EXACTECH | SHOULDER

Operative Technique

equinoxe®

CTA Head

Exactech®

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EQUINOXE SHOULDER SYSTEM DESIGN TEAM

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INTRODUCTION

The Equinoxe® Shoulder System redefines "anatomical." The platform primary stem allows independent adjustability of all four anatomic parameters in situ. The reverse shoulder is an optimized design that minimizes both scapular notching and torque on the glenoid while seamlessly integrating with the primary and platform fracture stems. The platform fracture stem's offset anterior-lateral fin and asymmetric tuberosity beds define the next generation in complex fracture reconstruction. The platform nature of the Equinoxe primary and fracture stem allows the surgeon to have intra-operative flexibility to choose between a hemiarthroplasty, primary total shoulder or reverse total shoulder and seamlessly convert to a reverse should a revision become necessary.

Thank you for considering the Equinoxe Shoulder System. We began the Equinoxe product development process by identifying concerns our team had with shoulder replacement. Our goal was to develop solutions to those concerns, and we believe the Equinoxe System significantly improves the surgeon's ability to precisely replicate the patient's anatomy.

The Equinoxe CTA Head enables surgeons to use the platform stem for the entire continuum of care.

Key features include:

- Extended articular surface to articulate with acromion in cuff deficient patient
- Platform stem faciliatates conversion to and from a Reverse total shoulder arthroplasty
- Six diameters in two heights provide intra-operative flexibility
- Soft-tissue sparing A/P geometry
- Offset replicator plates enable further lateralization of the humeral head

We hope that you come to agree, based on your experiences with the Equinoxe Shoulder System in the O.R., that we have accomplished our goal.

Finally, while we have taken a comprehensive approach to this operative technique, we would be remiss if we failed to make it clear that shoulder replacements are challenging procedures and should be performed by surgeons with significant experience. If you are new to primary or reverse shoulders, please consider observing a shoulder specialist, watching a shoulder surgical DVD, performing a sawbone and/or implanting in a cadaver to ensure you are comfortable with the surgical technique. We would be happy to facilitate any aspect of this training to ensure "A Great Day in the O.R." for the surgeon and the staff.

Respectfully,

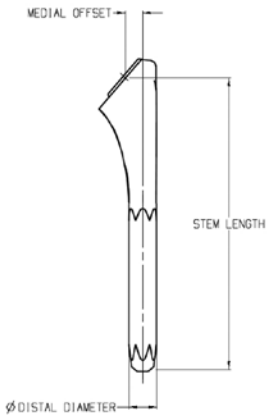
Pierre-Henri Flurin, MD
Thomas W. Wright, MD
Joseph D. Zuckerman, MD

SYSTEM SPECIFICATIONS (All dimensions in millimeters)

HUMERAL STEM

Distal Diameter	Length*	Inherent Medial Offset	Material	Surface Finish		Geometry	
				Proximal	Distal	Proximal	Distal
7	100	7.5	Ti-6Al-4V	16 grade grit blast	Hi-Brite Polish	Trapezoidal	Cylindrical with flutes
9	105						
11	110	8.5					
13	115	9.5					
15	120						
17	125						

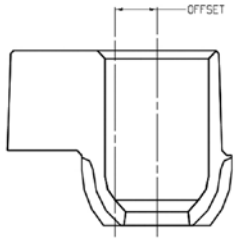
**Measured from distal tip to center of proximal spherical bore*



REPLICATOR PLATES

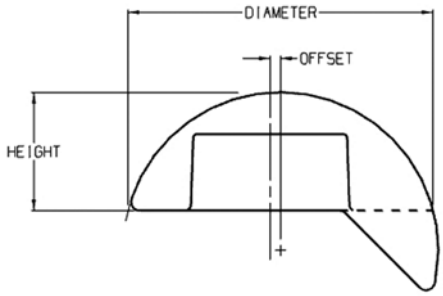
Offset	Material	Offset Ranges*		Angle Ranges (°)	
		Med/Lat	Ant/Post	Inclination	Version
0	Ti-6Al-4V	0-8	0	0	0
1.5		0 - 14	0 - 6	125 - 140	+/- 7.5
4.5					

**Includes effect of head offsets*



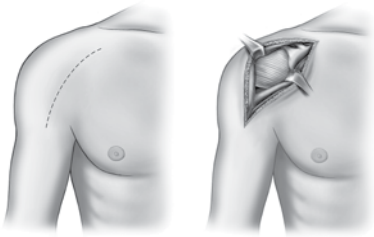
HUMERAL HEADS

Diameter	Height		Offset	Material
	Short	Tall		
38	16	19	0.5	Co-Cr
41	16	20	1.5	
44	17	21	1.5	
47	18	22	1.5	
50	19	23	1.5	
53	20	24	1.5	

