stryker

# Aequalis® Flex Revive®
# Shoulder System

## Operative technique

This publication sets forth detailed recommended procedures for using Stryker devices and instruments. It offers guidance that you should heed, but, as with any such technical guide, each surgeon must consider the particular needs of each patient and make appropriate adjustments when and as required.

**Important**

- The patient should be advised that the device cannot and does not replicate a normal healthy bone, that the device can break or become damaged as a result of strenuous activity or trauma and that the device has a finite expected service life.
- Removal or revision of the device may be required sometime in the future.
- Cleaning and sterilization information is provided in the applicable instructions for use.
- Non-sterile devices, including implants and instruments, must be cleaned and sterilized prior to use, in accordance with validated methods.
- Devices that are able to be disassembled should be disassembled prior to point-of-use processing. Additionally, devices with movable components that do not facilitate disassembly should be manually articulated during the point-of-use processing step in order to evacuate additional soils.
- Please remember that the compatibility of different product systems has not been tested unless specified otherwise in the product labeling.
- Consult Instructions for Use (https://ifu.stryker.com) for a complete list of potential adverse effects and adverse events, contraindications, warnings and precautions.
- The surgeon must advise patients of surgical risks, and make them aware of adverse effects and alternative treatments.
- An implant whose packaging is open or damaged or whose expiration date has passed must not be used. Every precaution must be taken to ensure sterility when opening the packaging of the implant and during implantation.

# Operative technique

Aequalis Flex Revive Shoulder System

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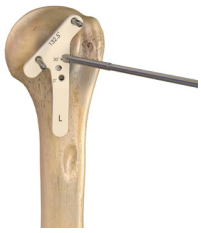
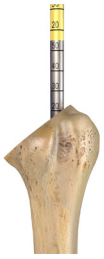
# Operative technique

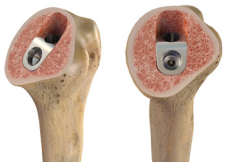


1.Resection

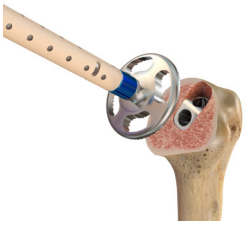


2. Sounding

3. Trial assembly



4. Inserting trial assembly



5. Surface planing

6. Head or tray trial

7. Remove trials

8. Implant assembly

9. Inserting implant assembly

10. Anatomic or reverse impaction

## Intended use

The Aequalis Flex Revive Shoulder System is intended for use as:

- A replacement of shoulder joints in primary anatomic or in primary reverse.
- A replacement of other shoulder joints devices in case of revisions if sufficient bone stock remains.

Aequalis Flex Revive Shoulder System also allows for conversions from anatomic to reverse shoulder prosthesis in case of revision.

## Indications for use

### In anatomic

The proximal body, stem, assembly screw, locking cap, optional spacer(s) and humeral head may be used together, as a hemiarthroplasty, if the natural glenoid provides a sufficient bearing surface, or in conjunction with the glenoid, as a total replacement.

The Aequalis Flex Revive Shoulder System is to be used only in patients with an intact or reconstructable rotator cuff, where it is intended to provide increased mobility and stability and to relieve pain. The Aequalis Flex Revive Shoulder System is indicated for use as a replacement of shoulder joints disabled by:

- Rheumatoid arthritis with pain
- Non-inflammatory degenerative joint disease (i.e. osteoarthritis and avascular necrosis)
- Correction of functional deformity
- Fractures of the humeral head
- Traumatic arthritis
- Revision of other devices if sufficient bone stock remains

### In reverse

The Aequalis Flex Revive Shoulder System is indicated for use as a replacement of shoulder joints for patients with a functional deltoid muscle with pain disabled by:

- Rheumatoid arthritis
- Non-inflammatory degenerative joint disease (i.e. osteoarthritis and avascular necrosis)
- Correction of functional deformity
- Fractures of the humeral head
- Traumatic arthritis
- Massive and non-repairable rotator cuff tear
- Revision of the devices if sufficient bone stock remains

The reversed tray and polyethylene insert are indicated for use in the conversion from an anatomic to reversed shoulder arthroplasty without the removal of the humeral assembly during revision surgery for patients with a functional deltoid muscle.

**Notes:**

- All components are single use.
- The coated humeral stem is intended for cemented or cementless use.
- The all-poly glenoid components are intended for cemented use only.
- The glenoid sphere implant is anchored to the bone with screws and is for non-cemented fixation.
- Titanium humeral heads are intended for patients with suspected cobalt alloy material sensitivity. The wear properties of titanium and titanium alloys are inferior to that of cobalt alloy. A titanium humeral head is not recommended for patients who lack a suspected material sensitivity to cobalt alloy.

## Contraindications for use

### In anatomic

**Absolute contraindications for shoulder arthroplasty:**

- Active local or systemic infection, sepsis and osteomyelitis.
- Inadequate bone stock in the proximal humerus or glenoid fossa for supporting the components.
- Poor bone quality, where there could be considerable migration of the prosthesis and/or a chance of fracture of the humerus or glenoid.

**Relative contraindications for shoulder arthroplasty:**

- Uncooperative patient or patient with neurological disorders who are not capable of following directions.
- Osteoporosis.
- Metabolic disorders which may impair bone formation.
- Osteomalacia.
- Distant foci of infections from genitourinary, pulmonary, skin and other sites, dental focus infection which may cause hematogenous spread to the implant site. The foci infection should be treated prior to, during, and after implantation.
- Rapid joint destruction, marked bone loss or bone resorption apparent on roentgenogram.

### In reverse

**Absolute contraindications for shoulder arthroplasty:**

- Poor quality and insufficient quantity of glenoid bone stock.
- Pre- or per-operative glenoid fracture.
- Acromion fracture.
- Non-functional deltoid. Active local or systemic infection, sepsis and osteomyelitis.
- Elevation of sedimentation rate unexplained by other disease, elevation of WBC count, or marked shift in WBC differential count.
- Use of this implant is contraindicated in the presence of significant injury to the upper brachial plexus.
- Paralysis of the axillary nerve.
- Neuromuscular disease (e.g. joint neuropathy).

**Relative contraindications for shoulder arthroplasty:**

- Uncooperative patient or patient with neurological disorders who are not capable of following directions.
- Osteoporosis.
- Metabolic disorders which may impair bone formation.
- Osteomalacia.
- Distant foci of infections from genitourinary, pulmonary, skin and other sites, dental focus infection which may cause hematogenous spread to the implant site. The foci infection should be treated prior to, during, and after implantation.
- Rapid joint destruction, marked bone loss or bone resorption apparent on roentgenogram.

**Relative contraindications for conversion from anatomic to reverse shoulder prosthesis:**

- Stability of the reverse tray and polyethylene insert relies on secure fixation to a stable diaphysis. If this is compromised by poor diaphyseal fixation to the humerus, insufficient access or cleanliness to fully seat the reverse tray on the humeral taper, or damage to the humeral taper, the entire humeral assembly must be removed and replaced with a new, externally assembled, Aequalis Flex Revive Shoulder Prosthesis in reversed configuration.

## System compatibility

### In anatomic

The Aequalis Flex Revive Shoulder System in the anatomic configuration must be associated with the Aequalis, Tornier Perform Anatomic, Tornier Perform Anatomic Augmented, or Affiniti glenoids in case of total shoulder arthroplasty.

### In reverse

The Aequalis Flex Revive Shoulder System in the reversed configuration must be used in association with the Tornier Perform Reversed Glenoid, Tornier Perform Reversed Augmented Glenoid, or Aequalis Reversed II Glenoid implants.

## Pre-operative planning

Four shoulder X-rays are recommended:

1. A-P view
2. True A-P view (grashey view)
3. Supraspinatus outlet view (SOV) / lateral view
4. Axillary view

CT scan may be appropriate to assist in evaluating the glenoid morphology.

MRI scan may be appropriate for some shoulders to assess rotator cuff muscles and tendons.

## Exposure

Using a standard delto-pectoral approach, releases are performed and the subscapularis is prepared per surgeon discretion.

The shoulder is gently dislocated anteriorly. This is facilitated by placing a Darrach retractor within the glenohumeral joint and performing gentle adduction and external rotation of the humerus. As the humeral head is fully dislocated, the inferior capsule is released up to the posterior aspect of the humeral head. Identification, palpation, and protection of the axillary nerve during this release is important. An anterior capsulotomy is performed with a release of the middle and inferior glenohumeral ligaments off the glenoid. For reverse, a complete capsulotomy is performed. A gentle mobilization of the subscapularis muscle is necessary to allow for tension-free reinsertion following the procedure.

Once these releases have been performed, the humeral head is fully dislocated by abduction of the arm with progressive external rotation and extension. Consider further release of the pectoralis major insertion if full external rotation is not obtained.

## Humeral head resection

The humeral head resection is made at a fixed inclination of 132.5°. A single resection guide is available to assist in the humeral head resection for anatomic or reversed shoulder arthroplasty.

### Guided resection

Before making the humeral head resection, it may be helpful to remove all humeral osteophytes.

Assemble the inclination indicator and the retroversion rod that matches the operative side of the patient (L or R). Thread the retroversion rod into the version hole on the inclination indicator that lines up best with the patient's native retroversion. The inclination indicator has measurements of 0º and 30º retroversion to allow for alignment relative to various patient anatomy. **| Figure 1**

After the osteophytes have been removed, the shaft of the inclination indicator can be aligned with the humeral diaphysis to assist in marking the 132.5° angle.

With the inclination indicator appropriately positioned, place two 3mm x 75mm guide pins through the inclination indicator and into the humerus to secure the construct. **| Figure 2**

If adjustments are necessary, remove the guide pins and re-position the inclination indicator.

With the inclination indicator aligned on the humerus, place the oscillating saw along the top flat portion of the inclination indicator and complete the head resection.

**Note:** The inclination indicator can also be aligned with the humerus and a marking pen used to make a 132.5° resection mark. Then remove the inclination indicator and guide pins to make the humeral resection using an oscillating saw.

### Free hand resection

To facilitate the resection, the cutting plane can be defined by:

- Marking the superior/lateral point (12 o'clock position), inferior/medial point (6 o'clock position) and the most anterior point (3 o'clock for a left shoulder and 9 o'clock for a right shoulder).
- Connecting these three points with a surgical pen or bovie will help identify the anatomic humeral neck prior to resection. **| Figure 3**

**Figure 1**

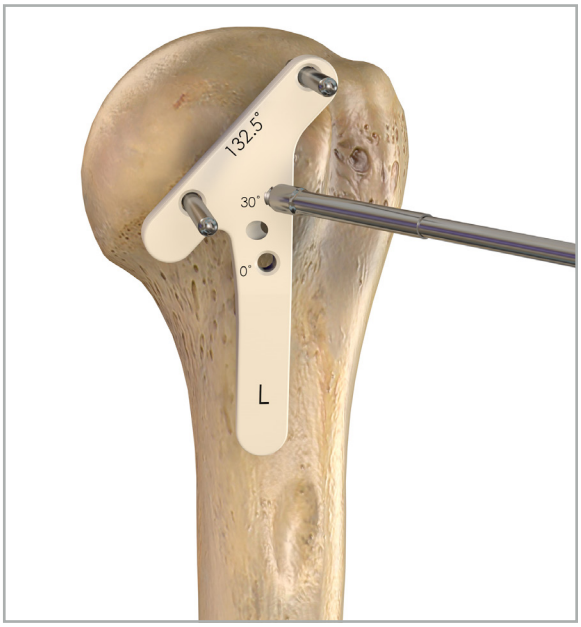



**Figure 2**

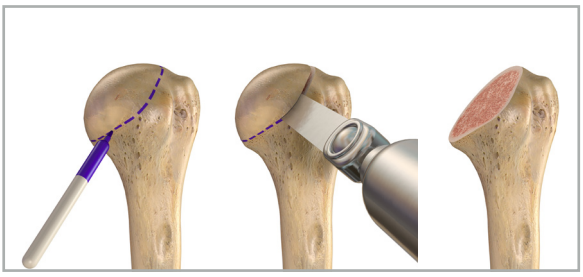


**Figure 3**

## Preparing the humerus

### Distal preparation – sizing the medullary canal

Assemble the size 9mm sounder with the T-handle.

**Note:** A trocar tip is included on the size 9mm sounder to assist in gaining access to the humeral canal.

Using the size 9mm sounder, create a pilot hole in-line with the humeral canal just below the hinge point and advance until the marking "0" aligns with the lateral portion of the resection. **| Figure 4**

Progressively increase the sounder size (sizes: 9mm, 11mm, 13mm, 15mm, 17mm, and 19mm) until contact is made with the cortical wall of the canal and rotational stability is achieved with minimal hand pressure.

When the sounder contacts the cortical wall and fits securely, note the height marking closest to the lateral/superior portion of the humeral resection.

- The sounder dimension will be utilized to define the diameter size of the proximal body, spacer(s) [if needed], stem extension [if needed], and distal stem trial. The height and color marking closest to the lateral portion of humeral resection will identify the length of trial spacer(s) [if needed] and trial stem extension [if needed] to utilize for the humeral trial assembly. **| Figure 5**

**Note:** While sounding, if measurement to the lateral/superior portion of the humeral resection is between height markings, leverage the shorter height measurement for initial humeral trial assembly.

**Note:** Do not impact or utilize sounders under power. The sounders are utilized to determine the upper size limit of the distal humerus.

**Figure 4**


**Figure 5**

### Humeral trial assembly with spacers and a stem extension

The humeral trial assembly is composed of a proximal body, spacer(s) [if needed], stem extension [if needed], and a distal stem trial.

Select the diameter of proximal body and distal trial stem that matches the sounder dimension identified in the previous surgical step.

The trial spacers and trial stem extensions are available in two diameters – 9mm and 13mm.

