GLOBAL | UNITE™
PLATFORM SHOULDER SYSTEM

Anatomic and Reverse Shoulder

Surgical Technique

DePuy Synthes
COMPANIES OF Johnson&Johnson

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SURGICAL TECHNIQUE: REVERSE

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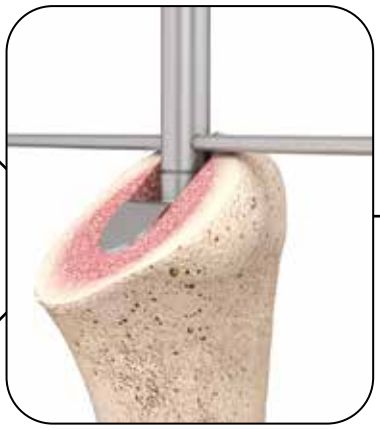

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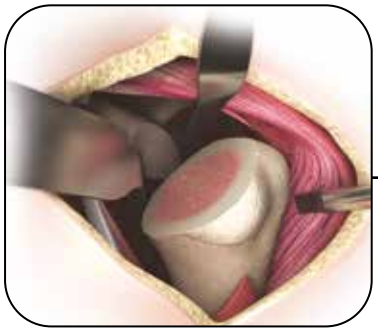

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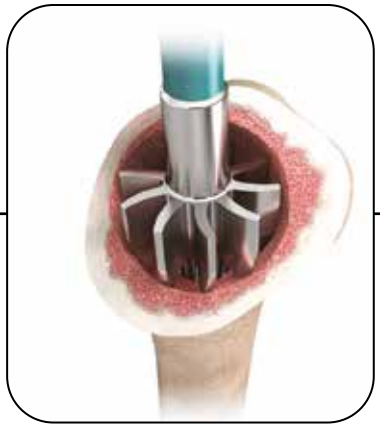

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Key Surgical Steps: Reverse

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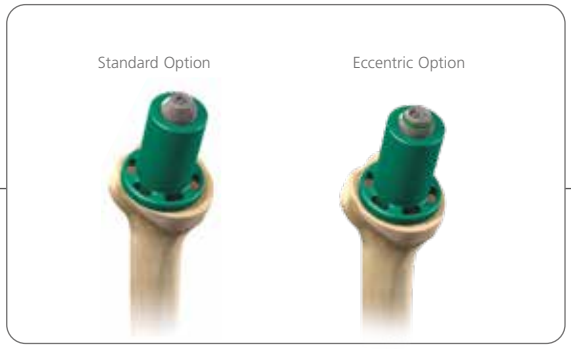

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NOTE: The GLOBAL™ APG+ Shoulder System Access Reamer 40 may be used as an alternative method of glenoid reaming. Reference instrument product code 2236-00-008 or 2236-10-008.

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Anatomic Technique: Humeral Head Resection

Resection Methods

Option 1: Intramedullary Technique
Starting with the 6mm Bullet Tip Reamer, sequentially ream the humeral canal until the reamer begins to bite on cortical bone distally.

Assemble the appropriate right or left Anatomic Resection Guide to the Quick Clamp and attach it to the reamer shaft. The posterior cuff guide will aid in identifying and protecting the posterior rotator cuff attachment sites (Figure 1).

Adjust the version by placing the Orientation Guide Pin in the desired version hole on the resection guide and align with the forearm. Affix the resection guide to the humerus.

Remove the reamer and Quick Clamp assembly and resect the humeral head utilizing an oscillating power saw.

Figure 1

Humeral Head Resection

Resection Methods

Option 2: Freehand Technique
Place the Plastic Resection Guides on the anterior aspect of the arm parallel with the humerus.

Utilize the appropriate angle of the resection guide (128, 135 or 142) that best matches the patient's anatomy and mark the desired angle on the humerus using electrocautery.

Resect the humeral head along the marked neck angle (Figure 2). Once the head has been removed, sequentially ream the humeral canal.

To verify the resection angle, do not remove the final reamer. Place the Plastic Resection Guides upside down on the resection and compare the alignment of the reamer shaft to the resection guide handles. Parallel alignment indicates the proper angle (Figure 3). The final determination of proper angle will be verified during the implant trialing process.

NOTE: If the reamers are not advanced to the appropriate position, the brosteotome, humeral trial or definitive implant may not fully seat in the humerus and could increase the risk of humeral fracture.

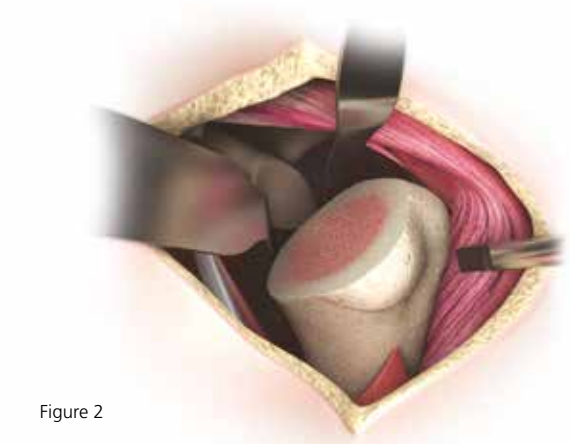


Figure 2

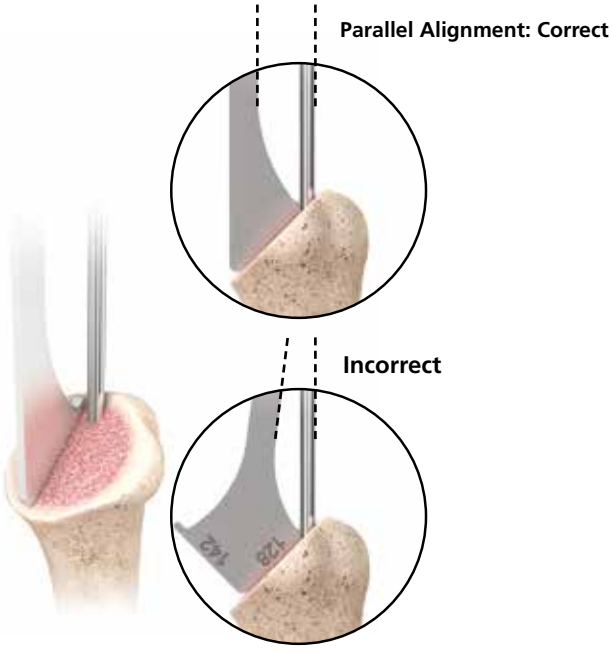


Figure 3

Humeral Head Sizing And Proximal Humeral Bone Preparation

Humeral Head Sizing

The humeral head can be provisionally sized using the GLOBAL UNITE™ Platform Shoulder System Anatomic Head Gauge. The gauge can be utilized to assess both the diameter and height of the resected humeral head (Figure 4).

Figure 4

Glenoid Preparation

Place a Cover Plate over the resected surface and prepare the glenoid.

Note: Please refer to the GLOBAL™ APG+ System surgical technique for the detailed information regarding glenoid preparation.

Proximal Humeral Bone Preparation

Select the Proximal Body Brosteotome that matches the diameter of the final reamer used to prepare the humeral canal. If an odd number reamer was used as the final reamer, select the brosteotome that is one size smaller.

Place the Proximal Body Brosteotome into the humeral canal. Correct version is achieved by aligning an orientation guide pin positioned in the hole below the cutting fins of the brosteotome with the plane of the resection (Figure 5a). Alternatively, the humeral preparation version can be determined by aligning an orientation guide pin placed in the superior version holes with the axis of the forearm.

Once the desired version is achieved, remove the pin and reinsert it into the depth stop hole located above the proximal body of the brosteotome (Figure 5b). Advance the brosteotome into the humerus using a mallet. Continue advancing the brosteotome until the depth stop pin touches the resection.

Note: If the brosteotome is difficult to advance, remove it and clean any bone from the teeth using the Posterior Cuff Guide. Additional bone removal with manual instruments (rongeur, burr, etc.) may be required if hard bone is encountered.

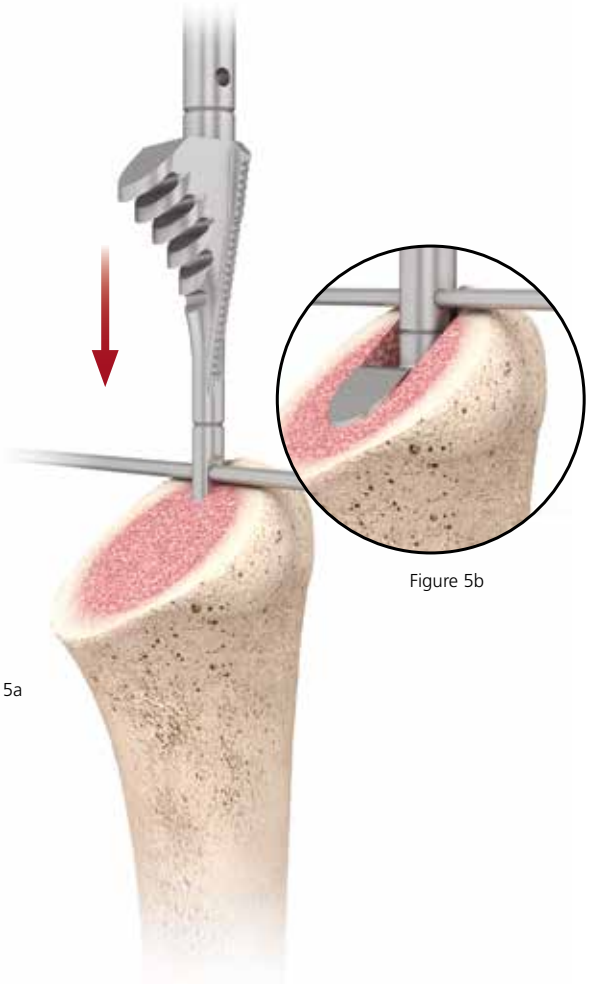


Figure 5b

Figure 5a

Trial Implantation

Trial Insertion
Assemble the matching size and angle Proximal Trial Body to the Distal Trial Stem using the Female Hex Screwdriver and Distal Stem Wrench. Attach the assembled trial to the Implant Holder (Figure 6).

Align the trial with previous preparation steps and advance into the proximal humerus. Version can be verified using the orientation guide pin and the alignment holes on the handle of the implant holder. The trial is seated when the collar is flush with the resected humerus (Figure 7).

Note: It is acceptable to modify the neck resection for a more precise fit by free hand cutting the resection with a saw or adding bone augments.

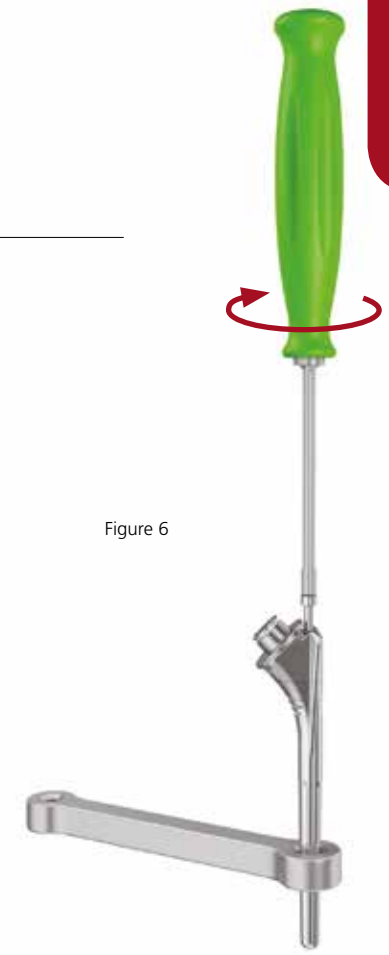


Figure 6

Figure 7

Trial Implantation

Humeral Head Sizing and Trialing

Select the Humeral Head Trial previously determined. Place the trial head onto the taper of the proximal body. The selected trial head should provide coverage of the resected humerus and should transition smoothly with the superior cuff insertion site (Figure 8).

If an eccentric trial head is used, register the position of the eccentricity by placing a skin marker through the eccentricity hole and marking on the collar of the proximal body trial (Figure 9).

Once the trialing process is complete, remove the trial construct from the humerus using the implant holder.

Figure 8

Figure 9

Final Implant Assembly and Implantation

Final Implant Assembly and Insertion

When the final implant stem and humeral head size have been determined, assemble the definitive implant stem and proximal body together using the female hex driver and the stem wrench. Securely tighten the bolt. Place the assembled implant into the Impaction Stand using the correct Impaction Slide that matches the size of the implant. If an eccentric head was selected during the trialing process, the trial stem must be placed into the impaction stand and the eccentricity recorded on the clock face prior to placing the final implant into the impaction stand (Figure 10).

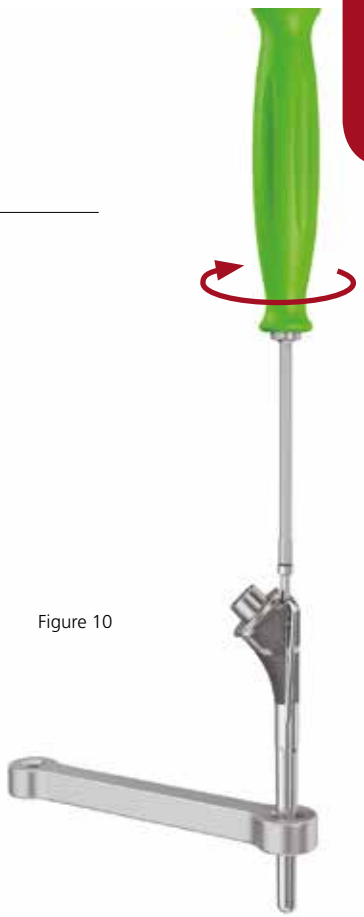


Figure 10

Place the appropriate sized humeral head onto the taper of the proximal body. If an eccentric head is selected, verify eccentricity alignment using the mark registered on the clock face of the impaction stand. Impact the humeral head onto the stem using the Head Impactor (Figure 11).