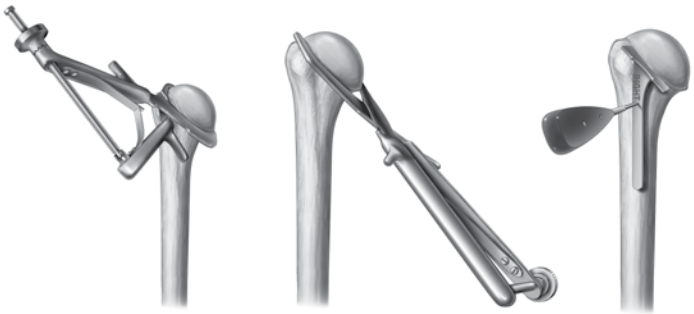


** Special order*

PRIMARY SHOULDER OPERATIVE TECHNIQUE OVERVIEW



A Incision and Exposure

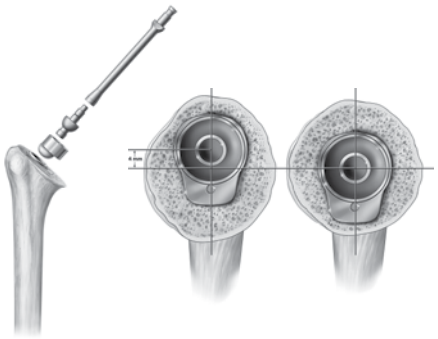


B Resect the Humeral Head

C Ream Humeral Shaft

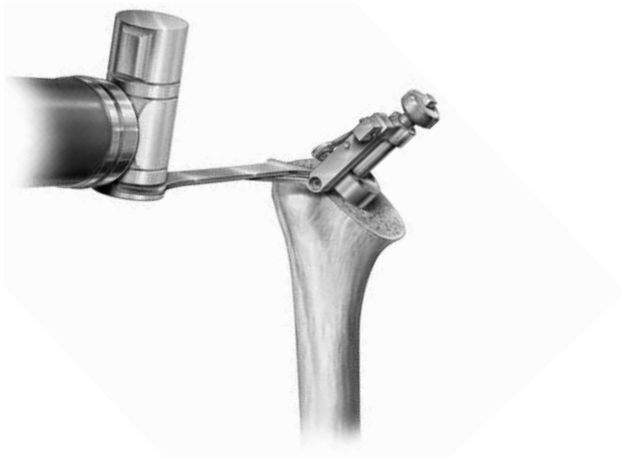
D Broach Humeral Shaft

E Insert Press-Fit Stem

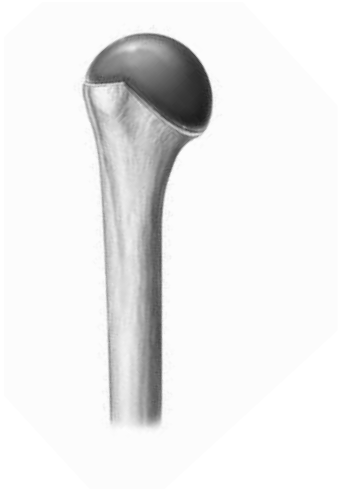


F Select and Attach Replicator Plate

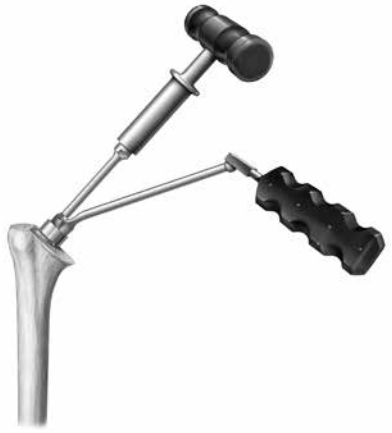
G Cover Resected Surface with Dual Offsets



H Resection of Surrounding Tuberosities



I Assess Range of Motion



J Disengage Superior Portion of Screw

K Impact Final Humeral Head

DETAILED OPERATIVE TECHNIQUE

INDICATIONS FOR USE

The Equinoxe Shoulder System is indicated for use in skeletally mature individuals with degenerative diseases or fractures of the glenohumeral joint where total or hemi- arthroplasty is determined by the surgeon to be the preferred method of treatment.

- The cemented primary humeral stem, long/revision stem, fracture stems and all Equinoxe glenoids are intended for cemented fixation.
- The press-fit humeral stems are intended for press-fit applications but may be used with bone cement at the discretion the surgeon.
- The reverse humeral components are intended to be used in cemented applications or in revision cases when the humeral component is well-fixed/stable, as deemed by the orthopaedic surgeon.
- Humeral Heads are intended for use in cemented and press-fit applications.

Clinical indications for the PRIMARY (P), LONG (L) and FRACTURE (F) humeral components are as follows:

P	L/R	F	Indications
✓	✓		rheumatoid arthritis, osteoarthritis, osteonecrosis or post-traumatic degenerative problems
✓	✓		congenital abnormalities in the skeletally mature
✓			primary and secondary necrosis of the humeral head
✓		✓	humeral head fracture with displacement of the tuberosities
✓	✓		pathologies where arthrodesis or resectional arthroplasty of the humeral head are not acceptable
✓	✓		revisions of humeral prostheses when other treatments or devices have failed (where adequate fixation can be achieved)
		✓	displaced three-part and four-part upper humeral fractures
	✓		spiral and other fractures of the mid-humerus (in combination with glenohumeral degenerative diseases)
	✓		revision of failed previous reconstructions when distal anchorage is required
✓	✓		to restore mobility from previous procedures (e.g. previous fusion)
✓	✓	✓	rotator cuff arthroplasty

The Equinoxe Reverse Shoulder System is indicated for use in skeletally mature individuals with degenerative diseases of the glenohumeral joint and a grossly deficient, irreparable rotator cuff. The Equinoxe Reverse Shoulder is also indicated for a failed glenohumeral joint replacement with loss of rotator cuff function resulting in superior migration of the humeral head.

The Equinoxe Platform Fracture Stem is indicated for use in skeletally mature individuals with acute fracture of the proximal humerus and displacement of the tuberosities, displaced 3- and 4-part fractures of the proximal humerus (hemi-arthroplasty), or acute fracture of the proximal humerus with failure of the glenohumeral joint (primary total shoulder arthroplasty). The Equinoxe Platform Fracture Stem is also indicated for acute fracture of the proximal humerus in combination with degenerative diseases of the glenohumeral joint and a grossly deficient, irreparable rotator cuff resulting in superior migration of the humeral head (reverse total shoulder arthroplasty). The Equinoxe Platform Fracture Stem is indicated for cemented use only.

