

INHANCE™ SHOULDER SYSTEM

Anatomic Surgical Technique



 DePuy Synthes
THE ORTHOPAEDICS COMPANY OF 

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System Overview

Introduction

Over the course of the past decade, shoulder arthroplasty has experienced tremendous growth and along with it an explosion of new technologies. These new technologies have allowed surgeons to treat unique patient anatomies, preserve bone stock, and simplify revisions should they become necessary more precisely. While these advances have provided for a broader range of surgical treatment, they have also increased the complexity and cost of preparing for each surgical case.

Often, these newer technologies are not compatible with existing products and require upwards of 10 instrument cases to provide surgeons the clinical flexibility they desire. These issues are a direct result of how the shoulder market has evolved. As an example, over the course of time humeral shoulder implants have progressed from longer stems to standard length stems to short stems and now to stemless implants. In most cases, these systems do not have common instrumentation and are not compatible.

Interestingly, surgeons' approach to patient care has evolved in the exact opposite manner of the market. Surgeons most commonly approach patient care with the least invasive treatment and only progress to more invasive options when less invasive treatments are not sufficient. In other words, past shoulder systems have not been designed to align with how surgeons conceptually approach patient care.

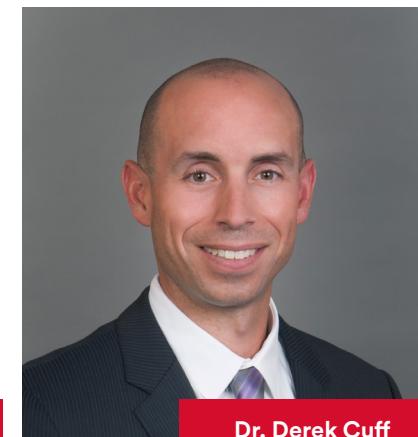
As more shoulder replacements are performed in outpatient and ambulatory surgery center settings, implant system efficiency and value become increasingly important components of surgical decision making. It has become clear that legacy systems do not adequately address the needs of a rapidly evolving healthcare landscape.

The INHANCE Shoulder System was designed in collaboration with a team of leading shoulder arthroplasty surgeons to address today's and tomorrow's economic and site of care challenges by utilizing the latest technology, seamlessly integrating clinical options, and is aligned with how surgeons approach patient care.

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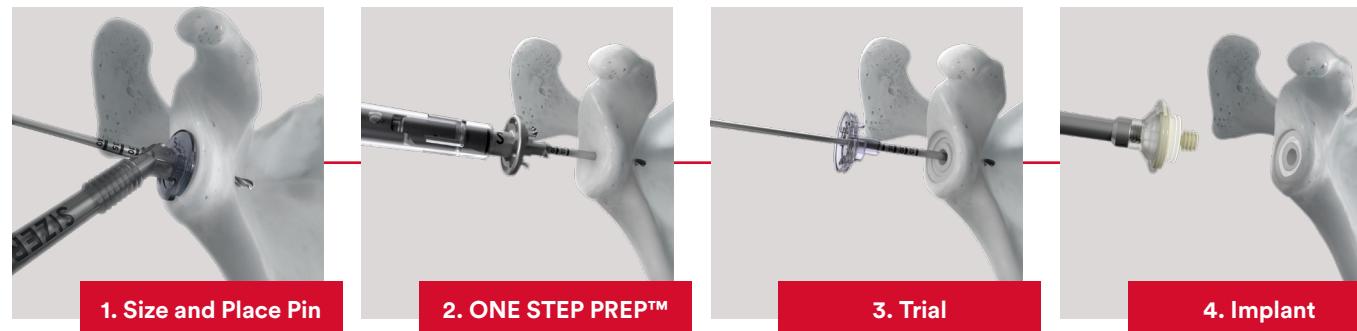
Key Surgical Steps

Key Surgical Steps

Humeral



Glenoid Featuring ONE STEP PREP™



Note: Glenoid preparation and replacement are commonly performed during proximal humeral preparation and before placement of the humeral head component. ONE STEP PREP™ Glenoid reaming can be performed at various points in the procedure, and it is recommended this takes place prior to final humeral head implantation.



Common Humeral Preparation

Common Humeral Preparation

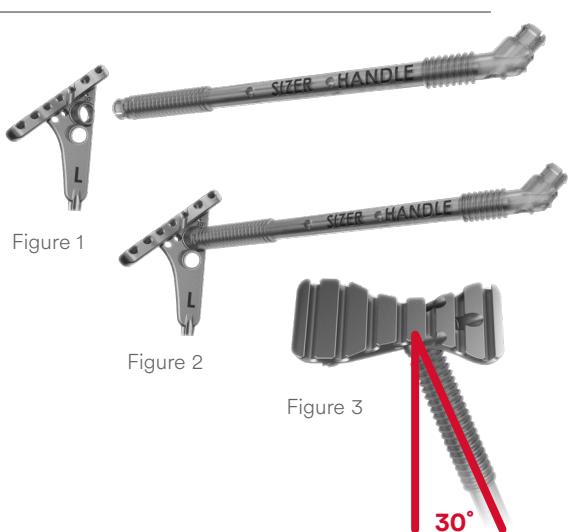
The Stemless and Stemmed Humeral implants share a similar proximal footprint and surgical preparation allowing for truly seamless intraoperative flexibility. Throughout the common preparation there are three distinct bone quality evaluations to help assess if a stemless implant can be utilized (pages 10, 12, and 14). If at any point the bone quality is determined to be insufficient to support a stemless implant continue to the stemmed preparation. Throughout the procedure, care must be taken to protect the axillary nerve.