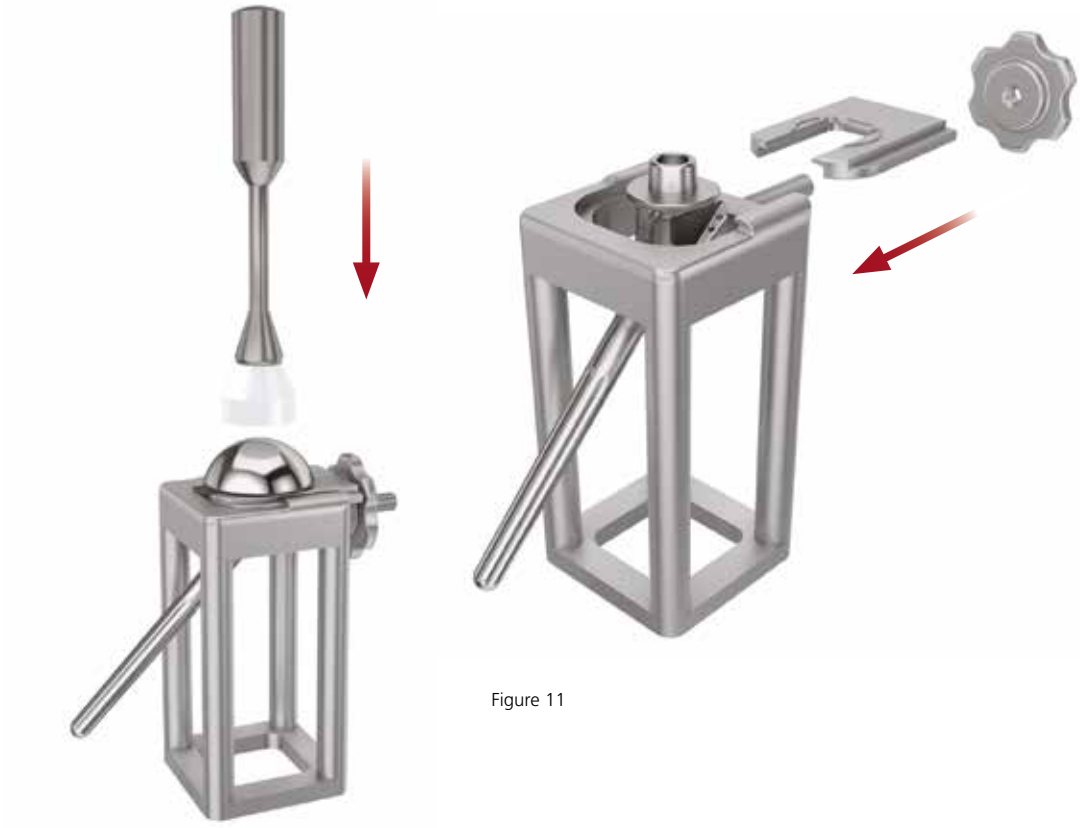


Figure 11

Final Implant Assembly and Implantation

Final Implant Insertion

The final prosthesis is porous coated and 1.5mm larger than the trial stem assembly so that in the majority of cases, a firm press-fit can be obtained without the use of bone cement.

Align the prosthesis with the prepared bone and impact the construct with the Head Impactor until the collar sits flush with the resection (Figure 12).

The humeral head can also be impacted after the humeral stem has been implanted allowing the surgeon to retrial the humerus. To perform this method attach the final stem construct to the Implant Holder and insert the stem into the humerus in the intended version. Version can be verified by placing the orientation guide pin in the proper version hole of the Implant Holder and aligning with the axis of the forearm. Implant the definitive humeral stem using the Implant Holder. Advance the implant until the collar is flush with the resected surface. After trialing is complete, position and seat the selected humeral head implant in the desired orientation on the humeral implant using the Head Impactor.

Figure 12

Conversion to DELTA XTEND™ Reverse Shoulder System

Removing the Humeral Head
Place the Humeral Head Distractor in the anterior slot between the head of the prosthesis and the collar. Tap on the end of the distractor to disengage the taper (Figure 13).

Figure 13

Removing the Proximal Component
Use an appropriately sized thin osteotome from DePuy Synthes' Shoulder Extraction Instrument Set to remove the bone on-growth surrounding the proximal body.

Use the Female Hex Screwdriver to unscrew the proximal bolt (Figure 14).

Attach the implant inserter to the proximal body and remove it from the humerus leaving the well-fixed distal stem.

Figure 14

Conversion to DELTA XTEND™ Reverse Shoulder System

Reverse Epiphyseal Component Considerations
The GLOBAL UNITE Reverse Fracture Epiphysis can only be considered if the proximal bone does not require preparation. The DELTA XTEND™ Epiphysis shall be utilized if proximal bone requires preparation.

Humeral Reaming
Insert the orientation guide pin through the reaming guide at the desired epiphysis version.

Place the assembled Epiphyseal Reaming Guide and orientation guide pin on the stem by aligning the guide pin to the forearm while keeping the reaming guide on the stem spigot (Figure 15).

Tighten the reaming guide screw to the stem using the 3.5mm Male Hex Screwdriver. Place the Sizing Guides onto the reaming guide in order to determine the correct reverse epiphysis size. The correct size will be contained within the cortical wall (Figure 16). As a reference, the version holes superior to the center 0 degree etch are for a left shoulder, with each hole increasing retroversion by 10 degrees. The holes inferior to the center etch corollate to a right shoulder.

Note: The GLOBAL UNITE™ System allows eccentric reaming and preparation of the proximal humerus to better match anatomy. Assure that the proper reamer guide is utilized (Right, Center or Left) to achieve the desired outcome.

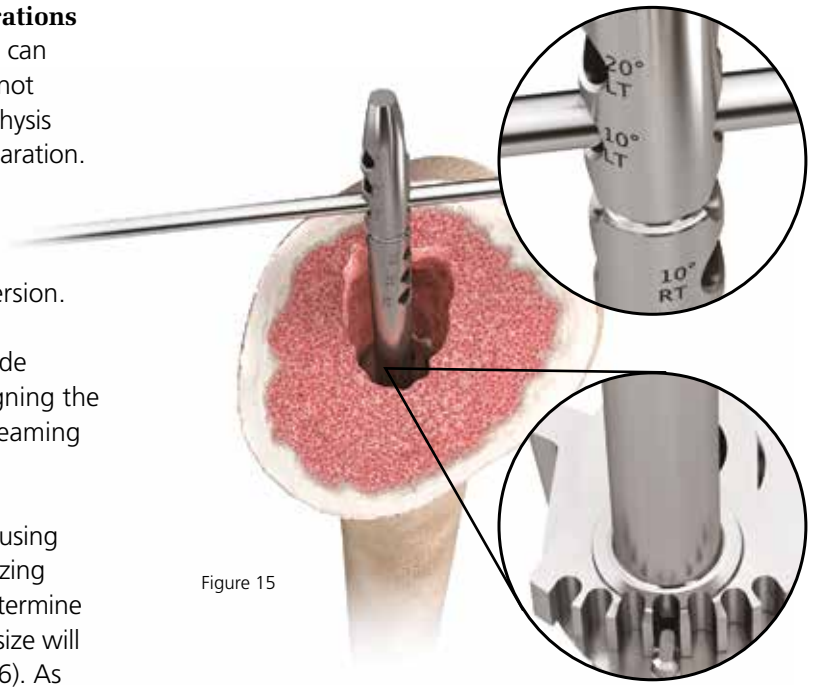


Figure 15

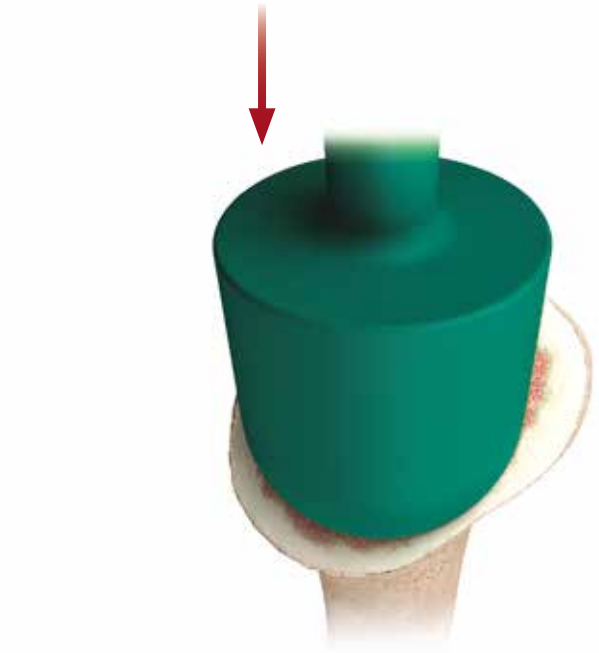


Figure 16

Conversion to DELTA XTEND™ Reverse Shoulder System

Select the color coded Epiphyseal Reamer (red or green) determined during the sizing exercise and prepare the proximal humerus by using power (Figure 17). Once the reaming process has been completed the reamer guide can be removed utilizing the 3.5mm hex screwdriver (yellow handle).

Utilize an osteotome or ronguer to remove any bone that may remain around the proximal portion of the distal stem that can prevent the proximal component from completely engaging with the stem (Figure 18).

Figure 17

Figure 18

Conversion to DELTA XTEND™ Reverse Shoulder System

Attaching the Trial Epiphysis Component to the Distal Stem

Attach the DELTA XTEND Reverse Shoulder System trial epiphysis to the Reverse Epiphysis Holder by squeezing the distal portion and placing it within the epiphysis. Align the pins on the outside of the epiphyseal holder with the notches on the implant and release the holder, this will lock the two components together (Figure 19).

Figure 19

Place the Orientation Guide Pin through the retroversion hole that was originally determined during the reaming process (Figure 20). Align the trial epiphysis to the stem and align the pin to the forearm.

Figure 20

Conversion to DELTA XTEND™ Reverse Shoulder System

Once the component is in proper orientation, place the 3.5mm Male Hex Screwdriver (yellow handle) through the inner portion of the reverse epiphysis holder and securely tighten the bolt. Remove the reverse epiphyseal holder when this step has been completed (Figure 21). Remove any bone on the superior aspect of the trial epiphysis that could cause impingement with the final implant. This can be done with an oscillating saw while using the trial epiphysis as a guide.

Please refer to the glenoid portion of the DELTA XTEND System Surgical Technique beginning on page 22 for the remaining portion of the procedure.

Figure 21

Reverse Technique: Intramedullary Canal Preparation

Intramedullary Technique

Starting with the 6mm Bullet Tip Reamer (Figure 22), sequentially ream the humeral canal until the reamer begins to bite on cortical bone distally (Figure 23).

Assemble the appropriate right or left Reverse Resection Guide (Figure 24a) to the Quick Clamp and attach it to the reamer shaft (Figure 24b). Adjust the version by placing the Orientation Guide Pin in the desired version hole on the Reverse Resection Guide and align with the forearm. Determine the humeral head resection height by placing another Orientation Guide Pin into the Reverse Resection Guide through the neutral resection height hole, denoted by the darkened laser-etched circle (Figure 24b).

In the event that an additional 2mm of humeral head resection is desired, reposition the Orientation Guide Pin into the alternate, unmarked hole in the Reverse Resection Guide. Adjust the height position of the Reverse Resection Guide so that the Orientation Guide Pin is resting on the uppermost portion of the proximal humerus.

Figure 22

Figure 23

Figure 24a

Figure 24b

Reverse Technique: Intramedullary Canal Preparation

Affix the Reverse Resection Guide to the humerus. Remove the reamer and Quick Clamp assembly and resect the humeral head utilizing an oscillating power saw (Figure 24c).

Place a protecting plate on the humeral resection surface to protect the bone from damage during the following surgical steps (Figure 25).

Note: The GLOBAL UNITE Shoulder System POROCOAT™ Porous Coating Stems, sizes 6-16mm, are compatible with the DELTA XTEND Epiphysis in a primary application.

Figure 24c

Figure 25

Positioning the Metaglene Central Peg

The metaglene positioner is used to obtain the optimal metaglene position. The positioner plate is the same diameter as the metaglene.

Assemble the positioner by inserting and threading the internal rod into the positioner handle (Figure 26).

Insert the hex head tip of the handle in the corresponding plate hole (right or left depending on the shoulder being operated upon) and lock the assembly by tightening the internal rod (Figure 27).

Note: The handle is set at an angle of 20 degrees to the plate to ensure glenoid visibility (Figure 28).

Figure 26

Figure 27

Figure 28

Positioning the Metaglene Central Peg

Glenoid Preparation

Remove any remnants of labrum from the glenoid. Then remove all articular cartilage (large straight curette) from the glenoid face. In addition, any osteophytes present may also have to be removed to determine the bony anatomy.

The metaglene should ideally be positioned on the lower circular area of the glenoid bone. The metaglene central peg is positioned in the center of the inferior circle of the glenoid (This point is often posterior and inferior to the intersection of the glenoid axis) (Figure 29).

