD

Figure 1



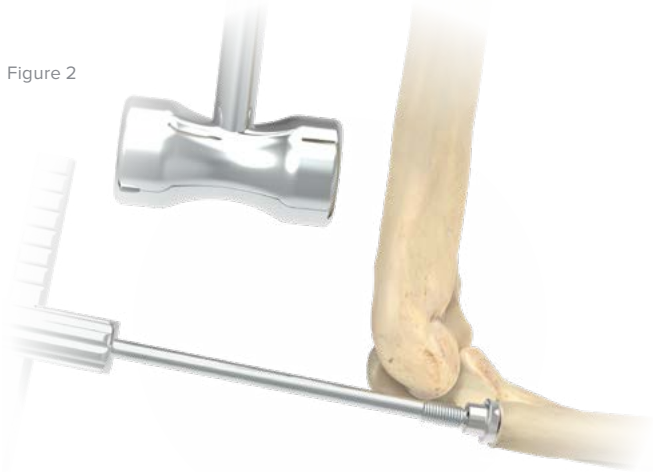
1 Head Removal

To remove the radial head prosthesis from the standard stem, place an osteotome in the Morse taper gap between the head and the stem and tap with a mallet.

If removing a +0 mm collar standard stem (TR-SXX00-S) where there is no Morse taper gap, attach a vice grip to the head and then attach a slap hammer to the vice grip. Use the slap hammer to separate the implant head from the stem.

To remove the radial head prosthesis from a long stem (TR-SLXX-S), use the same vice grip technique as above.

Figure 2



2 Stem Removal

To remove a standard stem or a long stem from the canal, thread the ARH Removal Tool Shaft (80-2018) into the stem. Insert the Cross Bar (80-1771) through the handle of the ARH Removal Tool Shaft. Using a mallet, tap the cross bar until the stem is removed from the canal.



ARH Removal Tool Shaft (80-2018)



Cross Bar (80-1771)

