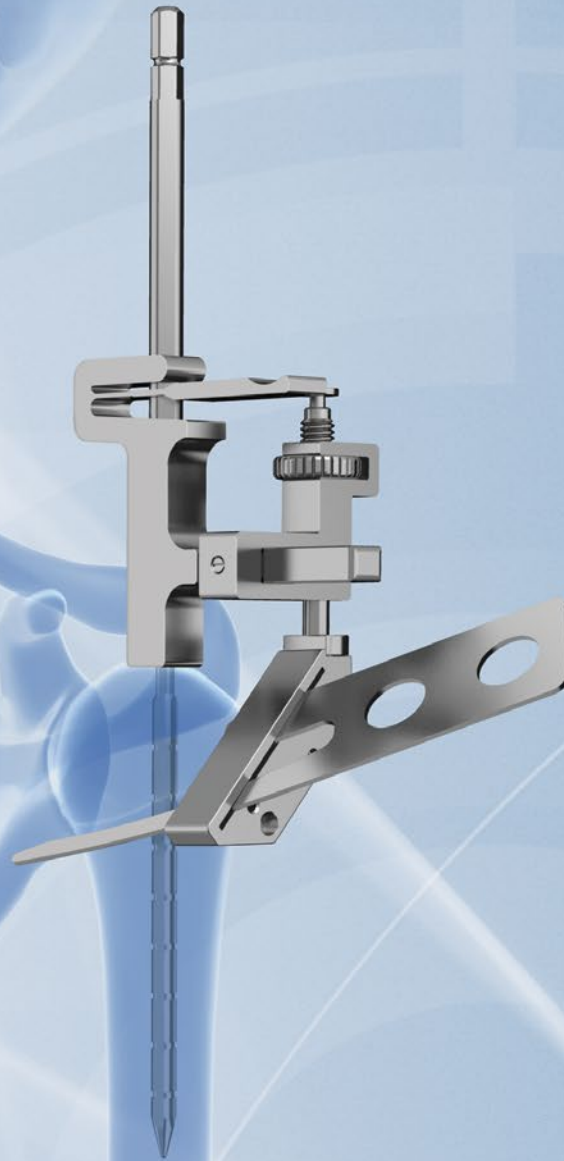


stryker®



ReUnion® TSA Shoulder System

Humeral Surgical Protocol

This document is intended to be used by
healthcare professionals only.

ReUnion TSA

Humeral Surgical Protocol

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Acknowledgments

Stryker Orthopaedics wishes to thank the ReUnion TSA Shoulder System Surgeon Panel for their dedication to the development and refinement of the ReUnion TSA Shoulder System, instrumentation, and surgical protocol.



Indications

For use as a Hemi or Total Shoulder Replacement

- Aseptic necrosis of the humeral head.
- Painful, disabling joint disease of the shoulder resulting from: degenerative arthritis, rheumatoid arthritis or post-traumatic arthritis.
- Proximal humeral fracture and/or dislocation.
- Clinical management problems where arthrodesis or alternative reconstructive techniques are less likely to achieve satisfactory results.
- Revision of previous unsuccessful total shoulder replacement, resurfacing or other procedure.

Glenoid components are intended for cemented use only. The humeral stem components are intended for both cemented and cementless use.

Contraindications

- Any active or suspected latent infection in or about the shoulder joint.
- Any mental or neuromuscular disorder which would create an unacceptable risk of prosthesis instability, prosthesis fixation failure, or complications in postoperative care.
- Bone stock compromised by disease, infection or prior implantation which cannot provide adequate support and/or fixation to the prosthesis.
- Skeletal immaturity.
- Patients whose anticipated activities would impose high stresses on the prosthesis and its fixation.
- Obesity. An overweight or obese patient can produce loads on the prosthesis which can lead to failure of fixation of the device or to failure of the device itself.

Additional Total Shoulder Contraindications:

- Absent, irreparable or non-functioning rotator cuff and other essential muscles.

See package insert for warnings, precautions, adverse effects and other essential product information.

Patient Counseling

Surgeons should discuss all relevant contraindications, adverse effects and the need for post-implantation protection with their patients.

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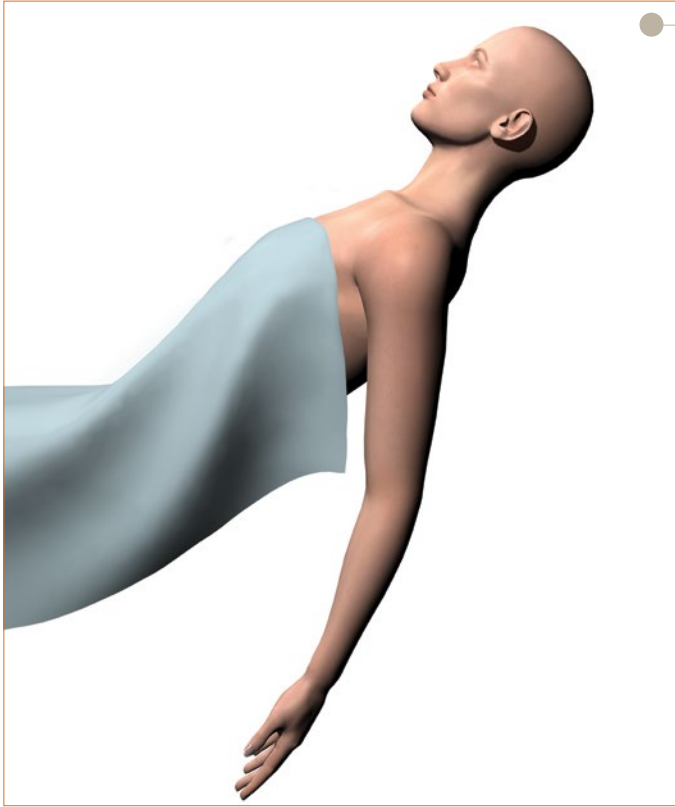


Figure 1

Surgical Technique

Patient Positioning

- ▶ For standard shoulder arthroplasty, the patient is positioned in a semi-Fowler's (beach chair) position. The torso is inclined 30° to 45° and the legs are padded and bent. The patient's shoulder is brought to the edge of the table to allow full extension of the arm, thus affording exposure of the humeral shaft. A bolster may be placed beneath the involved scapula to improve exposure of the articular surface.



Figure 2

- ▶ The head is stabilized to avoid movement during the procedure. It is recommended that anesthesia be brought to the contralateral side of the table to allow full access to the surgical field.



Tech Tip:

Consideration may be given to a commercially available beach chair positioner.

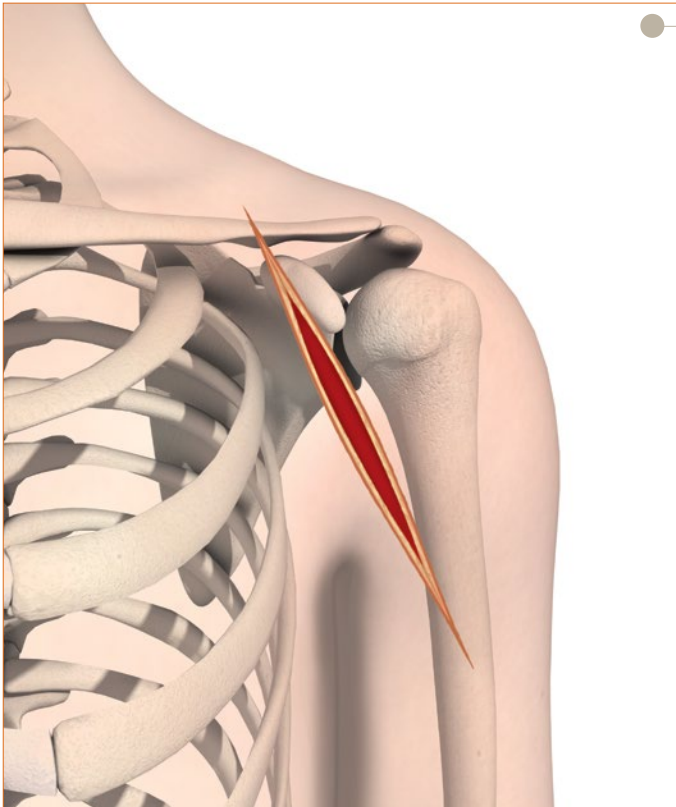


Figure 3

Surgical Technique

Surgical Approach

For most cases, an extended delto-pectoral incision will be adequate to allow exposure to all involved structures. This begins 3-4cm medial to the acromioclavicular joint coursing distally over the coracoid process and along the delto-pectoral interval. You will note that the cephalic vein is medial to the coracoid.

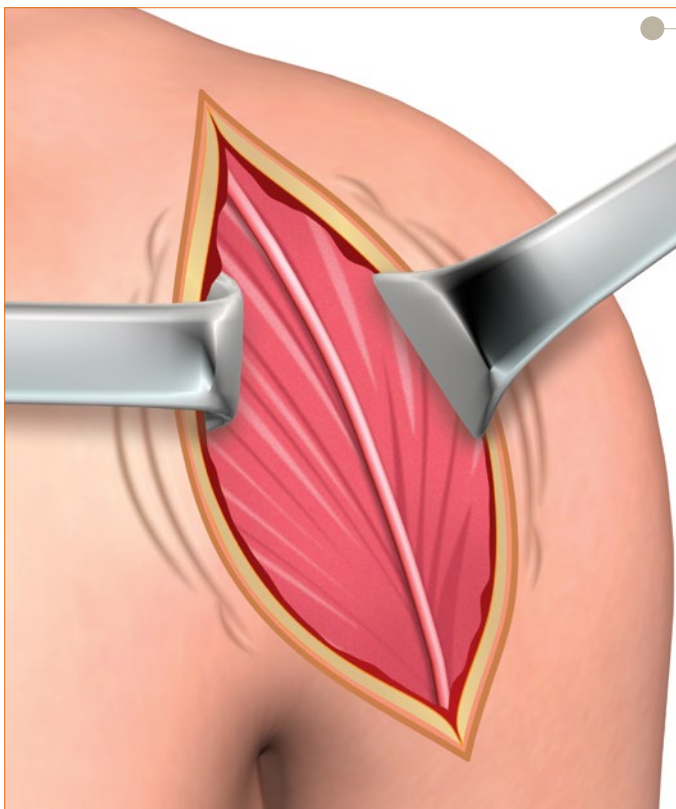


Figure 4

- ▶ The incision is then taken down through subcutaneous tissue to the delto-pectoral interval. The cephalic vein is identified and usually taken laterally with the deltoid to preserve the lateral perforators.