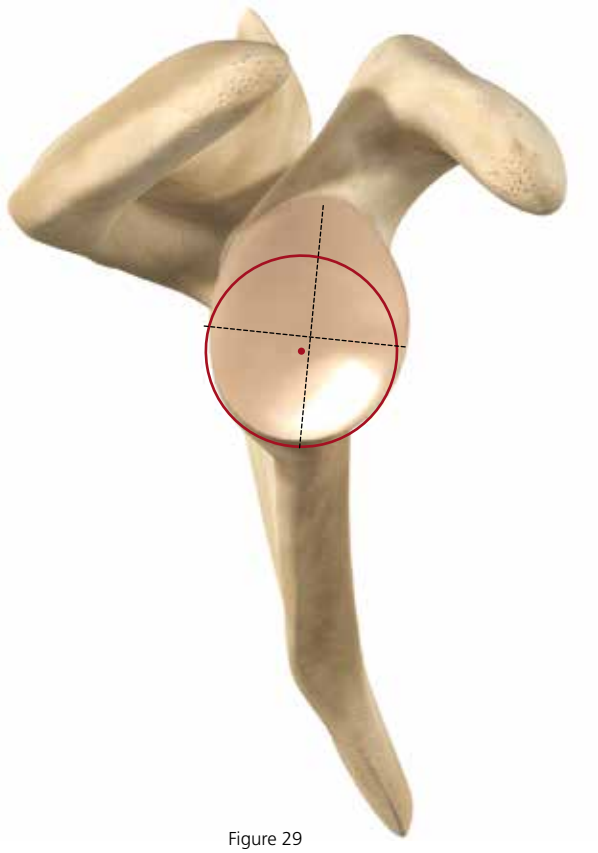


Figure 29

Positioning the Metaglene Central Peg

Position the plate as low as possible so that its border follows the inferior edge of the glenoid. Note that inferior osteophytes may result in malpositioning. X-rays should therefore be checked to avoid this problem.

Place the 2.5mm metaglene central guide pin in the plate is central hole and drill it through the far cortex using a power tool (Figure 30).

Remove the metaglene positioner, leaving the guide pin in place (Figure 31).

Note: The 2.5mm Breakaway Guide Pin (2230-00-019) may be used as a substitute for the Metaglene Central Guide Pin (2307-87-004).

The grooves on the 2.5mm Breakaway Guide Pin are exclusively used for the breakaway feature and are not intended to indicate the depth to which the pin should be inserted.

The pin is designed to break at the grooves. Be aware that it may break unintentionally if subjected to too much bending force.

After use of the guide pin is complete, confirm that all sections (totaling the full length of the original, unbroken pin) have been removed.

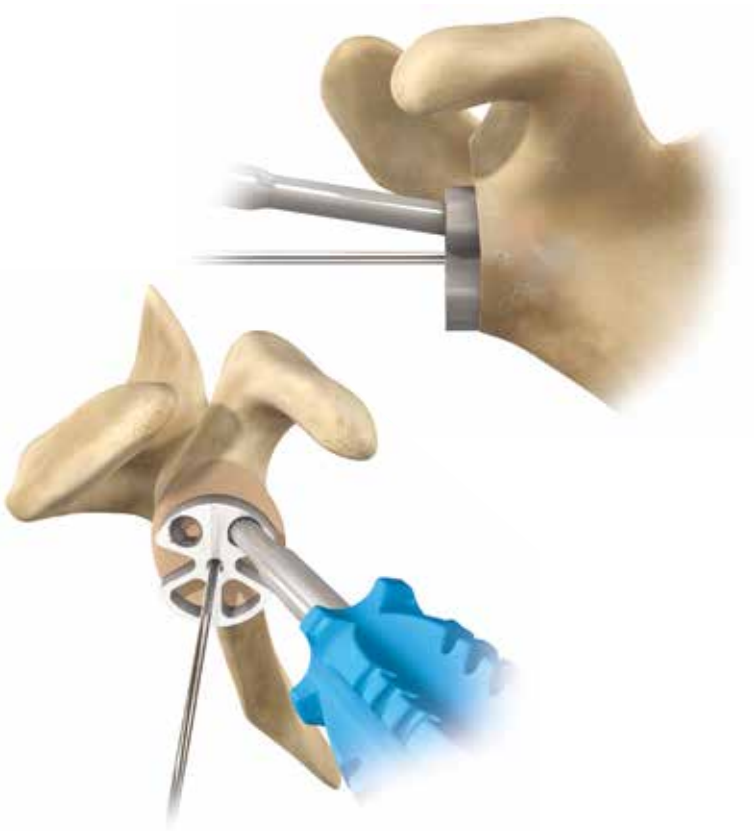


Figure 30

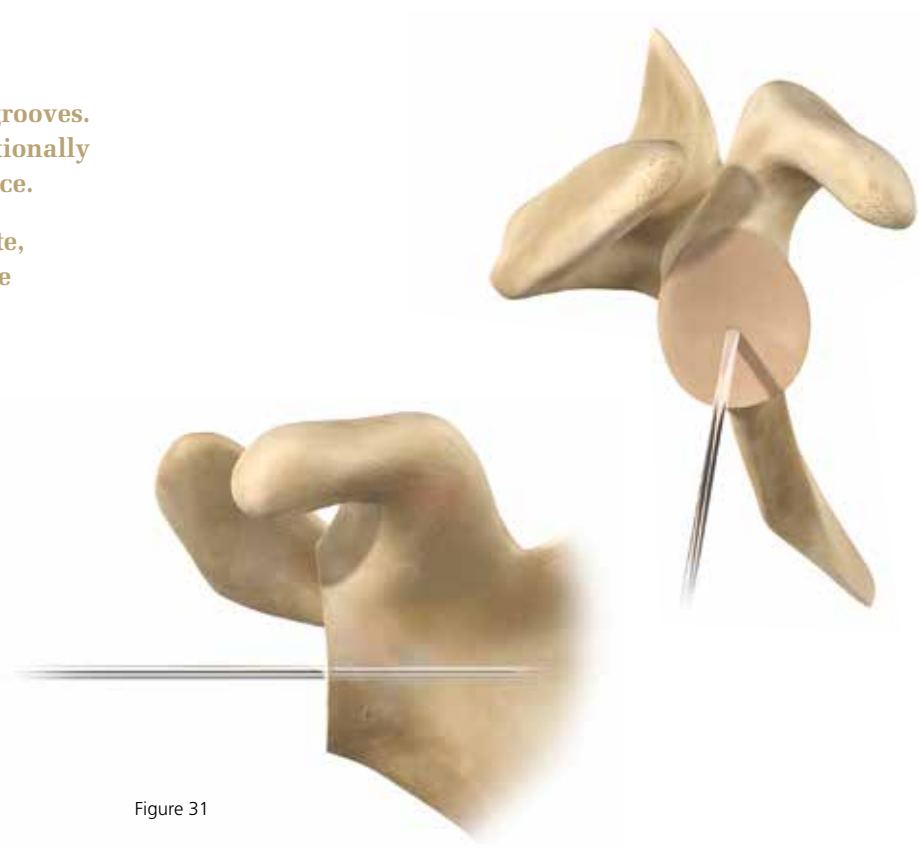


Figure 31

Reaming the Glenoid Bone

Slide the glenoid resurfacing reamer onto the central guide pin and ream either manually or using a power tool (Figure 32). Make sure the axillary nerve is protected. Initiate and proceed with the reaming, turning at low speed prior to engaging the glenoid. Be careful not to over ream and to preserve the subchondral bone.

Figure 32

Ream the superior glenoid bone by hand, using the manual glenoid reamer (Figure 33).

Note: The GLOBAL APG+ Shoulder System Access Reamer 40 may be used as an alternative method of glenoid reaming. Reference instrument product code 2236-00-008 or 2236-10-008.

This step is necessary to avoid any potential conflict between the glenosphere and the superior area of the glenoid bone (Figure 34).

Figure 33

Manual reaming should be carried out until the central part of the manual reamer is in full contact with the curved central glenoid surface.

Figure 34

Reaming the Glenoid Bone

Use the manual glenoid reamer to ream the glenoid anteriorly, posteriorly and inferiorly if necessary. A smooth surface without any remaining cartilage should be obtained.

Check the adequacy of the reaming by applying the glenoid reaming level checker on the glenoid surface. No space (except if due to bone erosion) should be seen between the instrument and the glenoid surface (Figure 35).

Remove the resurfacing reamer, leaving the metaglene central guide pin in place (Figure 36).

Referring to the chart below, connect the appropriate size cannulated stop drill to the power source and drill the central hole over the guide pin until full contact between the drill and bone is obtained (Figure 37).

Remove the stop drill and the central guide pin.

Note: After use of the guide pin is complete, confirm that all sections (totaling the full length of the original, unbroken pin) have been removed.

Metaglene Size	Cannulated Drill
Standard (13.5mm)	2307-89-000
+10mm	2407-89-010
+15mm	2407-89-015

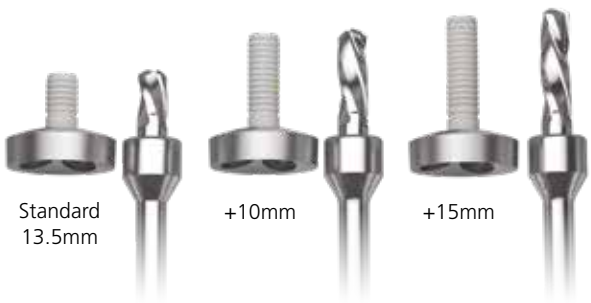


Figure 35

Figure 36

Figure 37

Metaglene Implantation

Assemble the internal rod of the metaglene holder in the metaglene holder main body. Insert the metaglene holder hex tip in the desired final metaglene implant central hole and tighten the assembly. (Figure 38).

Place the metaglene on the glenoid bone and ensure that the metaglene is fully seated. Apply bone graft if necessary to help fill surface irregularities between the metaglene and the glenoid bone. Rotate the metaglene so that the inferior screw can be aimed toward the scapular neck. The vertical metaglene marking should be aligned with the scapular neck inferiorly and with the base of the coracoid process superiorly (long axis of the glenoid bone) (Figure 39). The metaglene peg is 0.6mm larger in diameter than the drill to enable a press-fit. Gently impact with a mallet in the proper orientation for inferior screw placement and then remove the metaglene holder.

Figure 38

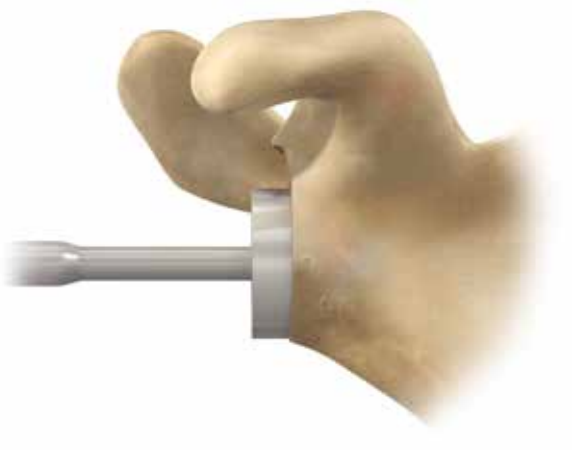
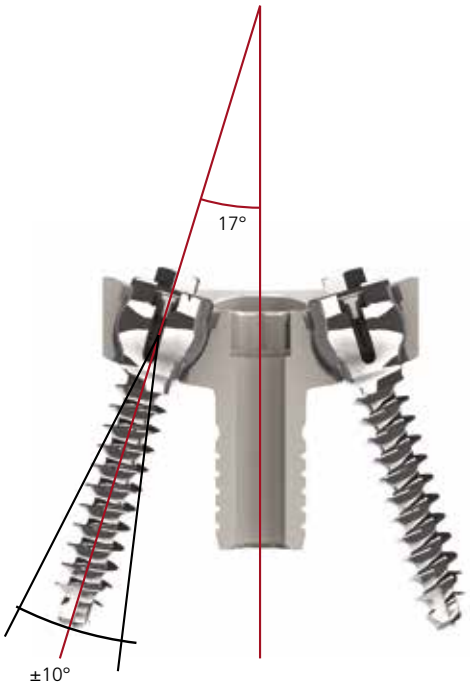


Figure 39

Inferior and Superior Metaglene Screw Placement

Locking metaglene screws allow an angulation of ± 10 degrees from a 17 degree axis (Figure 40).

Place the 2.5mm drill guide in the metaglene inferior hole. The drill guide can be angled to ± 10 degrees but should always be seated fully in the metaglene hole. Palpate the scapular neck and aim into good bone. Using the 2.5mm drill bit, start drilling through the subchondral bone to approximately 10 to 12mm deep (Figure 41). Then stop drilling and push gently on the drill bit to make sure that the drill is contained in the bone. Redirect and redrill if uncontained. When a satisfactory drilling direction has been obtained, drill and push until the cortex is perforated.