Ordering Information

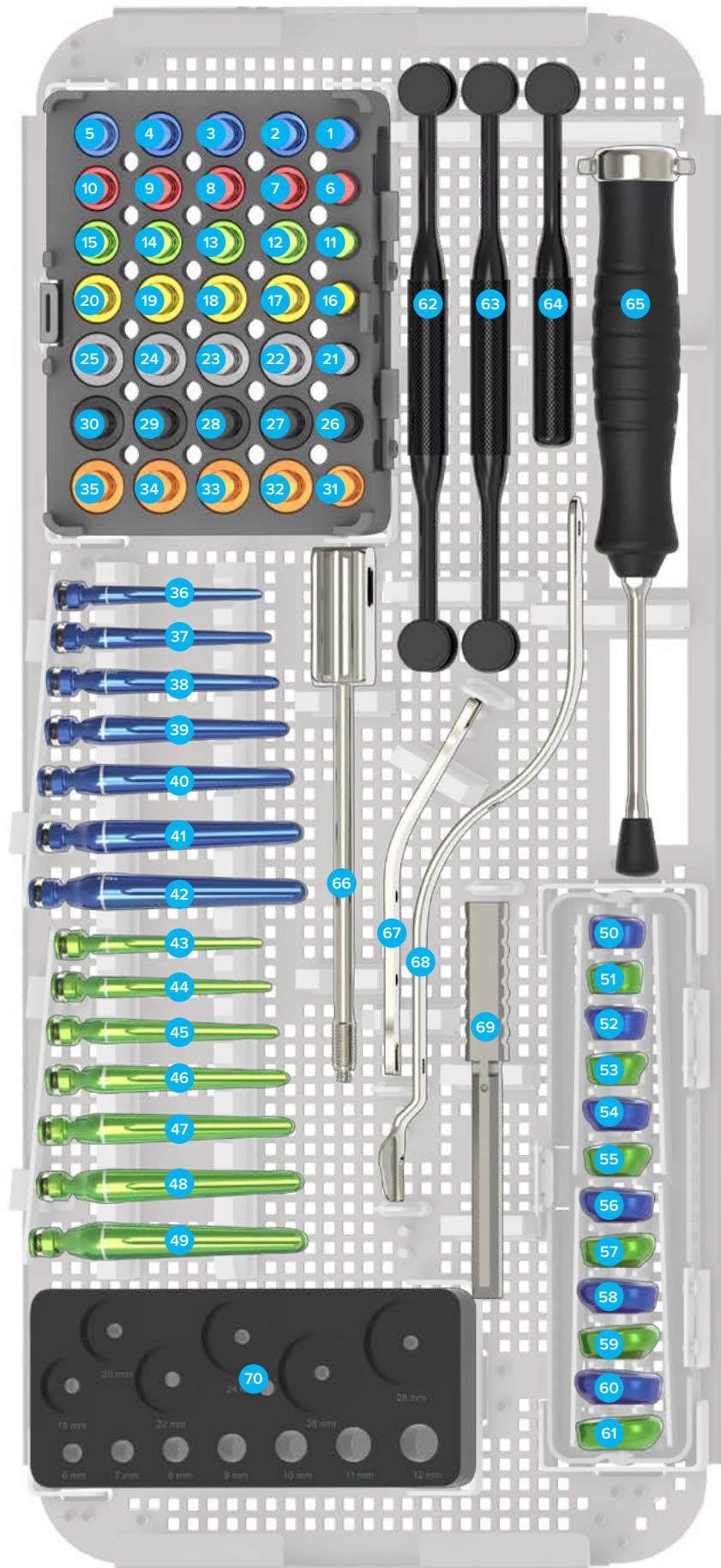
Tray Components

Trial Standard Stems

1	6 mm x 0 mm Trial Stem	TR-TS60	19	9 mm x 6 mm Trial Stem	TR-TS96
2	6 mm x 2 mm Trial Stem	TR-TS62	20	9 mm x 8 mm Trial Stem	TR-TS98
3	6 mm x 4 mm Trial Stem	TR-TS64	21	10 mm x 0 mm Trial Stem	TR-TS100
4	6 mm x 6 mm Trial Stem	TR-TS66	22	10 mm x 2 mm Trial Stem	TR-TS102
5	6 mm x 8 mm Trial Stem	TR-TS68	23	10 mm x 4 mm Trial Stem	TR-TS104
6	7 mm x 0 mm Trial Stem	TR-TS70	24	10 mm x 6 mm Trial Stem	TR-TS106
7	7 mm x 2 mm Trial Stem	TR-TS72	25	10 mm x 8 mm Trial Stem	TR-TS108
8	7 mm x 4 mm Trial Stem	TR-TS74	26	11 mm x 0 mm Trial Stem	TR-TS110
9	7 mm x 6 mm Trial Stem	TR-TS76	27	11 mm x 6 mm Trial Stem	TR-TS112
10	7 mm x 8 mm Trial Stem	TR-TS78	28	11 mm x 4 mm Trial Stem	TR-TS114
11	8 mm x 0 mm Trial Stem	TR-TS80	29	11 mm x 2 mm Trial Stem	TR-TS116
12	8 mm x 2 mm Trial Stem	TR-TS82	30	11 mm x 8 mm Trial Stem	TR-TS118
13	8 mm x 4 mm Trial Stem	TR-TS84	31	12 mm x 0 mm Trial Stem	TR-TS120
14	8 mm x 6 mm Trial Stem	TR-TS86	32	12 mm x 2 mm Trial Stem	TR-TS122
15	8 mm x 8 mm Trial Stem	TR-TS88	33	12 mm x 4 mm Trial Stem	TR-TS124
16	9 mm x 0 mm Trial Stem	TR-TS90	34	12 mm x 6 mm Trial Stem	TR-TS126
17	9 mm x 2 mm Trial Stem	TR-TS92	35	12 mm x 8 mm Trial Stem	TR-TS128
18	9 mm x 4 mm Trial Stem	TR-TS94			

Ordering Information [continued]