PRE-OPERATIVE EVALUATION

After a careful history and physical examination, radiographs should be obtained to assess glenohumeral joint space narrowing, osseous deformities and glenoid wear. The following three radiographic views should be obtained: 1) a true A/P view of the glenohumeral joint (30 degrees external oblique), 2) a scapular lateral view and 3) an axillary view.

In patients with osteoarthritis, varying amounts of posterior glenoid wear (with posterior subluxation of the humeral head) are common. If significant glenoid wear is a concern, a CT scan may be helpful to further define the bony anatomy.

Rotator cuff tears are relatively uncommon in patients with osteoarthritis. The status of the rotator cuff can be determined at the time of surgery. For this reason, MRI or ultrasonography imaging is not routinely performed, though the decision is based upon surgeon preference.

To aid in pre-operative planning, radiographic templates are available for the humeral stems, humeral heads and glenoids to approximate the required sizes.

STEP 1: PATIENT POSITIONING

The patient should be placed on an operating table in a supine position. The head of the operating table should be elevated approximately 30 degrees in a modified beach chair position. A small bolster should be placed laterally behind the involved shoulder. The patient should be moved to the side of the table so that the upper extremity can be placed into maximum extension without obstruction by the operating table. Alternatively, a Captain's chair or similar positioning device can be used for proper patient positioning. The patient should be secured to the operating table to minimize any changes in position intra-operatively.

Once the patient is secure, the extremity is examined to assess the range of motion, with particular attention to external rotation with the arm at the side. If external rotation is restricted (i.e., internal rotation contracture) the need for more extensive subscapularis mobilization or lengthening procedures may be necessary. The entire upper extremity should be prepped and draped to allow complete access to the operative area and full mobility during the procedure.

STEP 2: SURGICAL APPROACH

An anterior deltopectoral incision is made beginning inferior to the clavicle and passing over the coracoid process and extending distally toward the deltoid insertion. Medial and lateral subcutaneous flaps are created, and the deltopectoral interval is identified.

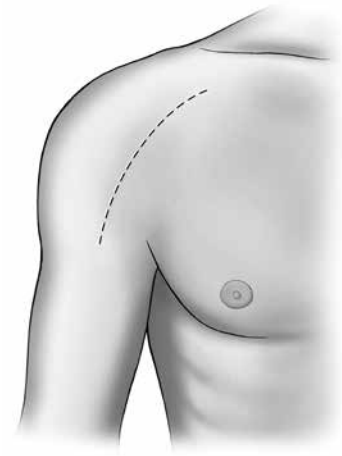
A thin fat stripe is usually located over the cephalic vein. The interval is usually developed medial to the cephalic vein; the interval can also be developed laterally depending on the surgeon's preference. Branches of the cephalic vein on the approach side are cauterized, and the interval is developed inferior to superior to expose the clavipectoral fascia.

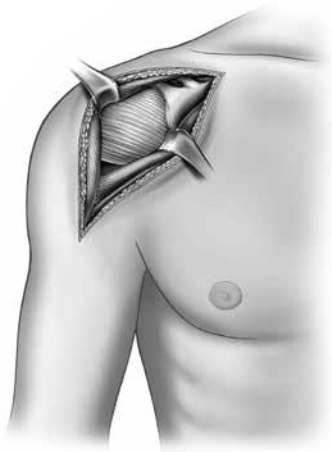
The advantage of retracting the cephalic vein with the deltoid is that the majority of the branches come from the deltoid. The disadvantage is the vein is more exposed to injury from the retractor as it crosses the superior aspect of the interval.

The subdeltoid space is mobilized with a blunt elevator. The clavipectoral fascia is incised longitudinally up to the coracoacromial ligament (which is spared), and the conjoined tendon is mobilized. A self-retaining retractor is placed with care to avoid excessive traction on the conjoined tendon. The coracoacromial ligament is identified and the subacromial space is mobilized with a blunt elevator. The subscapularis tendon insertion on the lesser tuberosity is identified along with the rotator interval. The anterior humeral circumflex vessels along the inferior border of the subscapularis muscle, the "three sisters," are cauterized extensively, and the biceps tendon is palpated in its groove. The subscapularis tendon and the capsule are tenotomized 1cm medial to the lesser tuberosity and tagged with #1 sutures.

An alternative approach is to elevate the subscapularis directly off of bone or elevate its insertion with a thin wafer of bone (1-2mm thick) using an osteotome. The choice is based primarily on surgeon preference.

The rotator interval is divided in a lateral to medial direction up to the superior glenoid rim. With the humerus extended, adducted and externally rotated, the capsule is carefully dissected off the inferior humeral neck, protecting the axillary nerve inferiorly with a small blunt retractor placed just inferior to the capsule. The capsular releases should be performed to allow 90 degress of external rotation. The self-retaining retractor is then repositioned to retract the subscapularis. At this point, the humeral head can be dislocated.





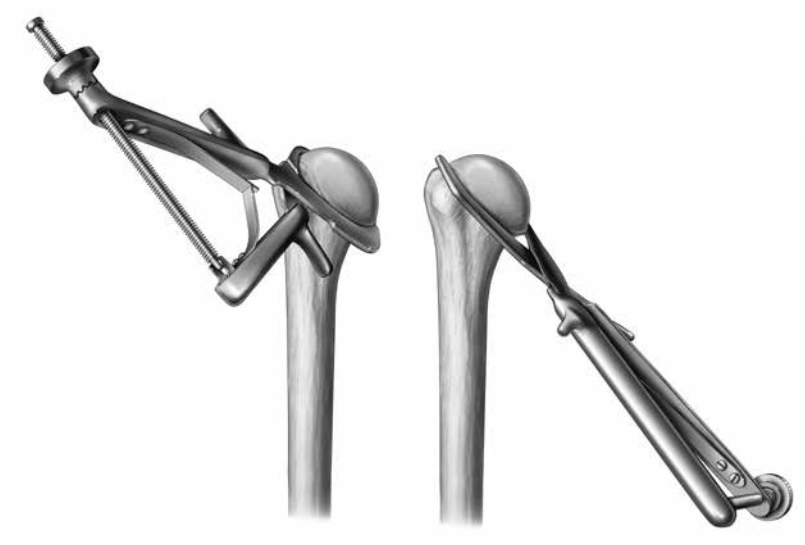


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Figure 1
Anatomic Cutting Guide