- Utilize the 9mm trial spacers and trial stem extensions for the humeral trial assembly, when the final sounder dimension is 9mm or 11mm.**| Figure 6**

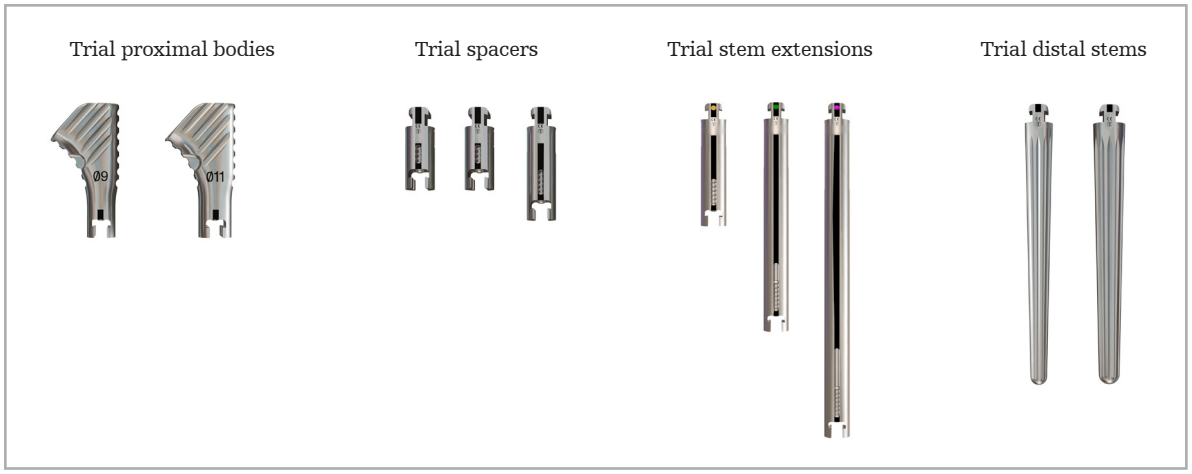



**Figure 6**

- Utilize the 13mm trial spacers and trial stem extensions for the humeral trial assembly, when the final sounder dimension is 13mm, 15mm, 17mm, or 19mm.**| Figure 7**

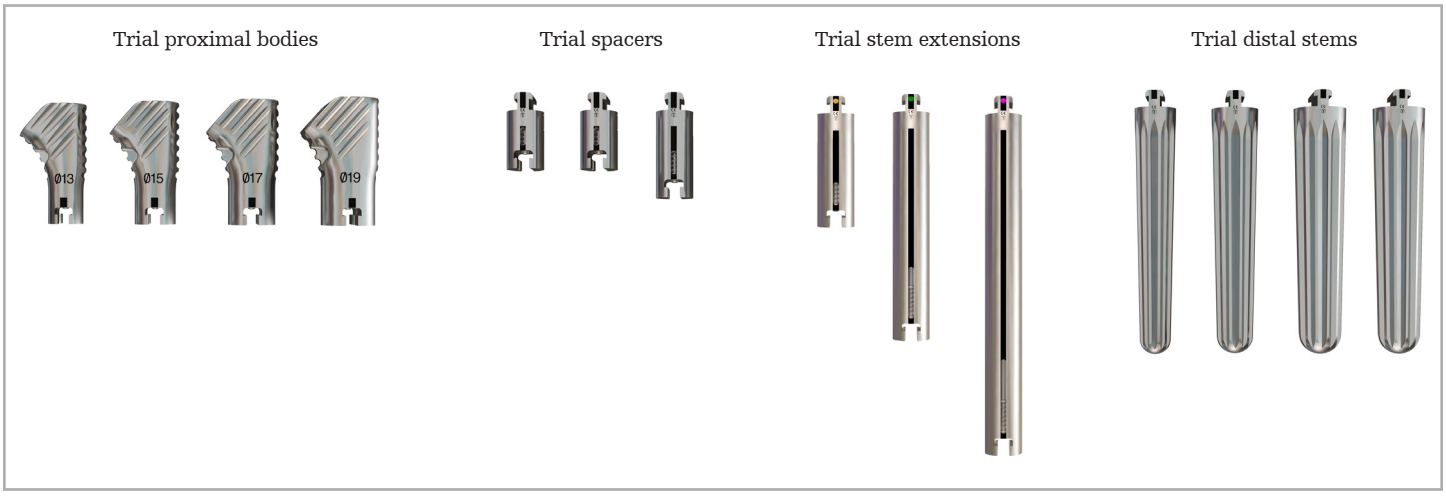



**Figure 7**

To build the trial implant assembly, ensure the inserter handle is in the fully unlocked position and align the clamp cylinder on the inserter handle into the proximal hole of the proximal body and place the clamp foot in the medial taper slot of the proximal body. **| Figure 8** Next, squeeze and lock the handle to secure the assembly. Pass T20 assembly screwdriver through the inserter handle and engage head of the captured screw within the proximal body.

Rotate the inserter handle (parallel to the table), align the laser or etch marks near the distal t-slot of the proximal body to the laser or etch marks near the proximal dove tail of the spacer. If utilizing a trial stem extension, align the laser or etch marks near the distal t-slot of the spacer with the laser or etch near the proximal dove tail of the trial stem extension.

Align the laser or etch marks near the distal t-slot of the spacer or trial stem extension with the laser or etch marks near the proximal dove tail of the distal trial stem. Make sure to align the marks or etch on each trial to ensure proper assembly.

Once the trials are selected and aligned, tighten the captured screw, located in the proximal body trial, with the T20 assembly screwdriver. **| Figure 9** Once the captured screw is tightened, confirm the humeral trial assembly construct is rigid.

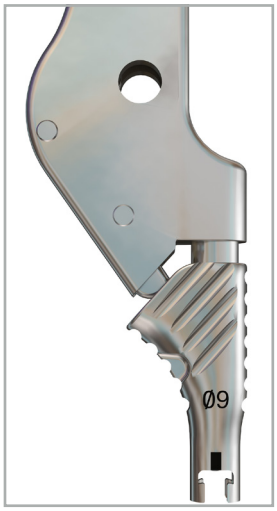



**Figure 8**


**Figure 9**

### Humeral trial assembly without spacers or a stem extension

To build the trial implant assembly, ensure the inserter handle is in the fully unlocked position and align the clamp cylinder on the inserter handle into the proximal hole of the proximal body and place the clamp foot in the medial taper slot of the proximal body. Next, squeeze and lock the handle to secure the assembly. Pass T20 assembly screwdriver through the inserter handle and engage head of the captured screw within the proximal body.

Rotate the inserter handle (parallel to table), align the laser or etch marks near the distal t-slot of the proximal body to the laser or etch marks near the proximal dove tail of the distal stem trial. Make sure to align the marks on each trial to ensure proper assembly.

Once the trials are selected and aligned, tighten the captured screw, located in the proximal body trial, with the T20 assembly screwdriver. **| Figure 10** Once the captured screw is tightened, confirm the humeral trial assembly construct is rigid.


**Figure 10**

### Inserting humeral trial assembly

The inserter handle has optional version holes designed to accept the version rod to assist in orienting the humeral trial assembly to the previously determined version. If utilized, place the version rod on the side of the inserter handle that corresponds with the operative side of the patient (left or right). The inserter handle has retroversion holes at 0º, 10º, 20º, 30º, 40º. **| Figure 11**

**Figure 11**

Advance the humeral trial assembly into the humerus until the taper is flush on humeral resection, if needed impact the superior portion of the inserter handle with a mallet to fully seat the humeral trial assembly. **| Figure 12**

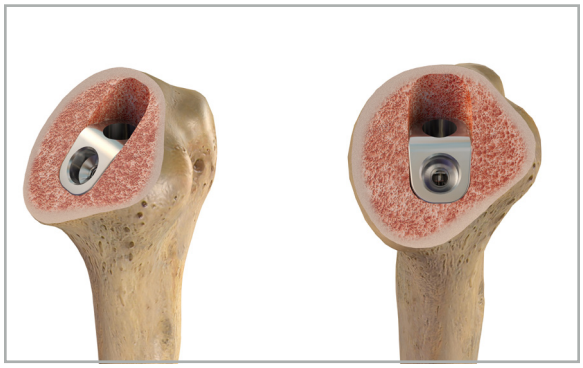


**Figure 12**

### Surface planing

With the humeral trial assembly in place, a surface planer can be utilized to ensure a flat resection true to the implant.

Prior to engaging power, access the location of soft tissues to ensure that it will not be damaged during reaming.

To plane, engage the power prior to advancing the cutting teeth to the resection. Take care to ensure the surface planer is aligned with the taper of the compactor and not pushed off the axis. Slowly advance the surface planer axially into the taper until it reaches the built in stop, taking care not to rock or wobble the surface planer. **| Figures 13 and 14**

At this point, the glenoid can be prepared. Optional cut protectors are available and their use is described in the section below.

**Note:** The surface planer can also be utilized on the final implant if desired.

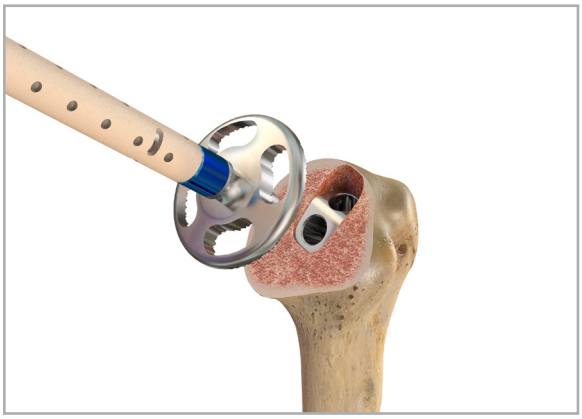
### Humeral cut protector

Cut protectors are provided to protect the resection from retractors while preparing the glenoid and are available in three diameters (35mm, 40mm, and 45mm). The cut protectors have been designed to include a retention feature and an eccentric taper to allow for maximum coverage. **| Figure 15**

To place the cut protector, select a diameter slightly undersized to the resection. Next, push the tip of the 3.5mm retaining driver into the screw located on the top of the cut protector. An audible “click” can be heard when the retention feature snaps into place.

The male taper of the cut protector can then be placed into the female taper of the humeral trial assembly. To dial the cut protector for maximum coverage of the resected bone surface, rotate the handle of the driver without applying downward force onto the screw (pushing down on the screw will prevent the driver from rotating the cut protector). Once the maximum coverage of the resected bone surface has been achieved, push the screw down into the taper and tighten to secure it in place.**| Figure 16**

To remove the cut protector, loosen the screw with the 3.5mm retaining driver and lift the cut protector off the humeral trial assembly.



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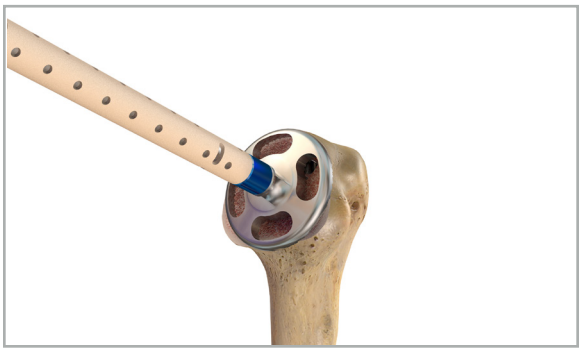

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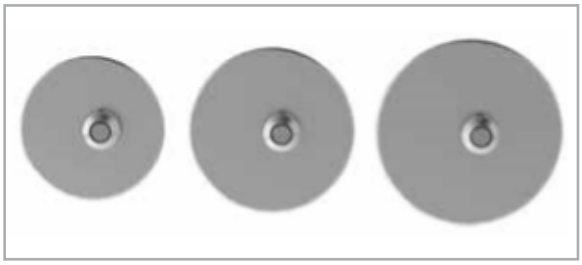


**Figure 15**

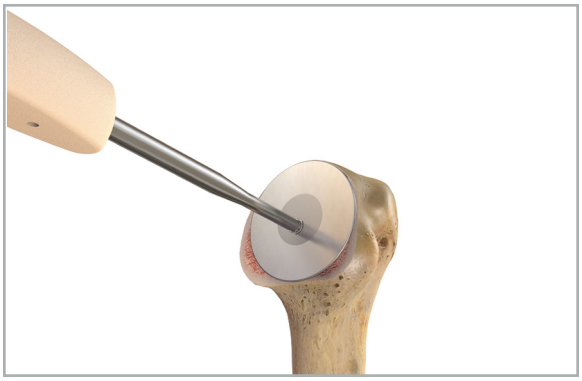


**Figure 16**

## Anatomic preparation

### Trialing humeral head components

The initial size of the humeral head trial can be determined by placing the resected head onto the humeral head sizer or by mimicking the resected head (except in the case of severe deformity). This is accomplished by placing the resected head against a trial head and determining which diameter and thickness most closely represents the resected head. **| Figure 17**

**Note:** In the case of severe deformity of the native humeral head, pre-operative radiographic templating may be utilized to determine the optimally sized humeral implant.

The Aequalis Flex Revive Shoulder System is designed to be compatible with Tornier Flex Humeral Heads. The Tornier Flex Shoulder System offers both low and high offset humeral head trials. To determine which offset to begin with, evaluate the position of the humeral trial assembly relative to the center of the resection.

- A humeral trial assembly located centrally within the resection will most likely require a low offset humeral head trial whereas a humeral trial assembly further from the center will likely require a high offset humeral head trial.

Select the humeral head trial of the determined resection diameter, height, and offset. Then, insert the tips of the trial clamp into the holes located on the sides of the trial. **| Figure 18**

Place the male taper of the humeral head trial into the female taper of the humeral trial assembly. Utilizing the trial clamp, rotate the trial until the best coverage is achieved or until it is determined that a different size or offset is necessary. **| Figure 19**

Once the size, offset, and rotation are established, insert the 3.5mm retaining driver into the screw of the humeral head trial and advance the screw to lock the trial securely into position.**| Figure 20**

Reduce the humeral head trial into the glenoid.

After the shoulder joint is reduced, posterior force on the humeral head should allow for subluxation of 50% of the width of the joint. If less than 50% subluxation is possible, remove the humeral head trial and replace it with the next smaller humeral head trial. If direct posterior force dislocates the humeral head trial, remove the trial, and replace it with the next largest humeral head trial.

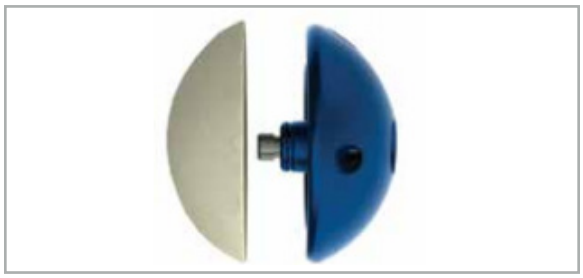


**Figure 17**

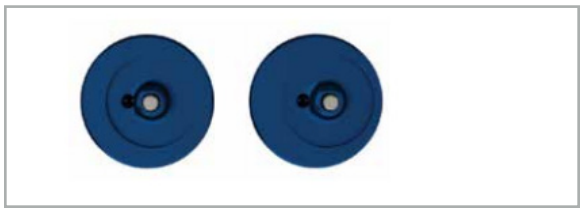


**Figure 18**

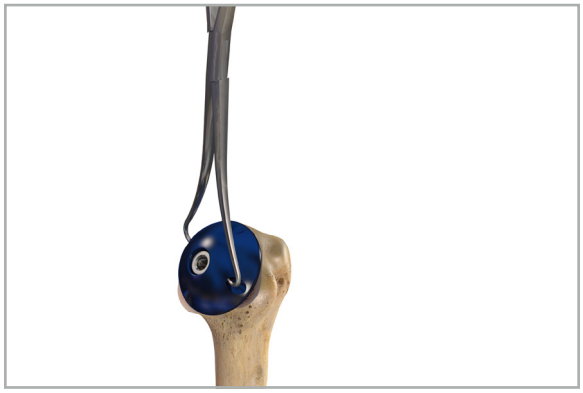


**Figure 19**

**Figure 20**

### Mobility testing

The arm is abducted to 90º and internally rotated. Internal rotation of 60º should be achieved.

If less than 60º of internal rotation is demonstrated, further capsular release of the interior humeral neck and glenoid may be necessary for optimal function.

### Removing the trial construct

Once the humeral head size, offset, and rotation have been confirmed, dislocate the shoulder and remove the trial construct. It is important to leave the trial construct assembled and remove it as one piece as this will provide information necessary for assembling the final implant.