Metaglene Superior-Inferior Cross Section
Polyaxial Locking Screws

Figure 40

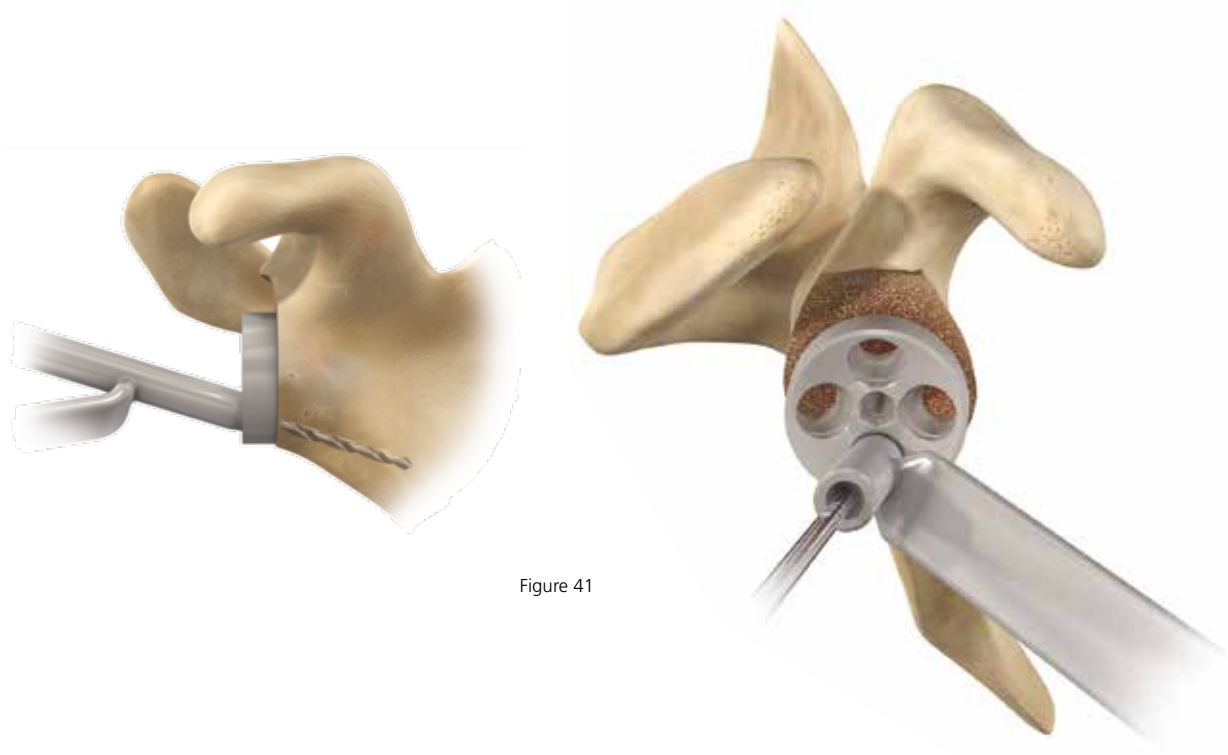


Figure 41

Inferior and Superior Metaglene Screw Placement

The length of the screw is indicated on the drill bit by laser markings (Figure 42). The screw depth gauge can also be used to assess proper screw length.

Insert the 1.2mm guide pin through the drill guide and then remove the drill guide (Figure 43).

Slide the locking screw of the appropriate length onto the guide pin. Check that the internal tightening screw is unlocked (it should rotate freely) (Figure 44).

Figure 42

Figure 43

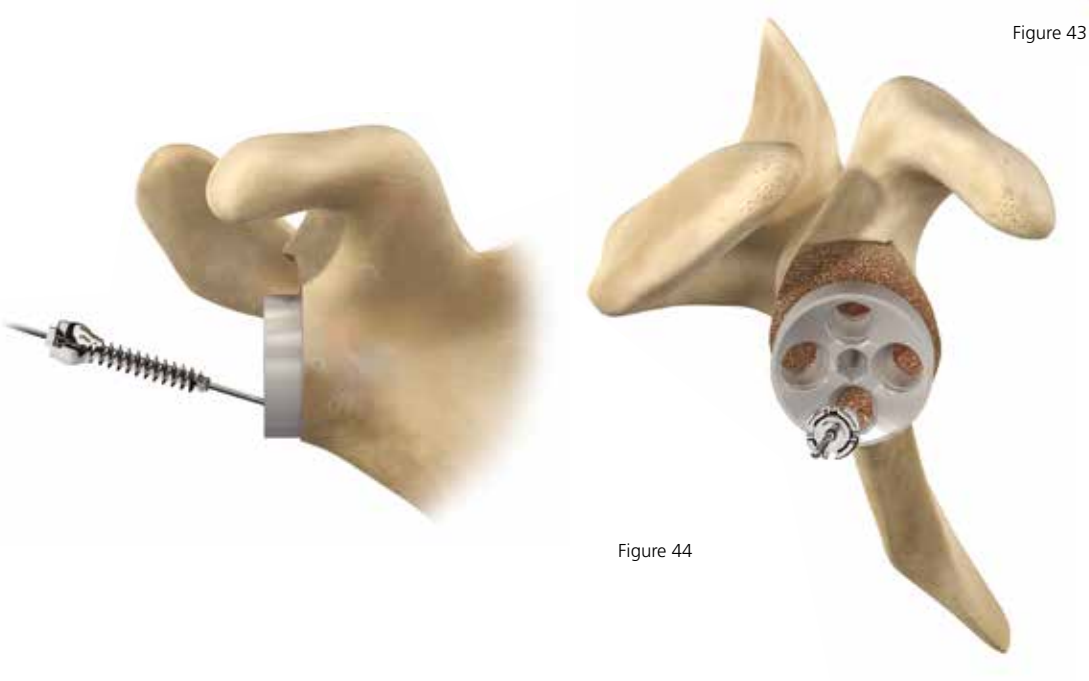


Figure 44

Inferior and Superior Metaglene Screw Placement

Slide the locking screwdriver body on the guide pin and insert the tip into the four slots on the screw (Figure 45). Do not use the internal screwdriver rod at this stage.

Note: Slide down the screwdriver sleeve completely to protect the screw head.

Tighten the screw to compress the plate (Figure 46a).

Remove the screw guide pin with the pin extractor before final tightening to avoid stripping, making sure that the internal locking screw stays in place.

Repeat the same steps for the superior locking screw.

Note: Use care to ensure that the driver remains in axial alignment with the screw so that the driver tip remains fully engaged (Figure 46b).

Note: The tip of the screwdriver can lose contact with the fins and does not torque evenly on all sides if the protecting sleeve is not used (Figure 46c).

Note: The protecting sleeve is not designed to lock onto the screw. It must be held in place with a finger during insertion.

Figure 45

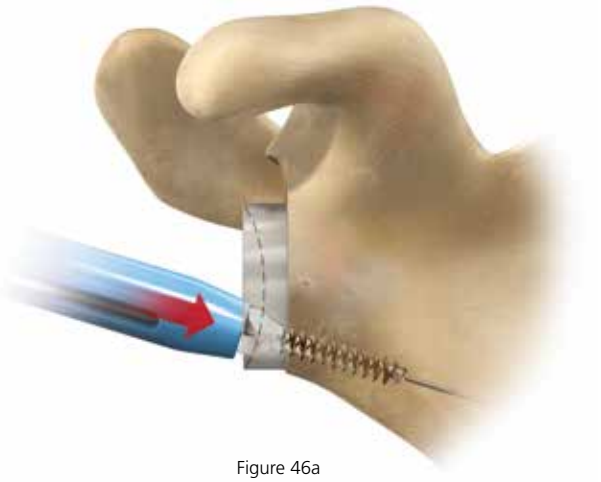


Figure 46a

Figure 46c

Figure 46b

Inferior and Superior Metaglene Screw Placement

Drill the hole for the superior locking screw anticipating exit through the far cortex using the same method described for inferior screw preparation. The superior screw should be directed at the base of the coracoid process and should have an anterior orientation to avoid the suprascapular nerve.

To obtain improved compression of the metaglene plate on bone, alternate tightening of the superior and inferior locking screws (Figure 47).

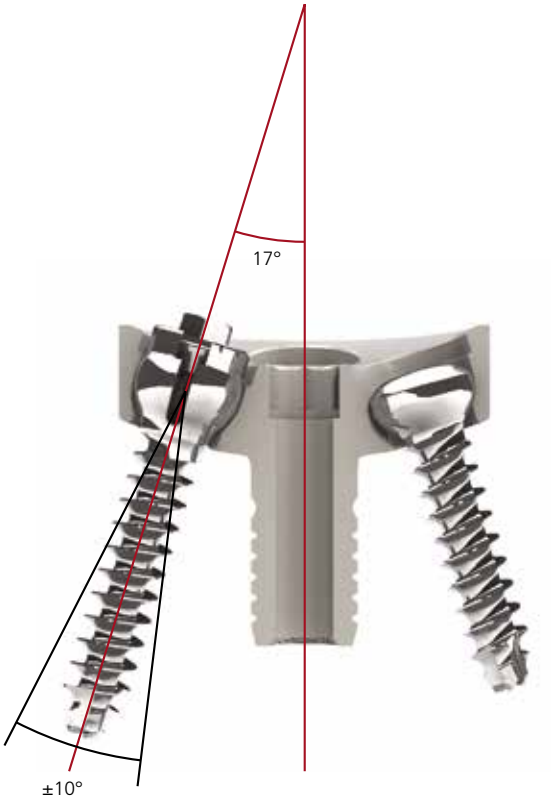
Note: Use care to ensure that the driver remains in axial alignment with the screw so that the driver tip remains fully engaged.

Figure 47

Anterior and Posterior Metaglene Screw Placement

The surgeon may use locking or non-locking screws in the anterior or posterior holes. Both types of screws will allow an angulation of up to ± 10 degrees, but not in a direction convergent to the central peg axis to avoid conflict with the central peg (Figure 48).

Use the 2.5mm drill bit with the drill guide to set the most appropriate angle for ensuring that each screw is located in reliable bone stock (Figure 49).



Metaglene Anterior-Posterior Cross-Section
Polyaxial Locking or Non-Locking Screws

Figure 48

Figure 49

Anterior and Posterior Metaglene Screw Placement

Screw length is determined from the laser marks on the drill bits or by using the depth gauge.

Slide the corresponding screws onto the guide pin and tighten using the 3.5mm cannulated hex screwdriver for non-locking screws or the locking screwdriver for locking screws (Figure 50).

Follow the same procedure for the posterior screw, then alternately tighten both screws until they are fully tightened.

Proceed with locking all variable angle screws used. Place the locking screwdriver main body in the head of the inferior screw. Make sure that the screwdriver sleeve is in its upper position and not in contact with the screw head.

Slide the locking screwdriver internal rod into the main body. The tip of the internal rod will make contact with the screw head. Tighten it fully, locking the screw in place by expanding its head (Figure 51).

Note: After inserting all four screws, tighten the locking screws with the internal rod for the locking screwdriver. Pull the sleeve up and off the screw head for this step.

Repeat the same steps to secure the superior locking screw and anterior or posterior screws if variable angle locking screws have been used.

The metaglene is left in place (Figure 52) and the humeral preparation is then carried out.

Figure 50

Figure 51

Figure 52

Placement of the Proximal Humeral Reaming Guide

Select the appropriate proximal reaming guide size (Figure 53). For example, if a 12mm intramedullary reamer and a 12mm cutting handle were previously used, select the 12mm proximal reaming guide.

Slide and screw the internal rod of the reaming guide holder into the holder main body. Then slide the reaming guide into the reamer holder and fasten the two parts together by firmly tightening the upper round handle (Figure 54).

Push the holder horseshoe plate fully down (Figure 55).

Slide the proximal reaming guide down into the intramedullary canal, rotating it if necessary to ensure that the horseshoe plate sits flat on the bone resection surface (Figure 56).

Drive the proximal reaming guide down until complete contact between the metal block and the resectioned bone surface is achieved (Figure 57).

Unscrew the upper round handle of the holder and remove the holder, leaving the proximal reamer guide in place (Figure 58).

Figure 53

Figure 54

Figure 55

Figure 56

Figure 57

Figure 58

Proximal Humeral Reaming

The cementless modular implant is designed to allow the surgeon to place the epiphysis in anatomic version and the stem in anatomic version for an improved press-fit.

The size and type (centered or eccentric) of modular epiphysis should be chosen to ensure that the best possible coverage of the bone resection surface is achieved.

First select the centered proximal modular reamer adaptor, and place it on the reaming guide's angled pin.

Choose the most appropriate epiphysis size using the modular implant sizer disks, size 1 or 2. The sizer disk chosen should provide the best coverage of the bone resection surface without overhang (Figure 59).

If this does not provide a good fit with the bone resection surface, switch the centered proximal modular reamer adaptor for the eccentric adaptor in size 1. Be careful to position the eccentricity so that it is posterior and not anterior, double checking with the markings (anterior and posterior) on the adaptor.

Then check the epiphysis size again with sizer disk 1. If the bone coverage is not sufficient, use eccentric adaptor size 2 and sizer disk size 2 (Figure 60).

Remember the final decision made, with respect to the centered or eccentric epiphysis and size 1 or 2, will determine reamer and final implant sizes.

Centered Adaptor Size 1 & 2

Disk Size 1

Disk Size 2

Figure 59

Eccentric Adaptor Size 1

Eccentric Adaptor S1 Disk Size 1

ADEQUATE BONE COVERAGE

Eccentric Adaptor S2 Disk Size 2

Figure 60

Proximal Humeral Reaming

Remove the sizer disk, leaving the proximal modular reamer adaptor in place (Figure 61).

Select the appropriate proximal modular reamer in size 1 or 2, according to the results of the previous trials. Ream using a power tool. Power reaming should always be carried out carefully.

Complete reaming is achieved when the external reamer flange is in full and complete contact with the bone resection surface (Figure 62).

When the proximal reaming has been completed, first remove the reaming adaptor. Then remove the reaming guide using the reaming guide holder. If any bone remains in the center of the epiphysis, remove it.

Figure 61

Figure 62

Distal Humeral Broaching

The stem size will have been determined from the previous intramedullary reaming. If the 12mm intramedullary reamer has been used, select the 12mm broach and attach it to the broach handle. Make sure that the goniometer is in place on the broach handle.

Drive the broach into place, carefully checking that its anterior fin is aligned with the anterior aspect of the bicipital groove. This will ensure good distal stem orientation (anatomic version) for an improved press-fit (Figure 63).

Drive the broach down carefully, (to avoid any cortical bone damage) until the rocking bar of the broach handle is in full contact with bone, both at the anterior and posterior aspects of the resection surface (Figure 64).

If there is a cortical bone damage where the rocking bar should contact bone, place the broach handle plate on the resection.

Read the adjustment angle which is indicated on the instrument.