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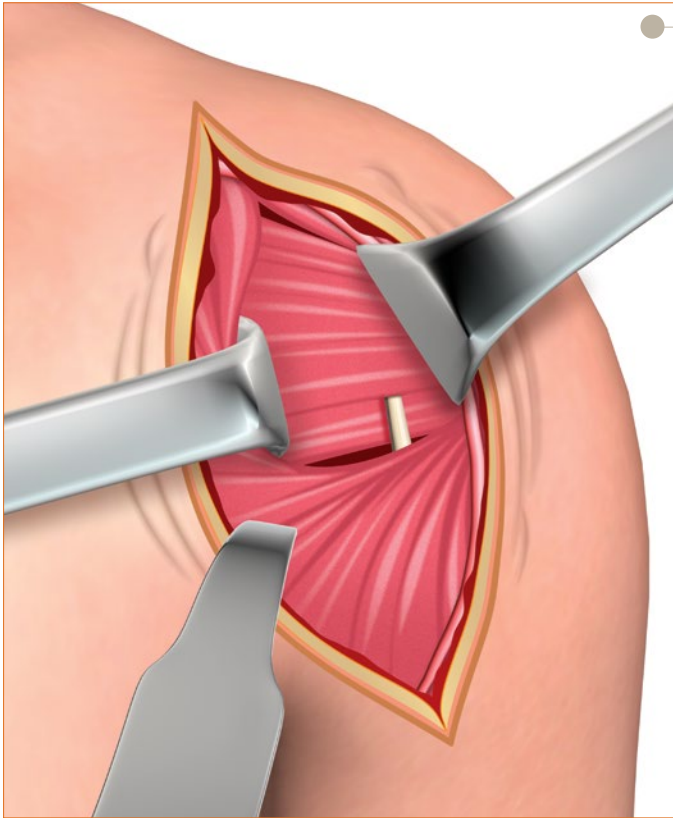


Figure 5

Pectoralis Major Tendon Release

- ▶ A self-retaining or Richardson type retractor may be placed beneath the pectoralis medially and the deltoid laterally. The conjoined tendons, as they originate from the coracoid process, are identified and the interval deep to the tendons and superficial to the subscapularis is carefully developed by finger dissection. The medial retractor can be repositioned in this interval, respecting the musculocutaneous nerve and other neurovascular structures medially.

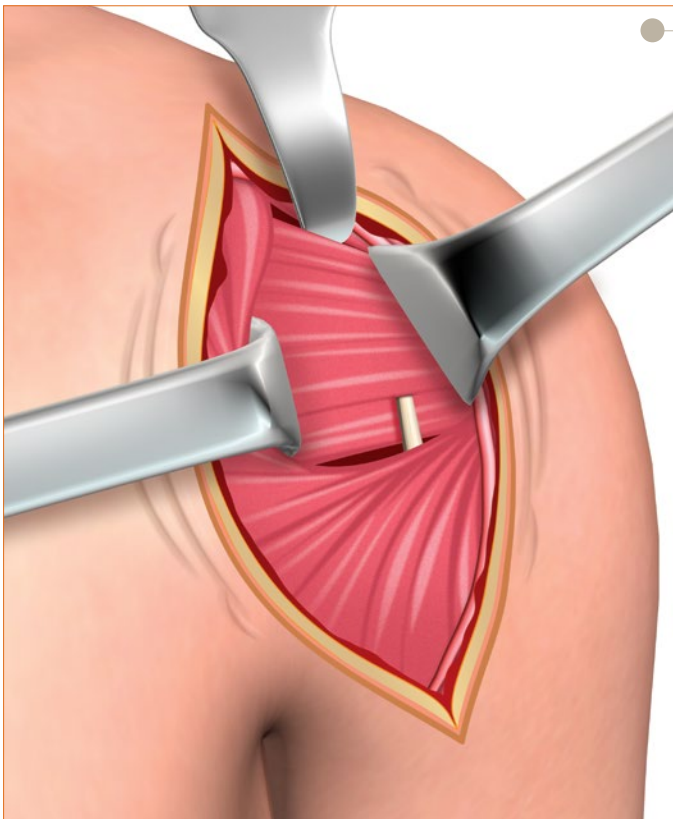


Figure 6

- ▶ A blunt retractor is then passed superiorly beneath the coracoacromial ligament and acromion and superficial to the rotator cuff tendons. This allows additional exposure of the rotator interval and the anterior capsule.

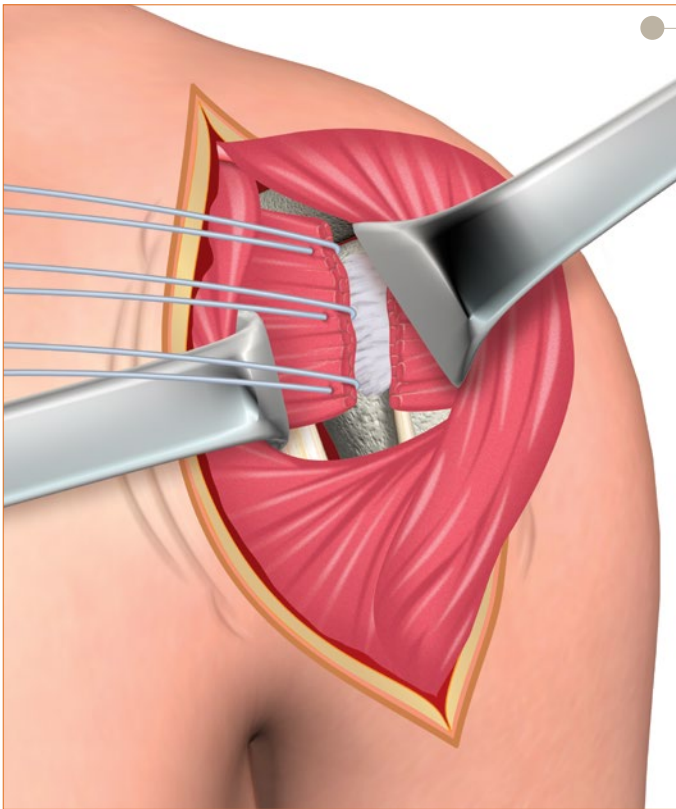


Figure 7

Subscapularis Tendon Release (Capsulotomy)

- ▶ Prior to performing the anterior capsulotomy for exposure, the surgeon should determine the amount of passive external rotation available given the degree of soft tissue contracture or bony deformity.
- ▶ In most cases, a full thickness capsulotomy releasing both subscapularis and capsule simultaneously may be performed for exposure.
- ▶ The vertical limb of the capsulotomy begins 1.5cm-2cm medial to the biceps tendon. This runs from the rotator interval, superiorly to the inferior margin of the subscapularis tendon distally.
- ▶ A horizontal limb, following the rotator cuff interval is created. Inferiorly the subscapularis and its muscular portion and the underlying capsule is released and progressing external rotation from the metaphyseal flare. Placement of traction sutures in the tendon aids in its release.

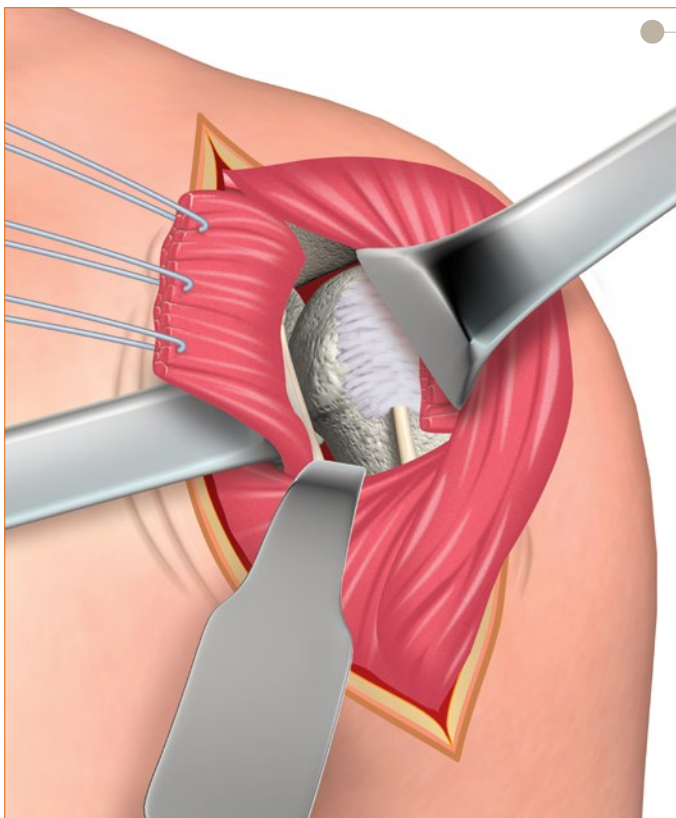


Figure 8

- ▶ In most cases of arthritis of the glenohumeral joint, osteophytic spurring on the inferior portion of the humeral head will result in capsular shortening, loss of external rotation, and will necessitate release to allow exposure of the humeral head.
- ▶ This is best accomplished by placing a retractor within the capsule at the inferior margin of the humeral head, externally rotating the arm, adducting and releasing that capsule intra-articularly, thus avoiding injury to the extracapsular axillary nerve. This step is critical in gaining exposure.



Tech Tip:

A constant understanding of the location of the axillary nerve is critical during exposure.

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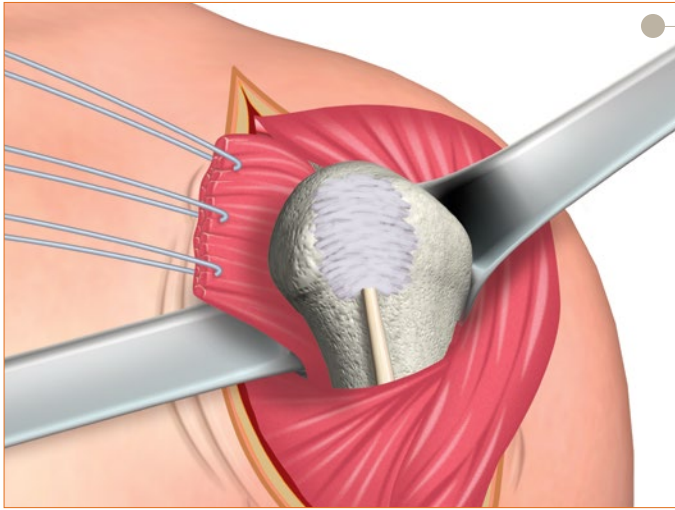


Figure 9

Removal of Osteophytes

- ▶ With the capsulotomy complete, the humeral head can be dislocated with external rotation and a pull from behind the proximal arm, delivering the humerus anterior and lateral.
- ▶ Osteophytes are removed inferiorly and anteriorly to determine the level of head resection, and to define the anatomic neck and articular margins.