Note: It has been reported that up to 33% of excluded candidates from a stemless shoulder clinical trial were due to a lack sufficient bone stock to support a stemless device.¹

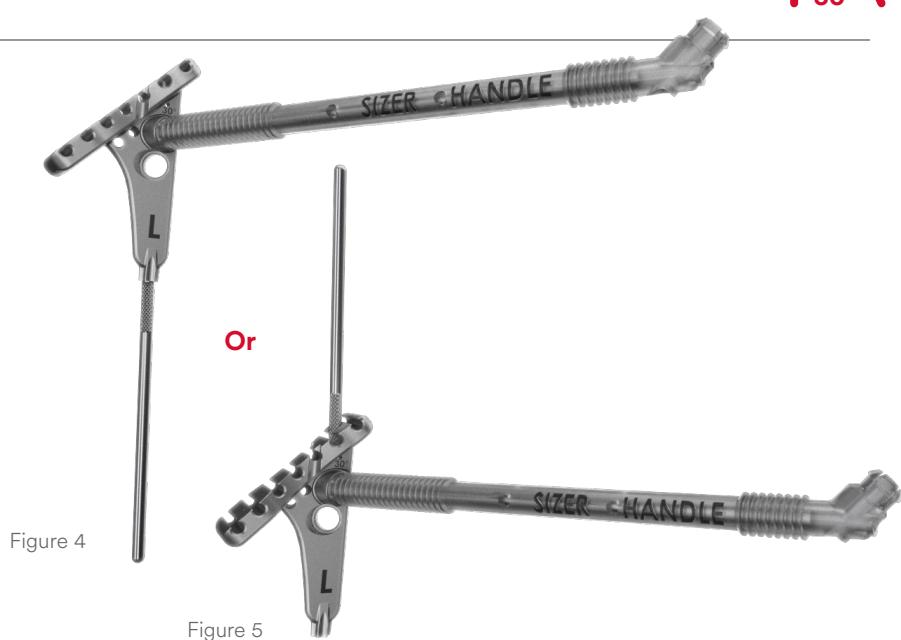
Resection

To assist in the humeral head resection, the INHANCE™ Shoulder System includes a Silhouette Resection Guide. The Silhouette Resection Guide is used to mark the humeral neck shaft angle of 135 degrees when making a free hand resection or can be pinned into place to provide a cutting surface to help facilitate the resection.

To assemble, orient the Silhouette Resection Guide so the “L” or “R” text that matches the operative side of the patient is visible (Figure 1). Then place the straight end of the Sizer Handle into the hole with the arrow (Figure 2). When attached, the Sizer Handle is set at 30° of retroversion and can be aligned with the forearm (Figure 3).



If desired, the Silhouette Resection Guide Pin can be threaded into the top or the bottom of the Silhouette Resection Guide to visually extend the axis of alignment (Figures 4 or 5).



To secure the Silhouette Resection Guide to the humerus, place the Silhouette Resection Guide at the anatomic neck and align with the humeral shaft. The intersection of the medial portion of the rotator cuff footprint and the articular surface is a helpful landmark. Adjust the Silhouette Resection Guide to the desired version and place one Resection Guide Pin (3.0mmX100mm) into the desired lateral pin hole. The Silhouette Resection Guide can then be pivoted about the Resection Guide Pin to fine tune the alignment of the Silhouette Resection Guide with the humeral shaft (Figure 6c). Additional Resection Guide Pins are then placed to lock the Silhouette Resection Guide into position.



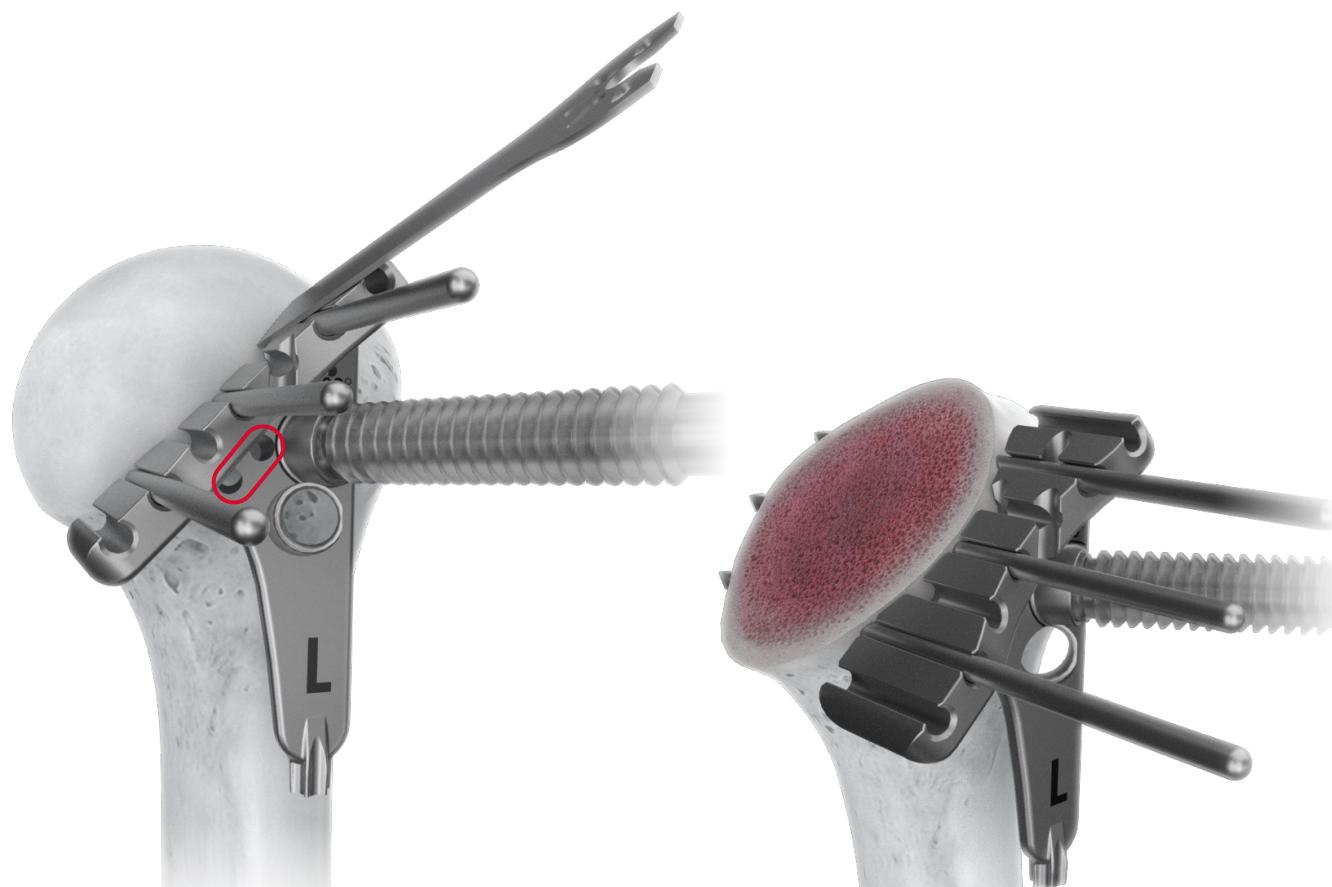
Note: If desired, the tips of the Humeral Stem Pin Punch with the Version Rod assembled (See instruction in Diaphyseal Stem Preparation section below) can be placed into the two slots of the Silhouette Resection Guide without advancing downward to ensure the desired version is achieved prior to resecting the humeral head (Figure 7).