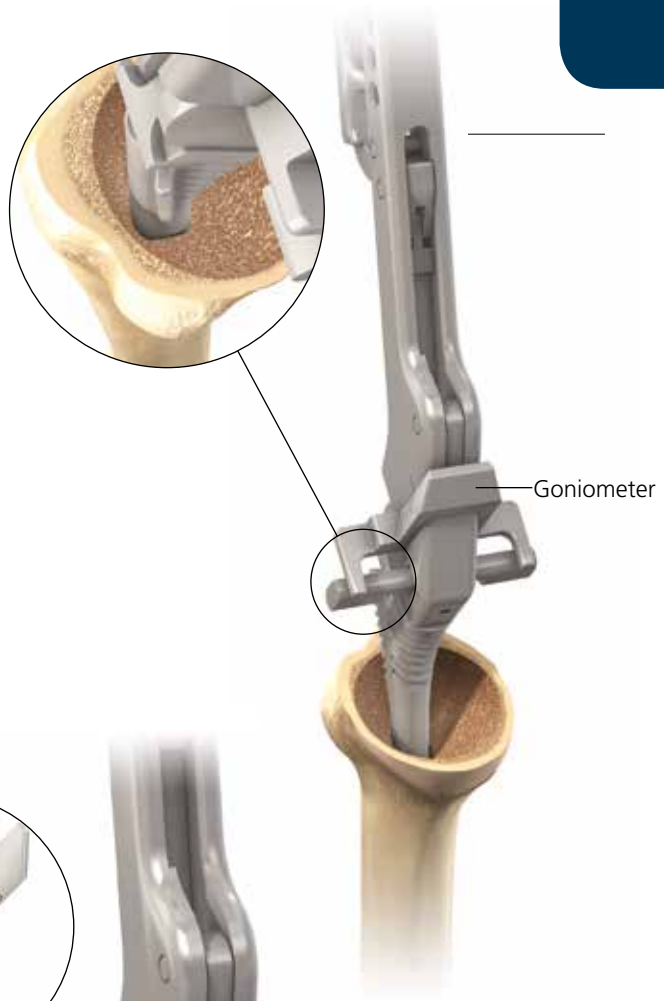


Figure 63

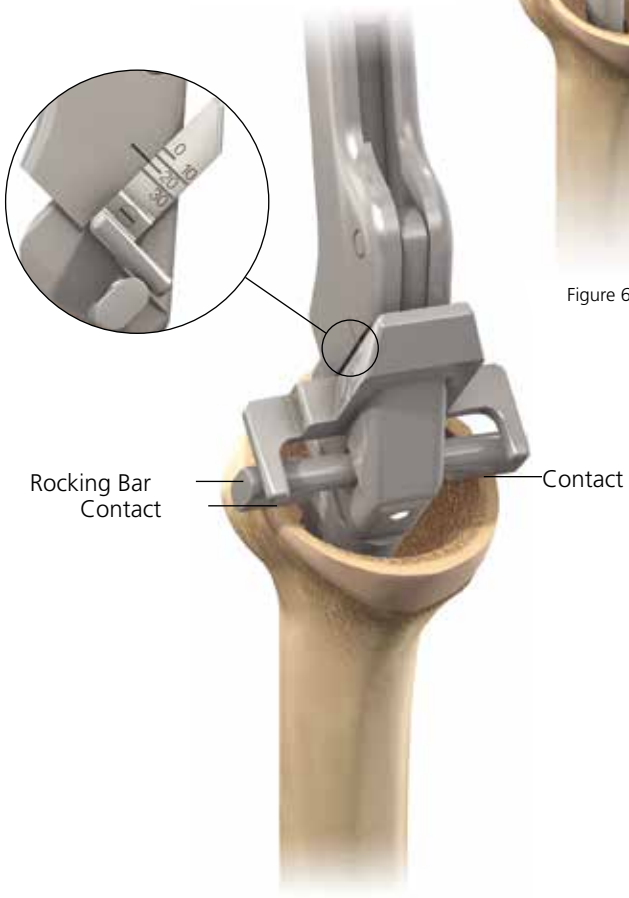


Figure 64

Humeral Trial Stem and Epiphysis Insertion

The trial modular epiphysis (centered or eccentric, size 1 or 2, depending on the proximal reaming choices made) is placed on the trial modular stem (diameter chosen during distal reaming and broaching).

The epiphysis position corresponds to the adjustment angle previously read on the broach handle goniometer. For example, if 20 degrees right was read on the goniometer, the epiphysis hole marked 20 degrees right should be positioned in line with the stem orientation peg (Figure 65).

Note: This angulation corresponds to the difference between the version of the stem and the epiphysis version for a reverse shoulder.

The components are then screwed together using the 3.5mm hex screwdriver and the locking wrench for modular implants (Figure 66).

The humeral trial stem construct is then inserted with the Humeral Implant Driver (Figure 67).

NOTE: An alternative Humeral Implant Driver may be used. Reference instrument product code 2307-65-003.

Figure 65

Figure 66

Figure 67

Humeral Trial Stem and Epiphysis Insertion

The component is then driven down the intramedullary canal, aligning the anterior fin of the stem with the bicipital groove.

The implant orientation can also be checked using the orientation pin placed in the implant driver handle. The pin should be placed in the same retroversion used to position the cutting guide. The orientation pin should then be aligned with the forearm axis and the trial implants driven down (Figure 68).

Impact the trial implant by gently tapping in the implant driver handle and remove the driver, leaving the trial implant in place (Figure 69). The driver is detached by pushing the blue button.

NOTE: An alternative Humeral Implant Driver may be used. Reference instrument product code 2307-65-003.

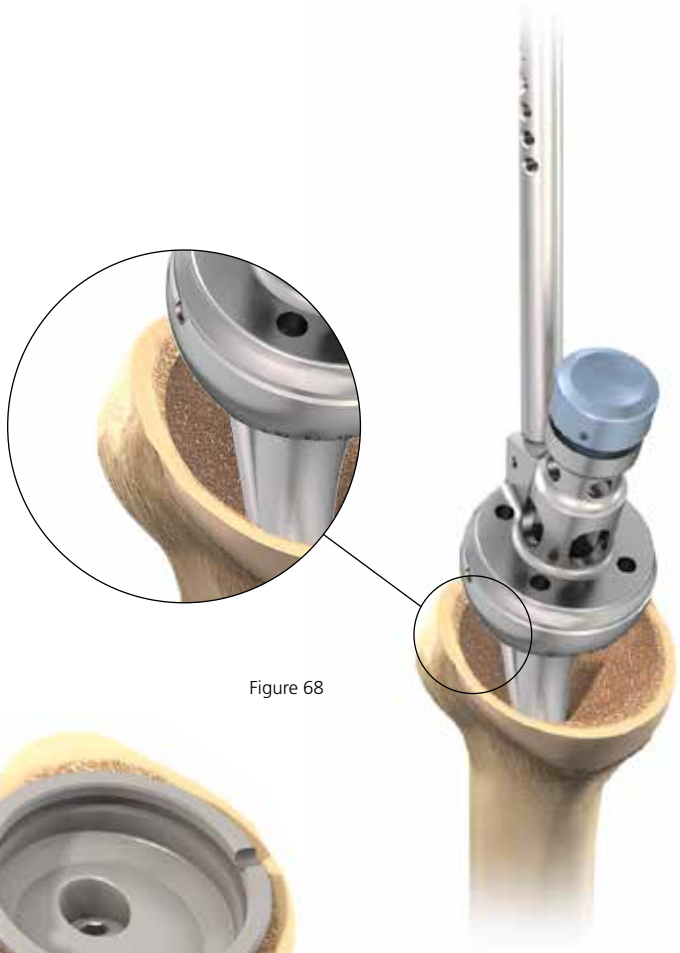


Figure 68

Figure 69

Glenosphere Trial Placement

The glenosphere implants are available in two diameters, 38 and 42mm, and are either standard or eccentric spheres.

An overlap is recommended to avoid conflict with the scapular neck (Figure 70). Where appropriate, this overlap can be achieved by positioning the metaglene more inferior on the glenoid, using a 42mm glenosphere, or using an eccentric glenosphere.

Fit the appropriate trial glenosphere (38mm or 42mm, centered or eccentric, +0mm, +2mm, +4mm, +6mm, or +8mm of lateralization) to the metaglene using the metaglene holder (Figure 71). The trial glenosphere utilizes an interference fit to make the connection with the metaglene.

For eccentric glenospheres, the vertical laser mark on the trial glenosphere should be aligned with the base of the coracoid superiorly and the scapular neck inferiorly (Figures 71 and 72).

The arrow indicates the position of the eccentricity and should be positioned inferiorly, aligned with the scapular neck (Figure 72).

Note: If it is difficult to place the glenosphere trial, then check to ensure the superior portion of the glenoid has been reamed adequately and that there is no soft tissue in the way.

Figure 70

Figure 71

Figure 72

Cup Trials and Trial Reduction

Place the appropriate humeral trial cup (38 or 42mm depending on the glenosphere size) in the trial epiphysis (Figure 73). The shoulder should then be reduced with longitudinal traction and assessed for stability through a full range of motion (Figure 74).

Figure 73

Figure 74

Joint Tensioning and Stability Assessment

Joint tensioning and stability assessment should be performed with particular care, using the following guidelines:

- Tension within the conjoined tendon should be noticeably increased and detectable by palpation.
- With the arm in a neutral position, apply a longitudinal traction force to the arm while observing the movement of the shoulder with respect to the entire shoulder girdle as well as the trial prosthetic joint. Tension is appropriate if, in response to the longitudinal traction, the entire shoulder moves before detectable separation of the trial prosthetic surfaces.
- External rotation may appropriately demonstrate slight gapping between the glenosphere and articular surface.
- Positioning a hand or fist near the axilla to serve as a fulcrum, further adduct the arm and look for undesirable tendencies to sublux or dislocate laterally. Estimate the maximum forward elevation.[1]
- Assess stability at 90 degrees, abduction with the humerus in neutral, maximum internal and maximum external rotation. Estimate the maximum forward elevation.[1]

If instability can be demonstrated, it is critical to identify the cause and develop a solution to the problem. Make sure that the implants have been positioned correctly with respect to the bone and to each other. Overcome any conflicts between the proximal humeral component and soft tissues or osseous structures that surround the glenosphere (e.g. non-union of the greater tuberosity) by excision of the conflicting elements. Inadequate tensioning may be overcome using:

- A thicker cup (+6mm or +9mm)
- A lateralized glenosphere
- A 42mm glenosphere
- A modular humeral lengthener or retentive cups in more extreme cases

If unable to reduce the joint, the options include additional soft tissue releases and lowering the level of humeral resection. When the trials are satisfactory, the trial glenosphere should be removed using the extraction T-Handle so that final implant fixation can be performed.

1. Van Seymortier, P., *et. al.*, "The Reverse Shoulder Prosthesis (Delta III) in Acute Shoulder Fractures: Technical Considerations with Respect to Stability", *Acta Orthopaedica Belgica* 2006.

Definitive Glenosphere Fixation

standard glenosphere

Insert the 1.5mm guide pin through the central hole of the metaglene.

Engage the 3.5mm cannulated hex screwdriver in the final glenosphere. Slide the glenosphere on the 1.5mm guide pin until it is in contact with the metaglene (Figure 75). Proper alignment between the glenosphere and metaglene is absolutely essential to avoid cross threading between the components.

If the glenosphere seems difficult to thread onto the metaglene, do not force engagement but re-align the components. If necessary, remove the inferior retractor or improve the capsular release. It is also important to check that there is no soft tissue between the metaglene and glenosphere.

When accurate thread engagement is obtained and after a few turns, remove the guide pin to avoid stripping in the screwdriver.

Figure 75

Standard Glenosphere
Tighten until the scapula begins to rotate slightly in a clockwise direction, meaning that the glenoid bearing is closing on the taper of the metaglene.

Gently tap on the glenosphere with the glenosphere impactor a minimum of three times (Figure 76). Tighten the glenosphere central screw again. Care should be taken to ensure that the glenoid bearing is fully locked onto the metaglene. The gentle hammering procedure and screw tightening can be repeated, if necessary, until the screw is fully tightened.

Note: Glenosphere will sit about 1mm proud on the metaglene with consistent uniformity.

Figure 76

Definitive Glenosphere Fixation

eccentric glenosphere

Slide the glenosphere orientation guide onto the screwdriver core and position it in the eccentric glenosphere central slot (Figure 77).

The arrow marked on the orientation guide should be aligned with the base of the coracoid process to position the eccentricity correctly. Maintain the orientation guide in the required position and screw the glenosphere into place using the screwdriver until the glenoid bearing closes on the taper of the metaglene (Figure 78).

Obtain further impaction of the junction by gently hammering the glenosphere with the glenosphere impactor a minimum of three times (Figure 79). Then tighten the glenosphere central screw again. Care should be taken to ensure that the glenoid bearing is fully locked onto the metaglene.

Repeat if necessary until screw is fully tightened.

Note: Glenosphere will sit about 1mm proud on the metaglene with consistent uniformity.

Figure 77

Figure 78

Figure 79

Definitive Glenosphere Fixation

glenosphere removal

If it is necessary to remove the glenosphere (revision or intra-operative size modification), the glenosphere/metaglene junction can be disassembled by unscrewing the glenosphere central screw using the 3.5mm hex head screwdriver (Figure 80). This operation should be done smoothly to avoid central screw damage.

Figure 80

Definitive Humeral Implants Insertion

Remove the trial cups and trial implants using the humeral implant driver.

Select the appropriate final modular humeral implants that correspond to the trial implants.

Place the final modular epiphysis on the final modular stem in the same rotational position used for the trial implants (Figure 81).