To remove the trial construct, thread the tip of the trial slaphammer (with handle all the way at the bottom to stabilize the tip) into the threads located on the top of the humeral head trial. It is important to not over-tighten the threads.**| Figure 21**

Next, slide the handle of the trial slaphammer away from the humeral head trial. This will free the pivoting joint allowing the handle to move in any direction. Orient the handle in a superior position and with incremental backslaps, removing the trial construct.**| Figures 21 and 22**

To determine the rotation of the humeral head, orient the trial construct so the bottom of the humeral head trial is visible. A clock-like face with numbers ranging from 1-12 is marked on the bottom of the humeral head trial. Take note of the number that falls closest to the lateral most edge. This number will determine the position of the final humeral head as it relates to the notch on the lateral edge of the humeral implant assembly.

**Figure 21**

**Figure 22**

**Figure 23**

## Final implantation

**Note:** The surgeon should inspect the implant tapers and mating surfaces for debris or blemishes before assembly.

- The tapers should be clean and dry for assembly.
- The implants should be assembled with clean gloves.
- The final humeral implant should be assembled on the back table.

For assistance in determining needed spacer(s) and assembly screw size for the overall humeral implant assembly, a reference guide is included on page 48.

### Back table assembly

Assemble the torque limiting driver handle with the T20 driver bit.

To execute the final humeral implant assembly, complete the below steps. **| Figure 24**

1. Place the assembly screw through the top of proximal body. Ensure the inserter handle is in the fully unlocked position and align the clamp cylinder on the inserter handle in the proximal hole on the proximal body and place the clamp foot in the medial taper slot of the proximal body. Squeeze and lock the inserter handle. **(A)**
2. Pass the torque limiting driver handle and T20 driver bit through the inserter handle and engage the head of the assembly screw. **(B)**
3. Pass spacer(s) [if needed] onto the assembly screw, begin to thread the distal stem onto the assembly screw until teeth are engaged. **(C)**
4. Leveraging the inserter handle for counter-torque, tighten the assembly screw with the torque limiting driver handle and T20 driver bit until the handle breaks over (5mm). **(D)**

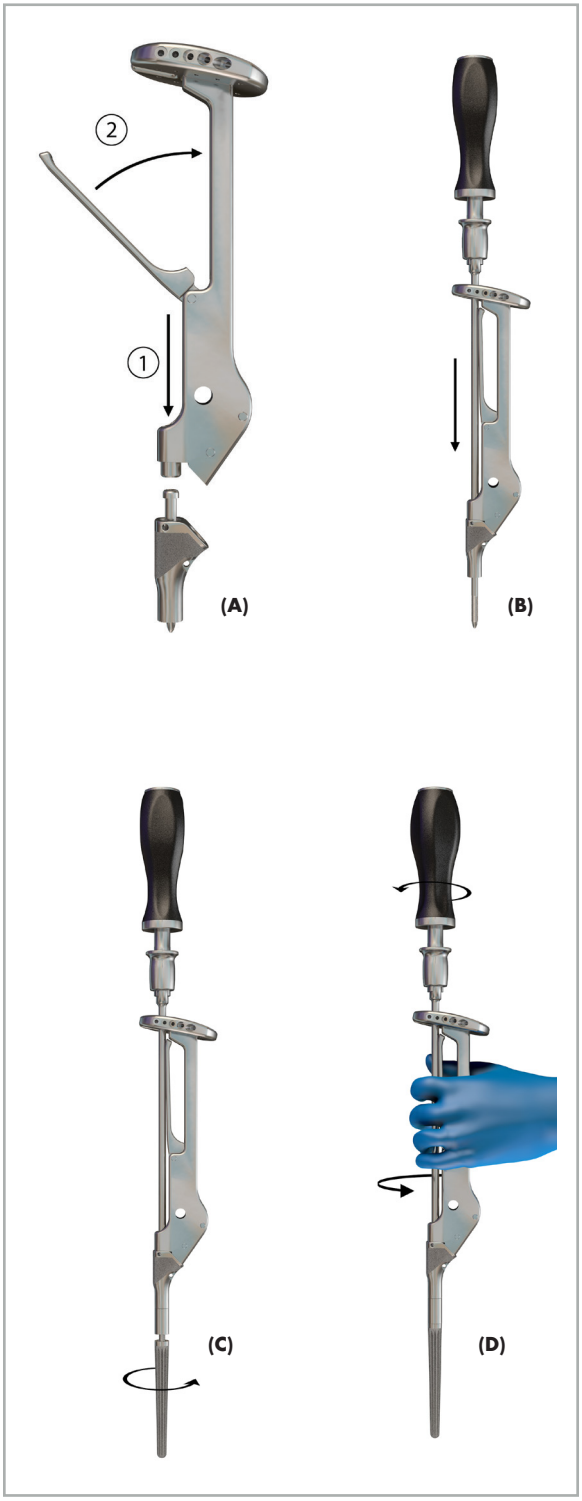



**Figure 24**

5. Remove the torque limiting driver handle and T20 driver bit, unlock the inserter handle from the humeral implant assembly. Place the locking cap ('top' inscription facing up) into the proximal body and engage locking cap with the torque limiting driver handle and T20 driver bit (engage locking cap thread within proximal body). **(E)**
6. Remove the torque limiting driver handle and T20 driver bit, engage the inserter handle to the humeral implant assembly. Leveraging the inserter handle for counter-torque, re-engage and tighten the locking cap with the torque limiting driver handle and T20 driver bit until the handle breaks over (5mm). **(F)**
7. Remove humeral implant assembly from inserter handle, visually verify that locking cap is fully seated (all of the locking cap threads should be engaged in the proximal body). **(G)**
8. Re-attach humeral implant assembly to inserter handle. The inserter handle has optional version holes designed to accept the version rod to assist in orienting the definitive stem to the previously determined version. If utilized, place the version rod on the side of the inserter handle that corresponds with the operative side of the patient (left or right). **(H)**

**Note:** When utilizing multiple spacers in the humeral implant assembly, align a 20mm spacer directly next to the proximal body.

The locking cap is in its own sterile packaging, and **is not** included within the sterile packaging of the assembly screw.

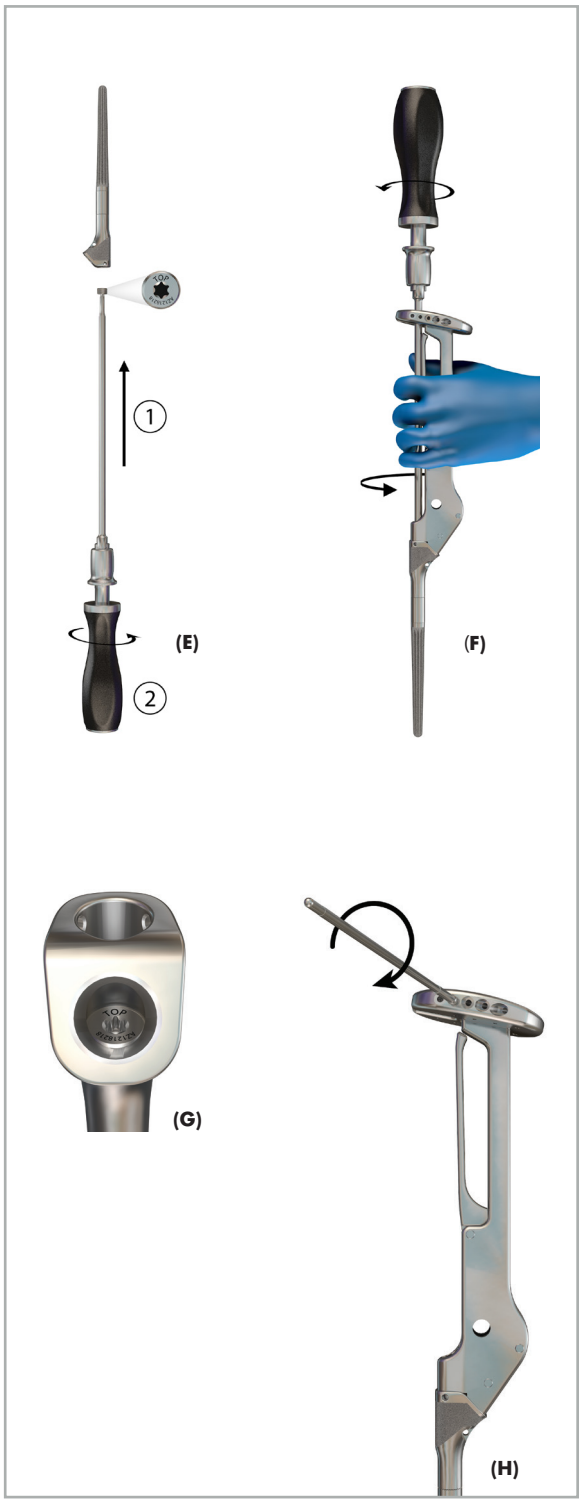



**Figure 24 (continued)**

### Inserting final implant

Insert the humeral implant assembly into the prepared humerus while confirming retroversion alignment utilizing the version rod. Impact the inserter handle until the face of the proximal body is flush with the reamed humeral surface. **| Figure 25**

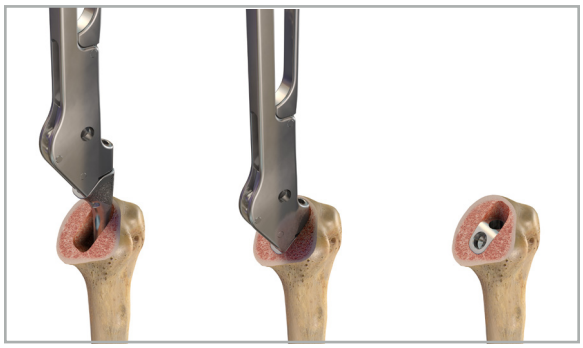


**Figure 25**

**Note:** If open bone voids/gaps are noted, Pro-Dense may be injected or digitally packed into open voids/gaps that are not intrinsic to the stability of the skeletal system. The Pro-Dense paste cured in situ provides an open void/gap filler that can augment the provisional hardware. The cured paste acts as a temporary support media and is not intended to provide structural support during the healing process.

Remove the inserter handle and orient the selected size humeral head to the previously determined rotation. Seat the taper using the impaction handle with the head/tray impactor tip and continue to impact until the humeral head is flush with the reamed humeral surface.**| Figure 26** excess force should be avoided during impaction and care should be taken not to damage the articular surface of the humeral head implant. Confirm implant stability.

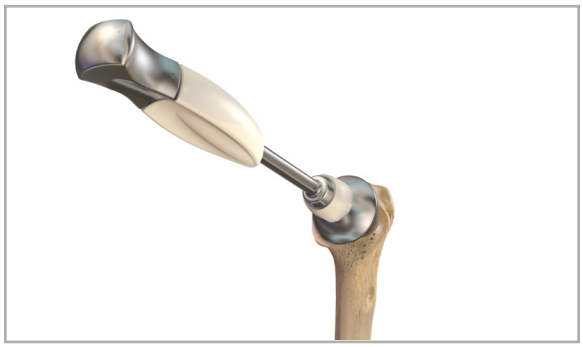


**Figure 26**

**Note:** Prior to humeral head impaction, orient the humeral head rotation so that the previously identified number from the bottom of the humeral head trial is aligned to the lateral most edge of the humeral implant assembly.

### Testing and closure

After the joint has been irrigated and the prosthesis reduced, the stability and mobility of the shoulder are tested.

The joint is closed by reinsertion of the subscapularis to the coraco-humeral ligament, and to the subscapular remnant.

## Reversed preparation

### Trialing reversed components

Trialing the reversed components is critically important to ensure a successful clinical outcome.

The Aequalis Flex Revive Shoulder System is designed to be compatible with the Tornier Flex Reversed Trays and Reversed Polyethylene Inserts. The reversed components are comprised of reversed trays that are placed into the Morse taper of the proximal body and reversed polyethylene inserts that "snap" into the reversed tray.| **Figure 27**

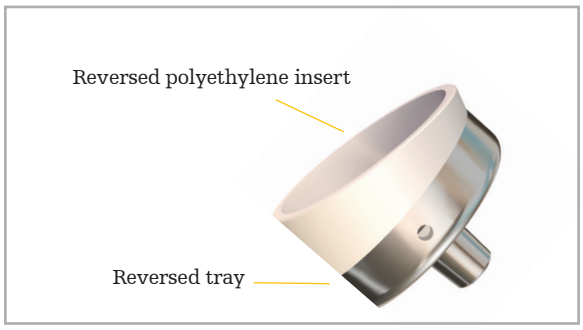



**Figure 27**

### Reversed tray overview

The reversed trays are offered in centered, low (1.5mm), and high (3.5mm) offsets, providing flexibility in the operative setting to include the following:

- The flexibility to limit medial overhang. Medial overhang has demonstrated to reduce overall range of motion and increases the likelihood of both scapular and acromial impingements.
- The flexibility to adjust the humeral center of rotation to be either centered within the resection surface or more lateral like the Grammont design.
- The flexibility to facilitate reduction by decreasing tension when reducing the shoulder.

The Tornier Flex Reversed Trays cleared for use with Aequalis Flex Revive are identified in.| **Figure 28**

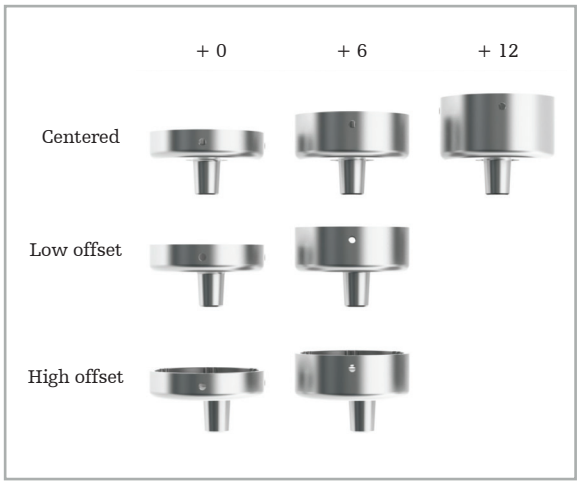



**Figure 28**

### Reversed polyethylene insert overview

For primary reverse shoulder arthroplasty, the reversed polyethylene insert is offered in a b angle, which is 12.5º, to allow conversion from the anatomic angle to 145º construct. **(Table 1)** the reversed polyethylene inserts are offered in articular surfaces of 33mm, 36mm, 39mm, and 42mm diameters and in +6 and +9 thicknesses.

| | Humeral implant assembly | Polyethylene insert | Reverse implant construct |
|---|---|---|---|
| Inclination angle | 132.5° | 12.5° | 145° |

**Table 1**

### Understanding humeral movement with offset trays

To determine which reversed tray will be utilized, it is necessary to first understand how the position of the offset trays influences the position of the humerus relative to the scapula.