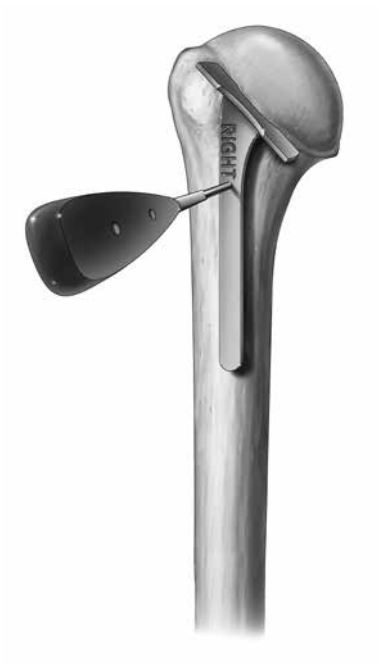


Figure 2
Fixed Angle Cutting Guide

STEP 3: HUMERAL PREPARATION

Humeral Head Resection

Prior to the humeral head resection, all osteophytes should be removed using a rongeur. Doing so will properly expose the anatomic humeral neck; anatomic replication is facilitated by an accurate resection along the anatomic neck. Three resection options are available and should be selected based upon surgeon preference.

Anatomic Cutting Guide:

The Equinoxe **Anatomic Cutting Guide** enables the surgeon to accurately resect the humeral head along the anatomic neck without the use of intramedullary or extramedullary fixturing devices *(Figure 1)*. The jaws encircle the humeral head along the anatomic neck, acting as a cutting surface.

Cutting from the inferior to superior *(Figure 1a)*, the thin jaw of the Anatomic Cutting Guide should slide between the bone and the superior cuff. The wide jaw should be in direct contact with the medial portion of the anatomic neck. Alternatively, an anterior-posterior cutting approach *(Figure 1b)* can be used with the thin jaw encircling the posterior side of the anatomic neck and the cutting jaw positioned on the anterior side. Once the guide is in position, it is secured using the threaded knob. To ensure the device does not move, hold the handle while performing the osteotomy. To protect the rotator cuff, the saw blade should not pass superior or posterior to the thin jaw.

Note: *Removing the osteophytes is imperative in order to visualize the anatomic neck, but it also improves the bite obtained by the teeth on the cutting guide.*

Free Hand: Identify the anatomic neck and resect the head using a microsaggital saw.

Fixed Angle (132.5 degrees) Guide: Though this method is not based upon the patient's anatomy, we have provided a **Fixed Angle Cutting Guide** for surgeons who prefer this method *(Figure 2)*. Three options are available for the guide: 1) the surgeon may attach the guide to a handle, which aligns with the forearm for 20 degrees of retroversion, 2) use .062 K-wires to secure it to the bone or 3) use the cutting surface to mark the resection line with a bovie and then use the free hand method.

With this method, the superior portion of the resection should be just medial to the rotator cuff insertion. The amount of retroversion (usually 20-40 degrees) should be determined by positioning the humerus in external rotation before the resection is made.

Reaming the Humeral Shaft
The smallest **Reamer** (7mm) has a sharp tip to facilitate the initial entry into the IM canal *(Figure 3)*. The entry point is made just posterior to the bicipital groove and at the junction of the middle and upper thirds of the resected humeral surface. The canal should be sequentially reamed until endosteal cortical contact is obtained. It is imperative that the Reamer be inserted into the canal to the appropriate depth as indicated by the depth markers; **reaming prepares the canal for the distal diameter of the stem and determines the final diameter of the definitive stem.** There is no need for forceful reaming. If there is difficulty fully inserting a reamer, the broach and implant selected should be the size of the last reamer that was completely seated. If there is any concern about the size of the implant to use, the smaller alternative should be selected since the stem can be cemented in place.

Note: *To ensure the adequate depth is achieved, ream until the depth marker is no longer visible.*

Note: *Since the Reamer is the only instrument that prepares the distal canal, do not attempt to implant a stem that is larger than the largest reamer fully seated.*

Broaching the Humeral Shaft
After the canal has been reamed, attach the smallest **Broach** (7mm) to the **Modular Broach Handle** as illustrated *(Figure 4)*. The Broach should be inserted into the canal at a version consistent with that of the cut surface (i.e. the broach collar should be flush with the resected surface). The canal should be sequentially broached until the size of the broach matches that of the final reamer. Each Broach should be impacted until contact is made between the resected bone surface and the broach collar. The Broach should not be countersunk and only the strike surface should be used for impaction.

As a visual check to assess version, the **Retroversion Handle** can be attached to the broach handle ("L" and "R" indicate appropriate side) and lined up with the patient's forearm (assuming the patient has a stable elbow). The Retroversion Handle indicates 20 degrees retroversion when aligned with the forearm.