The resection can then be made off the top of the Silhouette Resection Guide (Figures 8 or 9). Alternatively, the Silhouette Resection Guide can slide off the Resection Guide Pins and the resection can be made off the top of the Resection Guide Pins. Ensure the axillary nerve is protected prior to performing the resection.

Prior to resection, the pin position can be checked posteriorly to ensure the resection is placed in line with the native anatomy or on the desired plane. The location of the pins posteriorly in relation to the native humeral neck can be used to confirm an anatomic or non-anatomic resection as desired.

Once the humeral head is resected, the first bone quality evaluation can be completed by applying thumb pressure to the resection. If a thumb can be depressed into the humerus without much resistance, the bone may not be sufficient to support a stemless implant and a stemmed implant may provide better fixation.



Note: If desired, a divergent pin can be placed where the divergent pin holes are circled to reduce movement of the Silhouette Resection Guide during resection.

Figure 9

Humeral Head Sizing & Humeral Pin Placement

Begin the initial humeral head sizing by selecting the Trial Humeral Head diameter and thickness that most closely resembles the resected humeral head (Figures 10 and 11). Once the appropriate Trial Humeral Head is selected, the Humeral Pin Guide can be assembled to the Trial Humeral Head to assist in placing the central Humeral Pin (3.5mmX130mm). The assembly is done by placing the long handle of the Humeral Pin Guide through the bottom of the Trial Humeral Head (Figure 12). As the plate is advanced through the Trial Humeral Head, align the laser mark on the bottom of the Humeral Pin Guide with the “C” on the Head so that the anti-rotation nub on the plate also aligns with the pocket in the Trial Humeral Head. The Humeral Pin Guide can be snapped into the Trial Humeral Head (Figure 13). An audible “click” is indicative of connection.