Tray Components					
Trial Long Stems		Trial Heads			
36	6 mm Left Trial Long Stem	TR-TSL06L	50	18 mm Trial Head, Right	TR-TH18R
37	7 mm Left Trial Long Stem	TR-TSL07L	51	18 mm Trial Head, Left	TR-TH18L
38	8 mm Left Trial Long Stem	TR-TSL08L	52	20 mm Trial Head, Right	TR-TH20R
39	9 mm Left Trial Long Stem	TR-TSL09L	53	20 mm Trial Head, Left	TR-TH20L
40	10 mm Left Trial Long Stem	TR-TSL10L	54	22 mm Trial Head, Right	TR-TH22R
41	11 mm Left Trial Long Stem	TR-TSL11L	55	22 mm Trial Head, Left	TR-TH22L
42	12 mm Left Trial Long Stem	TR-TSL12L	56	24 mm Trial Head, Right	TR-TH24R
43	6 mm Right Trial Long Stem	TR-TSL06R	57	24 mm Trial Head, Left	TR-TH24L
44	7 mm Right Trial Long Stem	TR-TSL07R	58	26 mm Trial Head, Right	TR-TH26R
45	8 mm Right Trial Long Stem	TR-TSL08R	59	26 mm Trial Head, Left	TR-TH26L
46	9 mm Right Trial Long Stem	TR-TSL09R	60	28 mm Trial Head, Right	TR-TH28R
47	10 mm Right Trial Long Stem	TR-TSL10R	61	28 mm Trial Head, Left	TR-TH28L
48	11 mm Right Trial Long Stem	TR-TSL11R			
49	12 mm Right Trial Long Stem	TR-TSL12R			
Instruments					
62	ARH Solutions 2 Height Gauge +0/+2 mm	80-3649	67	Morse Taper Long Stem Alignment Guide	80-2127
63	ARH Solutions 2 Height Gauge +4/+6 mm	80-3651	68	Radius Retractor	80-1509
64	ARH Solutions 2 Height Gauge +8 mm	80-3654	69	Cross Bar	80-1771
65	Head Impactor	TR-MS05	70	ARH Solutions 2 Impactor Block	80-3058
66	ARH Removal Tool Shaft	80-2018			