Note: *The Broach is undersized distally because thereamer prepares the distal canal. This enables the surgeon to create a cement mantle by upsizing the Broach in cases where a proximal cement mantle is desired.*

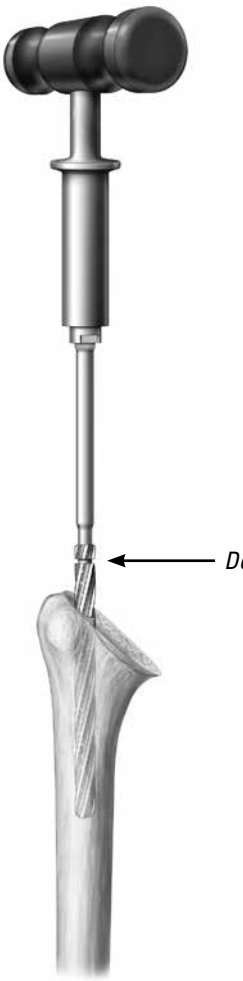


Figure 3
Insert Reamer

Figure 4
Insert Broach

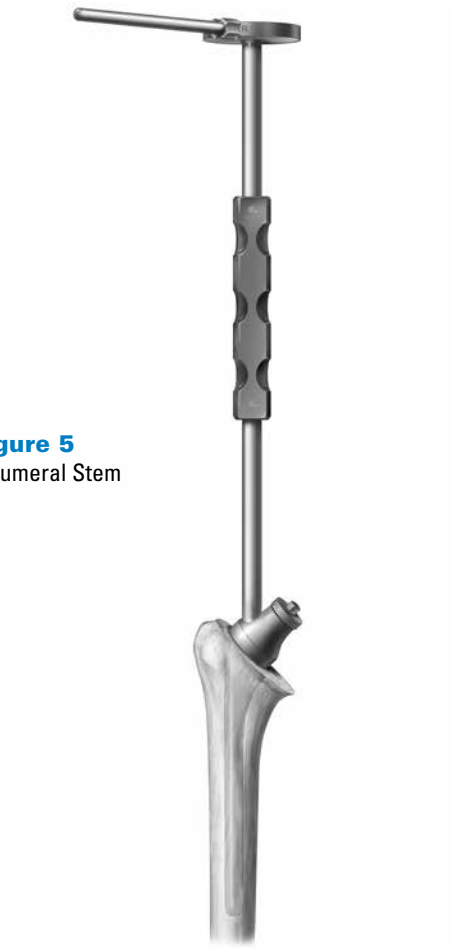


Figure 5
Insert Humeral Stem

Humeral Stem Insertion
One unique advantage of the Equinoxe primary shoulder system is that it does not require stem trialing. Once the humeral canal is prepared, the implant is ready to be inserted into the canal. The implant **(having the same distal diameter as that of the final reamer)** is threaded to the **Primary Stem Inserter** *(Figure 5)*. Be sure to align the dimple on the inserter with the divot in the stem.

The broaches are undersized by 0.5mm proximally (to ensure adequate press-fit); therefore, impaction is necessary to insert the stem into the canal. For this reason, it is important that the stem be completely threaded to the Stem Inserter prior to impaction to prevent damage to the threads. Use the **Mallet** to impact the Stem Inserter until the superior face of the stem is at the level of the resected surface (only the strike surface should be used for impaction).

As a visual check to assess version, the Retroversion Handle can be attached to the Stem Inserter in the same manner described above.

Note: *If a tendon-to-bone repair is utilized, prepare the drill holes in the proximal humerus to facilitate the subscapularis repair prior to humeral stem insertion.*

Cementing the Press-Fit Prosthesis
The press-fit Equinoxe humeral stem was designed with several features that optimize a cementless application. However, the stem has features that enable it to be cemented if desired. In this situation, a stem one size smaller in diameter (than the broach size) would provide a minimum 1mm cement mantle proximally and a minimum 2mm distally.

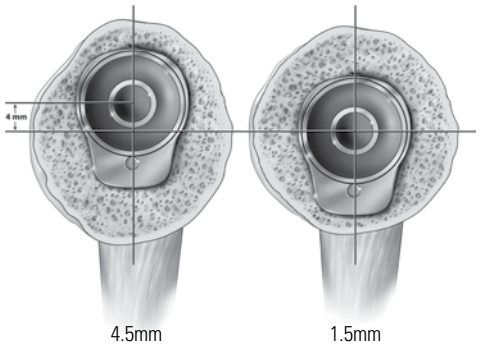
In cases where an adequate press-fit was not achieved, the surgeon has two options. A minimized cement technique could be employed whereby a small amount of cement is placed in the proximal canal and, for example, an 11mm stem is cemented in a humerus that has been reamed to an 11 and broached to an 11. Alternatively, in this same scenario, the surgeon could broach to a 13 to create room for a more robust proximal cement mantle and then cement the 11mm stem.

The use of a cement restrictor is based on personal preference; however, an appropriately sized cement restrictor will improve distribution. Formal cement pressurization is avoided to decrease the possibility of humeral shaft fracture. The intramedullary canal should then be packed with a sponge to obtain adequate drying before cementing. Once the canal is prepared, the cement is mixed and injected into the canal.

STEP 4: HUMERAL HEAD POSITIONING

Replicator Plate Selection

Remove the Humeral Stem Protector and assess the position of the stem's spherical bore in relation to the resected surface of the proximal humerus. In the majority of cases, the stem will be offset from the center of the resected surface (in any direction) by more than 3mm. In this situation, a **4.5mm Replicator Plate** should be used. If this is not the case (i.e. the head is not offset), a **1.5mm Replicator Plate** should be used.



4.5mm Replicator Plate | 1.5mm Replicator Plate

To simplify the procedure or if no offset is required, the **Fixed Angle Replicator Plate** may be used.

Attaching the Replicator Plate

Attach the Replicator Plate to the stem by hand tightening the **Torque Defining Screw** with the **Torque Defining Screw Drive** *(Figure 6)*. Once the Torque Defining Screw meets resistance, loosen it one turn (this will provide adjustability to the Replicator Plate so the desired head position can be obtained).