The key point in understanding this relationship is to recognize that the reversed tray spins about the axis of the taper which is perpendicular to the resection. Therefore, in the A/P view, as the tray is rotated, the humerus will move in both the superior/inferior and medial/lateral planes at the same time. In the axillary view, the humerus will move in the anterior/posterior plane. **(Table 2)**

As an example, consider the following: **| Figure 29**

- Positioning of an offset reversed tray directly lateral on the resection will move the humerus medial and inferior (down and in) relative to the scapula. **(A)**
- Positioning an offset reversed tray directly medial on the resection will move the humerus lateral and superior (up and out) relative to the scapula. **(B)**
- Positioning an offset reversed tray directly posterior on the resection will move the humerus anterior relative to the scapula. **(C)**
- Positioning an offset reversed tray directly anterior to the resection will move the humerus posterior relative to the scapula **(D)**

As a simple rule of thumb, the humerus will move directly opposite the position of the offset reversed tray, as it relates to the scapula.

| | | Reversed tray position | |
|---|---|---|---|
| | | Medial | Lateral |
| Humerus movement | Medial | | • |
| | Lateral | • | |
| | Inferior | | • |
| | Superior | • | |

**Table 2**

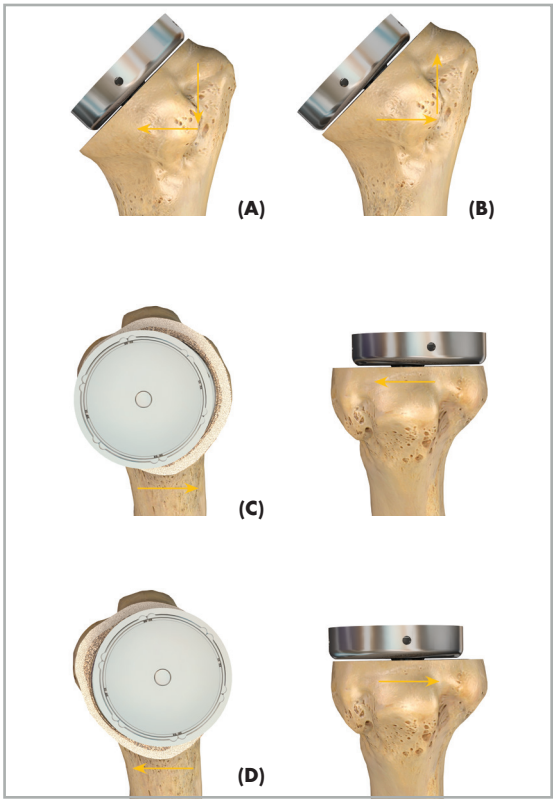



**Figure 29**

### Selecting the reversed tray and trial reduction

The selection of the reversed tray offset is dependent upon the surgeon's preference, as each option has unique advantages. Below are guidelines based upon simulated use studies and laboratory experiences, which are worth consideration when selecting a reversed tray.

- Medial overhang of the tray should be avoided as it reduces overall range of motion and increases the likelihood of both scapular and acromial impingements.
- Excessive posterior placement of the tray should be avoided as it will move the humerus anterior and may limit internal rotation due to conflict between the lesser tuberosity and the conjoined tendon.
- Direct lateral placement of the tray is most like the traditional grammont design. The lateral edge of the tray should typically correspond with the footprint of the rotator cuff.
- Central placement of the tray within the resection reduces the chance of impingement and may be beneficial to both internal and external rotation.

Once a reversed tray offset has been chosen, select the +0 trial of that particular offset. Insert the tips of the trial clamp into the holes located on the sides of the trial. The trial can then be placed on the humeral trial assembly and rotated to the desired location.**| Figure 30**

With the trial placed in the desired location, insert the 3.5mm retaining driver into the screw of the reversed tray trial and advance the screw to lock the trial into position. Take care not to over-tighten.**| Figure 31**

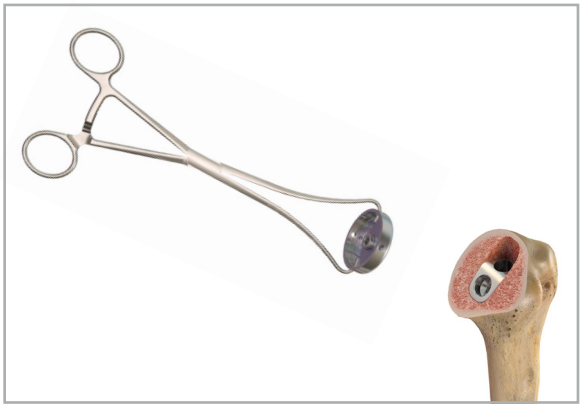


**Figure 30**

**Figure 31**

Next, select the +6 reversed insert trial (angle b), which corresponds to the humeral inclination angle of 145°, and matches with the diameter of the glenoid sphere. Orient the insert trial so the laser mark is positioned at the most lateral position of the humerus. As a check, the thinnest portion of the insert trial should be lateral (superior) and the thickest portion of the insert trial should be medial (inferior). **| Figure 32**

The humeral trial is then reduced into the joint to check deltoid tension, stability, range of motion, and impingement. If needed the thickness of the trial implant can be adjusted to provide optimal deltoid tension. The following table provides the guidance on the possible reversed adapter combinations and their impact on thickness. **(Table 3)**

### Mobility testing

Pull the arm away from the body after reduction to ensure that there is no pistoning effect. A complete separation of the reversed insert from the glenoid sphere indicates inadequate tensioning of the deltoid.

Abduction of the arm is performed to check that there is no impingement and that anterior elevation and abduction has been restored.

External rotation with the elbow at the side checks for mobility and risk of subluxation.

Internal rotation with the elbow at the side and in abduction (the forearm has to be parallel to the thorax) is performed.

Adduct the arm to check that there is no impingement between the pillar of the scapula and the humeral implant.

After reduction, the conjoined tendon should show sufficient muscular tension (similar to the deltoid).

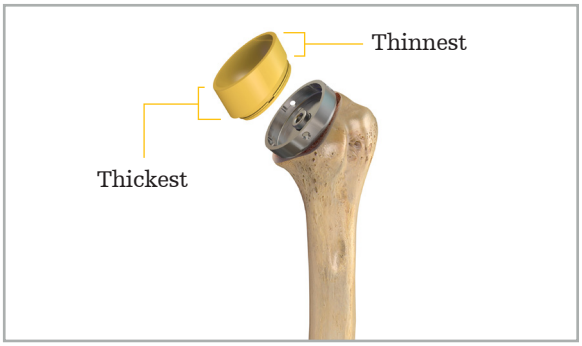



**Figure 32**

**Anatomic to reversed conversion chart**

| Reversed tray | Reversed insert | Combined thickness |
|---|---|---|
| +0 | +6 | +6 |
| | +9 | +9 |
| +6 | +6 | +12 |
| | +9 | +15 |
| +12 | +6 | +18 |
| | +9 | +21 |

**Table 3**

### Trial adjustments

In case of impingement, remove the insert trial and adjust the position of the reversed tray to prevent impingement. This can be accomplished by simply changing the position of an offset tray or by switching from a centered tray to an offset tray.

If the initial reduction is too loose, remove the +6 reversed insert trial and replace it with a +9 reversed insert trial. If additional thickness is required, remove the +9 insert and +0 tray and replace them with the +6 tray and +6 insert. Continue incrementally until the desired tension is obtained.

If muscles are over-tensioned, first try adjusting the position of the tray. If this does not adequately reduce the tension, additional resection of the metaphysis may be required.

The dimensions of the final implants (reversed tray and inserts) are determined based upon the combination that provides the best stability and range of motion.

### Removing the trial construct

Once the reversed trial components have been confirmed, dislocate the shoulder and remove the reversed polyethylene insert trial.

To remove the trial construct, thread the tip of the trial slaphammer (with handle all the way at the bottom to stabilize the tip) into the threads located in the screw head of the reversed tray trial. It is important to not over-tighten the threads.**| Figure 33**

Next, slide the handle of the trial slaphammer away from the trial. This will free the pivoting joint allowing the handle to move in any direction. Orient the handle in a superior position and with incremental backslaps remove the trial construct.**| Figures 34 and 35**

After removing the trial construct, unthread the trial slaphammer. If an offset tray was utilized, determine the rotation by orienting the trial construct so the bottom of the reversed tray trial is visible.

A clock-like face with numbers ranging from 1-12 is marked on the bottom of the offset tray. Take note of the number that falls closest to the lateral most edge of the humeral trial assembly. This number will determine the position of the final reversed tray as it relates to the lateral edge of the humeral implant assembly.

**Figure 33**

**Figure 34**

**Figure 35**

## Final implantation

**Note:** The surgeon should inspect the implant tapers and mating surfaces for debris or blemishes before assembly.

- The tapers should be clean and dry for assembly.
- The implants should be assembled with clean gloves.
- The final humeral implant should be assembled on the back table.

For assistance in determining needed spacer(s) and assembly screw size for the overall humeral implant assembly, a reference guide is included on page 48.

### Back table assembly

Assemble the torque limiting driver handle with the T20 driver bit.

To execute the final humeral implant assembly, complete the below steps. **| Figure 36**

1. Place the assembly screw through the top of proximal body. Ensure the inserter handle is in the fully unlocked position and align the clamp cylinder on the inserter handle in the proximal hole on the proximal body and place the clamp foot in the medial taper slot of the proximal body. Squeeze and lock the inserter handle. **(A)**
2. Pass the torque limiting driver handle and T20 driver bit through the inserter handle and engage the head of the assembly screw. **(B)**
3. Pass spacer(s) [if needed] onto the assembly screw, begin to thread the distal stem onto the assembly screw until teeth are engaged. **(C)**
4. Leveraging the inserter handle for counter-torque, tighten the assembly screw with the torque limiting driver handle and T20 driver bit until the handle breaks over (5mm). **(D)**

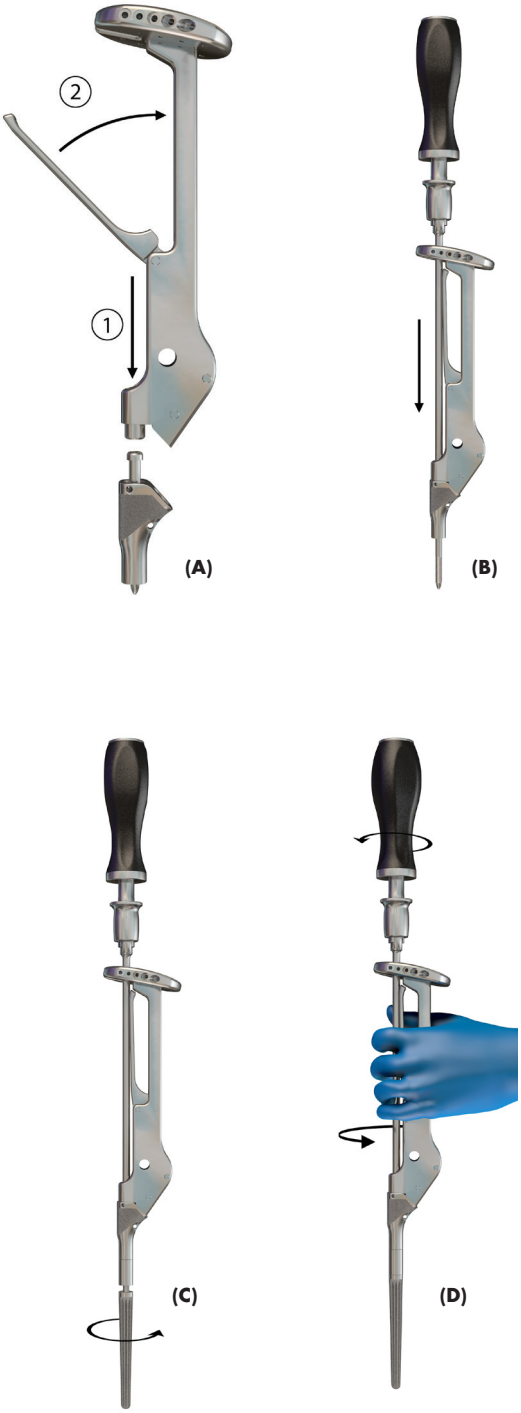



**Figure 36**

5. Remove the torque limiting driver handle and T20 driver bit, unlock the inserter handle from the humeral implant assembly. Place the locking cap ('top' inscription facing up) into the proximal body and engage locking cap with the torque limiting driver handle and T20 driver bit (engage locking cap thread within proximal body). **(E)**
6. Remove the torque limiting driver handle and T20 driver bit, engage the inserter handle to the humeral implant assembly. Leveraging the inserter handle for counter-torque, re-engage and tighten the locking cap with the torque limiting driver handle and T20 driver bit until the handle breaks over (5mm). **(F)**
7. Remove humeral implant assembly from inserter handle, visually verify that locking cap is fully seated (all of the locking cap threads should be engaged in the proximal body). **(G)**
8. Re-attach humeral implant assembly to inserter handle. The inserter handle has optional version holes designed to accept the version rod to assist in orienting the definitive stem to the previously determined version. If utilized, place the version rod on the side of the inserter handle that corresponds with the operative side of the patient (left or right). **(H)**

**Note:** When utilizing multiple spacers in the humeral implant assembly, align a 20mm spacer directly next to the proximal body.

The locking cap is in its own sterile packaging, and **is not** included within the sterile packaging of the assembly screw.

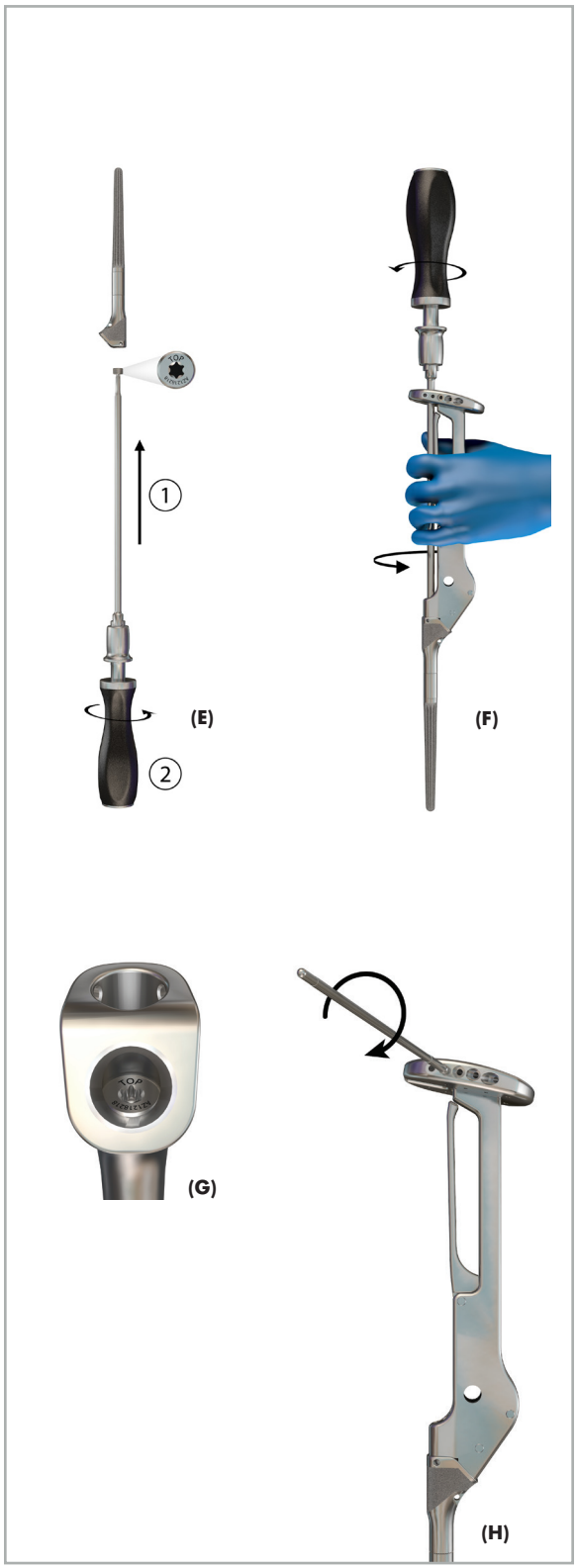



**Figure 36 (continued)**

### Inserting the final implant

Insert the humeral implant assembly into the prepared humerus while confirming retroversion alignment utilizing the version rod. Impact the inserter handle until the face of the proximal body is flush with the reamed humeral surface. **| Figure 37**

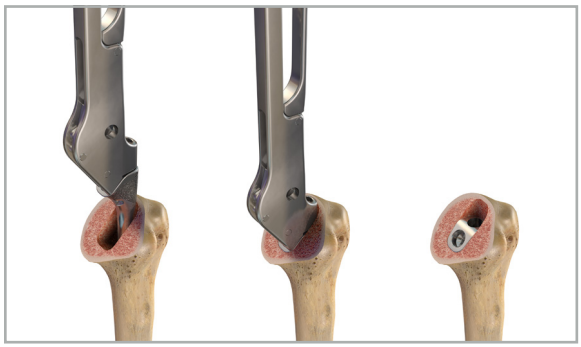


**Figure 37**

**Note:** If open bone voids/gaps are noted, Pro-Dense may be injected or digitally packed into open voids/gaps that are not intrinsic to the stability of the skeletal system. The Pro-Dense paste cured in situ provides an open void/gap filler that can augment the provisional hardware. The cured paste acts as a temporary support media and is not intended to provide structural support during the healing process.