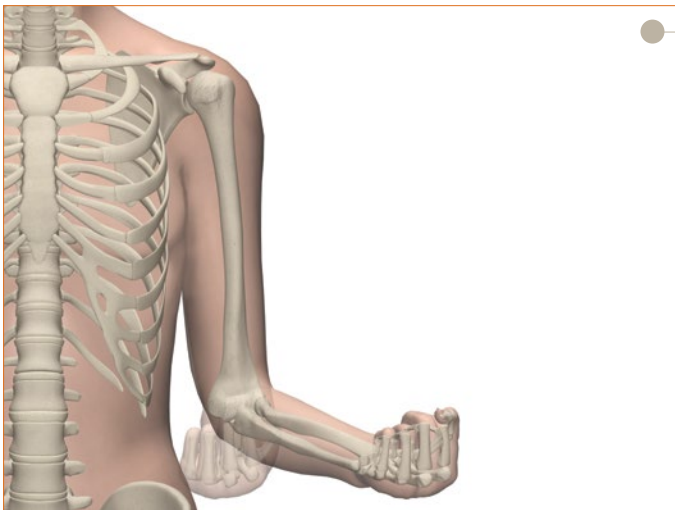


Figure 10

The humeral resection may be performed using either an intramedullary or extramedullary resection guide. Both methods are described below.

- ▶ This step is critical in determining the orientation of the humeral head in relation to the glenoid. Furthermore, the extent of osteophytes, loose bodies, and humeral head deformation needs to be determined preoperatively with templating and radiographic studies.

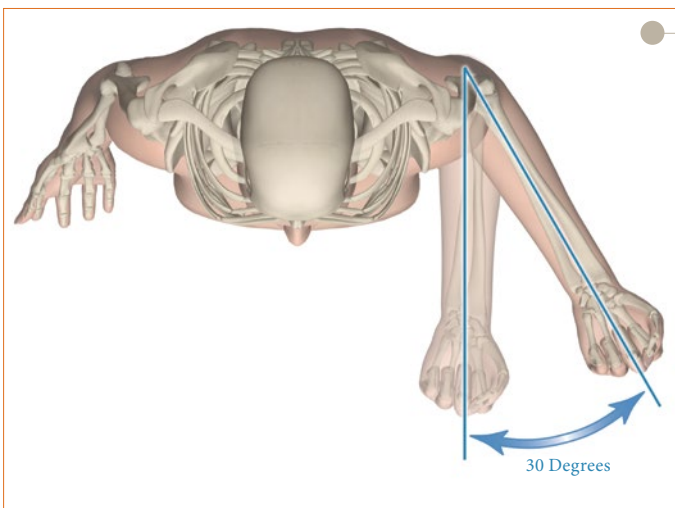


Figure 11

- ▶ In most cases, the humeral component should be set in approximately 30° of retroversion. There are a number of techniques that may be employed to achieve this retroversion. By flexing the elbow 90° and externally rotating the arm 30°, the humeral head cut is made straight on, thereby achieving 30° of retroversion.



Figure 12

Humeral Head Resection & Canal Reaming

Instructions for Extramedullary (EM) Resection Guide

- ▶ Once the margin of the articular surface is determined, the extramedullary humeral resection guide should be placed on the anterior aspect, parallel to the long axis of the humeral shaft.
- ▶ Adjust the cutting block to the proper angular stop, left or right and verify that the resection block is fully against the stop, prior to tightening the locking knob.



Notes:

The correct height is determined superior-laterally by the attachment of the supraspinatus tendon.



Tech Tip:

- The cut should be at the margin of the cuff attachment, removing the articular surface, but preserving the tendon attachment. Care should be taken to protect the biceps tendon and rotator cuff insertion with a small Hohman, Bennett or Crego retractor during head resection.
- Accurate retroversion of the cut will remove all of the articular surface posteriorly, but preserve the posterior capsule and cuff attachments.

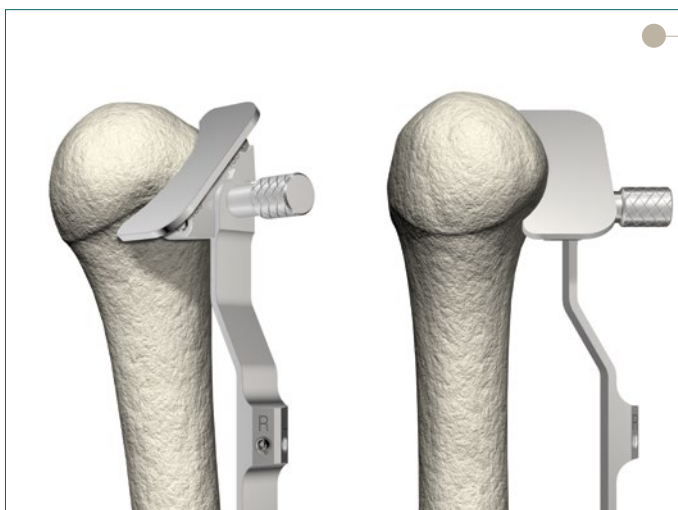


Figure 13

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Figure 14

- ▶ Prior to headless pin insertion, ensure that the arm is in proper retroversion using the 30° version rod and setting the arm in correct retroversion.
- ▶ The version rod should align with the patient's forearm.



Figure 15

- ▶ When the correct retroversion has been determined, pin the external humeral resection guide to the humeral shaft using the headless pins inserted at slightly diverging angles.
- ▶ If desired, mark the angle of the resection at a height appropriate for the desired head resection.
- ▶ The angle of resection (135°) is marked and the humeral cut is initiated.



Note:

Remove the version rod prior to initiating resection.



Warning:

Do not use the version rod to rotate the assembly.

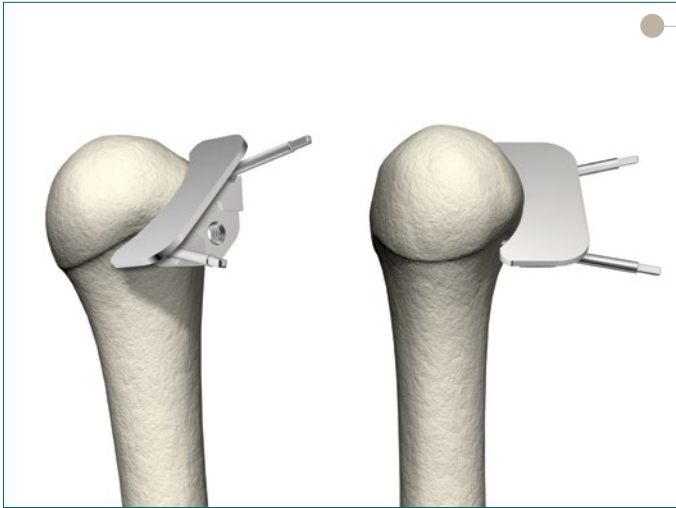


Figure 16

- ▶ Once pinned in place, the knob can be loosened and the vertical shaft of the EM cutting guide can be removed to improve access for making the resection.
- ▶ Place the oscillating saw blade along the flat surface of the guide and complete the humeral head resection.



Notes:

A sagittal sawblade that has a width of ½" (12mm) or less is desirable.

Ensure that the blade is oscillating prior to coming in contact with bone.

Inspect sawblade for any defects prior to utilization.

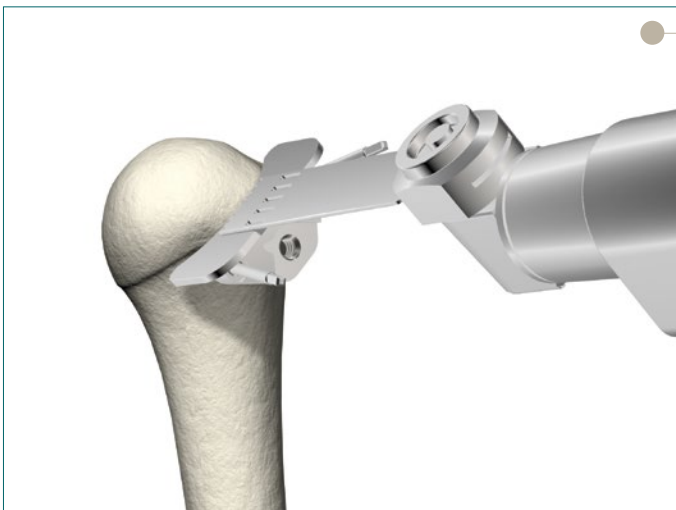


Figure 17

- ▶ The guide can be removed and the cut completed freehand or refined with a rongeur; any residual osteophytes, especially posteriorly, should be resected using an osteotome.
- ▶ The resected head should be saved for later comparison and sizing of the modular humeral head options, as well as a source for bone graft.



Note:

The saw blade should remain flush against the resection plane of the resection guide prior to initiating the humeral head resection.

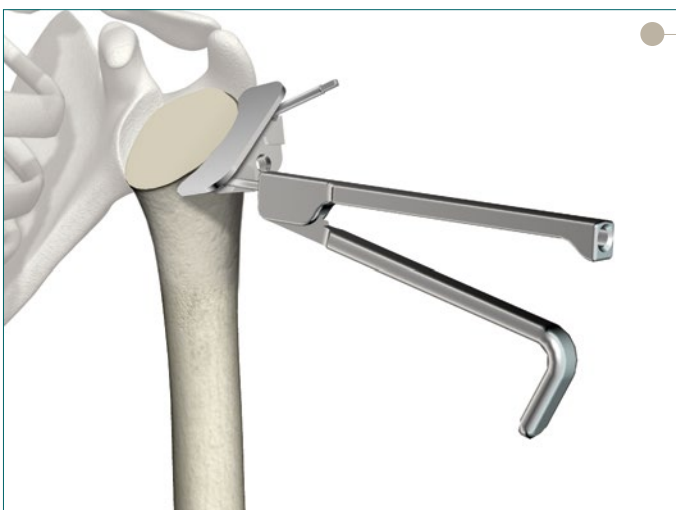


Figure 18

- ▶ Once the cut has been completed, remove the headless pins using the headless pin removal tool and then the cutting block.