Note: *The concentric* ***T-handle*** *can be used for the initial tightening.*

Dialing in the Head Position

Place the appropriately sized **CTA Plate Dial** (diameter matches the options for head implant diameters) on the Replicator Plate and insert the **Replicator Plate Handle** *(Figure 7)* into the two holes on the Replicator Plate.

The surgeon now has the ability to adjust four independent variables to ensure the prosthesis reproduces the patient's original anatomy: medial offset posterior offset, inclination and version. When the head resection matches the anatomical neck, the surgeon can replicate the patient's anatomy by simply covering the resected humeral surface.

Note: *Both the Replicator Handle and the Plate Dial rotate independently to provide dual eccentricities.*

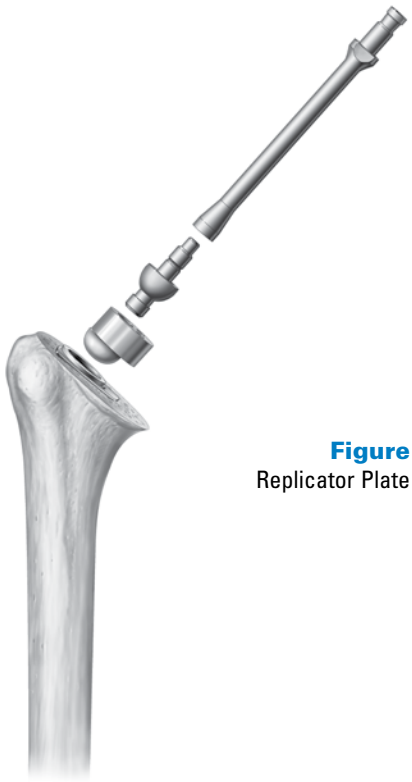


Figure 6
Replicator Plate Assembly

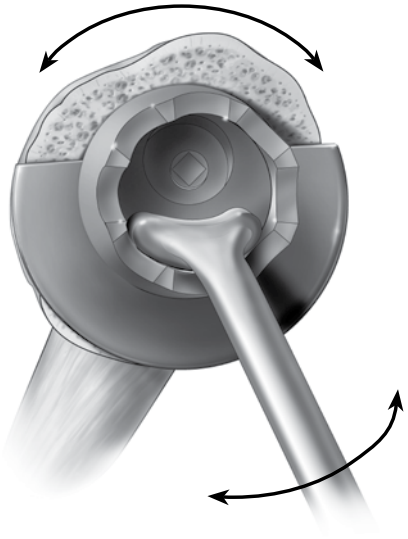


Figure 7
Dual Eccentricities

Figure 8
Remove the Tuberosity of the Humeral Head

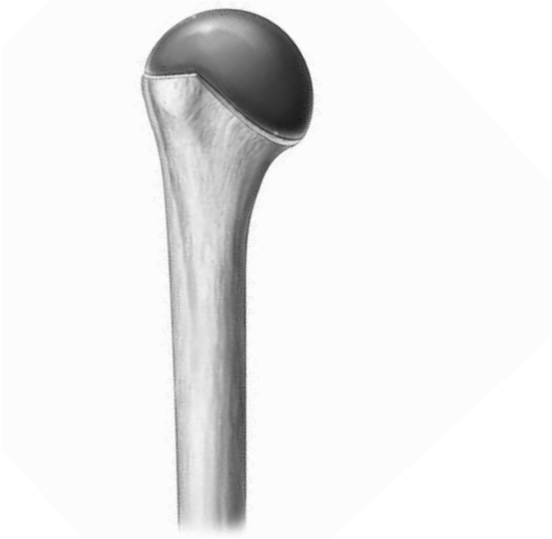


Figure 9
Humeral Head Trial

The Equinoxe System provides eccentricity on two components: in the humeral head and in the Replicator Plate. These two eccentricities enable the surgeon to reproduce both the medial and posterior offset independently by turning the plate dial and the replicator plate separately. If the surgeon desires to compensate for a less than perfect humeral resection, the system provides +/- 7.5 degrees to adjust the neck angle (inclination) and the version for a total range of 15 degrees for each parameter.

If the surgeon is pleased with the humeral head resection, begin the trialing process with the trial ring parallel to the resection (i.e., neck angle and retroversion match the cut). Cover the resected surface by rotating the trial ring with your fingers and the Replicator Plate with the Replicator Plate Handle. Angulation (neck angle and retroversion) adjustments should be assessed during the trial reduction (i.e., if posteriorly unstable, consider reducing the retroversion by loosening the screw and tilting the Replicator Plate).

Once the Plate Dial is perfectly positioned, tighten the Torque Defining Screw. (This is an interim tightening. The screw is not completely torqued until after assessing the range of motion).

A rongeur can be used to remove the tuberosity for the extended articular surface of the CTA Humeral Head, or use the CTA Head Cut Guide as described below.

CTA Head Cut Guide:
The **CTA Head Cut Guide** is placed into the inner bore of the replicator plate and the knob is tightened. The resection surface slides into place anteriorly and laterally. The Drill Guide Handle may be threaded into the Guide to check the version with the forearm (20 degrees). When making the resection, care should be taken to initially bring the saw anterior and lateral so as to avoid the lateral fin of the stem *(Figure 8).* Once the tuberosities are resected, use the CTA Head Trials to assess joint tension and range of motion *(Figure 9).*

Assessing Range of Motion
Assessment of stability is performed in a step-wise sequence. First, the articulation is assessed with the arm at the side. The arm is rotated internally and externally; rotation should be smooth, and the humeral head should maintain a reduced position on the glenoid component. Second, with the arm at the side, anterior, posterior and inferior translation should be assessed. Up to 50 percent posterior and inferior translation is acceptable; up to 25 percent anterior translation is acceptable. Third, range of motion is assessed. The arm should internally rotate to the chest wall without limitation. At 90 degrees of abduction, the shoulder should internally rotate 70 degrees.