Remove the inserter handle and orient the selected size reverse tray to the previously determined orientation and apply pressure to lock the tray in this position. Seat the taper using the impaction handle with the head/tray impactor tip and continue to impact until the bottom of the reversed tray is flush with the reamed humeral surface. Confirm implant stability. **| Figure 38**

**Figure 38**

**Note:** Prior to humeral tray impaction, orient the humeral tray rotation so that the previously identified number from the bottom of the humeral tray trial is aligned to the lateral most edge of the humeral implant assembly. (Does not apply to the centered reversed tray.)

To place the polyethylene insert, select the size and thickness determined during the trial step and orientate the polyethylene insert so the laser mark is aligned with the most lateral aspect of the reversed tray. As a check, the thinnest portion of the polyethylene insert should be lateral (superior) and the thickest portion of the polyethylene insert should be medial (inferior).**| Figure 39**

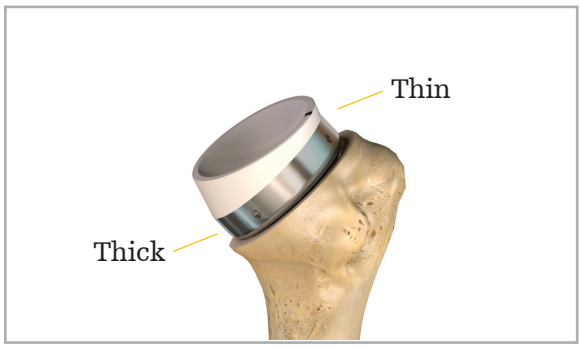



**Figure 39**

With the insert aligned, use the impactor handle with the insert impactor tip to seat the insert into the tray.**| Figure 40**

### Testing and closure

After the joint has been irrigated and the prosthesis reduced, the stability and mobility of the shoulder are tested.

In the supero-lateral approach, the deltoid is reattached to the acromion with a trans osseous suture. In the delto-pectoral approach, a full or partial re-insertion of the subscapularis is performed, if possible.

**Figure 40**

## Technique addendums

### Conversion of anatomic to reversed configuration

Removing the humeral head:

- To begin, remove the humeral head by placing the top of the taper distractor between the resection and bottom of the humeral head and impact to release the Morse taper. Once the humeral head has been removed, assess the position, fixation, and taper of the humeral stem assembly.**| Figure 41**

**FIGURE 41**

### Planing the resection

- If the position, fixation, and taper of the humeral stem assembly are acceptable, a surface planer can be utilized to ensure a flat resection true to the implant.
- Prior to engaging power, access the location of soft tissues to ensure that it will not be damaged during reaming.
- To plane, engage the power prior to advancing the cutting teeth to the resection surface. Take care to ensure that the surface planer is aligned with the taper of the humeral stem assembly and not pushed off axis. Slowly advance the surface planer axially into the taper until it reaches the built-in-stop, taking care not to rock or wobble the surface planer.**| Figures 42 and 43**

**Note:** Utilizing the surface planer will ensure adequate clearance for the reversed tray that will be placed in the humeral construct in the subsequent steps.

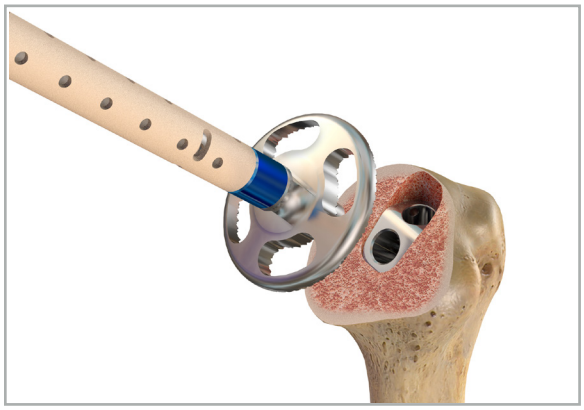


**Figure 42**

**Figure 43**

### Trialing overview

- Once the metaphyseal surface is prepared, select the desired reversed humeral tray trial and place it on the humeral stem assembly in the desired orientation.

- Once the reversed tray trial is in place, select the +6 thickness reversed trial insert trial (angle B) that corresponds to the humeral inclination angle of 132.5°, and matches with the diameter of the glenoid sphere. Orient the insert trial so the laser mark is positioned as the most lateral position of the humerus. As a check, the thinnest portion of the insert trial should be lateral (superior) and the thickest portion of the insert trial should be medial (inferior). **| Figure 44**

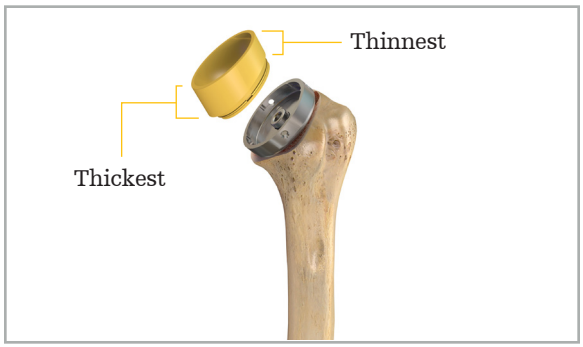



**Figure 44**

Reduce the joint and check deltoid tension, stability, range of motion, and impingement. If necessary, adjust the thickness of the insert and/or tray until the desired results are achieved. The following table provides the guidance on the possible reversed adapter combinations and their impact on thickness. **(Table 4)**

**Anatomic to reversed conversion chart**

| Reversed tray | Reversed insert | Combined thickness |
|---|---|---|
| +0 | +6 | +6 |
| | +9 | +9 |
| +6 | +6 | +12 |
| | +9 | +15 |
| +12 | +6 | +18 |
| | +9 | +21 |

**Table 4**

### Implant assembly

- Orient the selected reversed tray implant to the desired position. Seat the taper using the impactor handle/tray impactor tip. **| Figure 45**

**Figure 45**

- To place the insert, select the size and thickness determined during the trialing step and orient the insert so the laser mark is aligned with the most lateral aspect of the humerus. As a check, the thinnest portion of the insert should be lateral (superior) and the thickest portion of the insert should be medial (inferior). The reversed tray and insert should be clean and dry prior to assembly. **| Figure 46**

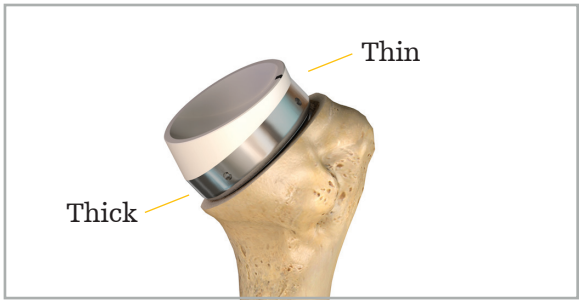



**Figure 46**

- With the insert aligned, use the impactor handle with the insert impactor tip to seat the insert into the tray. **| Figure 47**

**Figure 47**

### Addressing instability for reversed configuration

With recurrent instability, a revision may be necessary to check the humeral version and increase (if necessary) the humeral lateralization utilizing a thicker insert or thicker tray.

Retentive inserts are available upon request from the Tornier Flex Shoulder System (YKAD235S) and may be useful in addressing recurrent instability.

An insert revision clamp (MWF621) from the Tornier Flex Reversed Trials (YKAD234) is needed to facilitate the removal of an existing reversed insert.

The insert revision clamp utilizes three of the four holes in the reversed tray to loosen the metal clip on the reversed insert.

- To use, first locate the fixed arm of the clamp (the side with the larger thumb screw). **| Figure 48** Place the tip of the fixed outer arm into either the anterior or superior holes in the reversed tray ensuring that the larger thumb screw is pointed up, above the reversed tray.
- Ensure that the central post is completely unthreaded and then align the central tip of the clamp with the hole in the tray. Advance the smaller thumb screw until there is slight resistance. **| Figure 49** Take care not to overtighten the clamp as it will prevent removal of the insert. Next, align the final tip and draw it into the tray with the larger thumb screw. **| Figure 50**

Finally, place the taper distractor over the clamp and between the insert and tray and lift the insert out. It is critical that the taper distractor be placed on the same side as the clamp.

If the insert cannot be removed, adjust the tension of the thumb screws and re-attempt removal with the taper distractor.

Once the insert has been removed, inspect the reversed tray for damage. If damaged, remove the tray and replace with a new tray. If the tray is not damaged, proceed with trialing until stability is obtained, then ensure the reversed tray and insert are clean and dry and implant the selected insert. **| Figure 51**

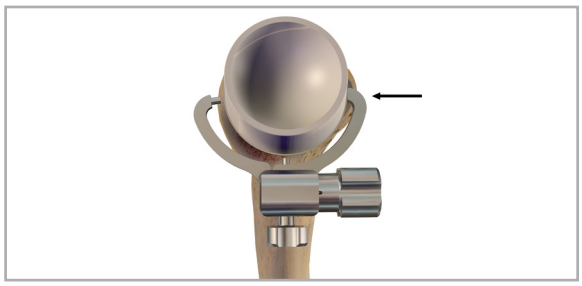


**Figure 48**

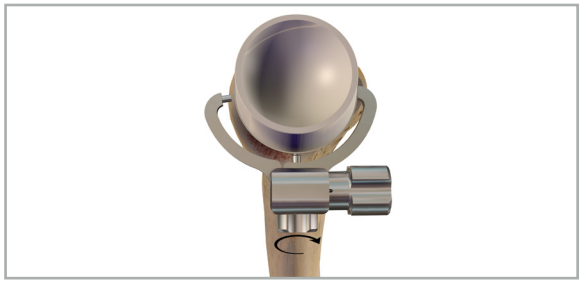


**Figure 49**

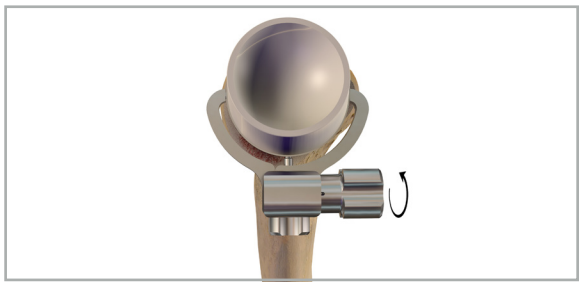


**Figure 50**

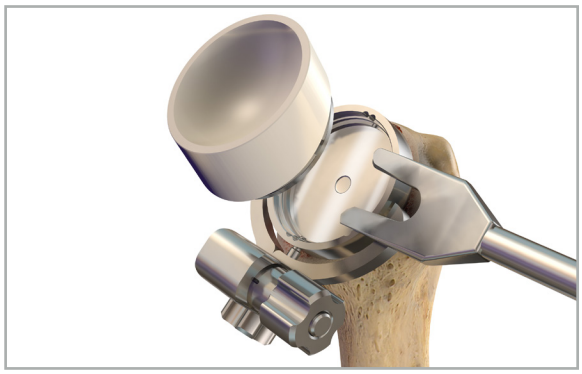


**Figure 51**

### Inlay technique

Preparing resection:

- Engage inlay reamer with surgical drill.

- Place face of inlay reamer in the center of the resected humerus. Prior to engaging power, access the location of soft tissues to ensure that it will not be damaged during reaming. **| Figure 52**

**Figure 52**

- Engage power prior to placing on the resected surface, ream until collar of inlay reamer is equal height to previously resected humerus. **| Figure 53**

**Note:** The completion of an inlay ream will result in approximately a 7mm – 10mm humeral medialization.

**Figure 53**

Distal preparation, sizing the medullary canal:

- Assemble the size 9mm sounder with the T-handle.
- Using the size 9mm sounder, create a pilot hole in-line with the humeral canal just below the hinge point and advance until the marking "0" aligns with the lateral portion of the resection. **| Figure 54**

**Figure 54**

- Progressively increase the sounder size (sizes: 9mm, 11mm, 13mm, 15mm, 17mm, and 19mm) until contact is made with the cortical wall of the canal and rotational stability is achieved with minimal hand pressure.
- When the sounder contacts the cortical wall and fits securely, note the height marking closest to the lateral portion of the reamed inlay surface. **| Figure 55**

  The sounder dimension will be utilized to define the diameter size of proximal body, spacer(s) [if needed], stem extension [if needed], and distal stem trial. The height marking closest to the lateral portion of reamed inlay surface will identify the length of trial spacer(s) [if needed] and trial stem extension [if needed] to utilize for the humeral trial assembly.

**Note:** Do not impact or utilize sounders under power. The sounders are utilized to determine the upper size limit of the distal humerus.


**Figure 55**

## Cement technique

**Note:** When utilizing a cemented technique, the humeral implant assembly will need to be two sizes smaller than the size of the trial humeral assembly in order to allow for an appropriate cement mantle thickness. Thus, the size 17 and 19 humeral implant assemblies should not be utilized with a cemented technique.