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- ▶ Retractors are placed beneath the rotator cuff tissue superiorly and medially to provide adequate exposure of the canal for reaming. Reaming begins with bullet-tip fluted cylindrical reamers.
- ▶ Placement should be somewhat lateral and just posterior to the bicipital groove. This will allow for appropriate position within the canal.
- ▶ Reaming should be performed manually using the quick release ratcheting T-handle and be progressive in size (i.e. 7mm, 8mm, 9mm, etc) until friction is felt as the reamer contacts cortical bone.



Tech Tip:

It is important not to let the coracoid / conjoined tendon crowd posterior humeral metaphysis and force your canal entry too anterior.

Figure 19

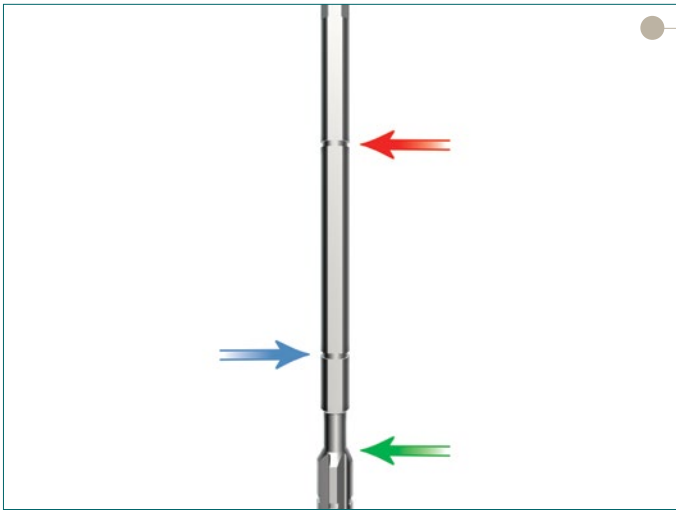


Figure 20

- ▶ For a press-fit stem with the head resected, the reamer should be inserted to the top of the cutting teeth (Figure 19, Green Arrow).
- ▶ If the humeral head has not already been resected and/or a cemented stem with cement restrictor is going to be utilized, the reamer should be inserted to the depth of the first line above the cutting teeth (Figure 19, Blue Arrow).
- ▶ If a long stem prosthesis is indicated, reaming depth is to the second line positioned near the top of the reamer shaft (Figure 19, Red Arrow).



Note:

These engraved marks are only present on reamer sizes 8 and above.

The last reamer size used will match the distal size of the broach to be used.



Warning:

The slotted mallet should not be utilized to strike the underside of the ratcheting T-handle for extraction or removal of the starter awl or cylindrical reamers.

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Figure 21



Figure 22

Humeral Head Resection & Canal Reaming

Instructions for Intramedullary (IM) Resection Guide

- ▶ Assemble the 6mm starter awl and the ratcheting T-handle. Place the tip of the starter awl in line with the long axis of the humerus and bore a pilot hole through the humeral head along the long axis.
- ▶ Placement should be somewhat lateral and just posterior to the bicipital groove. This will allow for appropriate valgus position within the canal.
- ▶ The entry point is made posterior to the bicipital groove, relatively lateral on the head's articular surface and just medial to the rotator cuff attachment. Using a mallet, lightly tap the awl into the canal.
- ▶ The starter awl can be impacted through the humeral head starting position using the mallet to impact on the metal pad of the T-handle.



Note:

The T-handle can be placed into three different positions marked on the collar near the silicone handle. These positions are marked as "R" for REVERSE, "L" for LOCKED, and "F" for FORWARD. The user should align the white arrow marker with the appropriate directional setting during use.

- ▶ Manually insert the starter awl until the larger diameter portion (positive stop) above the cutting teeth is located just above the humeral head.



Tech Tip:

It is important not to let the coracoid / conjoined tendon crowd posterior humeral metaphysis and force your canal entry too anterior.

- ▶ Once the entry point has been made through the humeral canal, remove the 6mm starter awl and begin to ream the humeral canal with the fluted cylindrical humeral reamers.

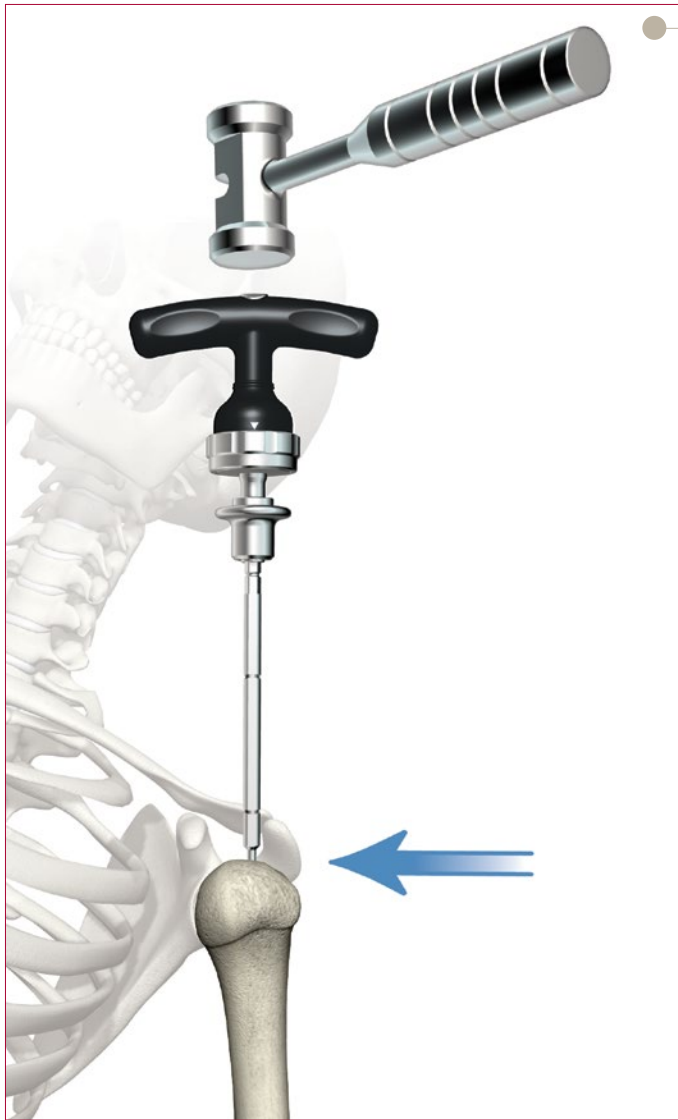


Figure 23

- ▶ Retractors are placed beneath the rotator cuff tissue superiorly and medially to provide adequate exposure of the canal for reaming. A Darrach retractor along the posterior humerus can lever against the coracoid, exposing the entire humeral metaphysis. Reaming begins with bullet-tip fluted cylindrical reamers.
- ▶ Reaming should be performed manually using the quick release ratcheting T-handle and be progressive in size (i.e. 7mm, 8mm, 9mm, etc) until friction is felt as the reamer contacts cortical bone.
- ▶ When cortical contact is achieved, detach the ratcheting T-handle and leave the last reamer used within the humeral canal.



Note:

These engraved marks are only present on reamer sizes 8 and above.

The last reamer size used will match the distal size of the broach to be used.



Warning:

The slotted mallet should not be utilized to strike the underside of the ratcheting T-handle for extraction or removal of the starter awl or cylindrical reamers.

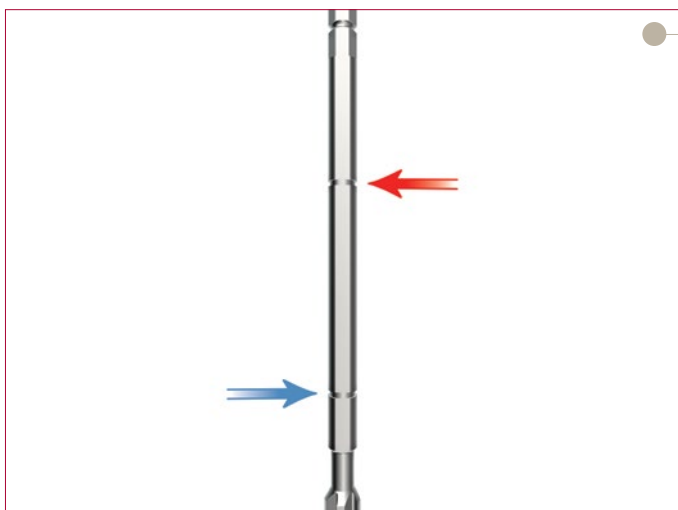


Figure 24

- ▶ When utilizing the IM resection guide or whenever utilizing a cement restrictor, the fluted cylindrical reamers should be inserted to the first line above the cutting teeth (Figure 23, Blue Arrow).
- ▶ If a long stem prosthesis is to be utilized, reaming depth is to the second line positioned near the top of the reamer shaft (Figure 23, Red Arrow).

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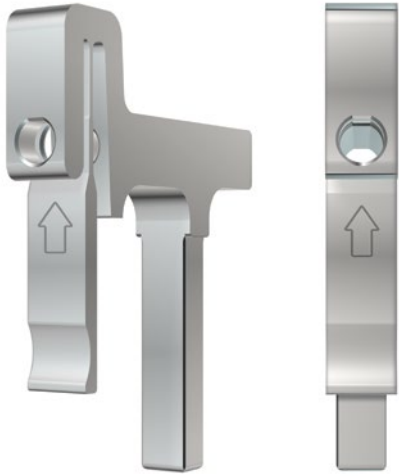


Figure 25

- ▶ Make sure that the clamp tower can be assembled correctly by aligning the engrave arrow on the clamp tower to the engraved arrow on the cylindrical reamer.



Note:

The starter awl and all of the cylindrical reamers have the “D” shaped cross section marked by a large arrow, to mate with the large arrow marked IM resection guide’s clamp tower.

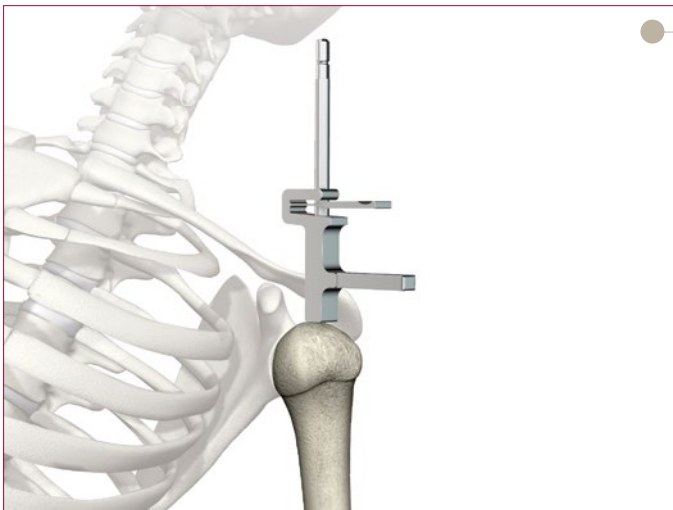


Figure 26

- ▶ Once aligned, depress the cantilever arm of the clamp tower and slide it down over the shaft of the starter awl until the clamp tower comes in contact with the humeral head.