Figure 10



Figure 11

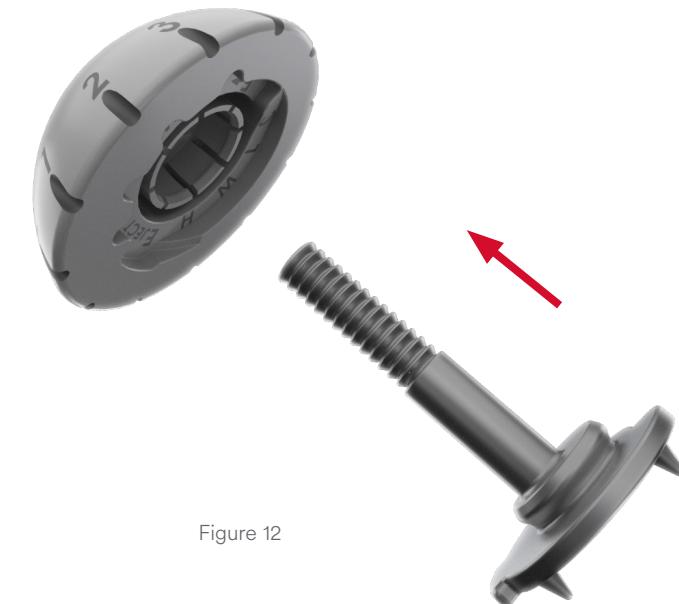
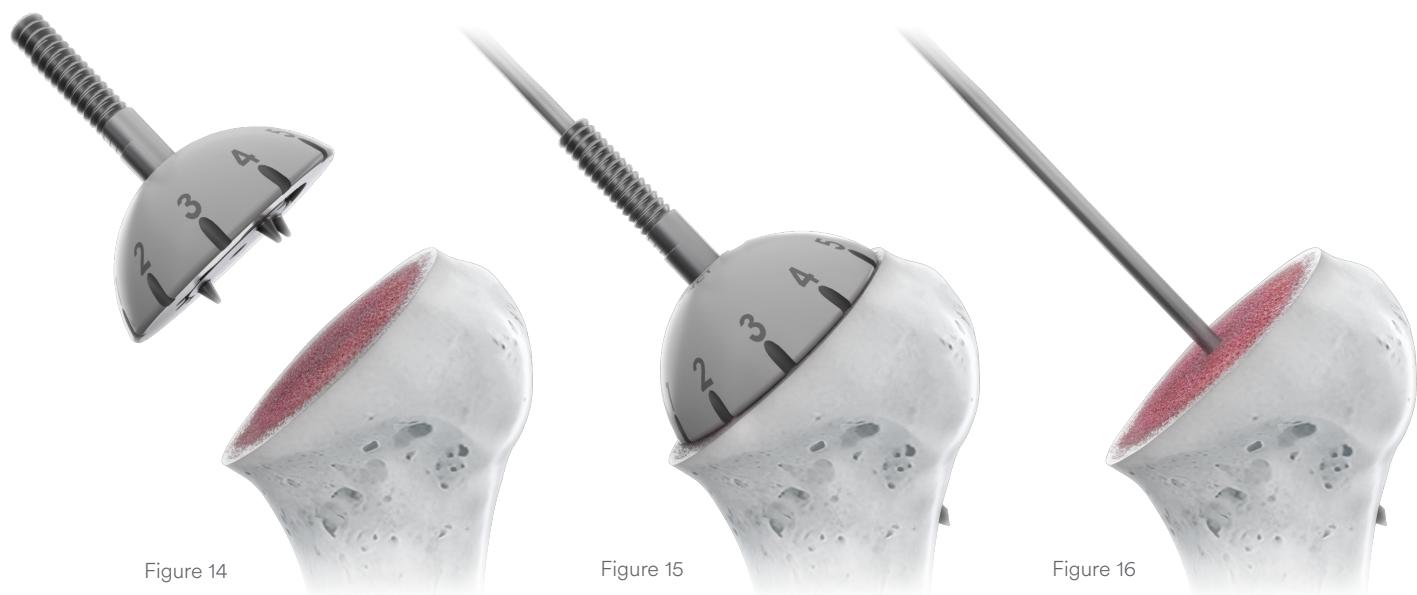


Figure 12



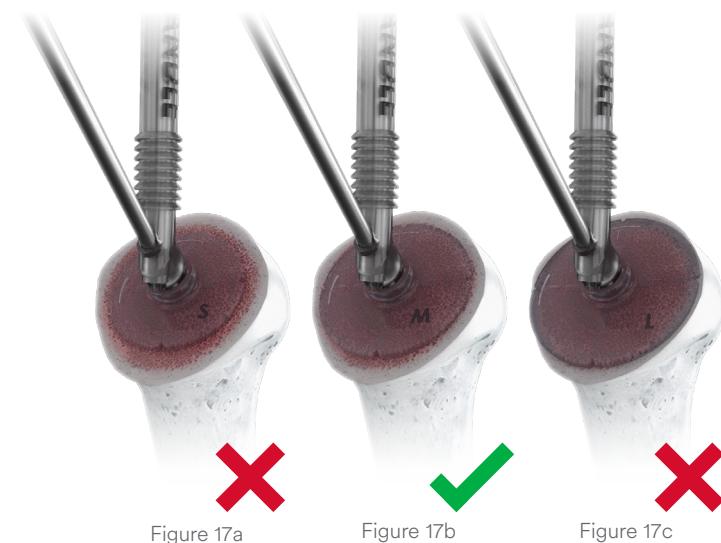
Figure 13

Once assembled, center the Trial Humeral Head onto the resection to confirm a good fit with no overhang of the resected surface or uncovered bone (Figure 14). If the best fit is in between two sizes, it is recommended to use the smaller of the two sizes. With the Trial Humeral Head centered, apply slight pressure to seat the spikes on the Humeral Pin Guide into the resection and then drive the Humeral Pin (3.5mmX130mm) just through the lateral cortex (Figure 15). **With the Humeral Pin in place remove the Humeral Pin Guide and Trial Humeral Head assembly and conduct the second bone quality evaluation by checking the stability of the Humeral Pin within the bone (Figure 16).**



Humeral Stem Sizing

With the Humeral Pin securely in place, the resection can be sized to determine the best fit humeral anchor (Stemless/Stemmed implant). To evaluate sizing, attach the angled end of the Sizer Handle onto the Humeral Sizer and place over the Humeral Pin. Once in place, evaluate the Sizer's fit to the inside of the cortical rim. It is recommended that the Sizer sits immediately inside the cortical rim and at no point contacts the cortical rim (Figure 17b).



Reaming

With the Humeral Stem size determined, select the corresponding Humeral Reamer. To assemble the Humeral Reamer to the Driver, insert the drive end of the Humeral Reamer into the Driver and rotate the Humeral Reamer until the flats on the Humeral Reamer and Driver align (Figure 18). Once aligned, the Driver retaining feature will snap into the groove on the Reamer. **When snapped into place, the laser line on the Reamer should not be visible (Figure 19). If the laser line is visible, continue rotating the Humeral Reamer until the flats of the Humeral Reamer and Driver align and the Humeral Reamer snaps into place.**

Note: Attaching the Driver to power or the Driver Handle first may simplify Reamer-to-Driver assembly.