Varying the thickness of the modular CTA Humeral Head provides the ability to optimize stability and range of motion *(Table 4).* If soft-tissue laxity is excessive, a taller Humeral Head may be necessary. Conversely, if soft-tissue tension is excessive, a shorter Humeral Head may be necessary.

		CTA Head Diameter (mm)					
Height		**38**	**41**	**44**	**47**	**50**	**53**
	Short	16	16	17	18	19	20
	Tall	19	20	21	22	23	24

Table 4
Humeral Head Scope

In general, the thinnest Humeral Head that provides adequate stability should be used to avoid overstuffing the joint.

If the surgeon desires to further adjust the positioning of the head, simply loosen the screw one-half rotation and repeat the previous steps.

Torque Defining Screw

Once the surgeon is satisfied with the position of the Replicator Plate and the size of the trial Humeral Head, remove the Head Trial and insert the Replicator Plate Handle into the holes located on the surface of the plate. Impact the T-handle with a Mallet to ensure the drive is fully engaged in the screw. The plate is now ready to be locked into position.

With one hand, use the T-handle to tighten the screw until the superior portion disengages *(Figure 10),* which will occur at an applied torque of 11 Nm. To prevent the stem from rotating within the canal, a countertorque must be simultaneously applied using the Replicator Plate Handle.

The portion of the screw that remains in the implant will have a square head that the surgeon can use to loosen the screw using the **Torque Defining Screw Removal Instrument** should the Replicator Plate ever need to be removed (e.g. revision of hemi to a TSA or reverse).

Impacting the Humeral Head

Clean and dry the visible portion of the Replicator Plate and place the final CTA Humeral Head implant on the Replicator Plate. Using the Head Impactor and a Mallet, strike the head directly in line with the taper to ensure proper engagement of the morse taper *(Figure 11).* Ensure the **Head Impactor Tip** is fully threaded to the Impactor before striking. Hand-test to ensure proper seating.

Figure 10
Disengage the Superior Portion of the Screw

Figure 11
Impact the Humeral Head

Revising a Hemi to a TSA

Gaining exposure to the glenoid after a hemiarthroplasty, while rarely easy, is facilitated with the Equinoxe System's removable Replicator Plate. Using the **Head Removal Tool**, lever the head off the Replicator Plate *(Figure 12)*.

When the Torque Defining Screw was initially torqued, the portion that snapped off left a square that can be used to remove the screw. Attach the Torque Defining Screw Removal Instrument to the asymmetric T-handle and loosen the screw *(Figure 13)*.

The Replicator Plate can now be removed and discarded. Protect the resected humeral surface and humeral stem with the Humeral Stem Protector while the glenoid is prepared. A new Replicator Plate, screw and head should be used to ensure proper engagement of the morse taper.

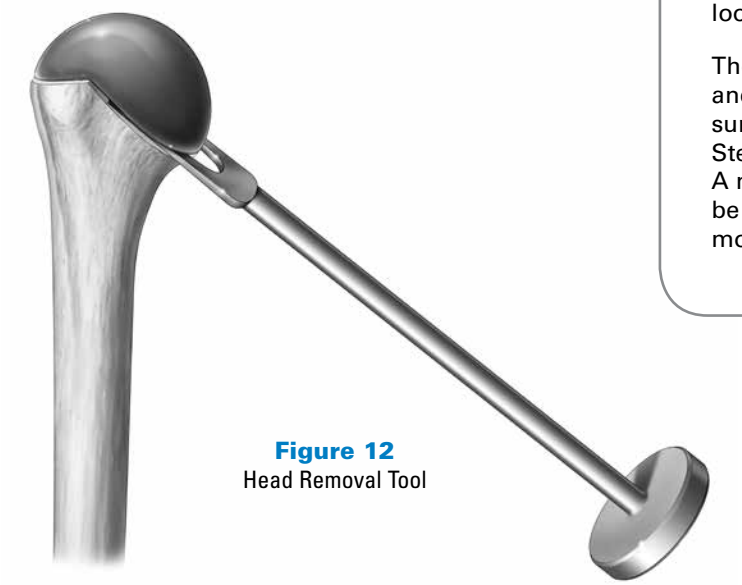


Figure 12
Head Removal Tool

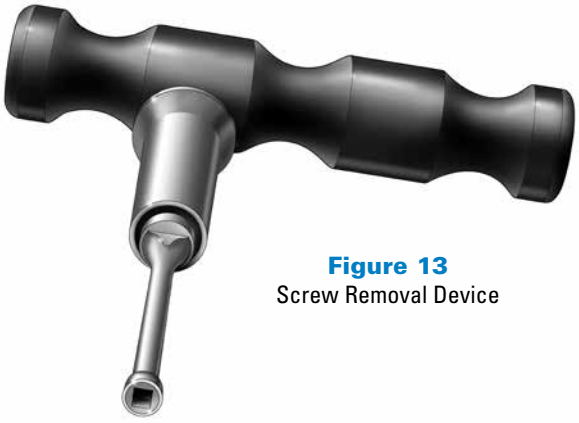


Figure 13
Screw Removal Device

STEP 5: CLOSURE

Closure is performed beginning with the subscapularis. The repair of the subscapularis will depend on the type of exposure used: tenotomy, elevation off bone or elevation with a wafer of bone. In general, #2 non-absorbable braided suture, or its equivalent, is used for either a tendon-to-tendon, tendon-to-bone or bone-to-bone repair. The rotator interval is then closed, though it may be left partially open medially to avoid excessive tension of the closure. External rotation is checked at this point to define the parameters for post-operative rehabilitation. A drain may be used, placing it deep into the deltopectoral interval. The deltopectoral interval is closed followed by closure of the subcutaneous tissue and the skin. The upper extremity is then placed in a sling and swathe.