Screw the final modular epiphysis together with the final humeral stem, using the 3.5mm hex screwdriver and the locking wrench for modular implants (Figure 82).

Both components should then be mounted on the humeral implant driver and driven down the intramedullary canal, aligning the construct with the previously prepared bone (Figure 83). The epiphysis should be aligned with the edge of the bone resection.

Note: The GLOBAL UNITE Shoulder System POROCOAT Porous Coating Stems, sizes 6-16mm, are compatible with the DELTA XTEND Epiphysis in a primary application.

NOTE: An alternative Humeral Implant Driver may be used. Reference instrument product code 2307-65-003.

Figure 81

Figure 82

Figure 83

implant insertion

Introduce the final implant in the chosen version in line with the long axis of the humerus, using the humeral implant driver (Figure 84).

Place the trial articular surface and reduce the joint. Confirm stability and dislocate the humerus.

Note: Retroversion is calculated with reference to the forearm axis.

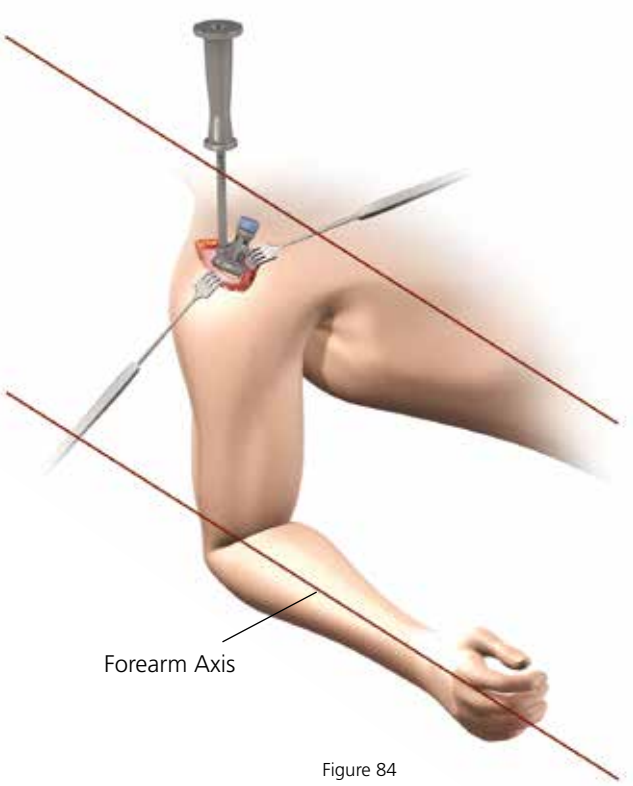


Figure 84

Definitive Humeral Implants Insertion

Final Cup Insertion

Impact the final humeral cup using the cup impactor (Figure 85).

Step 1
Insert the polyethylene humeral cup by hand. Turn it 180 degrees in the epiphysis to make sure that it is evenly seated and that there is no soft tissue or fluid interfering with the cup to epiphysis connection (Figure 86).

Figure 85

Figure 86

Definitive Humeral Implants Insertion

Step 2
Once you are confident that you have perfect alignment, impact the humeral cup at a 90 degree angle to the epiphysis (Figure 87). Make sure the arm is fully supported to ensure full impaction.

Step 3
Once fully seated there will be approximately a 1mm gap between the lip of the cup and the epiphysis. The 1mm gap will aid future revisions if necessary. The cup should not move or shift when touched. If this is the case, realign the implant and repeat the impaction steps (Figure 88).

When a humeral spacer is needed, impact it first on the epiphysis and then impact the final cup on it.

Note: All junction surfaces between the implant components should be clean and free of any tissue before impaction.

Reduce the joint and carry out a final assessment of joint stability and range of motion.

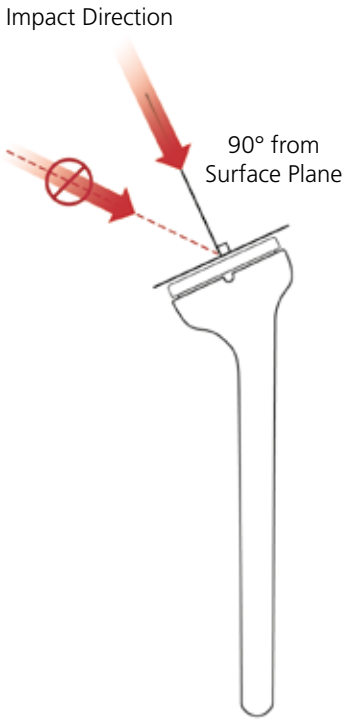


Figure 87

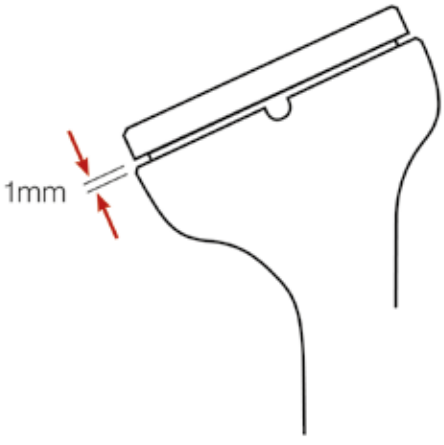
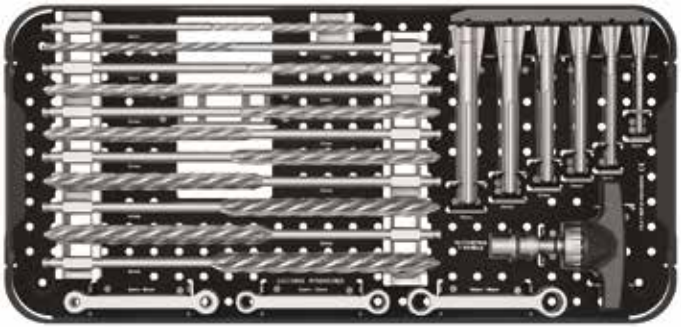


Figure 88

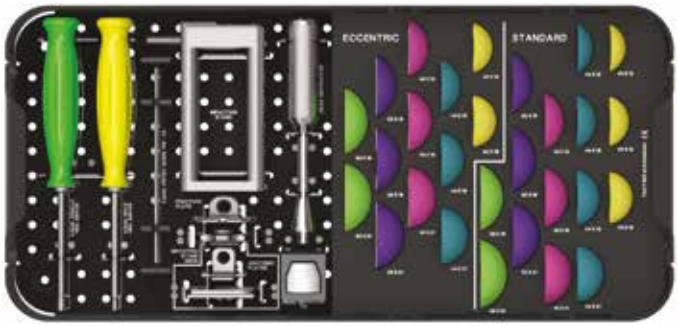
Instrument Ordering Information
Common Case



Top Tray – Humeral Preparation

2128-11-006	Bullet Tip Reamer 6mm
2128-11-007	Bullet Tip Reamer 7mm
2128-11-008	Bullet Tip Reamer 8mm
2128-11-009	Bullet Tip Reamer 9mm
2128-11-010	Bullet Tip Reamer 10mm
2128-11-011	Bullet Tip Reamer 11mm
2128-11-012	Bullet Tip Reamer 12mm
2128-11-013	Bullet Tip Reamer 13mm
2128-11-014	Bullet Tip Reamer 14mm
2128-11-015	Bullet Tip Reamer 15mm
2128-11-016	Bullet Tip Reamer 16mm
2128-61-070	Ratchet T-Handle
2307-84-001	Stem Wrench 10 – 12mm
2307-84-002	Stem Wrench 14 – 16mm
2307-84-003	Stem Wrench 6 – 8mm
2100-06-100	Humeral Stem 6mm Trial
2100-08-100	Humeral Stem 8mm Trial
2100-10-100	Humeral Stem 10mm Trial
2100-12-100	Humeral Stem 12mm Trial
2100-14-100	Humeral Stem 14mm Trial
2100-16-100	Humeral Stem 16mm Trial

Instrument Ordering Information
Common Case

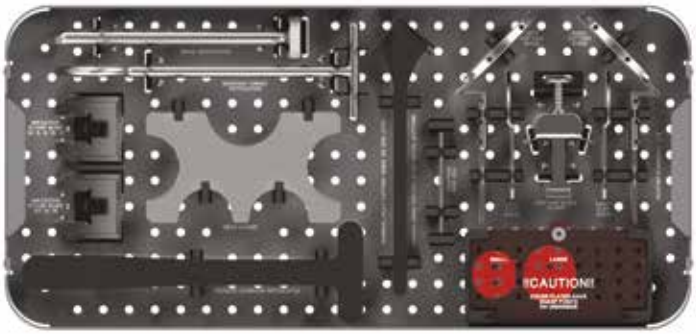


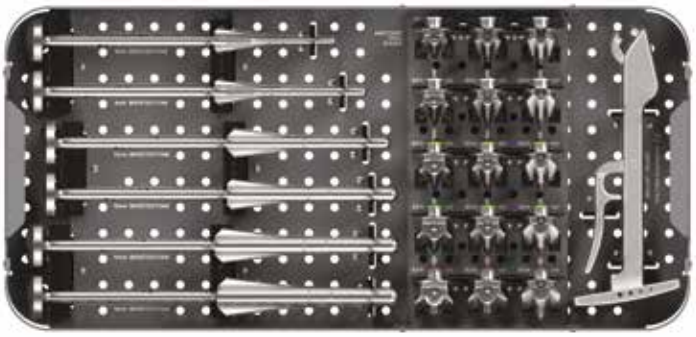
Bottom Tray – Trial Heads

2130-20-000	3.2mm Osteotomy Guide Pin – Long
2100-70-155	4.0mm Female Hex Screwdriver
2100-70-150	3.5mm Hex Screwdriver
2001-65-000	Humeral Head Impactor
2100-01-022	Impaction Stand
2100-11-400	Common Humeral Head 40 X 12 Trial
2100-11-401	Common Humeral Head 40 X 15 Trial
2100-11-402	Common Humeral Head 40 X 18 Trial
2100-11-440	Common Humeral Head 44 X 12 Trial
2100-11-441	Common Humeral Head 44 X 15 Trial
2100-11-442	Common Humeral Head 44 X 18 Trial
2100-11-443	Common Humeral Head 44 X 21 Trial
2100-11-481	Common Humeral Head 48 X 15 Trial
2100-11-482	Common Humeral Head 48 X 18 Trial
2100-11-483	Common Humeral Head 48 X 21 Trial
2100-11-521	Common Humeral Head 52 X 15 Trial
2100-11-522	Common Humeral Head 52 X 18 Trial
2100-11-523	Common Humeral Head 52 X 21 Trial
2100-11-562	Common Humeral Head 56 X 18 Trial
2100-11-563	Common Humeral Head 56 X 21 Trial

2100-22-401	Common Humeral Head 40 X 15 Eccentric Trial
2100-22-402	Common Humeral Head 40 X 18 Eccentric Trial
2100-22-441	Common Humeral Head 44 X 15 Eccentric Trial
2100-22-442	Common Humeral Head 44 X 18 Eccentric Trial
2100-22-443	Common Humeral Head 44 X 21 Eccentric Trial
2100-22-481	Common Humeral Head 48 X 15 Eccentric Trial
2100-22-482	Common Humeral Head 48 X 18 Eccentric Trial
2100-22-483	Common Humeral Head 48 X 21 Eccentric Trial
2100-22-521	Common Humeral Head 52 X 15 Eccentric Trial
2100-22-522	Common Humeral Head 52 X 18 Eccentric Trial
2100-22-523	Common Humeral Head 52 X 21 Eccentric Trial
2100-22-562	Common Humeral Head 56 X 18 Eccentric Trial
2100-22-563	Common Humeral Head 56 X 21 Eccentric Trial

Instrument Ordering Information
Anatomic Case





Top Tray – Anatomic

2128-01-021	Humeral Head Distractor
2236-26-000	Modified Crego Retractor
2100-70-005	Impaction Slide - Anatomic Stems 6 - 12
2100-70-006	Impaction Slide - Anatomic Stems 14 - 16
2100-01-020	Anatomic Head Guage
2236-31-000	Plastic Darrach
2100-61-071	Celcon Cutting Guide 128 & 142 Degree
2128-61-071	Celcon Cutting Guide 135 Degree
2490-98-000	3.2mm Fixation Pins Qty 3*
2128-62-110	Anatomic Resection Guide - Right
2128-62-130	Posterior Cuff Guide - Right
2128-62-150	Cutting Guide Quick Clamp
2128-62-120	Posterior Cuff Guide - Left
2128-62-100	Anatomic Resection Guide - Left
2128-65-200	Small Cover Plate
2128-65-250	Large Cover Plate

*An alternative, single-use only 3.2mm Fixation Pin may be used. Reference instrument product code 2490-95-000.