The Humeral Reamers can be used by hand with the Driver Handle or under power (Figure 20). If power is used, actuate the Reamer prior to contacting the humeral surface. Advance the Reamer until the outer diameter of the reamer is flush with the resection (Figure 21). **Take care to not advance the reamer beyond the resection (Figure 22).**



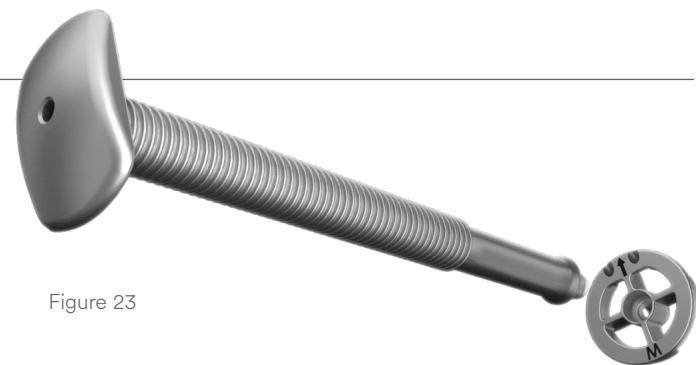


Figure 23

Humeral Blazer

With the humeral resection reamed, thread the Cannulated Impactor Handle into the appropriately sized Humeral Blazer (Figure 23).

Place the Humeral Blazer over the Humeral Pin and align the arrow with the most lateral aspect of the humerus, as the orientation will determine the trajectory of the Humeral Stem (See note below for additional alignment options) should a stem be selected (Figure 24). **Once the Humeral Blazer is correctly aligned, advance the Humeral Blazer while evaluating the stability of the bone for the third bone quality evaluation.** Continue until the Humeral Blazer is flush with the resection and then unthread the Cannulated Impactor Handle leaving the Humeral Blazer in place and remove the Humeral Pin (Figure 25).



Figure 24

Figure 25

Note: If desired, the Humeral Stem Pin Punch with the Version Rod assembled (See instruction in Diaphyseal Stemmed Preparation section below) can be placed into two lateral holes of the Blazer to ensure the desired humeral axial alignment (varus/valgus) and version is achieved prior to seating the Blazer (Figure 26).



Figure 26

Warning: Failure to correctly align the humeral component may lead to complications that include rotator cuff damage. It is recommended to use intraoperative fluoroscopy to confirm varus/valgus alignment and humeral component positioning.

Humeral Head Trial Overview

The INHANCE Shoulder System offers the ability to place the definitive Humeral Head in a C = Center (0mm), L = Low (1mm) Offset, M = Medium (2mm) Offset or H = High (3mm) Offset position. The Stemless implant is only indicated for use with the Centered Humeral Head position.

The Trial Humeral Heads have been designed to work with the Humeral Blazer as well as the final Stemless and Stemmed implants. The steps outlined below are shown with the Blazer but are the same when used on the definitive Stemless and Stemmed implant.

To begin, it is important to mark the humerus at the most lateral aspect as this will serve as a reference point should any offset be needed in the Humeral Head (Figure 27).



Figure 27

Humeral Head Trial Assembly

The Humeral Head Trials are offered with a modular Offset Taper Adapter Trial. To assemble the two components, orient the Offset Taper Adapter Trial so that the taper and laser line are facing up (Figures 28 and 29). Align the laser mark on the Offset Taper Adapter Trial with the C and laser line on the underside of the Humeral Head Trial so that the flexible nub on the Offset Taper Adapter Trial sits with the notch on the underside of the Humeral Head Trial marked C. Then apply pressure to snap the two components together (Figure 30).



Figure 28



Figure 29



Figure 30

Humeral Head Trial Adjustment

With the components assembled, the Offset Taper Adapter Trial can be indexed into the different positions by utilizing the Star Driver 30 and applying a rotation force in the desired direction (Figure 31). The Offset Taper Adapter Trial will click into the C/L/M/H position indicated by the nub and laser etch line (Table 1).

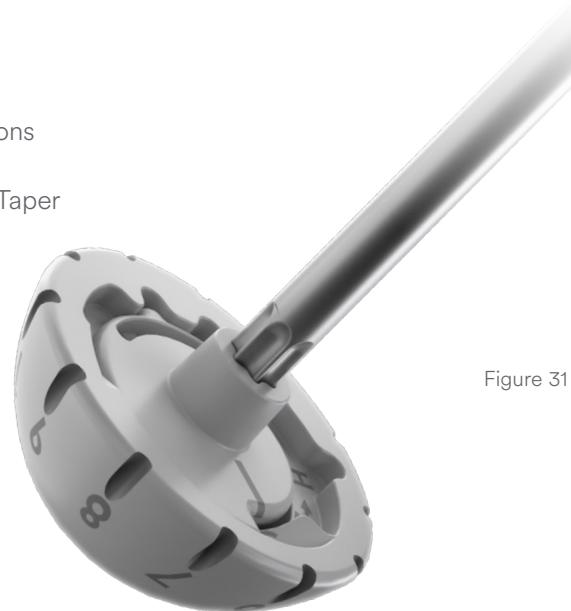


Figure 31

Table 1

Indications for Humeral Head Eccentricity	Centered Position (0mm)	Low Position (1mm)	Medium Position (2mm)	High Position (3mm)

Humeral Head Trial Placement

With the Offset Taper Adapter Trial assembled in the desired orientation to the Humeral Head Trial, place the assembly onto the Blazer or humeral implant, but do not directly impact on the Humeral Head Trial (Figure 32). If utilizing a Stemmed implant that requires offset, dial the Humeral Head to achieve the best coverage with no overhang. The Offset Taper Adapter Trial can be adjusted to C/L/M/H position until the desired offset is achieved. The eccentricity position should be recorded for constructing the final implant.

Once the Humeral Head Trial is in the desired position, denote which number on the clock face is aligned with the demarcation on the lateral humerus or identify a number on the clock face which aligns with an alternate bony landmark (Figure 33). The clock face is intended to assist in denoting orientation and this will determine how the final implant is assembled (Figure 34).