STEP 6: POST-OPERATIVE REHABILITATION

It is recommended to initiate the rehabilitation program on the same day as surgery and certainly by post-operative day one. All patients begin active range of motion of the elbow, wrist and hand. Range of motion of the shoulder consists of passive forward elevation, external rotation based on the assessment following subscapularis repair and internal rotation to the chest wall (if there is concern about the security of the subscapularis repair, external rotation should be limited to 0 degrees). Isometric deltoid strengthening can also be performed.

Patients should be instructed to perform these exercises five to six times per day for short periods of up to 10 minutes each session. The sling is discontinued after four weeks. A longer period of sling use should be used if there is concern about the soft tissue repair. When the sling is discontinued, active range of motion should begin. Internal rotation behind the back can also be started at this time. Isometric internal and external rotation is added at six weeks and gentle resistive strengthening of the deltoid and rotator cuff begins 10-12 weeks post-operatively. When the sling is removed, the patient is instructed to increase use of the upper extremity for activities of daily living. More vigorous strengthening can be initiated 12 weeks after surgery.

SURGICAL PEARLS

Due to the geometry of the extended articular surface, the underside of the CTA Head could interfere with the lateral fin of the humeral stem. The interference occurs when the Replicator Plate is oriented purely medial in the configurations as detailed in the table below.

Replicator Plate	CTA Humeral Head	Stems
1.5mm	38mm Short	13mm 15mm 17mm
4.5mm	38mm Short	11mm 13mm 15mm 17mm
4.5mm	38mm Tall	11mm 13mm 15mm 17mm
4.5mm	41mm Short	15mm 17mm

EQUINOXE IMPLANTS

Catalog Number	Part Description
300-01-07	Humeral stem, primary, press-fit, 7mm
300-01-09	Humeral stem, primary, press-fit, 9mm
300-01-11	Humeral stem, primary, press-fit, 11mm
300-01-13	Humeral stem, primary, press-fit, 13mm
300-01-15	Humeral stem, primary, press-fit, 15mm
300-01-17	Humeral stem, primary, press-fit, 17mm

306-01-08	Humeral long stem, 8x175mm
306-02-08	Humeral long stem, 8x215mm
306-02-10*	Humeral long stem, 10x200mm
306-02-12*	Humeral long stem, 12x200mm

300-10-15	Anatomic Replicator Plate, 1.5mm o/s
300-10-45	Anatomic Replicator Plate, 4.5mm o/s

300-20-02	Torque Defining Screw Kit

300-21-00	Fixed Angle Kit

310-21-38	Humeral head, short, 38mm
310-21-41	Humeral head, short, 41mm
310-21-44	Humeral head, short, 44mm
310-21-47	Humeral head, short, 47mm
310-21-50	Humeral head, short, 50mm
310-21-53	Humeral head, short, 53mm
310-22-38	Humeral head, tall, 38mm
310-22-41	Humeral head, tall, 41mm
310-22-44	Humeral head, tall, 44mm
310-22-47	Humeral head, tall, 47mm
310-22-50	Humeral head, tall, 50mm
310-22-53	Humeral head, tall, 53mm

** Special order*

EQUINOXE INSTRUMENTS

Catalog Number	Part Description	
	Broach, Multiple sizes	
301-03-01	Modular Broach Handle	
301-03-10	Retroversion Handle	
301-07-01	Mallet	
301-07-10	Primary Stem Inserter/Extractor	
301-07-20	Stem Protector	
301-07-30	T-Handle	
301-07-50	Screw Drive Handle	
301-07-60	Small Stem Protector	
301-07-70	T-Handle, Short	
301-07-80	Screw Drive Handle (Ratcheting)	
301-10-10	Torque Defining Removal Instrument	

** Special order*

EQUINOXE INSTRUMENTS

Catalog Number	Part Description	
301-10-00	Modular Anatomic Replicator Handle	
301-10-35	Modular Anatomic Replicator Fork	
311-01-01	Anatomic Osteotomy Guide	
311-01-10	132.5 Degree Osteotomy Guide	
311-05-01	Head Removal Tool	
	Straight Reamer, Multiple sizes	
301-21-38/53	Plate Dial, 38mm–53mm	
311-21-38/53 311-22-38/53	Short Head Trial, 38mm–53mm Tall Head Trial, 38mm–53mm	
311-07-05	Impactor	
311-07-07	Humeral Head Impactor Tip	
311-21-01/02	CTA Cut Guide	

EQUINOXE INSTRUMENTS

Catalog Number	Part Description	
317-01-02	Humeral Head Retractor	
317-01-03	Darrach Retractor	
317-01-04	Dual Point Glenoid Retractor	
317-01-05	Single Point Glenoid Retractor	
317-01-06	Hohmann Retractor	
317-01-08	Wolfe Retractor	
317-20-01	Forked (Playboy) Retractor – Small	
317-20-03	Deltoid Retractor	
311-41-01	CTA Head Tray	

NOTES

NOTES

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For additional device information, refer to the Exactech Shoulder Cuff Tear Arthoplasty System–Instructions for Use for a device description, indications, contraindications, precautions and warnings. For further product information, please contact Customer Service, Exactech, 2320 NW 66th Court, Gainesville, Florida 32653-1630, USA. (352) 377-1140, (800) 392-2832 or FAX (352) 378-2617.

Exactech, as the manufacturer of this device, does not practice medicine, and is not responsible for recommending the appropriate surgical technique for use on a particular patient. These guidelines are intended to be solely informational and each surgeon must evaluate the appropriateness of these guidelines based on his or her personal medical training and experience. Prior to use of this system, the surgeon should refer to the product package insert for comprehensive warnings, precautions, indications for use, contraindications and adverse effects.

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