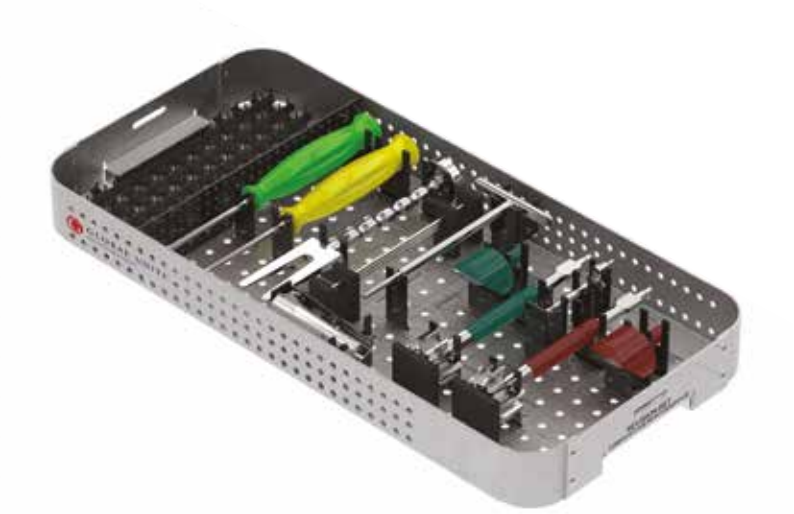
Bottom Tray – Anatomic

2100-05-006	Proximal Humeral Brosteotome 6
2100-05-008	Proximal Humeral Brosteotome 8
2100-05-010	Proximal Humeral Brosteotome 10
2100-05-012	Proximal Humeral Brosteotome 12
2100-05-014	Proximal Humeral Brosteotome 14
2100-05-016	Proximal Humeral Brosteotome 16
2100-20-016	Trial Body 6/8 – 128 Degree
2100-30-016	Trial Body 10 – 128 Degree
2100-40-016	Trial Body 12 – 128 Degree
2100-50-016	Trial Body 14 – 128 Degree
2100-60-016	Trial Body 16 – 128 Degree
2100-20-015	Trial Body 6/8 – 135 Degree
2100-30-015	Trial Body 10 – 135 Degree
2100-40-015	Trial Body 12 – 135 Degree
2100-50-015	Trial Body 14 – 135 Degree
2100-60-015	Trial Body 16 – 135 Degree
2100-20-017	Trial Body 6/8 – 142 Degree
2100-30-017	Trial Body 10 – 142 Degree
2100-40-017	Trial Body 12 – 142 Degree
2100-50-017	Trial Body 14 – 142 Degree
2100-60-017	Trial Body 16 – 142 Degree
2100-01-135	Anatomic Implant Holder

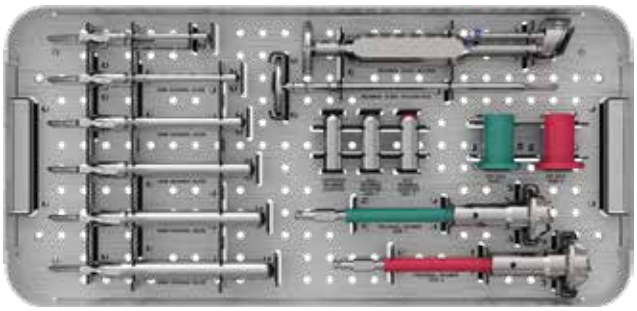
Instrument Ordering Information
Revision Case

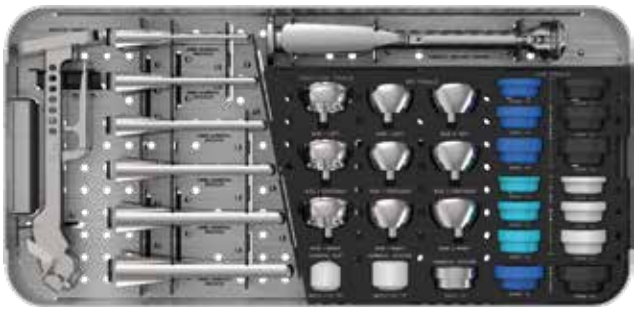
Top Tray

2100-70-500	Epiphyseal Sizer 1
2100-70-510	Epiphyseal Sizer 2
2100-70-600	Epiphyseal Reamer 1
2100-70-610	Epiphyseal Reamer 2
2100-70-410	Epiphyseal Reamer Guide
2100-70-415	Epiphyseal Reamer Guide Left
2100-70-420	Epiphyseal Reamer Guide Right
2100-70-700	Reverse Epiphyseal Holder
2130-01-120	Humeral Head Distractor
2307-99-002	Extraction T-Handle
2130-20-000	3.2mm Osteotomy Guide Pin – Long
2100-70-155	4.0mm Female Hex Screwdriver
2100-70-150	3.5 Male Hex Screwdriver



Instrument Ordering Information
Reverse Case





Humeral Tray 1

2100-74-006	Proximal Reaming Guide 6mm
2307-74-008	Proximal Reaming Guide 8mm
2307-74-010	Proximal Reaming Guide 10mm
2307-74-012	Proximal Reaming Guide 12mm
2307-74-014	Proximal Reaming Guide 14mm
2307-74-016	Proximal Reaming Guide 16mm
2307-74-001	Proximal Reaming Guide Holder
2307-74-002	Proximal Reaming Guide Holder Internal Rod
2307-76-001	Eccentric Proximal Reaming Adapter Size 1
2307-76-000	Centered Proximal Reaming Adapter
2307-76-002	Eccentric Proximal Reaming Adapter Size 2
2307-77-003	Epiphyseal Disk Size 1
2307-77-004	Epiphyseal Disk Size 2
2307-78-003	Proximal Reamer Size 1
2307-78-004	Proximal Reamer Size 2

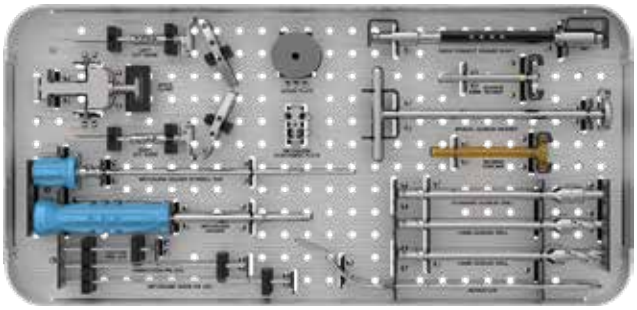
Humeral Tray 2

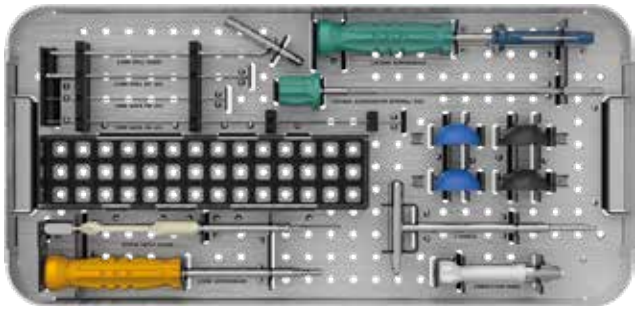
2307-01-030	Broach Handle
2307-01-031	Goniometer
2100-79-006	Humeral Broach 6mm
2100-79-008	Humeral Broach 8mm
2307-79-010	Humeral Broach 10mm
2307-79-012	Humeral Broach 12mm
2307-79-014	Humeral Broach 14mm
2307-79-016	Humeral Broach 16mm
2307-65-003	Humeral Implant Driver (Clamp)
2307-83-000	Humeral Implant Driver (Push-Button)

Humeral Tray 2

2307-20-102	Eccentric Trial Epiphysis Size 1 Left
2307-20-101	Centered Trial Epiphysis Size 1
2307-20-103	Eccentric Trial Epiphysis Size 1 Right
2307-20-202	Eccentric Trial Epiphysis Size 2 Left
2307-20-201	Centered Trial Epiphysis Size 2
2307-20-203	Eccentric Trial Epiphysis Size 2 Right
2100-20-102	Eccentric Trial Epiphysis RSA FX Left
2100-20-101	Centered Trial Epiphysis RSA FX
2100-20-103	Eccentric Trial Epiphysis RSA FX Right
2307-38-403	Standard Humeral Cup Trial 38mm +3mm
2307-38-406	Standard Humeral Cup Trial 38mm +6mm
2307-38-409	Standard Humeral Cup Trial 38mm +9mm
2307-42-403	Standard Humeral Cup Trial 42mm +3mm
2307-42-406	Standard Humeral Cup Trial 42mm +6mm
2307-42-409	Standard Humeral Cup Trial 42mm +9mm
2307-30-009	Humeral Spacer Trial +9
2001-66-000	Humeral Cup Impactor Tip
2307-68-000	Humeral Spacer Impactor Tip
2100-01-036	Fracture Positioning Jig (Cemented Fix. Only)

Instrument Ordering Information
Reverse Case





Glenoid Tray 1

2100-62-100	RSA Cutting Guide Left
2100-62-110	RSA Cutting Guide Right
2490-98-000	Fixation Pin 3.2mm x 3*
2130-20-000	3.2mm Orientation Guide Pin x 2
2307-85-000	Humeral Resection Protection Plate
2128-62-150	Cutting Guide Quick Clamp
2307-87-005	Metaglene Holder
2307-87-002	Metaglene Holder Internal Rod
2307-87-004	Metaglene Central Guide Pin 2.5mm x 2**
2236-00-008	Access Reamer 40
2236-10-008	Access Reamer 40 (OUS Only)
2230-00-029	Quick Connect Driver Shaft
2307-88-242	Glenoid Manual Reamer 42mm
2307-88-300	Glenoid Reaming Level Checker
2307-89-000	Glenoid Cannulated Stop Drill Standard
2407-89-010	Glenoid Cannulated Stop Drill +10
2407-89-015	Glenoid Cannulated Stop Drill +15
2307-86-002	Forked Retractor
2307-87-003	Metaglene Positioning Plate

Glenoid Tray 2

2307-90-003	Glenoid Drill Guide 2.5mm
2307-90-005	Drill Bit 2.5mm x 170mm x 2
2307-90-004	Screw Guide Pin 1.2mm X 150mm x 5
2307-96-000	Glenosphere Guide Pin 1.5mm X 300mm
2307-91-001	Screw Depth Gauge
2307-93-000	3.5mm Cannulated Hex Screwdriver
2307-92-003	Locking Screwdriver
2307-92-004	Locking Screwdriver Internal Rod
2307-60-038	Eccentric Glenosphere Trial 38mm
2307-60-138	Standard Glenosphere Trial 38mm
2307-60-042	Eccentric Glenosphere Trial 42mm
2307-60-142	Standard Glenosphere Trial 42mm
2307-99-002	Extraction T-Handle
2307-95-000	Glenosphere Orientation Guide

*An alternative, single-use only 3.2mm Fixation Pin may be used. Reference instrument product code 2490-95-000.

**An alternative, single-use only 2.5mm Breakaway Metaglene Central Guide Pin may be used. Reference instrument product code 2230-00-019.

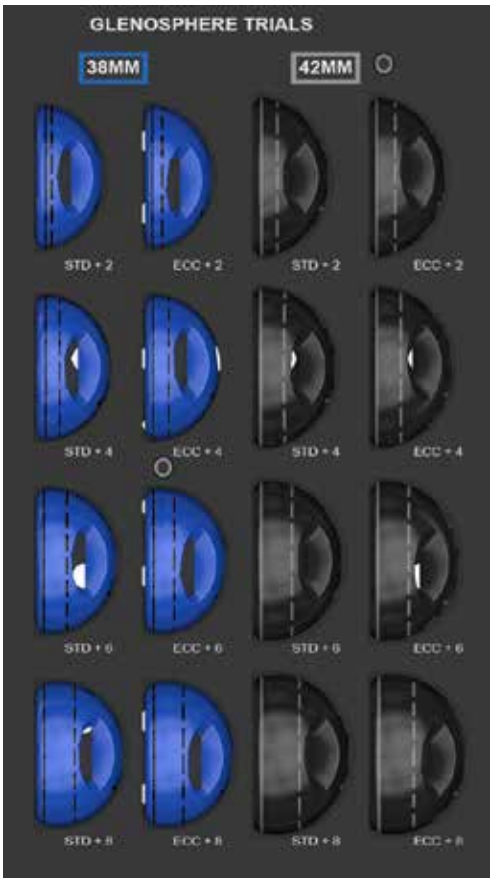
Instrument Ordering Information
Alt Angle Tray & Glenospheres

Alt Angle Tray

2100-09-050	Lateralized Glenosphere Tray
2100-09-055	Tray Lid

Glenosphere Trials

2307-62-138	Standard Glenosphere Trial 38mm +2
2307-64-138	Standard Glenosphere Trial 38mm +4
2307-66-138	Standard Glenosphere Trial 38mm +6
2307-68-138	Standard Glenosphere Trial 38mm +8
2307-62-038	Eccentric Glenosphere Trial 38mm +2
2307-64-038	Eccentric Glenosphere Trial 38mm +4
2307-66-038	Eccentric Glenosphere Trial 38mm +6
2307-68-038	Eccentric Glenosphere Trial 38mm +8
2307-62-142	Standard Glenosphere Trial 42mm +2
2307-64-142	Standard Glenosphere Trial 42mm +4
2307-66-142	Standard Glenosphere Trial 42mm +6
2307-68-142	Standard Glenosphere Trial 42mm +8
2307-62-042	Eccentric Glenosphere Trial 42mm +2
2307-64-042	Eccentric Glenosphere Trial 42mm +4
2307-66-042	Eccentric Glenosphere Trial 42mm +6
2307-68-042	Eccentric Glenosphere Trial 42mm +8



Implant Ordering Information

Standard Humeral Stem Components

1100-06-100	Standard Humeral Stem 6mm x 83mm
1100-08-100	Standard Humeral Stem 8mm x 107mm
1100-10-100	Standard Humeral Stem 10mm x 113mm
1100-12-100	Standard Humeral Stem 12mm x 121mm
1100-14-100	Standard Humeral Stem 14mm x 130mm
1100-16-100	Standard Humeral Stem 16mm x 138mm

Humeral Long Stem Components

1100-06-600	Long Humeral Stem 6mm x 143mm
1100-08-600	Long Humeral Stem 8mm x 177mm
1100-10-600	Long Humeral Stem 10mm x 183mm
1100-12-600	Long Humeral Stem 12mm x 191mm