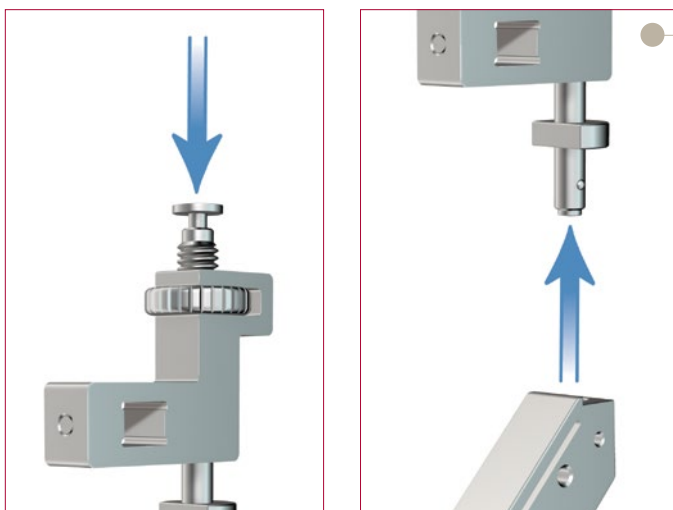


Figure 27

- ▶ Assemble the IM resection guide to the resection guide block by depressing the superior plunger on the resection guide and attaching the resection guide block.
- ▶ Make sure to correctly orient the IM resection guide to the correct side of the resection guide block as noted by the L or R markings on each of the instruments.

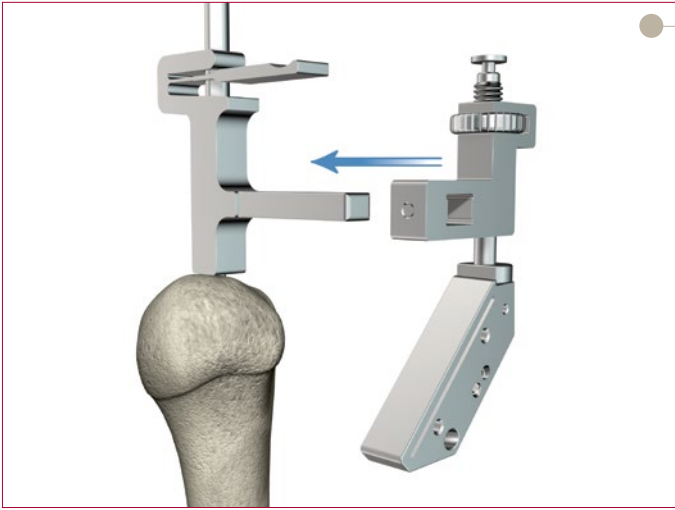


Figure 28

- ▶ Slide the IM resection guide and resection block assembly onto the clamp tower making sure the orientation is correct by visualizing the markings L or R.
- ▶ The cantilever arm should be used for macro height adjustments, while the fine adjustment wheel located just below the superior plunger should be utilized for micro height adjustments.

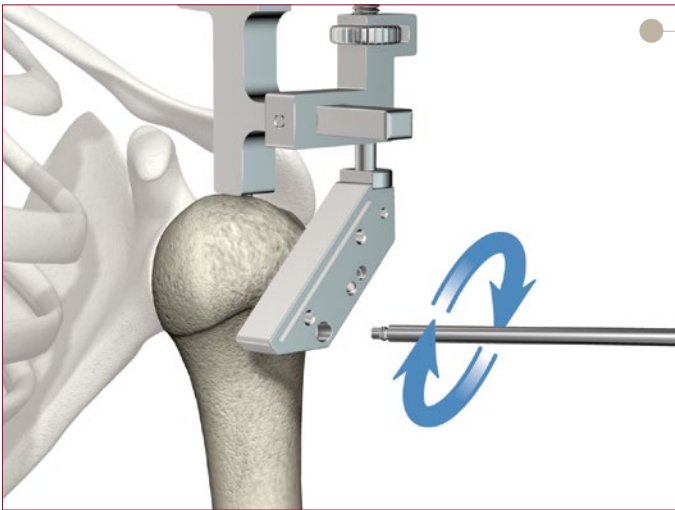


Figure 29

- ▶ Prior to headless pin insertion, ensure the arm is properly retroverted. Align the forearm with the 30° version rod.

Warnings:

The version rod is not intended to be a load bearing instrument.
Do not use the version rod to rotate the assembly or the awl/reamer.

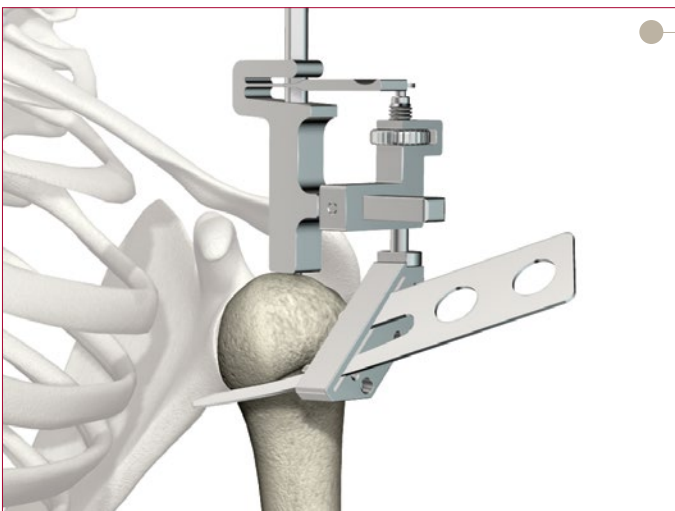


Figure 30

- ▶ It is recommended that the resection level be confirmed by sliding the bladerunner instrument through the cutting block's captured cutting slot and assessing the planned thickness and plane of resection.



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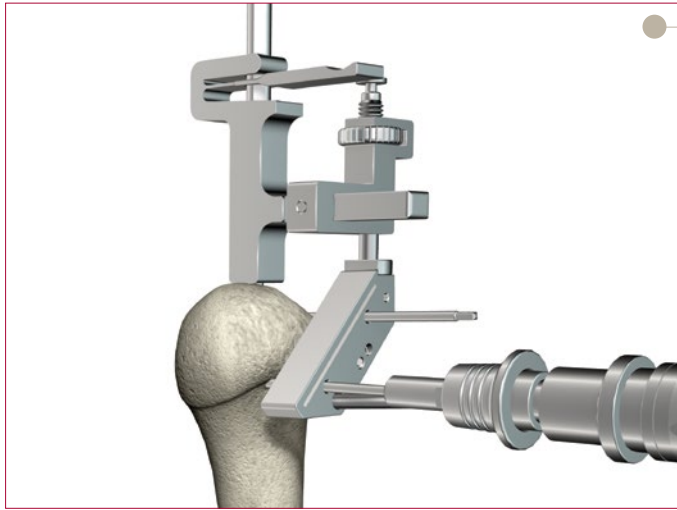


Figure 31

- ▶ When the level of the humeral head resection is confirmed. Pin the humeral IM cutting block to the humerus using the provided headless pins, to secure the resection block to the bone.
- ▶ Using the pin driver attachment or pin collet, drive two (2) straight pins, perpendicular to the resection guide block, into place.

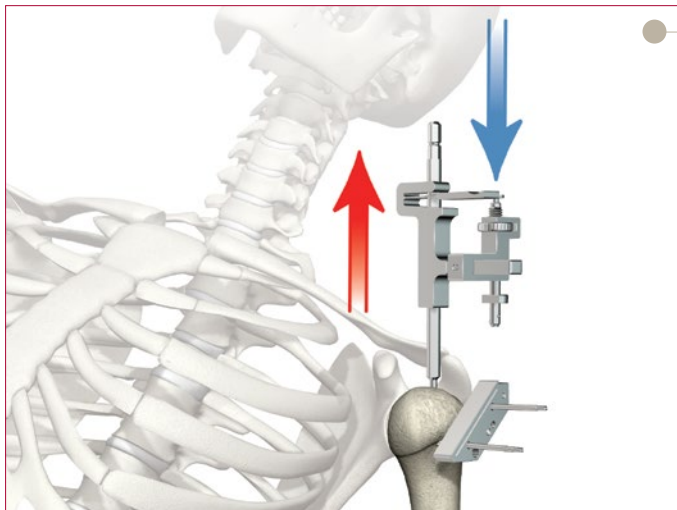


Figure 32

- ▶ With the humeral resection guide block pinned to the humerus with two (2) straight pins, remove the version rod and then depress the plunger on the IM Resection Guide Assembly (Fig. 31, Blue Arrow).
- ▶ Pull the IM Resection Guide Assembly and Fluted Cylindrical Reamer from the humeral canal in one piece, leaving only the cutting block behind (Fig. 31, Red Arrow).

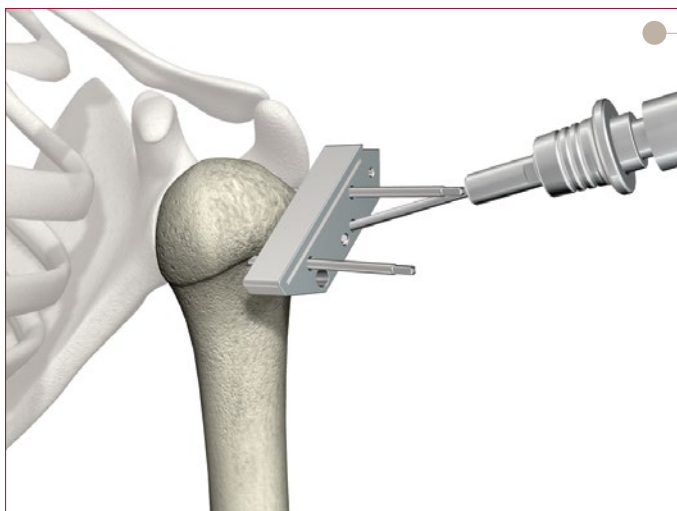


Figure 33

- ▶ With only the humeral cutting block in place drive the third and final cross pin into the humeral cutting block to secure it in place prior to starting the humeral resection.



Notes:

Hole marked as "X" is for insertion of the cross-pin.