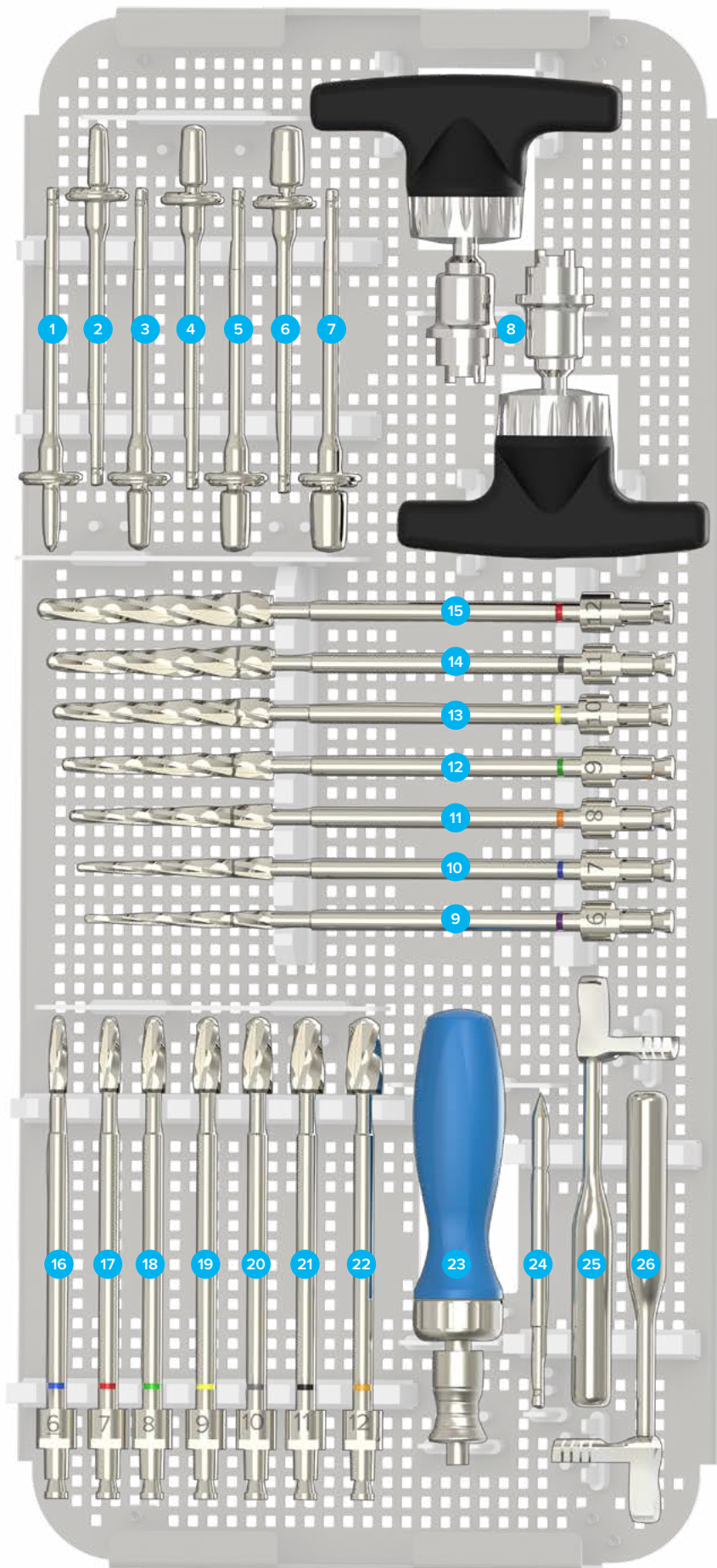


Ordering Information [continued]

Tray Components

Instruments

1	6 mm Collar Reamer	TR-CRA06	16	Standard Stem Reamer 6 mm	80-1606
2	7 mm Collar Reamer	TR-CRA07	17	Standard Stem Reamer 7 mm	80-1607
3	8 mm Collar Reamer	TR-CRA08	18	Standard Stem Reamer 8 mm	80-1608
4	9 mm Collar Reamer	TR-CRA09	19	Standard Stem Reamer 9 mm	80-1609
5	10 mm Collar Reamer	TR-CRA10	20	Standard Stem Reamer 10 mm	80-1610
6	11 mm Collar Reamer	TR-CRA11	21	Standard Stem Reamer 11 mm	80-1611
7	12 mm Collar Reamer	TR-CRA12	22	Standard Stem Reamer 12 mm	80-1612
8	Ratcheting T-Handle	BG-8043	23	Medium Ratcheting Handle	80-0663
9	Long Stem Reamer 6 mm	80-1706	24	5.5 mm Quick Release Awl	TR-0206
10	Long Stem Reamer 7 mm	80-1707	25	Long Stem Resection Guide 7 mm, 9 mm, 11 mm	80-3658
11	Long Stem Reamer 8 mm	80-1708	26	Long Stem Resection Guide 6 mm, 8 mm, 10 mm, 12 mm	80-1512
12	Long Stem Reamer 9 mm	80-1709			
13	Long Stem Reamer 10 mm	80-1710			
14	Long Stem Reamer 11 mm	80-1711			
15	Long Stem Reamer 12 mm	80-1712			



Ordering Information [continued]