Next, reduce the Humeral Head Trial into the joint and assess stability and ensure satisfactory range of motion can be achieved. Adjust the Humeral Head Trial diameter and thickness as needed.

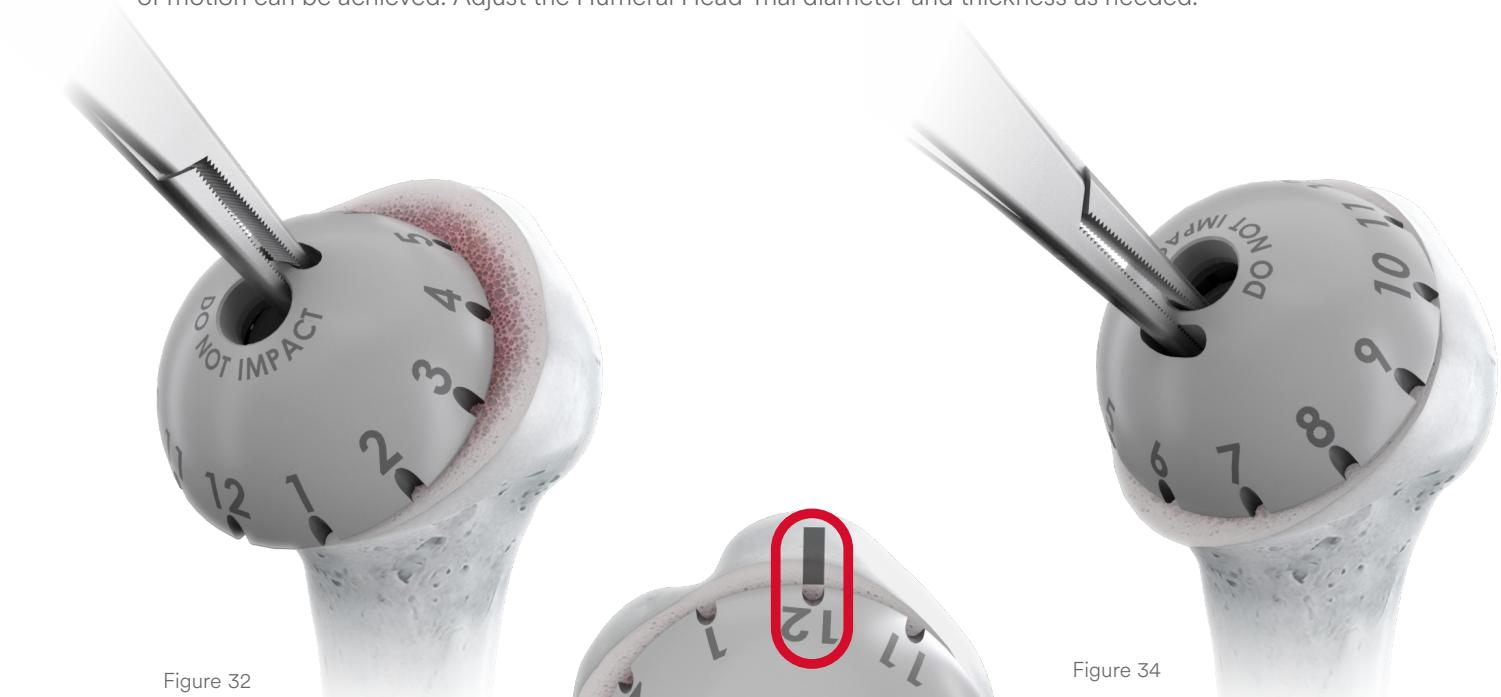


Figure 32

Figure 34

Figure 33

Stemless Humeral Preparation

Humeral Head Trial Disassembly

To remove the Humeral Head Trial, assemble the Head Distractor to the Impactor Handle and place between the resection and the Humeral Head. To remove the Offset Taper Adapter Trial from the Humeral Head Trial, rotate the Offset Taper Adapter Trial counterclockwise until the ramps unlock it from the head (Figure 35). Once the Offset Taper Adapter Trial reaches the E = eject position, it will engage the ramp and come out of the Humeral Head Trial (Figures 36 and 37).