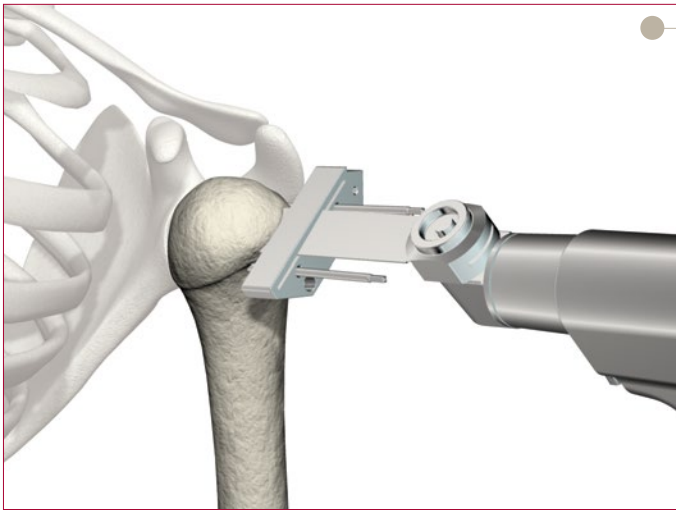


Figure 34

With all three (3) headless pins in place, position the saw blade through the cutting slot for a captured cut.



Notes:

A sagittal sawblade that has a width of ½” (12mm) or less is desirable.

Ensure that the blade is oscillating prior to coming in contact with bone.

Inspect sawblade for any defects prior to utilization.

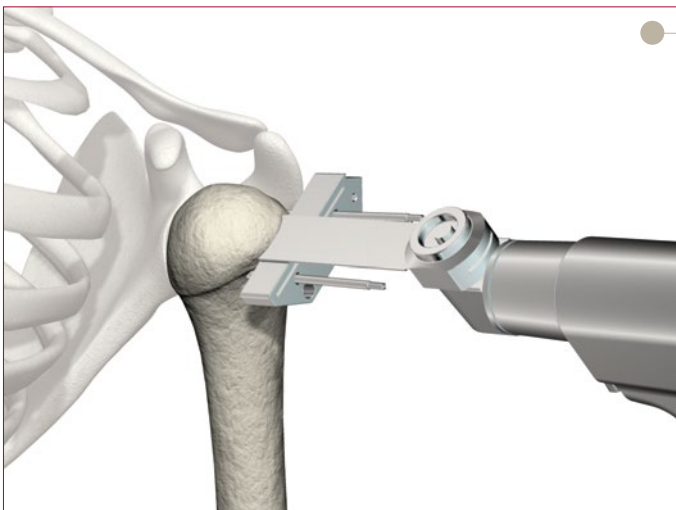


Figure 35

- ▶ Alternatively, place the saw blade directly on the resection block for an open cut.



Warnings:

To avoid cutting through the posterior capsule, stop the oscillating blade just short of the capsule and complete the cut with an osteotome.

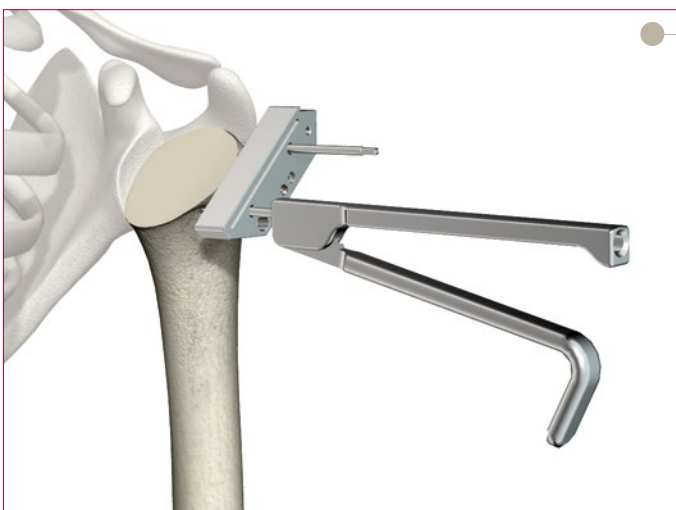


Figure 36

- ▶ Once the cut has been completed, remove the headless pins using the headless pin removal tool and then the cutting block.



Tech Tips:

Care should be taken to protect the biceps tendon and rotator cuff insertion with a small Hohman or Crego retractor during head resection.

The correct cut should remove all of the articular surfaces at the margins of the capsule and rotator cuff attachments superior and posterior. Those soft tissue attachments must be preserved.

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Humeral Preparation

Broaching the Humerus

Upon completion of humeral canal reaming, select a humeral broach that is at least 4mm smaller than the size of the last reamer used.

Catalog #	Reamed Diameter	Final Broach Size	Press-fit Stem Size
5569-P-2007	7 mm	7 mm	7 mm
5569-P-2008	8 mm	8 mm	8 mm
5569-P-2009	9 mm	9 mm	9 mm
5569-P-2010	10 mm	10 mm	10 mm
5569-P-2011	11 mm	11 mm	11 mm
5569-P-2012	12 mm	12 mm	12 mm
5569-P-2013	13 mm	13 mm	13 mm
5569-P-2014	14 mm	14 mm	14 mm
5569-P-2015	15 mm	15 mm	15 mm
5569-P-2016	16 mm	16 mm	16 mm
5569-P-2017	17 mm	17 mm	17 mm

Catalog #	Reamed Diameter	Final Broach Size	Cemented Stem Size
5569-C-2006	8 mm	8 mm	6 mm
5569-C-2006L	8 mm	8 mm	6 mm
5569-C-2007	9 mm	9 mm	7 mm
5569-C-2008	10 mm	10 mm	8 mm
5569-C-2008L	10 mm	10 mm	8 mm
5569-C-2009	11 mm	11 mm	9 mm
5569-C-2010	12 mm	12 mm	10 mm
5569-C-2010L	12 mm	12 mm	10 mm
5569-C-2011	13 mm	13 mm	11 mm
5569-C-2012	14 mm	14 mm	12 mm
5569-C-2012L	14 mm	14 mm	12 mm
5569-C-2013	15 mm	15 mm	13 mm
5569-C-2014	16 mm	16 mm	14 mm
5569-C-2015	17 mm	17 mm	15 mm



Warning:

Do not use the Broach handle/Stem Inserter for removal of a well fixed or cemented humeral stem.



Figure 37

- ▶ Ensure the broach handle/stem inserter is in proper retroversion by threading in the version rod and aligning the patient's forearm with the version rod.

Warning:

The version rod is not intended to be a load bearing instrument.

Do not use the version rod like a breaker bar and attempt to rotate the broach handle to adjust the version.

The version rod must be removed prior to striking the underside of the impaction pad to avoid damaging the version rod during evaluation.

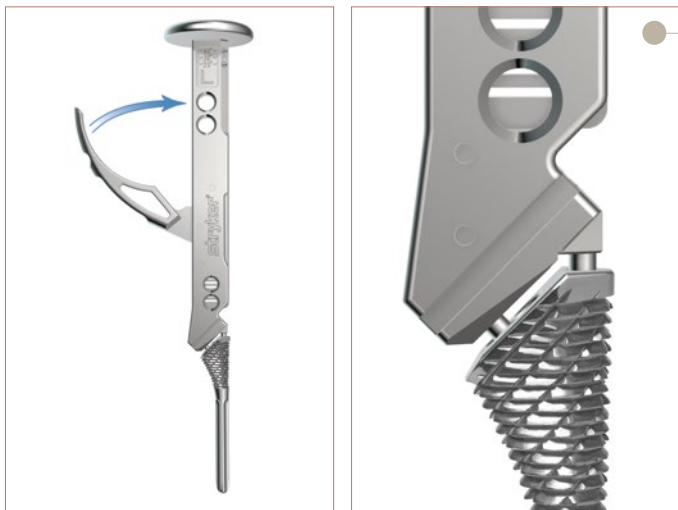


Figure 38

- ▶ Attach the broach to the broach handle/stem inserter by making sure the locking pin is engaged and the broach is drawn onto the alignment pin while closing the handle.

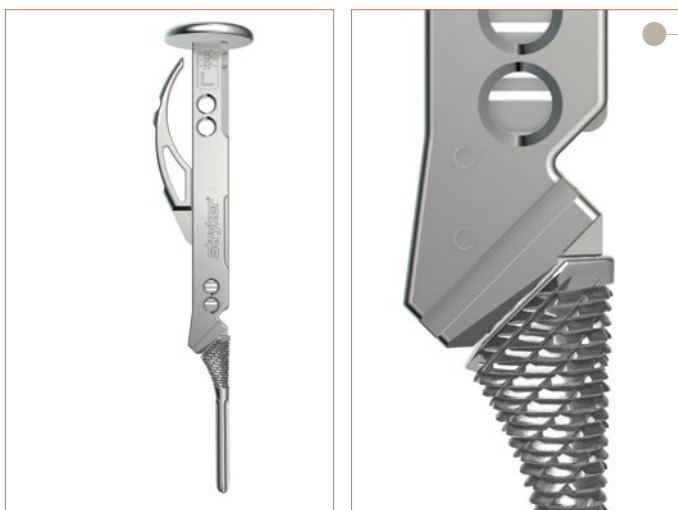


Figure 39

- ▶ The broach and broach handle/stem inserter will lock together via the handle on the medial side of the broach handle. It can be disengaged by releasing the same handle.

Note:

Prior to impaction, ensure that handle is closed and firmly grasped during mallet blows.

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Figure 40

- ▶ Impact the broach along the long axis of the humerus. The broach is fully seated when the superior face of the broach is sitting flush to the resection surface of the humerus.



Caution:

Avoid excessive impaction of a well fixed broach as this may lead to fracture of the humerus.

- ▶ Sequentially broach the humeral canal until the last humeral broach size used matches the diameter of the final cylindrical reamer used.



Warning:

Do not use a humeral broach larger than the last cylindrical reamer used without first reaming up to the appropriate diameter if increased proximal fit is desired.



Note:

When removing the humeral broaches using the broach handle, make sure that upward mallet blows are placed on the strike pad.



Figure 41

- ▶ The final broach utilized should be left in place as a trial and modular head and/or neck trials can be evaluated.