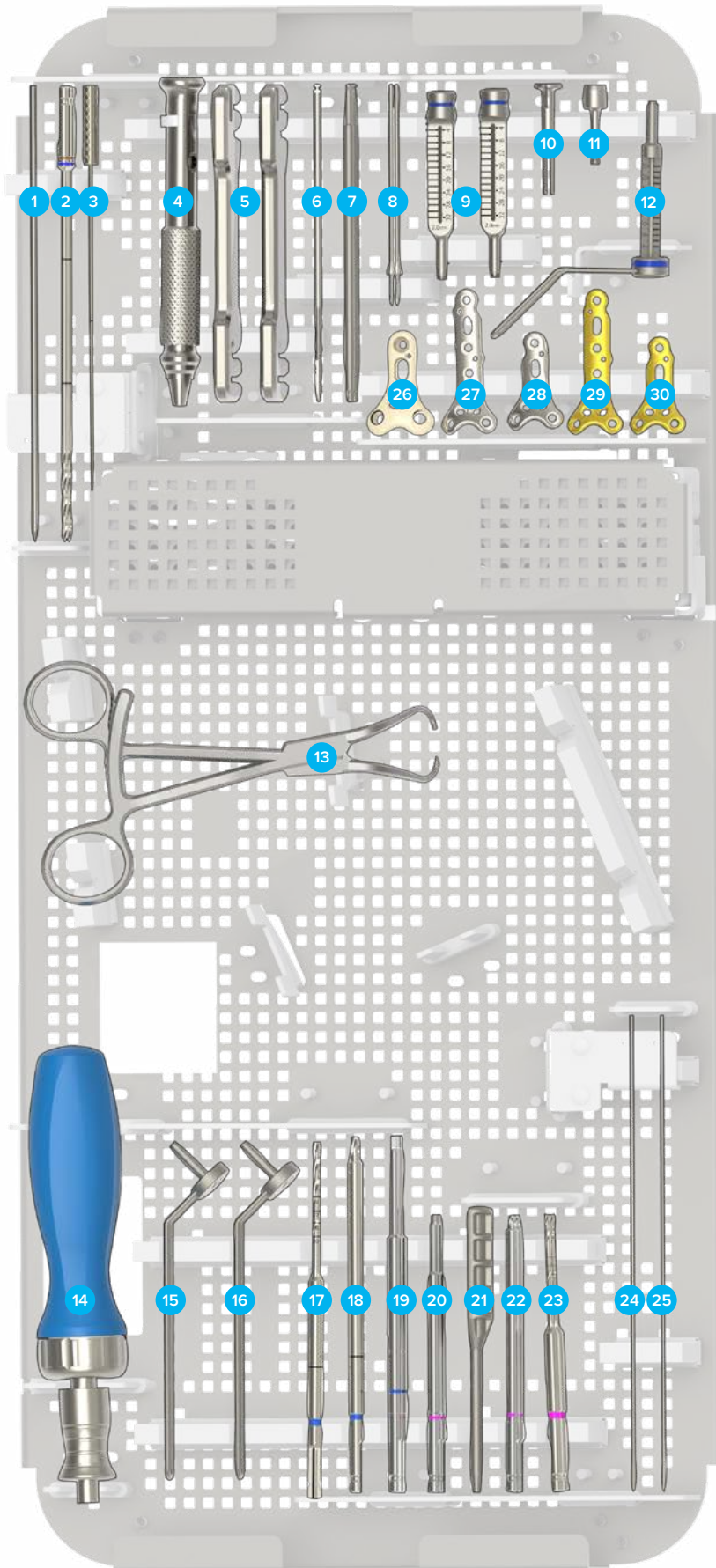
Tray Components

Instruments

1	.054" x 6" Guide Wire	WS-1406ST	14	Medium Ratcheting Handle	80-0663
2	2.0 mm Quick Release Drill	80-0318	15	.035" Parallel Wire Guide Assembly	AT2-3500
3	.035" Depth Probe	80-0357	16	.045" Parallel Wire Guide Assembly	AT2-4500
4	Cruciform Driver Handle	MS-2210	17	Mini Acutrak 2 Drill, Long	AT2M-L1813
5	Small Plate Benders	80-0363	18	Mini Acutrak 2 Drill	AT2M-1813
6	2.3 mm Bone Tap	80-0362	19	2.0 mm Cannulated Quick Release Driver Tip	HT-1120
7	1.5 mm Hex Driver Tip (small shaft)	HPC-0015	20	1.5 mm Cannulated Quick Release Driver Tip	HT-0915
8	Plate Tack	80-0248	21	AT2 Screw Sizer	AT2-SMCZ
9	2.0 mm Locking Drill Guide 4–32 mm	80-0249	22	Micro Acutrak 2 Drill	AT2-1509
10	2.3 mm Screw Sleeve	MS-SS23	23	Micro Acutrak 2 Drill, Long	80-0100
11	Targeting Guide Locking Bolt	80-0247	24	.035" x 5.75" ST Guide Wire	WS-0906ST
12	2.0 mm Non-Locking Drill Guide Assembly 4–32 mm	80-0394	25	.045" x 6" ST Guide Wire	WS-1106ST
13	Small Pointed Reduction Forceps	OW-1200			

Radial Head Plating

26	Locking Radial Head Plate Targeting Guide	80-0246
27	Locking Radial Head Plate 5 Hole Small Curvature	70-0100
28	Locking Radial Head Plate 3 Hole Small Curvature	70-0099
29	Locking Radial Head Plate 5 Hole Standard Curvature	70-0098
30	Locking Radial Head Plate 3 Hole Standard Curvature	70-0097