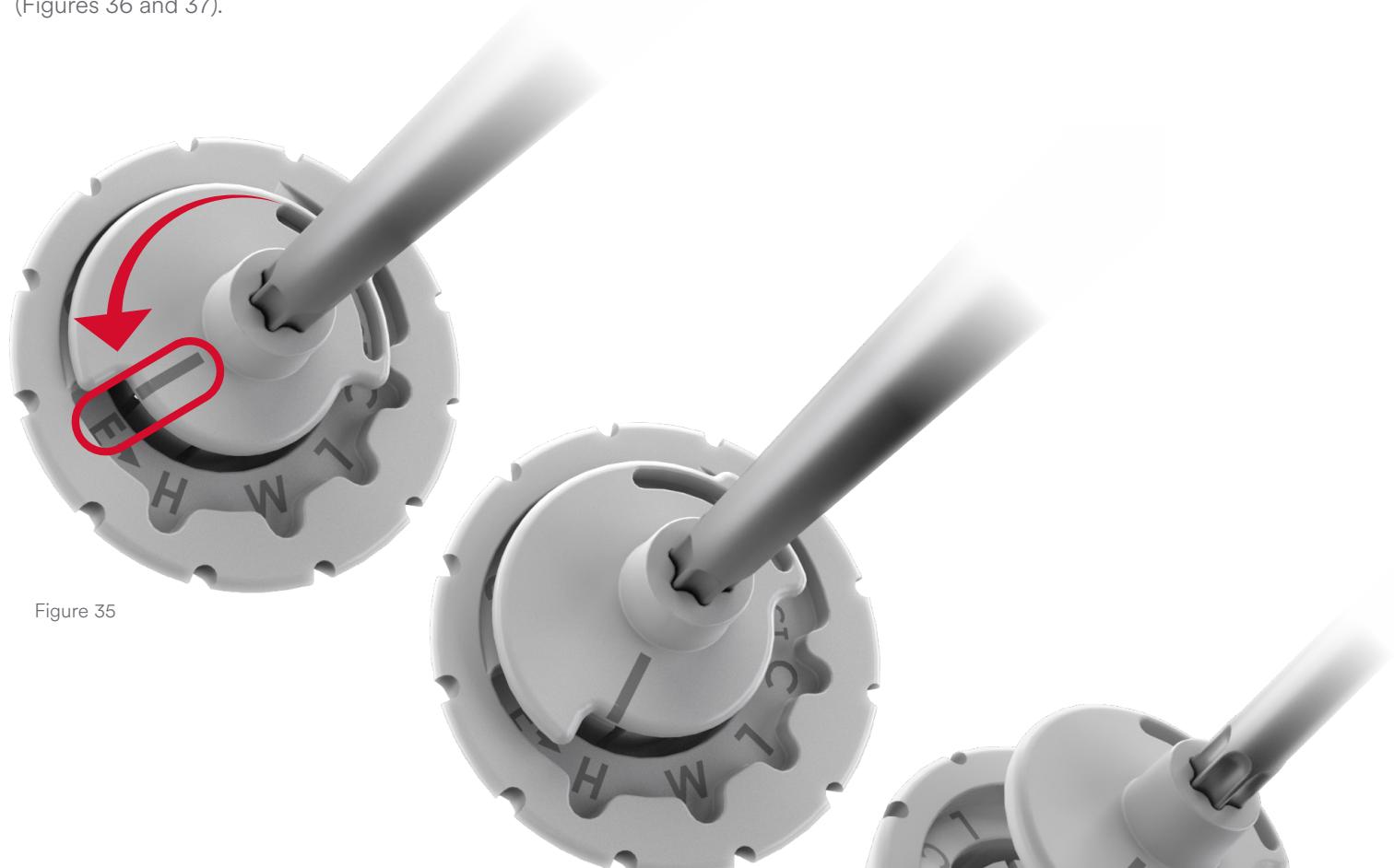


Figure 35

Figure 36

Figure 37

Stemless Implant Assembly & Implantation

The definitive Stemless implant and Humeral Head can be assembled in-situ or on the back table.

Stemless In-Situ Assembly

To assemble the Stemless implant and Humeral Head in-situ, thread the appropriately sized Stemless implant onto the Cannulated Impactor Handle without over tightening (Figure 38). Align the implant with the preparation and impact the implant taking care to ensure the implant is inserted on axis (Figure 39). It is recommended to leave the implant slightly proud to facilitate Humeral Head assembly (Figure 40). When in place, unthread the Cannulated Impactor Handle.



Figure 38

Figure 39

Figure 40

To assemble the Humeral Head and Offset Taper Adapter, orient the Impaction Stand so that the Humeral Head diameter range specified on the Impaction Stand matches the selected Humeral Head diameter and is facing up (Figure 41). Next place the Humeral Head into the Impaction Stand with the flat bottom of the Head facing up (Figure 42). For Stemless implants, orient the Offset Taper Adapter so that the laser line aligns with the C laser line on the Humeral Head. Thread the Concave Impactor Tip onto the Impactor Handle (Figure 43). Place the Concave Impactor Tip onto the Offset Taper Adapter so that the recess securely sits over the taper (Figure 44). Impact to lock the Offset Taper Adapter into position.

Note: The Cannulated Impactor Handle should not be used with the impactor tips.

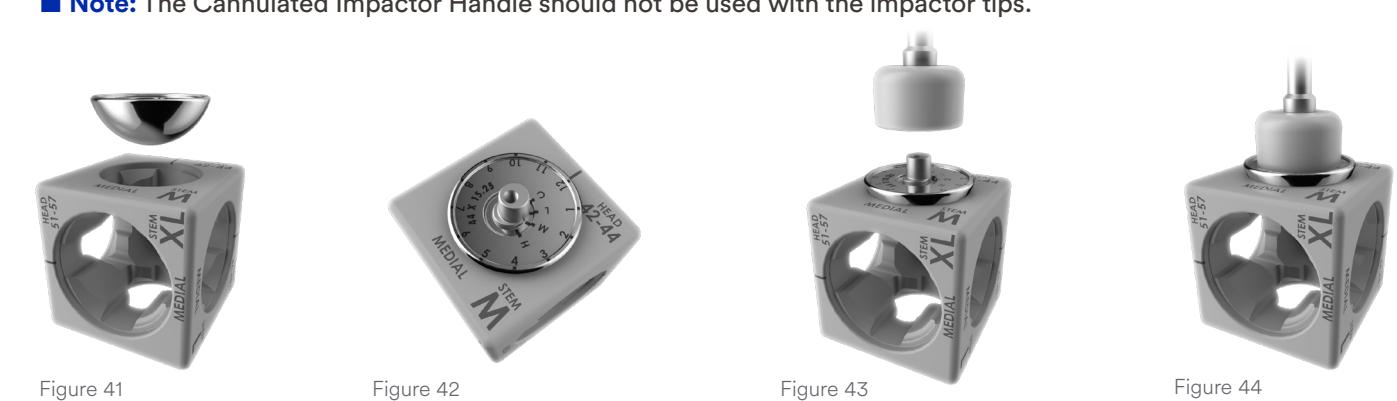


Figure 41

Figure 42

Figure 43

Figure 44

With the Humeral Head and Offset Taper Adapter assembled, place the construct onto the Stemless implant (Figure 45). Using the Concave Impactor Tip and Impactor Handle, impact the Humeral Head and advance the Stemless implant until it sits flush against the resection (Figures 46 and 47).