- Irrigate and dry the humeral canal, insert a cement restrictor. Inject bone cement into the medullary canal using a standard cementing technique. Insert the humeral implant assembly into the prepared humerus while confirming retroversion alignment utilizing the version rod. Impact the inserter handle until the face of the proximal body is flush with the reamed humeral surface. **| Figure 56**
- Remove the inserter handle and any excess bone cement extruded proximally during implant impaction. Wait for cement to harden. Clean and dry the stem taper. Orient the selected size humeral head to the previously determined rotation. Seat the taper using the impaction handle with the head/tray impactor tip and continue to impact until the humeral head is flush with the reamed humeral surface. **| Figure 57** Excess force should be avoided during impaction and care should be taken not to damage the articular surface of the humeral head implant. Confirm implant stability.
- Remove the inserter handle and orient the selected size reverse tray to the previously determined orientation and apply pressure to lock the tray in this position. Seat the taper using the impaction handle with the head/tray impactor tip and continue to impact until the bottom of the reversed tray is flush with the reamed humeral surface. Confirm implant stability. **| Figure 58**

**Note:** If open bone voids/gaps are noted, Pro-Dense may be injected or digitally packed into open voids/gaps that are not intrinsic to the stability of the skeletal system. The Pro-Dense paste cured in situ provides an open void/gap filler that can augment the provisional hardware. The cured paste acts as a temporary support media and is not intended to provide structural support during the healing process.

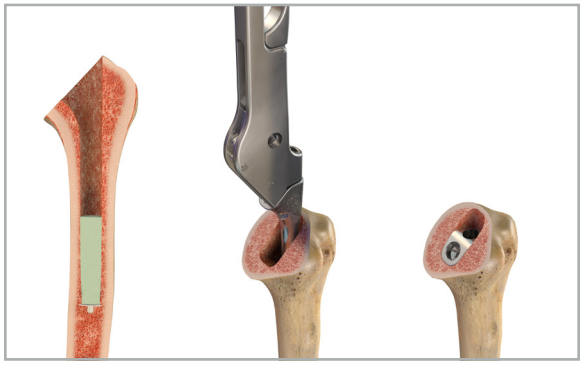


**Figure 56**

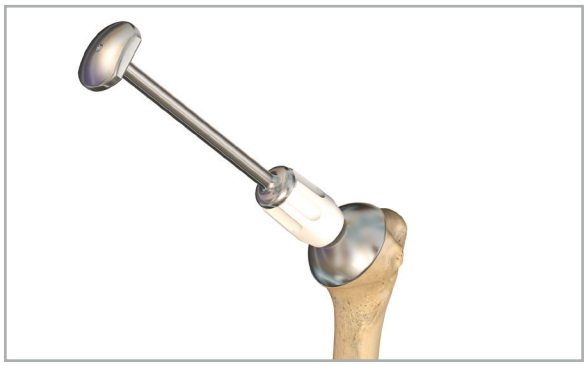


**Figure 57**

**Figure 58**

To place the polyethylene insert, select the size and thickness determined during the trial step and orientate the polyethylene insert so the laser mark is aligned with the most lateral aspect of the reversed tray. As a check, the thinnest portion of the polyethylene insert should be lateral (superior) and the thickest portion of the polyethylene insert should be medial (inferior). **| Figure 59**

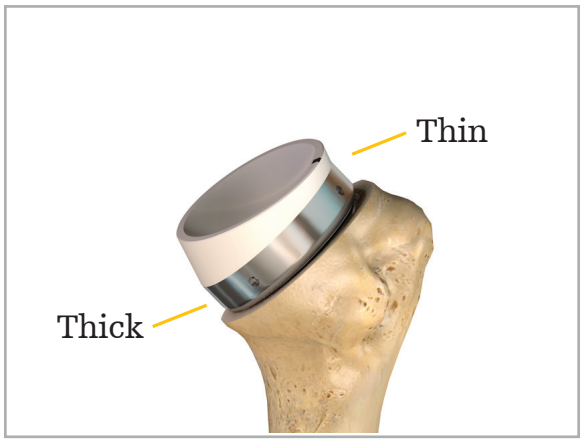



**Figure 59**

With the insert aligned, use the impactor handle with the insert impactor tip to seat the insert into the tray. **| Figure 60**

**Figure 60**

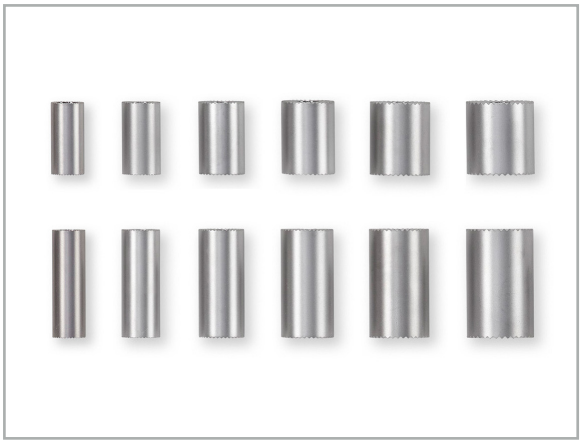
# Aequalis Flex Revive implants

## Proximal body

| Reference | Description | Size | Neck angle |
|---|---|---|---|
| ARS741701 | Proximal body | 9mm | 132.5° |
| ARS741702 | Proximal body | 11mm | 132.5° |
| ARS741703 | Proximal body | 13mm | 132.5° |
| ARS741704 | Proximal body | 15mm | 132.5° |
| ARS741705 | Proximal body | 17mm | 132.5° |
| ARS741706 | Proximal body | 19mm | 132.5° |


## Spacer

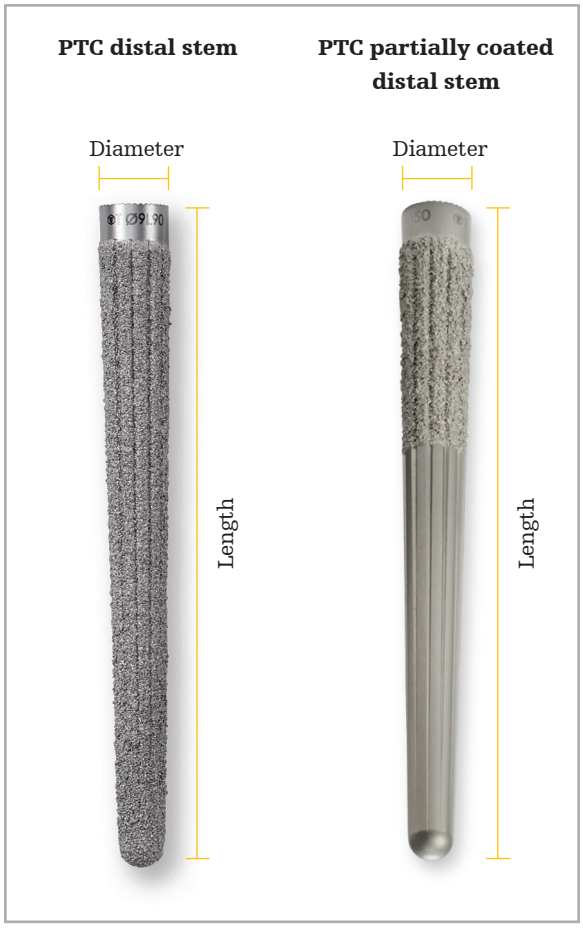
| Reference | Description | Size |
|---|---|---|
| ARS342001 | Spacer | 9mm x 20mm |
| ARS342002 | Spacer | 11mm x 20mm |
| ARS342003 | Spacer | 13mm x 20mm |
| ARS342004 | Spacer | 15mm x 20mm |
| ARS342005 | Spacer | 17mm x 20mm |
| ARS342006 | Spacer | 19mm x 20mm |
| ARS342007 | Spacer | 9mm x 30mm |
| ARS342008 | Spacer | 11mm x 30mm |
| ARS342009 | Spacer | 13mm x 30mm |
| ARS342010 | Spacer | 15mm x 30mm |
| ARS342011 | Spacer | 17mm x 30mm |
| ARS342012 | Spacer | 19mm x 30mm |



## Distal stems

| Reference | Description | Size |
|---|---|---|
| ARS741801 | PTC distal stem | 9mm x 90mm |
| ARS741802 | PTC distal stem | 11mm x 90mm |
| ARS741803 | PTC distal stem | 13mm x 90mm |
| ARS741804 | PTC distal stem | 15mm x 90mm |
| ARS741805 | PTC distal stem | 17mm x 90mm |
| ARS741806 | PTC distal stem | 19mm x 90mm |
| ARS980901 | PTC partially coated distal stem | 9mm x 90mm |
| ARS980902 | PTC partially coated distal stem | 11mm x 90mm |
| ARS980903 | PTC partially coated distal stem | 13mm x 90mm |
| ARS980904 | PTC partially coated distal stem | 15mm x 90mm |
| ARS980905 | PTC partially coated distal stem | 17mm x 90mm |
| ARS980906 | PTC partially coated distal stem | 19mm x 90mm |
| ARS741807 | PTC distal stem | 9mm x 130mm |
| ARS741808 | PTC distal stem | 11mm x 130mm |
| ARS741809 | PTC distal stem | 13mm x 130mm |
| ARS741810 | PTC distal stem | 15mm x 130mm |
| ARS741811 | PTC distal stem | 17mm x 130mm |
| ARS741812 | PTC distal stem | 19mm x 130mm |
| ARS741813 | PTC distal stem | 9mm x 170mm |
| ARS741814 | PTC distal stem | 11mm x 170mm |
| ARS741815 | PTC distal stem | 13mm x 170mm |
| ARS741816 | PTC distal stem | 15mm x 170mm |
| ARS741817 | PTC distal stem | 17mm x 170mm |
| ARS741818 | PTC distal stem | 19mm x 170mm |
| ARS741819* | PTC distal stem | 9mm x 210mm |
| ARS741820* | PTC distal stem | 11mm x 210mm |
| ARS741821* | PTC distal stem | 13mm x 210mm |
| ARS741822* | PTC distal stem | 15mm x 210mm |
| ARS741823* | PTC distal stem | 17mm x 210mm |
| ARS741824* | PTC distal stem | 19mm x 210mm |

*Special order, not included within standard implant banks.

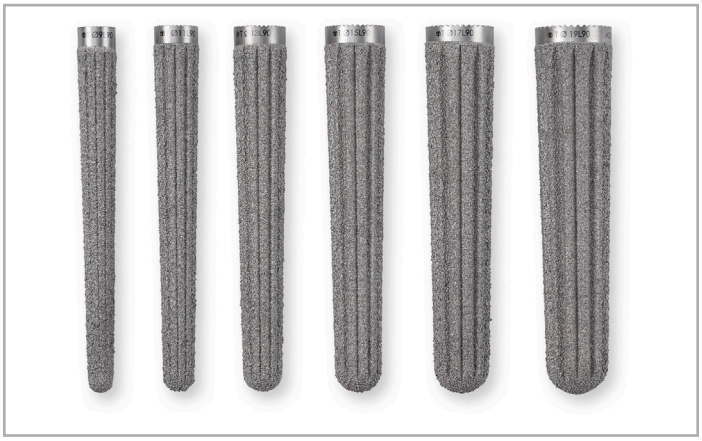


## Aequalis Flex Revive Distal Stems

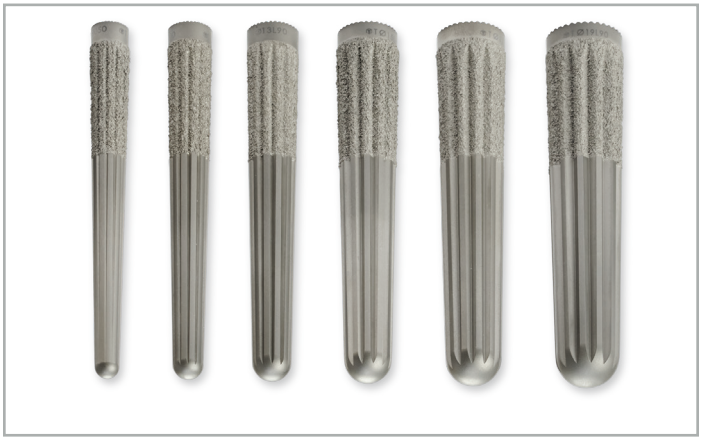
| Reference | Description | Size |
|---|---|---|
| ARS741801 | PTC distal stem | 9mm x 90mm |
| ARS741802 | PTC distal stem | 11mm x 90mm |
| ARS741803 | PTC distal stem | 13mm x 90mm |
| ARS741804 | PTC distal stem | 15mm x 90mm |
| ARS741805 | PTC distal stem | 17mm x 90mm |
| ARS741806 | PTC distal stem | 19mm x 90mm |
| ARS980901 | PTC partially coated distal stem | 9mm x 90mm |
| ARS980902 | PTC partially coated distal stem | 11mm x 90mm |
| ARS980903 | PTC partially coated distal stem | 13mm x 90mm |
| ARS980904 | PTC partially coated distal stem | 15mm x 90mm |
| ARS980905 | PTC partially coated distal stem | 17mm x 90mm |
| ARS980906 | PTC partially coated distal stem | 19mm x 90mm |
| ARS741807 | PTC distal stem | 9mm x 130mm |
| ARS741808 | PTC distal stem | 11mm x 130mm |
| ARS741809 | PTC distal stem | 13mm x 130mm |
| ARS741810 | PTC distal stem | 15mm x 130mm |
| ARS741811 | PTC distal stem | 17mm x 130mm |
| ARS741812 | PTC distal stem | 19mm x 130mm |
| ARS741813 | PTC distal stem | 9mm x 170mm |
| ARS741814 | PTC distal stem | 11mm x 170mm |
| ARS741815 | PTC distal stem | 13mm x 170mm |
| ARS741816 | PTC distal stem | 15mm x 170mm |
| ARS741817 | PTC distal stem | 17mm x 170mm |
| ARS741818 | PTC distal stem | 19mm x 170mm |
| ARS741819* | PTC distal stem | 9mm x 210mm |
| ARS741820* | PTC distal stem | 11mm x 210mm |
| ARS741821* | PTC distal stem | 13mm x 210mm |
| ARS741822* | PTC distal stem | 15mm x 210mm |
| ARS741823* | PTC distal stem | 17mm x 210mm |
| ARS741824* | PTC distal stem | 19mm x 210mm |

*Special order, not included within standard implant banks.