Ordering Information [continued]

Sterile Implants*

ARH Solutions 2 Head Implants

ARH Solutions 2 Head 18 mm, Left	5001-0518L-S	ARH Solutions 2 Head 24 mm, Left	5001-0524L-S
ARH Solutions 2 Head 18 mm, Right	5001-0518R-S	ARH Solutions 2 Head 24 mm, Right	5001-0524R-S
ARH Solutions 2 Head 20 mm, Left	5001-0520L-S	ARH Solutions 2 Head 26 mm, Left	5001-0526L-S
ARH Solutions 2 Head 20 mm, Right	5001-0520R-S	ARH Solutions 2 Head 26 mm, Right	5001-0526R-S
ARH Solutions 2 Head 22 mm, Left	5001-0522L-S	ARH Solutions 2 Head 28 mm, Left	5001-0528L-S
ARH Solutions 2 Head 22 mm, Right	5001-0522R-S	ARH Solutions 2 Head 28 mm, Right	5001-0528R-S

Standard Stem Implants

6 mm x 0 mm Stem	TR-S0600-S	9 mm x 6 mm Stem	TR-S0906-S
6 mm x 2 mm Stem	TR-S0602-S	9 mm x 8 mm Stem	TR-S0908-S
6 mm x 4 mm Stem	TR-S0604-S	10 mm x 0 mm Stem	TR-S1000-S
6 mm x 6 mm Stem	TR-S0606-S	10 mm x 2 mm Stem	TR-S1002-S
6 mm x 8 mm Stem	TR-S0608-S	10 mm x 4 mm Stem	TR-S1004-S
7 mm x 0 mm Stem	TR-S0700-S	10 mm x 6 mm Stem	TR-S1006-S
7 mm x 2 mm Stem	TR-S0702-S	10 mm x 8 mm Stem	TR-S1008-S
7 mm x 4 mm Stem	TR-S0704-S	11 mm x 0 mm Stem	TR-S1100-S
7 mm x 6 mm Stem	TR-S0706-S	11 mm x 2 mm Stem	TR-S1102-S
7 mm x 8 mm Stem	TR-S0708-S	11 mm x 4 mm Stem	TR-S1104-S
8 mm x 0 mm Stem	TR-S0800-S	11 mm x 6 mm Stem	TR-S1106-S
8 mm x 2 mm Stem	TR-S0802-S	11 mm x 8 mm Stem	TR-S1108-S
8 mm x 4 mm Stem	TR-S0804-S	12 mm x 0 mm Stem	TR-S1200-S
8 mm x 6 mm Stem	TR-S0806-S	12 mm x 2 mm Stem	TR-S1202-S
8 mm x 8 mm Stem	TR-S0808-S	12 mm x 4 mm Stem	TR-S1204-S
9 mm x 0 mm Stem	TR-S0900-S	12 mm x 6 mm Stem	TR-S1206-S
9 mm x 2 mm Stem	TR-S0902-S	12 mm x 8 mm Stem	TR-S1208-S
9 mm x 4 mm Stem	TR-S0904-S		

Ordering Information [continued]

Sterile Implants*

Partial Grit Blast Standard Stems (Optional)