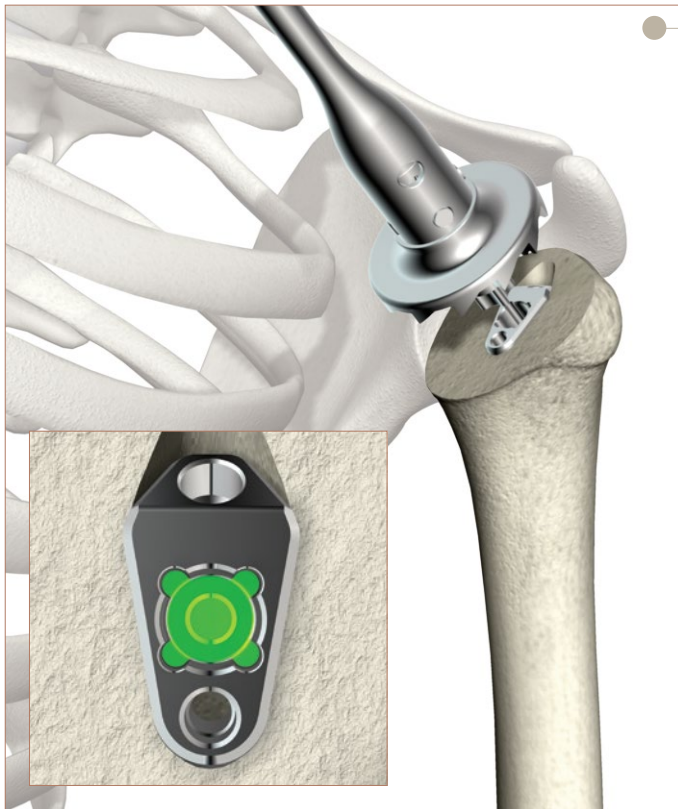


Figure 42

Osteotomy Evaluation & Calcar Planing

- ▶ Assess the planer's relationship to the resected plane. If the angle diverges, then the calcar planer shall be utilized to finalize the plane, providing an optimum resection for the fixed head configuration (Figure 40).
- ▶ If required, select the appropriate size calcar planer (see table below) to refine the resected surface.
- ▶ Insert the calcar planer into the ratcheting T-handle and then insert the calcar planer's guide post into the mating surface on the humeral broach (Figure 41, inset).

Humeral Head Size	Calcar Planer
40, 44, 48	Small
52, 56	Large



Warning:

Do not use the calcar planers under power. They are intended for manual use only.



Figure 43

- ▶ The angle of the calcar planer, when correctly placed into the broach, will be perpendicular to the standard neck angle of 135°.
- ▶ Apply axial pressure onto the ratcheting T-handle and carefully refine the resected humeral surface.



Note:

To cut, depress the spring loaded shaft until a positive stop is reached.

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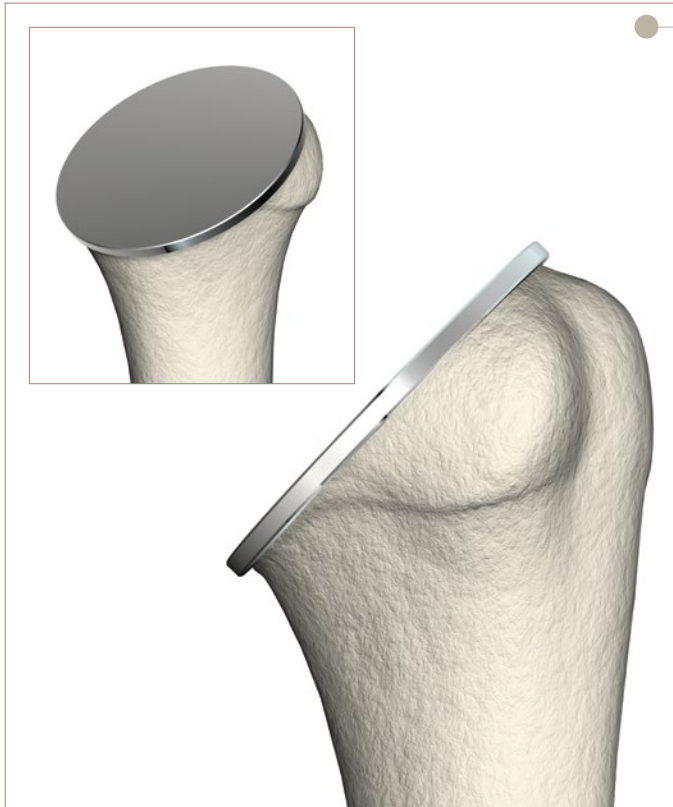


Figure 44

Humeral Protector Plate

- ▶ Upon completion of the humeral head resection and calcar planing, place the appropriate sized humeral resection protector plate onto the resected humeral surface.
- ▶ This will protect the humerus during retraction, for glenoid preparation.



Note:

The long pin of the calcar plate should be utilized in rotating and positioning the plate on the resected surface.

The humeral protector plate may not fully seat if the broach is not fully seated.



Warning:

Make sure not to damage the cortical bone around the perimeter of the resection of the humerus.



Figure 45

Final Humeral Stem Insertion

A decision is made regarding cementation once both humeral component and modular head implant sizes have been determined. In most cases, a press-fit of the humeral component will be possible. If there is a question of the adequacy of the fit or the quality of the cortical or medullary bone, cementation is an option.

Press-fit Humeral Stem

- ▶ For press-fit application, a stem size that matches the last broach used should be selected. The substrate of the humeral stem provides a line to line press-fit with the corresponding broach, while the Ti plasma spray and HA coating provide an additional .5mm (1mm circumferential) press-fit proximally.
- ▶ Attach the correctly sized humeral stem to the broach handle/stem inserter.



Note:

Local bone graft morsels obtained from the resected head can be utilized to fill voids, cysts, and augment a press-fit.



Figure 46

- ▶ After removal of the final humeral broach, the canal should be thoroughly cleansed and dried.
- ▶ Insert the humeral stem implant into the void left by the broach and seat the implant into place.
- ▶ The stem should not be fully seated as to allow space for a sufficient taper lock of the head to the stem.



Warning:

Excessive impaction on a properly seated humeral stem may potentially cause a fracture of the medial calcar or humeral shaft.



Note:

Attention must be paid to version of the implant. The version rod can be used at 20°, 30°, or 40° increments in alignment with the forearm to ensure the desired degree of retroversion during implant placement.

As with either cemented or press-fit application, trial heads may again be used to evaluate range of motion adequacy, soft tissue tensioning, and to check for impingement.

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Figure 47

Cemented Humeral Stem

- ▶ After removal of the final humeral broach, the canal should be thoroughly cleansed and dried.
- ▶ A humeral stem 2mm smaller in distal diameter than the last size humeral broach should be utilized to allow for the desired 1mm (2mm circumferential) cement mantle.
- ▶ Varying cement techniques can be utilized per patient indications. The component is introduced into the canal using the broach handle/stem inserter. Continue to sink the stem into the cement until final placement is achieved.
- ▶ Verify the stem does not seat too low, to allow for humeral head impaction.

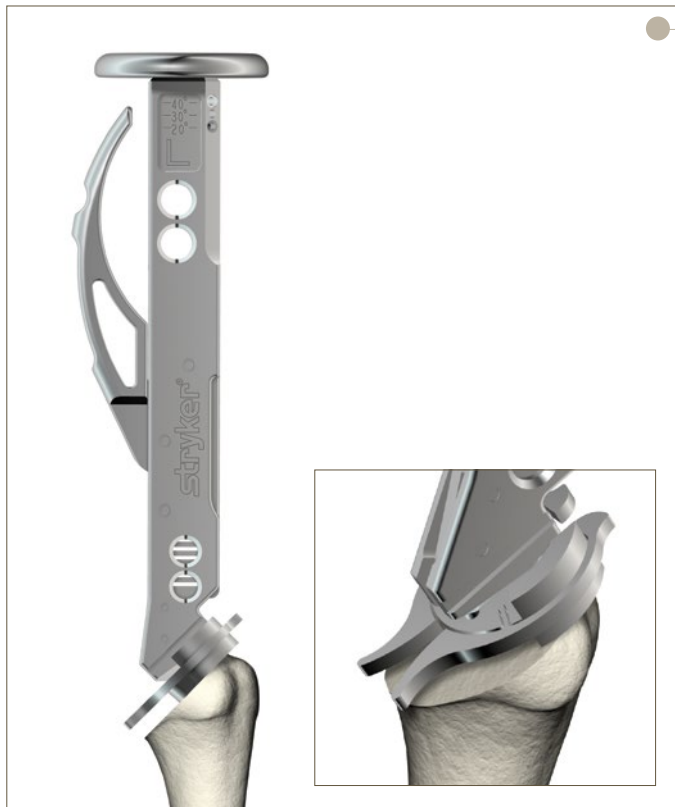


Figure 48

- ▶ An optional fixed height adapter may be used to ensure a proper seating level of the humeral stem into the cement.
- ▶ The fixed height adapter should be attached onto the medial side of the stem inserter/broach handle and can easily be removed by squeezing the 2 handles together and pulling.
- ▶ Long stem sizes are also available for especially difficult primaries and revision cases.



Caution:

When using the Fixed Height Adapter, care should be taken not to excessively impact or counter sink the stem with the Fixed Height Adapter attached past the level of the humeral resection.

Care should be taken to remove any excess cement from the fixed height adapter and broach handle/stem inserter attachment features after use.

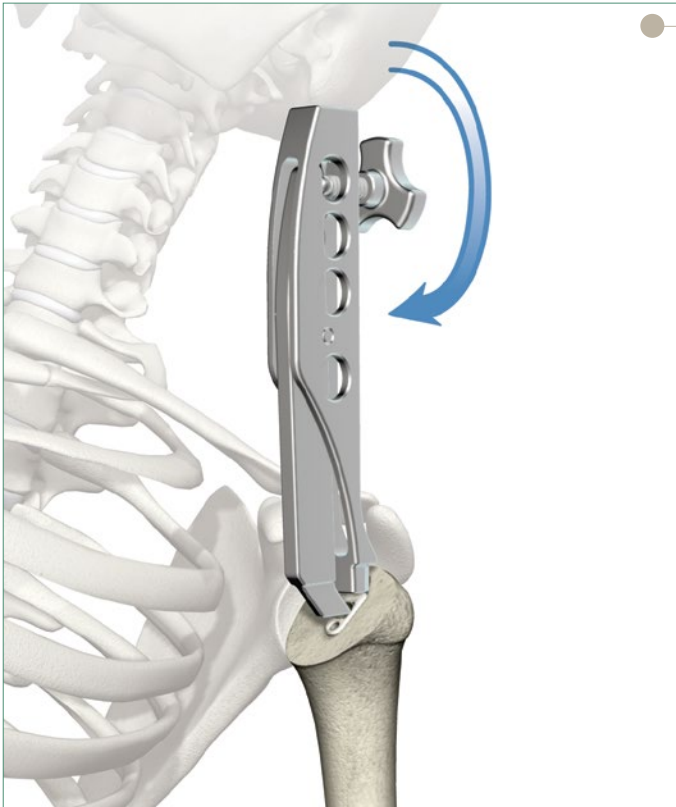


Figure 49

Humeral Stem Removal

Warning:

Do not use the Broach handle/Stem Inserter for removal of a well fixed or cemented humeral stem.