**PTC distal stems (90mm)**



**PTC partially coated distal stems (90mm)**



**PTC distal stems (130mm)**

### Aequalis Flex Revive Assembly Screw

| Reference | Description | Size |
|---|---|---|
| ARS655101 | Assembly screw | 0mm |
| ARS655102 | Assembly screw | 20mm |
| ARS655103 | Assembly screw | 30mm |
| ARS655104 | Assembly screw | 40mm |
| ARS655105 | Assembly screw | 50mm |

### Aequalis Flex Revive Locking Cap

| Reference | Description |
|---|---|
| ARS655200 | Locking cap |

**Compatible Tornier Flex Anatomic Humeral Heads (cobalt chrome)**

| Reference | Description | Diameter | Height | Offset |
|---|---|---|---|---|
| DWF037* | Humeral head | 37mm | 13.5mm | 1.5mm |
| DWF039 | Humeral head | 39mm | 14mm | 1.5mm |
| DWF041 | Humeral head | 41mm | 15mm | 1.5mm |
| DWF043 | Humeral head | 43mm | 16mm | 1.5mm |
| DWF046 | Humeral head | 46mm | 17mm | 1.5mm |
| DWF048 | Humeral head | 48mm | 18mm | 1.5mm |
| DWF050 | Humeral head | 50mm | 16mm | 1.5mm |
| DWF051 | Humeral head | 50mm | 19mm | 1.5mm |
| DWF052 | Humeral head | 52mm | 19mm | 1.5mm |
| DWF053 | Humeral head | 52mm | 23mm | 1.5mm |
| DWF054* | Humeral head | 54mm | 23mm | 1.5mm |
| DWF055* | Humeral head | 54mm | 27mm | 1.5mm |
| DWF137* | Humeral head | 37mm | 13.5mm | 3.5mm |
| DWF139 | Humeral head | 39mm | 14mm | 3.5mm |
| DWF141 | Humeral head | 41mm | 15mm | 3.5mm |
| DWF143 | Humeral head | 43mm | 16mm | 3.5mm |
| DWF146 | Humeral head | 46mm | 17mm | 4mm |
| DWF148 | Humeral head | 48mm | 18mm | 4mm |
| DWF150 | Humeral head | 50mm | 16mm | 4mm |
| DWF151 | Humeral head | 50mm | 19mm | 4mm |
| DWF152 | Humeral head | 52mm | 19mm | 4mm |
| DWF153 | Humeral head | 52mm | 23mm | 4mm |
| DWF154* | Humeral head | 54mm | 23mm | 4mm |
| DWF155* | Humeral head | 54mm | 27mm | 4mm |

*Indicates sizes which are available upon request and not included in the standard set

**Compatible Tornier Flex Anatomic Humeral Heads (titanium)**

| Reference | Description | Diameter | Height | Offset |
|---|---|---|---|---|
| DWF239 | Eccentric humeral head | 39mm | 14mm | 1.5mm |
| DWF241 | Eccentric humeral head | 41mm | 15mm | 1.5mm |
| DWF243 | Eccentric humeral head | 43mm | 16mm | 1.5mm |
| DWF246 | Eccentric humeral head | 46mm | 17mm | 1.5mm |
| DWF248 | Eccentric humeral head | 48mm | 18mm | 1.5mm |
| DWF250 | Eccentric humeral head | 50mm | 16mm | 1.5mm |
| DWF251 | Eccentric humeral head | 50mm | 19mm | 1.5mm |
| DWF252 | Eccentric humeral head | 52mm | 19mm | 1.5mm |
| DWF253 | Eccentric humeral head | 52mm | 23mm | 1.5mm |
| DWF339 | Eccentric humeral head | 39mm | 14mm | 3.5mm |
| DWF341 | Eccentric humeral head | 41mm | 15mm | 3.5mm |
| DWF343 | Eccentric humeral head | 43mm | 16mm | 3.5mm |
| DWF346 | Eccentric humeral head | 46mm | 17mm | 4mm |
| DWF348 | Eccentric humeral head | 48mm | 18mm | 4mm |
| DWF350 | Eccentric humeral head | 50mm | 16mm | 4mm |
| DWF351 | Eccentric humeral head | 50mm | 19mm | 4mm |
| DWF352 | Eccentric humeral head | 52mm | 19mm | 4mm |
| DWF353 | Eccentric humeral head | 52mm | 23mm | 4mm |

**Compatible Tornier Flex Soft-tissue Balancing Humeral Heads (cobalt chrome)**

| Catalog # | Description | Diameter | Height | Offset |
|---|---|---|---|---|
| DWG039 | STB humeral head | 39mm | 13mm | 1.5mm |
| DWG041 | STB humeral head | 39mm | 15mm | 1.5mm |
| DWG042 | STB humeral head | 42mm | 14mm | 1.5mm |
| DWG043 | STB humeral head | 42mm | 16mm | 1.5mm |
| DWG044 | STB humeral head | 42mm | 18mm | 1.5mm |
| DWG045 | STB humeral head | 45mm | 15mm | 1.5mm |
| DWG046 | STB humeral head | 45mm | 17mm | 1.5mm |
| DWG047 | STB humeral head | 45mm | 19mm | 1.5mm |
| DWG048 | STB humeral head | 48mm | 16mm | 1.5mm |
| DWG049 | STB humeral head | 48mm | 18mm | 1.5mm |
| DWG050 | STB humeral head | 48mm | 20mm | 1.5mm |
| DWG051 | STB humeral head | 51mm | 17mm | 1.5mm |
| DWG052 | STB humeral head | 51mm | 20mm | 1.5mm |
| DWG053 | STB humeral head | 51mm | 23mm | 1.5mm |
| DWG054 | STB humeral head | 54mm | 18mm | 1.5mm |
| DWG055 | STB humeral head | 54mm | 21mm | 1.5mm |
| DWG056 | STB humeral head | 54mm | 24mm | 1.5mm |
| DWG139 | STB humeral head | 39mm | 13mm | 3.5mm |
| DWG141 | STB humeral head | 39mm | 15mm | 3.5mm |
| DWG142 | STB humeral head | 42mm | 14mm | 3.5mm |
| DWG143 | STB humeral head | 42mm | 16mm | 3.5mm |
| DWG144 | STB humeral head | 42mm | 18mm | 3.5mm |
| DWG145 | STB humeral head | 45mm | 15mm | 4mm |
| DWG146 | STB humeral head | 45mm | 17mm | 4mm |
| DWG147 | STB humeral head | 45mm | 19mm | 4mm |
| DWG148 | STB humeral head | 48mm | 16mm | 4mm |
| DWG149 | STB humeral head | 48mm | 18mm | 4mm |
| DWG150 | STB humeral head | 48mm | 20mm | 4mm |
| DWG151 | STB humeral head | 51mm | 17mm | 4mm |
| DWG152 | STB humeral head | 51mm | 20mm | 4mm |
| DWG153 | STB humeral head | 51mm | 23mm | 4mm |
| DWG154 | STB humeral head | 54mm | 18mm | 4mm |
| DWG155 | STB humeral head | 54mm | 21mm | 4mm |
| DWG156 | STB humeral head | 54mm | 24mm | 4mm |

### Compatible Tornier Flex Reversed Trays

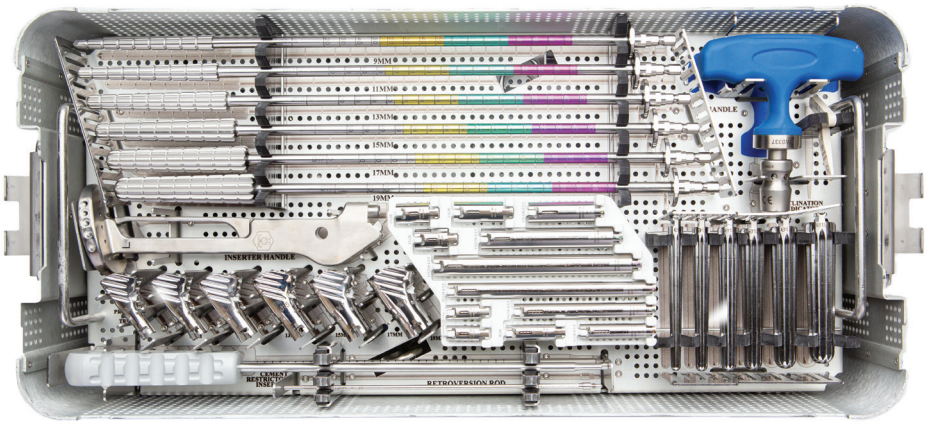
| Reference | Description | Thickness | Offset |
|---|---|---|---|
| DWF500 | Reversed tray | (+) 0 | 0mm |
| DWF501 | Reversed tray | (+) 6 | 0mm |
| DWF502 | Reversed tray | (+) 12 | 0mm |
| DWF510 | Reversed tray | (+) 0 | 1.5mm |
| DWF511 | Reversed tray | (+) 6 | 1.5mm |
| DWF520 | Reversed tray | (+) 0 | 3.5mm |
| DWF521 | Reversed tray | (+) 6 | 3.5mm |

### Compatible Tornier Flex Reversed Inserts

| Reference | Description | Diameter | Thickness | Angle |
|---|---|---|---|---|
| DWF356B | Reversed insert | 33mm | (+) 6 | B-12.5º |
| DWF357B | Reversed insert | 33mm | (+) 9 | B-12.5º |
| DWF361B | Reversed insert | 36mm | (+) 6 | B-12.5º |
| DWF362B | Reversed insert | 36mm | (+) 9 | B-12.5º |
| DWF391B | Reversed insert | 39mm | (+) 6 | B-12.5º |
| DWF392B | Reversed insert | 39mm | (+) 9 | B-12.5º |
| DWF421B | Reversed insert | 42mm | (+) 6 | B-12.5º |
| DWF422B | Reversed insert | 42mm | (+) 9 | B-12.5º |
| DWF358B* | Retentive reversed insert | 33mm | (+) 6 | B-12.5º |
| DWF359B* | Retentive reversed insert | 33mm | (+) 9 | B-12.5º |
| DWF364B* | Retentive reversed insert | 36mm | (+) 6 | B-12.5º |
| DWF365B* | Retentive reversed insert | 36mm | (+) 9 | B-12.5º |
| DWF394B* | Retentive reversed insert | 39mm | (+) 6 | B-12.5º |
| DWF395B* | Retentive reversed insert | 39mm | (+) 9 | B-12.5º |
| DWF424B* | Retentive reversed insert | 42mm | (+) 6 | B-12.5º |
| DWF425B* | Retentive reversed insert | 42mm | (+) 9 | B-12.5º |

*Special order, not included within standard implant banks.

# Aequalis Flex Revive instrumentation




**YKAD7001**

**Top tray**

### Sounders

| Reference | Description | Size |
|---|---|---|
| ARS742201 | Sounder | 9mm |
| ARS742202 | Sounder | 11mm |
| ARS742203 | Sounder | 13mm |
| ARS742204 | Sounder | 15mm |
| ARS742205 | Sounder | 17mm |
| ARS742206 | Sounder | 19mm |

### Trial proximal bodies

| Reference | Description | Size |
|---|---|---|
| ARS742501 | Trial proximal body | 9mm |
| ARS742502 | Trial proximal body | 11mm |
| ARS742503 | Trial proximal body | 13mm |
| ARS742504 | Trial proximal body | 15mm |
| ARS742505 | Trial proximal body | 17mm |
| ARS742506 | Trial proximal body | 19mm |

### Trial spacers

| Reference | Description | Size |
|---|---|---|
| ARS742401 | Trial spacer | 9mm x 20mm |
| ARS742402 | Trial spacer | 9mm x 30mm |
| ARS742405 | Trial spacer | 13mm x 20mm |
| ARS742406 | Trial spacer | 13mm x 30mm |

### Trial distal stems

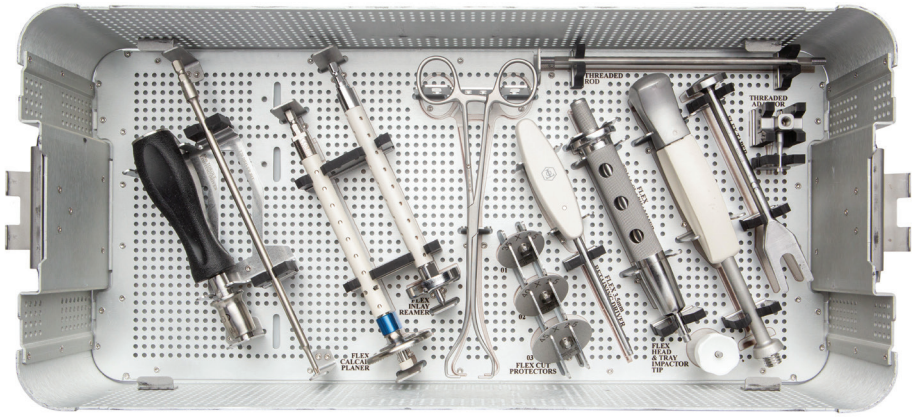
| Reference | Description | Size |
|---|---|---|
| ARS742301 | Trial distal stem | 9mm x 90mm |
| ARS742302 | Trial distal stem | 11mm x 90mm |
| ARS742303 | Trial distal stem | 13mm x 90mm |
| ARS742304 | Trial distal stem | 15mm x 90mm |
| ARS742305 | Trial distal stem | 17mm x 90mm |
| ARS742306 | Trial distal stem | 19mm x 90mm |

### Ancillary instruments

| Reference | Description |
|---|---|
| ARS743000 | Inserter handle |
| ARS742700 | T20 assembly screwdriver |
| MWF113 | Retroversion rod |
| ARS745100 | Inclination indicator |
| MBO101 | Cement restrictor |
| MWB497 | Quick-connect T-handle |

### Trial stem extensions

| Reference | Description | Size |
|---|---|---|
| ARS916901 | Trial stem extension | 9mm x 40mm |
| ARS916902 | Trial stem extension | 9mm x 80mm |
| ARS916903 | Trial stem extension | 9mm x 120mm |
| ARS916904 | Trial stem extension | 13mm x 40mm |
| ARS916905 | Trial stem extension | 13mm x 80mm |
| ARS916906 | Trial stem extension | 13mm x 120mm |



**YKAD7001**

**Case base**

## Ancillary instruments

| Reference | Description |
|---|---|
| MWF065 | Calcar planer |
| ARS742900 | Inlay reamer |
| MWF124 | Trial clamp |
| MWF051 | Cut protector - size 1 |
| MWF053 | Cut protector - size 2 |
| MWF055 | Cut protector - size 3 |
| MWF109 | 3.5mm retaining driver |
| MWF110 | Trial slaphammer |
| MWF222 | Impactor tip concave |
| MWF221 | Impactor handle |
| MWF108 | Head distractor |
| ARS778700 | Threaded adaptor |
| ARS779600 | Threaded rod |
| ARS1026400 | T20 driver bit |
| ARS1026500 | Torque limiting driver handle |

# Reference guide

## Trial assembly matrix

| Construct height* | Sounder measurement | Trial proximal body | Trial spacers 20mm | Trial spacers 30mm | Trial stem extension | Trial stem |
|---|---|---|---|---|---|---|
| 130mm | 0mm | ● | | | | ● |
| 150mm | 20mm | ● | ● | | | ● |
| 160mm | 30mm | ● | | ● | | ● |
| 170mm | 40mm | ● | ●● | | | ● |
| 180mm | 50mm | ● | ● | ● | | ● |
| 190mm | 20mm | ● | ● | | ● | ● |
| 200mm | 30mm | ● | | ● | ● | ● |
| 210mm | 40mm | ● | ●● | | ● | ● |
| 220mm | 50mm | ● | ● | ● | ● | ● |
| 230mm | 20mm | ● | ● | | ● | ● |
| 240mm | 30mm | ● | | ● | ● | ● |
| 250mm | 40mm | ● | ●● | | ● | ● |
| 260mm | 50mm | ● | ● | ● | ● | ● |
| 270mm | 20mm | ● | ● | | ● | ● |
| 280mm | 30mm | ● | | ● | ● | ● |
| 290mm | 40mm | ● | ●● | | ● | ● |
| 300mm | 50mm | ● | ● | ● | ● | ● |

## Final implant assembly matrix

| Construct height* | Sounder measurement | Proximal body | Spacers 20mm | Spacers 30mm | Stem length | Assembly screw | Locking cap |
|---|---|---|---|---|---|---|---|
| 130mm | 0mm | ● | | | 90mmm | 0mm | ● |
| 150mm | 20mm | ● | ● | | 90mm | 20mm | ● |
| 160mm | 30mm | ● | | ● | 90mm | 30mm | ● |
| 170mm | 40mm | ● | ●● | | 90mm | 40mm | ● |
| 180mm | 50mm | ● | ● | ● | 90mm | 50mm | ● |
| 190mm | 20mm | ● | ● | | 130mm | 20mm | ● |
| 200mm | 30mm | ● | | ● | 130mm | 30mm | ● |
| 210mm | 40mm | ● | ●● | | 130mm | 40mm | ● |
| 220mm | 50mm | ● | ● | ● | 130mm | 50mm | ● |
| 230mm | 20mm | ● | ● | | 170mm | 20mm | ● |
| 240mm | 30mm | ● | | ● | 170mm | 30mm | ● |
| 250mm | 40mm | ● | ●● | | 170mm | 40mm | ● |
| 260mm | 50mm | ● | ● | ● | 170mm | 50mm | ● |
| 270mm | 20mm | ● | ● | | 210mm | 20mm | ● |
| 280mm | 30mm | ● | | ● | 210mm | 30mm | ● |
| 290mm | 40mm | ● | ●● | | 210mm | 40mm | ● |
| 300mm | 50mm | ● | ● | ● | 210mm | 50mm | ● |

*All values are calculated with the STD proximal body.