6 mm x 0 mm ARH Partial Blast Stem	50-0056-S	10 mm x 0 mm ARH Partial Blast Stem	50-0076-S
6 mm x 2 mm ARH Partial Blast Stem	50-0057-S	10 mm x 2 mm ARH Partial Blast Stem	50-0077-S
6 mm x 4 mm ARH Partial Blast Stem	50-0058-S	10 mm x 4 mm ARH Partial Blast Stem	50-0078-S
6 mm x 6 mm ARH Partial Blast Stem	50-0059-S	10 mm x 6 mm ARH Partial Blast Stem	50-0079-S
6 mm x 8 mm ARH Partial Blast Stem	50-0060-S	10 mm x 8 mm ARH Partial Blast Stem	50-0080-S
7 mm x 0 mm ARH Partial Blast Stem	50-0061-S	11 mm x 0 mm ARH Partial Blast Stem	50-0109-S
7 mm x 2 mm ARH Partial Blast Stem	50-0062-S	11 mm x 2 mm ARH Partial Blast Stem	50-0110-S
7 mm x 4 mm ARH Partial Blast Stem	50-0063-S	11 mm x 4 mm ARH Partial Blast Stem	50-0111-S
7 mm x 6 mm ARH Partial Blast Stem	50-0064-S	11 mm x 6 mm ARH Partial Blast Stem	50-0112-S
7 mm x 8 mm ARH Partial Blast Stem	50-0065-S	11 mm x 8 mm ARH Partial Blast Stem	50-0113-S
8 mm x 0 mm ARH Partial Blast Stem	50-0066-S	12 mm x 0 mm ARH Partial Blast Stem	50-0114-S
8 mm x 2 mm ARH Partial Blast Stem	50-0067-S	12 mm x 2 mm ARH Partial Blast Stem	50-0115-S
8 mm x 4 mm ARH Partial Blast Stem	50-0068-S	12 mm x 4 mm ARH Partial Blast Stem	50-0116-S
8 mm x 6 mm ARH Partial Blast Stem	50-0069-S	12 mm x 6 mm ARH Partial Blast Stem	50-0117-S
8 mm x 8 mm ARH Partial Blast Stem	50-0070-S	12 mm x 8 mm ARH Partial Blast Stem	50-0118-S
9 mm x 0 mm ARH Partial Blast Stem	50-0071-S		
9 mm x 2 mm ARH Partial Blast Stem	50-0072-S		
9 mm x 4 mm ARH Partial Blast Stem	50-0073-S		
9 mm x 6 mm ARH Partial Blast Stem	50-0074-S		
9 mm x 8 mm ARH Partial Blast Stem	50-0075-S		

Ordering Information [continued]

Sterile Implants*

Long Stem Implants

6 mm Morse Taper Long Stem	TR-SL06-S	10 mm Morse Taper Long Stem	TR-SL10-S
7 mm Morse Taper Long Stem	TR-SL07-S	11 mm Morse Taper Long Stem	TR-SL11-S
8 mm Morse Taper Long Stem	TR-SL08-S	12 mm Morse Taper Long Stem	TR-SL12-S
9 mm Morse Taper Long Stem	TR-SL09-S		

Additional Components

Instruments

ARH Solutions 2 Std Stem X-Ray Template	90-0051	Morse Taper Long Stem Alignment Guide	80-2127
ARH Solutions 2 Long Stem X-Ray Template	90-0050		

Tray

ARH Solutions 2 Case Base	80-3640	ARH Solutions 2 Trial Heads Caddy Assembly	80-3784
ARH Solutions 2 Case Lid	80-3641	ARH Solutions 2 Standard Stem Caddy Assembly	80-3783
ARH Solutions 2 Tray 1	80-3642	ARH Solutions 2 LRHP Screws Caddy Assembly	80-3785
ARH Solutions 2 Tray 2	80-3643		
ARH Solutions 2 Tray 3	80-3646		

Optional Components

Osteotomy Saw Blade Hub Style L	80-0739-S	Osteotomy Saw Blade Hub Style S	80-0740-S
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***Please note:** Implants are provided sterile-packed, separate from the system tray.

Note: To learn more about the full line of Acumed innovative surgical solutions, please contact your authorized Acumed distributor, call 888.627.9957, or visit www.acumed.net.

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1. Sahu D, Holmes DM, Fitzsimmons JS, et al. Influence of radial head prosthesis design on radiocapitellar joint contact mechanics. *J Shoulder Elbow Surg.* 2014;23(4):456–462.
2. Bachman DR, Thaveepunsan S, Park S, Fitzsimmons JS, An KN, O'Driscoll SW. The effect of prosthetic radial head geometry on the distribution and magnitude of radiocapitellar joint contact pressures. *J Hand Surg Am.* 2015;40(2):281-288.
3. Doornberg JN, Linzel DS, Zurakowski D, Ring D. Reference points for radial head prosthesis size. *J Hand Surg Am.* 2006;31(1):53-57.



Acumed Headquarters
5885 NE Cornelius Pass Road
Hillsboro, OR 97124
Office: +1.888.627.9957
Office: +1.503.627.9957
Fax: +1.503.520.9618
www.acumed.net

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