Anatomic Proximal Bodies

1100-20-000	Anatomic Proximal Body 135 SZ 6/8
1100-30-000	Anatomic Proximal Body 135 SZ 10
1100-40-000	Anatomic Proximal Body 135 SZ 12
1100-50-000	Anatomic Proximal Body 135 SZ 14
1100-60-000	Anatomic Proximal Body 135 SZ 16
1100-20-010	Anatomic Proximal Body 128 SZ 6/8
1100-30-010	Anatomic Proximal Body 128 SZ 10
1100-40-010	Anatomic Proximal Body 128 SZ 12
1100-50-010	Anatomic Proximal Body 128 SZ 14
1100-60-010	Anatomic Proximal Body 128 SZ 16
1100-20-020	Anatomic Proximal Body 142 SZ 6/8
1100-30-020	Anatomic Proximal Body 142 SZ 10
1100-40-020	Anatomic Proximal Body 142 SZ 12
1100-50-020	Anatomic Proximal Body 142 SZ 14
1100-60-020	Anatomic Proximal Body 142 SZ 16

Humeral Head Components

1100-40-500	Humeral Head 40 x 15
1100-40-510	Humeral Head 40 x 18
1100-40-530	Humeral Head 40 x 12
1100-44-500	Humeral Head 44 x 15
1100-44-510	Humeral Head 44 x 18
1100-44-520	Humeral Head 44 x 21
1100-44-530	Humeral Head 44 x 12
1100-48-500	Humeral Head 48 x 15
1100-48-510	Humeral Head 48 x 18
1100-48-520	Humeral Head 48 x 21
1100-52-500	Humeral Head 52 x 15
1100-52-510	Humeral Head 52 x 18
1100-52-520	Humeral Head 52 x 21
1100-56-510	Humeral Head 56 x 18
1100-56-520	Humeral Head 56 x 21
1100-40-600	Humeral Head 40 x 15 Eccentric
1100-40-610	Humeral Head 40 x 18 Eccentric
1100-44-600	Humeral Head 44 x 15 Eccentric
1100-44-610	Humeral Head 44 x 18 Eccentric
1100-44-620	Humeral Head 44 x 21 Eccentric
1100-48-600	Humeral Head 48 x 15 Eccentric
1100-48-610	Humeral Head 48 x 18 Eccentric
1100-48-620	Humeral Head 48 x 21 Eccentric
1100-52-600	Humeral Head 52 x 15 Eccentric
1100-52-610	Humeral Head 52 x 18 Eccentric
1100-52-620	Humeral Head 52 x 21 Eccentric
1100-56-610	Humeral Head 56 x 18 Eccentric
1100-56-620	Humeral Head 56 x 21 Eccentric

Anchor Peg Glenoid Implants Featuring PREMIERON™ X-Linked Polyethylene

1136-40-026	Cross-linked Anchor Peg Glenoid 40mm
1136-41-026	Cross-linked Anchor Peg Glenoid 44mm
1136-42-026	Cross-linked Anchor Peg Glenoid 48mm
1136-43-026	Cross-linked Anchor Peg Glenoid 52mm
1136-44-026	Cross-linked Anchor Peg Glenoid 56mm

Implant Ordering Information

Modular Epiphyseal Components

1307-20-101	Modular Centered Epiphysis Size 1 HA
1307-20-102	Modular Eccentric Epiphysis Size 1 Left HA
1307-20-103	Modular Eccentric Epiphysis Size 1 Right HA
1307-20-201	Modular Centered Epiphysis Size 2 HA
1307-20-202	Modular Eccentric Epiphysis Size 2 Left HA
1307-20-203	Modular Eccentric Epiphysis Size 2 Right HA

Glenoid Implants - Glenospheres (worldwide codes)

Glenosphere Components	
1307-60-038	Eccentric Glenosphere 38mm
1307-60-042	Eccentric Glenosphere 42mm
1307-60-138	Standard Glenosphere 38mm
1307-60-142	Standard Glenosphere 42mm
1307-62-038	Eccentric Glenosphere 38mm, +2mm Lateralization
1307-62-042	Eccentric Glenosphere 42mm, +2mm Lateralization
1307-62-138	Standard Glenosphere 38mm, +2mm Lateralization
1307-62-142	Standard Glenosphere 42mm, +2mm Lateralization
1307-64-038	Eccentric Glenosphere 38mm, +4mm Lateralization
1307-64-042	Eccentric Glenosphere 42mm, +4mm Lateralization
1307-64-138	Standard Glenosphere 38mm, +4mm Lateralization
1307-64-142	Standard Glenosphere 42mm, +4mm Lateralization
1307-66-038	Eccentric Glenosphere 38mm, +6mm Lateralization
1307-66-042	Eccentric Glenosphere 42mm, +6mm Lateralization
1307-66-138	Standard Glenosphere 38mm, +6mm Lateralization
1307-66-142	Standard Glenosphere 42mm, +6mm Lateralization
1307-68-038	Eccentric Glenosphere 38mm, +8mm Lateralization
1307-68-042	Eccentric Glenosphere 42mm, +8mm Lateralization
1307-68-138	Standard Glenosphere 38mm, +8mm Lateralization
1307-68-142	Standard Glenosphere 42mm, +8mm Lateralization

Glenoid Implants - Metaglene & Screws

1307-60-000	Standard Metaglene 13.5mm
1307-70-018	Non-Locking Metaglene Screw 4.5mm x 18mm
1307-70-024	Non-Locking Metaglene Screw 4.5mm x 24mm
1307-70-030	Non-Locking Metaglene Screw 4.5mm x 30mm
1307-70-036	Non-Locking Metaglene Screw 4.5mm x 36mm
1307-70-042	Non-Locking Metaglene Screw 4.5mm x 42mm
1307-90-024	Locking Metaglene Screw 4.5mm x 24mm
1307-90-030	Locking Metaglene Screw 4.5mm x 30mm
1307-90-036	Locking Metaglene Screw 4.5mm x 36mm
1307-90-042	Locking Metaglene Screw 4.5mm x 42mm
1307-90-048	Locking Metaglene Screw 4.5mm x 48mm
1407-60-020	+10mm Long Peg Metaglene (US ONLY)
1407-60-025	+15mm Long Peg Metaglene (US ONLY)
1407-60-010	+10mm Long Peg Metaglene (OUS ONLY)
1407-60-015	+15mm Long Peg Metaglene (OUS ONLY)

Implant Ordering Information

Polyethylene Cup and Humeral Spacer

1307-38-203	Humeral Polyethylene Cup 38mm +3mm
1307-38-206	Humeral Polyethylene Cup 38mm +6mm
1307-38-209	Humeral Polyethylene Cup 38mm +9mm
1307-42-203	Humeral Polyethylene Cup 42mm +3mm
1307-42-206	Humeral Polyethylene Cup 42mm +6mm
1307-42-209	Humeral Polyethylene Cup 42mm +9mm
1307-38-106	Humeral Polyethylene Cup 38mm +6mm Retentive
1307-42-106	Humeral Polyethylene Cup 42mm +6mm Retentive
1307-38-703	High Mobility PREMIERON X-Linked Humeral Cup 38mm +3mm (US ONLY)
1307-38-706	High Mobility PREMIERON X-Linked Humeral Cup 38mm +6mm (US ONLY)
1307-38-709	High Mobility PREMIERON X-Linked Humeral Cup 38mm +9mm (US ONLY)
1307-42-703	High Mobility PREMIERON X-Linked Humeral Cup 42mm +3mm (US ONLY)
1307-42-706	High Mobility PREMIERON X-Linked Humeral Cup 42mm +6mm (US ONLY)
1307-42-709	High Mobility PREMIERON X-Linked Humeral Cup 42mm +9mm (US ONLY)
1307-38-003	High Mobility Humeral Cup 38mm +3mm (OUS ONLY)
1307-38-006	High Mobility Humeral Cup 38mm +6mm (OUS ONLY)
1307-38-009	High Mobility Humeral Cup 38mm +9mm (OUS ONLY)
1307-42-003	High Mobility Humeral Cup 42mm +3mm (OUS ONLY)
1307-42-006	High Mobility Humeral Cup 42mm +6mm (OUS ONLY)
1307-42-009	High Mobility Humeral Cup 42mm +9mm (OUS ONLY)
1307-30-009	Humeral Spacer +9mm

Component Compatibility

GLOBAL UNITE Platform Shoulder System

Device Component	Compatible Component
GLOBAL UNITE Humeral Heads	– GLOBAL UNITE Anatomic Proximal Body – GLOBAL UNITE FX Proximal Body – GLOBAL AP Humeral Stems *(40x12 and 44x12 heads not compatible)* – GLOBAL Anchor Peg Glenoid – GLOBAL Crosslinked Anchor Peg Glenoid – GLOBAL Crosslinked Keeled/Fin Glenoid – GLOBAL STEPTECH Anchor Peg Glenoid
GLOBAL UNITE Modular Suture Collars	– GLOBAL UNITE FX Proximal Body
GLOBAL UNITE Humeral Stems	– GLOBAL UNITE Anatomic Proximal Body – GLOBAL UNITE FX Proximal Body – GLOBAL UNITE Reverse Fracture Epiphysis – DELTA XTEND Modular Epiphysis
GLOBAL UNITE Anatomic Proximal Body	– GLOBAL UNITE Humeral Heads – GLOBAL UNITE Humeral Stems – DELTA XTEND Modular Humeral Stems
GLOBAL UNITE FX Proximal Body	– GLOBAL UNITE Humeral Heads – GLOBAL UNITE Modular Suture Collars – GLOBAL UNITE Humeral Stems – DELTA XTEND Modular Humeral Stems
GLOBAL UNITE Reverse Fracture Epiphysis	– GLOBAL UNITE Humeral Stems – DELTA XTEND Modular Humeral Stems – DELTA XTEND Humeral Spacer – DELTA XTEND Standard Humeral PE Cup – DELTA XTEND X-LINK HIGH MOBILITY Humeral Cup

DELTA XTEND System

Device Component	Compatible Component
DELTA XTEND Monobloc Humeral Cemented Epiphysis	– DELTA XTEND Humeral Spacer – DELTA XTEND Standard Humeral PE Cup – DELTA XTEND CTA Head – DELTA XTEND X-LINK HIGH MOBILITY Humeral Cup
DELTA XTEND Modular Humeral Stem	– DELTA XTEND Modular Epiphysis – GLOBAL UNITE Reverse Fracture Epiphysis
DELTA XTEND Modular Epiphysis	– GLOBAL UNITE Humeral Stems – DELTA XTEND Modular Humeral Stems – DELTA XTEND Humeral Spacer – DELTA XTEND Standard Humeral PE Cup – DELTA XTEND CTA Head – DELTA XTEND X-LINK HIGH MOBILITY Humeral Cup
DELTA XTEND CTA Head	– DELTA XTEND Modular Epiphysis – DELTA XTEND Monobloc Humeral Cemented Epiphysis – DELTA XTEND Humeral Spacer
DELTA XTEND Humeral Spacer	– DELTA XTEND Modular Epiphysis – DELTA XTEND Monobloc Humeral Cemented Epiphysis – DELTA XTEND CTA Head – GLOBAL UNITE Reverse Fracture Epiphysis – DELTA XTEND Standard Humeral PE Cup – DELTA XTEND X-LINK HIGH MOBILITY Humeral Cup
DELTA XTEND Standard Humeral PE Cup	– DELTA XTEND Humeral Spacer – DELTA XTEND Modular Epiphysis – DELTA XTEND Monobloc Humeral Cemented Epiphysis – DELTA XTEND Reverse Fracture Epiphysis – DELTA XTEND Glenosphere
DELTA XTEND X-LINK HIGH MOBILITY Humeral Cup	– DELTA XTEND Humeral Spacer – DELTA XTEND Modular Epiphysis – DELTA XTEND Monobloc Humeral Cemented Epiphysis – GLOBAL UNITE Reverse Fracture Epiphysis – DELTA XTEND Glenosphere
DELTA XTEND Glenosphere	– DELTA XTEND Metaglene – DELTA XTEND Metaglene Long Peg – DELTA XTEND Standard Humeral PE Cup – DELTA XTEND X-LINK HIGH MOBILITY Humeral Cup
DELTA XTEND Metaglene	– DELTA XTEND Glenosphere – DELTA XTEND Non-Locking Metaglene Screw – DELTA XTEND Locking Metaglene Screw
DELTA XTEND Metaglene Long Peg	– DELTA XTEND Glenosphere – DELTA XTEND Non-Locking Metaglene Screw – DELTA XTEND Locking Metaglene Screw
DELTA XTEND Non-Locking Metaglene Screw	– DELTA XTEND Metaglene – DELTA XTEND Metaglene Long Peg
DELTA XTEND Locking Metaglene Screw	– DELTA XTEND Metaglene – DELTA XTEND Metaglene Long Peg

Notes

Notes

Notes

This publication is not intended for distribution outside of the EMEA region.

Not all products may currently be available in all markets.

Some products may not be licensed in all jurisdictions.

For additional product details including indications, contraindications, warnings and precautions, please consult the instructions for use provided with the device.

DePuy Synthes
COMPANIES OF Johnson&Johnson

DePuy Orthopaedics, Inc.
700 Orthopaedic Drive
Warsaw, IN 46582
USA
Tel: +1 (800) 366-8143
Fax: +1 (800) 669-2530

DePuy (Ireland)
Loughbeg, Ringaskiddy
Co.Cork, Ireland
Tel: +35 (321) 491 4000
Fax: +35 (321) 491 4199

DePuy Ireland UC
Loughbeg, Ringaskiddy
Co.Cork, Ireland
Tel: +35 (321) 491 4000
Fax: +35 (321) 491 4199

Viant Medical, LLC
4545 Kroemer Road
Fort Wayne, IN 46818 USA
Tel: +1 260 755 7300

www.jnjmedicaldevices.com

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