# Mismatch charts

## Tornier Flex Humeral Heads with Tornier Perform Anatomic Glenoid – mismatch chart

### Tornier Flex Shoulder System

Recommended combinations heads/glenoids diametrical mismatch in mm, *The cleared range for this combination is 1mm to 24.8mm

| Size | Heads | 37x13.5 | 39x14 | 41x15 | 43x16 | 46x17 | 48x18 | 50x16 | 50x19 | 52x19 | 52x23 | 54x23 | 54x27 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Glenoid | Diameter of curvature | 39 | 41.2 | 43 | 45 | 48 | 50 | 55 | 52 | 54.6 | 52.4 | 54.7 | 54 |
| Small | 55.4 | 16.4 | 14.2 | 12.4 | 10.4 | 7.4 | 5.4 | 0.4 | 3.4 | 0.8 | 3 | 0.7 | 1.4 |
| Medium | 59.6 | 20.6 | 18.4 | 16.6 | 14.6 | 11.6 | 9.6 | 4.6 | 7.6 | 5 | 7.2 | 4.9 | 5.6 |
| Large | 63.6 | 24.6 | 22.4 | 20.6 | 18.6 | 15.6 | 13.6 | 8.6 | 11.6 | 9 | 11.2 | 8.9 | 9.6 |
| XL | 67.8 | 28.8 | 26.6 | 24.8 | 22.8 | 19.8 | 17.8 | 12.8 | 15.8 | 13.2 | 15.4 | 13.1 | 13.8 |

## Tornier Flex Humeral Heads with Affiniti Glenoid – mismatch chart

### Tornier Flex Shoulder System

Recommended combinations heads/glenoids diametrical mismatch in mm, *the cleared range for this combination is 1mm to 24.8mm

| Size | Heads | 37x13.5 | 39x14 | 41x15 | 43x16 | 46x17 | 48x18 | 50x16 | 50x19 | 52x19 | 52x23 | 54x23 | 54x27 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Glenoid | Diameter of curvature | 39 | 41.2 | 43 | 45 | 48 | 50 | 55 | 52 | 54.6 | 52.4 | 54.7 | 54 |
| 40 | 46 | 7 | 4.8 | 3 | 1 | -2 | -4 | -9 | -6 | -8.6 | -6.4 | -8.7 | -8 |
| 44 | 50 | 11 | 8.8 | 7 | 5 | 2 | 0 | -5 | -2 | -4.6 | -2.4 | -4.7 | -4 |
| 48 | 54 | 15 | 12.8 | 11 | 9 | 6 | 4 | -1 | 2 | -0.6 | 1.6 | -0.7 | 0 |
| 52 | 58 | 19 | 16.8 | 15 | 13 | 10 | 8 | 3 | 6 | 3.4 | 5.6 | 3.3 | 4 |
| 56 | 62 | 23 | 20.8 | 19 | 17 | 14 | 12 | 7 | 10 | 7.4 | 9.6 | 7.3 | 8 |

## Tornier Flex Humeral Heads with Aequalis Glenoid – mismatch chart

### Tornier Flex Shoulder System

Recommended combinations heads/glenoids diametrical mismatch in mm, *the cleared range for this combination is 1mm to 24.8mm

| Size | Heads | 37x13.5 | 39x14 | 41x15 | 43x16 | 46x17 | 48x18 | 50x16 | 50x19 | 52x19 | 52x23 | 54x23 | 54x27 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Glenoid | Diameter of curvature | 39 | 41.2 | 43 | 45 | 48 | 50 | 55 | 52 | 54.6 | 52.4 | 54.7 | 54 |
| Small | 47 | 8 | 5.8 | 4 | 2 | -1 | -3 | -8 | -5 | -7.6 | -5.4 | -7.7 | -7 |
| Medium | 51 | 12 | 9.8 | 8 | 6 | 3 | 1 | -4 | -1 | -3.6 | -1.4 | -3.7 | -3 |
| Large | 56 | 17 | 14.8 | 13 | 11 | 8 | 6 | 1 | 4 | 1.4 | 3.6 | 1.3 | 2 |
| XL | 61 | 22 | 19.8 | 18 | 16 | 13 | 11 | 6 | 9 | 6.4 | 8.6 | 6.3 | 7 |
| 2XL | 61 | 22 | 19.8 | 18 | 16 | 13 | 11 | 6 | 9 | 6.4 | 8.6 | 6.3 | 7 |
| 3XL | 61 | 22 | 19.8 | 18 | 16 | 13 | 11 | 6 | 9 | 6.4 | 8.6 | 6.3 | 7 |

Cleared mismatch range  Non-cleared mismatch range

## Tornier Flex Humeral Heads with Keeled Aequalis EU Glenoid – mismatch chart

### Tornier Flex Shoulder System

Recommended combinations heads/glenoids diametrical mismatch in mm, * the cleared range for this combination is 1mm to 24.8mm

| Size | Heads | 37x13.5 | 39x14 | 41x15 | 43x16 | 46x17 | 48x18 | 50x16 | 50x19 | 52x19 | 52x23 | 54x23 | 54x27 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Glenoid | Diameter of curvature | 39 | 41.2 | 43 | 45 | 48 | 50 | 55 | 52 | 54.6 | 52.4 | 54.7 | 54 |
| Small | 55 | 16 | 13.8 | 12 | 10 | 7 | 5 | 0 | 3 | 0.4 | 2.6 | 0.3 | 1 |
| Medium | 60 | 21 | 18.8 | 17 | 15 | 12 | 10 | 5 | 8 | 5.4 | 7.6 | 5.3 | 6 |
| Large | 65 | 26 | 23.8 | 22 | 20 | 17 | 15 | 10 | 13 | 10.4 | 12.6 | 10.3 | 11 |

## Tornier Flex STB Humeral Heads with Tornier Perform Anatomic Glenoid – mismatch chart

### Tornier Flex Shoulder System

Recommended combinations heads/glenoids diametrical mismatch in mm, *the cleared range for this combination is 1mm to 24.8mm

| Size | Heads | 39x13 | 39x15 | 42x14 | 42x16 | 42x18 | 45x15 | 45x17 | 45x19 | 48x16 | 48x18 | 48x20 | 51x17 | 51x20 | 51x23 | 54x18 | 54x21 | 54x24 | 56x24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Glenoid | Diameter of curvature | 42.3 | 40.4 | 45.5 | 43.6 | 42.5 | 48.8 | 46.8 | 45.6 | 52 | 50 | 48.8 | 55.3 | 52.5 | 51.3 | 58.5 | 55.7 | 54.4 | 56 |
| Small | 55.4 | 13.1 | 15 | 9.9 | 11.8 | 12.9 | 6.6 | 8.6 | 9.8 | 3.4 | 5.4 | 6.6 | .01 | 2.9 | 4.1 | -3.1 | -0.3 | 1 | -0.6 |
| Medium | 59.6 | 17.3 | 19.2 | 14.1 | 16 | 17.1 | 10.8 | 12.8 | 14 | 7.6 | 9.6 | 10.8 | 4.3 | 7.1 | 8.3 | 1.1 | 3.9 | 5.2 | 3.6 |
| Large | 63.6 | 21.3 | 23.2 | 18.1 | 20 | 21.1 | 14.8 | 16.8 | 18 | 11.6 | 13.6 | 14.8 | 8.3 | 11.1 | 12.3 | 5.1 | 7.9 | 9.2 | 7.6 |
| XL | 67.8 | 25.5 | 27.4 | 22.3 | 24.2 | 25.3 | 19 | 21 | 22.2 | 15.8 | 17.8 | 19 | 12.5 | 15.3 | 16.5 | 9.3 | 12.1 | 13.4 | 11.8 |

## Tornier Flex STB Humeral Heads with Affiniti Glenoid – mismatch chart

### Tornier Flex Shoulder System

Recommended combinations heads/glenoids diametrical mismatch in mm, *the cleared range for this combination is 1mm to 24.8mm

| Size | Heads | 39x13 | 39x15 | 42x14 | 42x16 | 42x18 | 45x15 | 45x17 | 45x19 | 48x16 | 48x18 | 48x20 | 51x17 | 51x20 | 51x23 | 54x18 | 54x21 | 54x24 | 56x24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Glenoid | Diameter of curvature | 42.3 | 40.4 | 45.5 | 43.6 | 42.5 | 48.8 | 46.8 | 45.6 | 52 | 50 | 48.8 | 55.3 | 52.5 | 51.3 | 58.5 | 55.7 | 54.4 | 56 |
| 40 | 46 | 3.7 | 5.6 | 0.5 | 2.4 | 3.5 | -2.8 | -0.8 | 0.4 | -6 | -4 | -2.8 | -9.3 | -6.5 | -5.3 | -12.5 | -9.7 | -8.4 | -10 |
| 44 | 50 | 7.7 | 9.6 | 4.5 | 6.4 | 7.5 | 1.2 | 3.2 | 4.4 | -2 | 0 | 1.2 | -5.3 | -2.5 | -1.3 | -8.5 | -5.7 | -4.4 | -6 |
| 48 | 54 | 11.7 | 13.6 | 8.5 | 10.4 | 11.5 | 5.2 | 7.2 | 8.4 | 2 | 4 | 5.2 | -1.3 | 1.5 | 2.7 | -4.5 | -1.7 | -0.4 | -2 |
| 52 | 58 | 15.7 | 17.6 | 12.5 | 14.4 | 15.5 | 9.2 | 11.2 | 12.4 | 6 | 8 | 9.2 | 2.7 | 5.5 | 6.7 | -0.5 | 2.3 | 3.6 | 2 |
| 56 | 62 | 19.7 | 21.6 | 16.5 | 18.4 | 19.5 | 13.2 | 15.2 | 16.4 | 10 | 12 | 13.2 | 6.7 | 9.5 | 10.7 | 3.5 | 6.3 | 7.6 | 6 |

Cleared mismatch range  Non-cleared mismatch range

# Tornier Flex STB Humeral Heads with Aequalis Glenoid – mismatch chart

## Tornier Flex Shoulder System

Recommended combinations heads/glenoids diametrical mismatch in mm, *the cleared range for this combination is 1mm to 24.8mm

| Size | Heads | 39x13 | 39x15 | 42x14 | 42x16 | 42x18 | 45x15 | 45x17 | 45x19 | 48x16 | 48x18 | 48x20 | 51x17 | 51x20 | 51x23 | 54x18 | 54x21 | 54x24 | 56x24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Glenoid | Diameter of curvature | 42.3 | 40.4 | 45.5 | 43.6 | 42.5 | 48.8 | 46.8 | 45.6 | 52 | 50 | 48.8 | 55.3 | 52.5 | 51.3 | 58.5 | 55.7 | 54.4 | 56 |
| Small | 47 | 4.7 | 6.6 | 1.5 | 3.4 | 4.5 | -1.8 | 0.2 | 1.4 | -5 | -3 | -1.8 | -8.3 | -5.5 | -4.3 | -11.5 | -8.7 | -7.4 | -9 |
| Medium | 51 | 8.7 | 10.6 | 5.5 | 7.4 | 8.5 | 2.2 | 4.2 | 5.4 | -1 | 1 | 2.2 | -4.3 | -1.5 | -0.3 | -7.5 | -4.7 | -3.4 | -5 |
| Large | 56 | 13.7 | 15.6 | 10.5 | 12.4 | 13.5 | 7.2 | 9.2 | 10.4 | 4 | 6 | 7.2 | 0.7 | 3.5 | 4.7 | -2.5 | 0.3 | 1.6 | 0 |
| XL | 61 | 18.7 | 20.6 | 15.5 | 17.4 | 18.5 | 12.2 | 14.2 | 15.4 | 9 | 11 | 12.2 | 5.7 | 8.5 | 9.7 | 2.5 | 5.3 | 6.6 | 5 |
| 2XL | 61 | 18.7 | 20.6 | 15.5 | 17.4 | 18.5 | 12.2 | 14.2 | 15.4 | 9 | 11 | 12.2 | 5.7 | 8.5 | 9.7 | 2.5 | 5.3 | 6.6 | 5 |
| 3XL | 61 | 18.7 | 20.6 | 15.5 | 17.4 | 18.5 | 12.2 | 14.2 | 15.4 | 9 | 11 | 12.2 | 5.7 | 8.5 | 9.7 | 2.5 | 5.3 | 6.6 | 5 |

# Tornier Flex STB Humeral Heads with Keeled Aequalis EU Glenoid – mismatch chart

## Tornier Flex Shoulder System

Recommended combinations heads/glenoids diametrical mismatch in mm, *the cleared range for this combination is 1mm to 24.8mm

| Size | Heads | 39x13 | 39x15 | 42x14 | 42x16 | 42x18 | 45x15 | 45x17 | 45x19 | 48x16 | 48x18 | 48x20 | 51x17 | 51x20 | 51x23 | 54x18 | 54x21 | 54x24 | 56x24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Glenoid | Diameter of curvature | 42.3 | 40.4 | 45.5 | 43.6 | 42.5 | 48.8 | 46.8 | 45.6 | 52 | 50 | 48.8 | 55.3 | 52.5 | 51.3 | 58.5 | 55.7 | 54.4 | 56 |
| Small | 55 | 12.7 | 14.6 | 9.5 | 11.4 | 12.5 | 6.2 | 8.2 | 9.4 | 3 | 5 | 6.2 | -0.3 | 2.5 | 3.7 | -3.5 | -0.7 | 0.6 | -1 |
| Medium | 60 | 17.7 | 19.6 | 14.5 | 16.4 | 17.5 | 11.2 | 13.2 | 14.4 | 8 | 10 | 11.2 | 4.7 | 7.5 | 8.7 | 1.5 | 4.3 | 5.6 | 4 |
| Large | 65 | 22.7 | 24.6 | 19.5 | 21.4 | 22.5 | 16.2 | 18.2 | 19.4 | 13 | 15 | 16.2 | 9.7 | 12.5 | 13.7 | 6.5 | 9.3 | 10.6 | 9 |

Cleared mismatch range  Non-cleared mismatch range

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