- ▶ Utilize the Humeral Stem Removal Tool and McReynolds Slap Hammer to remove the humeral stem from the humeral canal.
- ▶ Attach the humeral stem extractor to the humeral stem by inserting the guide post into proximal hole of the stem. Engage the clamping arm into trunnion, then tighten the knob.
- ▶ Depending on the integrity of the cement mantle or degree of humeral stem ingrowth, humeral shaft osteotomies and other techniques described in the peer reviewed literature may be justified.



Figure 50

- ▶ Thread the McReynolds slap hammer attachment to the humeral stem extractor and apply upward thrusts in line with the long axis of the humerus and well fixed humeral stem.

Warning:

Do not apply cantilever loads while sliding the hammer to remove the stem as this may cause a fracture of the humerus.

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Catalog #	Description	Size	Quantity
ReUnion® TSA - Humeral Case 1 [5901-1200]			
5900-0040	Slotted Mallet		1
5901-1102	6mm Starter Awl		1
5901-1103	Version Rod		1
5901-1104	Intramedullary (IM) Resection Guide Assembly		1
5901-1105	IM Resection Block		1
5901-1107	Clamp Tower		1
5901-1111	Extramedullary (EM) Resection Guide Assembly		1
5901-1121	Modular Ratcheting T-handle		1
5901-1174	Humeral Head Retractor		1
5901-2007	Fluted Cylindrical Reamer	7mm	1
5901-2008	Fluted Cylindrical Reamer	8mm	1
5901-2009	Fluted Cylindrical Reamer	9mm	1
5901-2010	Fluted Cylindrical Reamer	10mm	1
5901-2011	Fluted Cylindrical Reamer	11mm	1
5901-2012	Fluted Cylindrical Reamer	12mm	1
5901-2013	Fluted Cylindrical Reamer	13mm	1
5901-2014	Fluted Cylindrical Reamer	14mm	1
5901-2015	Fluted Cylindrical Reamer	15mm	1
5901-2016	Fluted Cylindrical Reamer	16mm	1
5901-2017	Fluted Cylindrical Reamer	17mm	1
6541-4-003A	Fluted Headless Pins		4
6633-7-605	Headless Pin Puller		1
7551-0000	Blade Runner		1
7650-1035	Headless Pin Driver		1

Catalog #	Description	Size	Quantity
ReUnion® TSA - Humeral Case 2 [5901-1202]			
5901-1007	Humeral Broach	7mm	1
5901-1008	Humeral Broach	8mm	1
5901-1009	Humeral Broach	9mm	1
5901-1010	Humeral Broach	10mm	1
5901-1011	Humeral Broach	11mm	1
5901-1012	Humeral Broach	12mm	1
5901-1013	Humeral Broach	13mm	1
5901-1014	Humeral Broach	14mm	1
5901-1015	Humeral Broach	15mm	1
5901-1016	Humeral Broach	16mm	1
5901-1017	Humeral Broach	17mm	1
5901-1130	Broach Handle/Stem Inserter		1
5901-1131	Fixed Height Adapter		1
5901-1141	Humeral Protector Plate	Small	1
5901-1143	Humeral Protector Plate	Large	1
5901-1180	Calcar Planer	Small	1
5901-1182	Calcar Planer	Large	1

ReUnion TSA

Humeral Surgical Protocol

Catalog #	Description	Size	Quantity
ReUnion® TSA - Humeral Case 3 [5901-1203]			
5901-1120	4-Sided Modular Ratcheting Handle		1
5901-1130	Broach Handle/Stem Inserter		1
5901-1170	Universal Impactor Adapter		1
5901-1171	Universal Impactor Tip		1
5901-1172	Modular Neck Adapter Trial		2
5901-1173	Humeral Head/Neck Assembly Block		1
5901-1186	Forked Removal Tool		1
5901-1187	Humeral Stem Extractor		1
5901-E-40X	Size 40, Eccentric SR Humeral Head Trial	X = 14, 17, and 20	1 each size
5901-E-44X	Size 44, Eccentric SR Humeral Head Trial	X = 16, 19, and 22	1 each size
5901-E-48X	Size 48, Eccentric SR Humeral Head Trial	X = 15, 18, 21, and 24	1 each size
5901-E-52X	Size 52, Eccentric SR Humeral Head Trial	X = 17, 20, 23, and 26	1 each size
5901-E-56X	Size 56, Eccentric SR Humeral Head Trial	X = 19, 22, 25, and 28	1 each size
5901-S-40X	Size 40, Standard SR Humeral Head Trial	X = 14, 17, and 20	1 each size
5901-S-44X	Size 44, Standard SR Humeral Head Trial	X = 16, 19, and 22	1 each size
5901-S-48X	Size 48, Standard SR Humeral Head Trial	X = 15, 18, 21, and 24	1 each size
5901-S-52X	Size 52, Standard SR Humeral Head Trial	X = 17, 20, 23, and 26	1 each size
5901-S-56X	Size 56, Standard SR Humeral Head Trial	X = 19, 22, 25, and 28	1 each size

Catalog #	Description	Size	Quantity
ReUnion® TSA - Glenoid Case 1 [5901-1208]			
5901-0020	Straight Reamer Driver		1
5901-0024	Centering Drill Guide		1
5901-0025	Centering Drill		1
5901-0028	Peg/Keel Drill		2
5901-0029	Peg Locating Pin		2
5901-0030	Peg Locating Pin Holder		1
5901-0032	Glenoid Impactor Tip		1
5901-00X	Spherical Glenoid Reamer	X = 40, 44, 48, 52, and 56	1 each size
5901-0060	Glenoid Holder		1
5901-1026L	Pegged Drill Guide (LEFT)		1
5901-1026R	Pegged Drill Guide (RIGHT)		1
5901-1038	Peg Alignment Sound		1
5901-10X	Pegged Glenoid Surface Trial(s)	X = 40, 44, 48, 52, and 56	1 each size
5901-12X	Pegged Glenoid Trial(s)	X = 40, 44, 48, 52, and 56	1 each size
5901-2026L	Keeled Drill Guide (LEFT)		1
5901-2026R	Keeled Drill Guide (RIGHT)		1
5901-2038	Glenoid Impactor Shaft		1
5901-20X	Keeled Glenoid Surface Trial(s)	X = 40, 44, 48, 52, and 56	1 each size
5901-22X	Keeled Glenoid Trial(s)	X = 40, 44, 48, 52, and 56	1 each size
5901-2340	Keeled Glenoid Punch		1

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Catalog #	Description	Diameter (Distal)	Length
ReUnion® TSA HA Coated Press-fit & Smooth/Uncoated Stems			
5569-0022	Modular Humeral Neck Adapter		
5569-P-2007	HA Coated Press-fit Humeral Stem	7mm	113mm
5569-P-2008	HA Coated Press-fit Humeral Stem	8mm	118mm
5569-P-2009	HA Coated Press-fit Humeral Stem	9mm	118mm
5569-P-2010	HA Coated Press-fit Humeral Stem	10mm	123mm
5569-P-2011	HA Coated Press-fit Humeral Stem	11mm	123mm
5569-P-2012	HA Coated Press-fit Humeral Stem	12mm	128mm
5569-P-2013	HA Coated Press-fit Humeral Stem	13mm	128mm
5569-P-2014	HA Coated Press-fit Humeral Stem	14mm	133mm
5569-P-2015	HA Coated Press-fit Humeral Stem	15mm	133mm
5569-P-2016	HA Coated Press-fit Humeral Stem	16mm	140mm
5569-P-2017	HA Coated Press-fit Humeral Stem	17mm	140mm
5569-C-2006	Smooth/Uncoated Humeral Stem	6mm	113mm
5569-C-2006L	Smooth/Uncoated Humeral Stem, Long	6mm	152mm
5569-C-2007	Smooth/Uncoated Humeral Stem	7mm	113mm
5569-C-2008	Smooth/Uncoated Humeral Stem	8mm	118mm
5569-C-2008L	Smooth/Uncoated Humeral Stem, Long	8mm	200mm
5569-C-2009	Smooth/Uncoated Humeral Stem	9mm	118mm
5569-C-2010	Smooth/Uncoated Humeral Stem	10mm	123mm
5569-C-2010L	Smooth/Uncoated Humeral Stem, Long	10mm	200mm
5569-C-2011	Smooth/Uncoated Humeral Stem	11mm	123mm
5569-C-2012	Smooth/Uncoated Humeral Stem	12mm	128mm
5569-C-2012L	Smooth/Uncoated Humeral Stem, Long	12mm	200mm
5569-C-2013	Smooth/Uncoated Humeral Stem	13mm	128mm
5569-C-2014	Smooth/Uncoated Humeral Stem	14mm	133mm
5569-C-2015	Smooth/Uncoated Humeral Stem	15mm	133mm

Catalog #	Description	Size
ReUnion® TSA Self-Pressurizing (SP) Glenoid & Single Radius (SR) Humeral Head Implants		
5542-P-00X	X3° Pegged SP Glenoid(s)	X = 40, 44, 48,52, and 56
5542-K-00X	X3° Keeled SP Glenoid(s)	X = 40, 44, 48,52, and 56
5552-E-40X	Size 40, Eccentric SR Humeral Head(s)	X = 14, 17, and 20
5552-E-44X	Size 44, Eccentric SR Humeral Head(s)	X = 16, 19, and 22
5552-E-48X	Size 48, Eccentric SR Humeral Head(s)	X = 15, 18, 21, and 24
5552-E-52X	Size 52, Eccentric SR Humeral Head(s)	X = 17, 20, 23, and 26
5552-E-56X	Size 56, Eccentric SR Humeral Head(s)	X = 19, 22, 25, and 28
5552-S-40X	Size 40, Standard SR Humeral Head(s)	X = 14, 17, and 20
5552-S-44X	Size 44, Standard SR Humeral Head(s)	X = 16, 19, and 22
5552-S-48X	Size 48, Standard SR Humeral Head(s)	X = 15, 18, 21, and 24
5552-S-52X	Size 52, Standard SR Humeral Head(s)	X = 17, 20, 23, and 26
5552-S-56X	Size 56, Standard SR Humeral Head(s)	X = 19, 22, 25, and 28

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