Figure 45

Figure 46

Figure 47

Back Table Assembly

Alternatively, the Stemless implant and Humeral Head can be assembled on the back table and placed into the humerus as one construct. To assemble the components, first refer to the Humeral Head and Offset Taper Adapter assembly instructions above. With the Humeral Head and Offset Taper Adapter assembled, orient the Impaction Stand so the Stemless implant size identified on the Impaction Stand is facing up. Place the Stemless implant into the Impaction Stand and then place the assembled Humeral Head and Offset Taper Adapter onto the Stemless implant. Using the Concave Impactor Tip, impact the Humeral Head to seat the taper (Figure 48). Next, align the assembly with the humeral preparation and, using the Concave Impactor Tip, advance the Stemless implant until it sits flush against the resection (Figure 49).



Figure 48

Figure 49

Revision Considerations

Should a Stemless implant need to be removed, first disassociate the Humeral Head by assembling the Head Distractor to the Cannulated Impactor Handle and placing the tips of the Head Distractor between the Humeral Head and the Stemless implant. It is important to note that the flat side of the Head Distractor shoulder be placed on the collar of the Stemless implant, leaving the wedged side up to contact the Humeral Head (Figure 50). Once in place, impact to disassociate the Humeral Head from the Stemless implant.

Note: If the Offset Taper Adapter is retained in the Stemless component, thread the Taper and Shell Extractor Tip into the thread of the Offset Taper Adapter until it is freed from the Stemless implant (Figure 51).



Figure 50

Figure 51

To remove the Stemless implant, pass a thin flexible osteotome around the outside of the implant and along the inside of the windows of the implant to free the Stemless implant from any bony adhesion (Figure 52). Next, thread the Cannulated Impactor Handle to attach it to the Stemless implant (Figure 53). While applying gentle torque, backslap the Cannulated Impactor Handle to remove the implant.

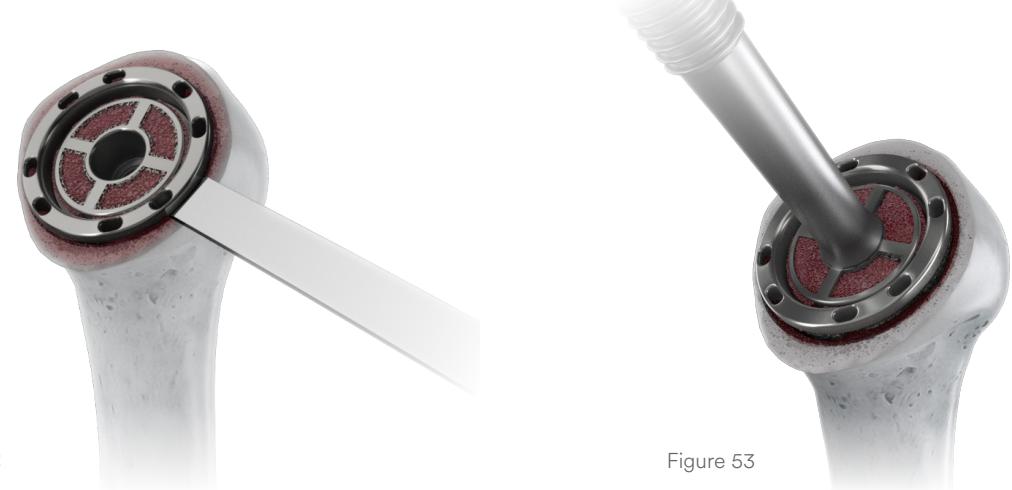


Figure 52

Figure 53

Diaphyseal Stemmed Preparation

If a Stemmed implant is preferred, only one additional step beyond the common preparation outlined above may be required depending on bone quality.

With the Humeral Blazer in place, assemble the Version Indicator to the Humeral Stem Pin Punch. This is done by placing the Version Indicator on the side of the Humeral Stem Pin Punch that matches the patient's operative side and, with slight pressure, clicking it onto the top of the Humeral Stem Pin Punch. The Version Indicator can then be adjusted via side-to-side movement to the version selected when making the head resection as indicated by the marks on the Version Indicator and the laser mark on the Humeral Stem Pin Punch.

Next, orient the Humeral Stem Pin Punch so the medial laser etch is facing medial and insert the two tips of the Humeral Stem Pin Punch into the two lateral holes on the Humeral Blazer (Figure 54). To prepare a path and ensure no conflict between the Stem and cortical bone of the canal, advance the Humeral Stem Pin Punch until the laser line on the pins corresponding with the size of the Humeral Blazer is flush with the top of the Humeral Blazer (Figure 55).

The Version Indicator, Humeral Stem Pin Punch, then the Humeral Blazer can now be removed.



Figure 54

Figure 55

Optional Hard Bone Preparation

If the cancellous bone is very hard, the optional Humeral Stem Pathfinder and Shark Fin Osteotome can be utilized to widen the stemmed preparation following use of the Humeral Stem Pin Punch. To use the Humeral Stem Pathfinder, attach the Version Indicator as described above. Orient the Humeral Stem Pathfinder so that the medial laser etching is facing medial and align the two tips and fins with the lateral preparation previously created by the Humeral Stem Pin Punch and Humeral Blazer (Figure 56). Advance the Humeral Stem Pathfinder until the laser line corresponding with the appropriate size is flush with the top of the resection (Figure 57).

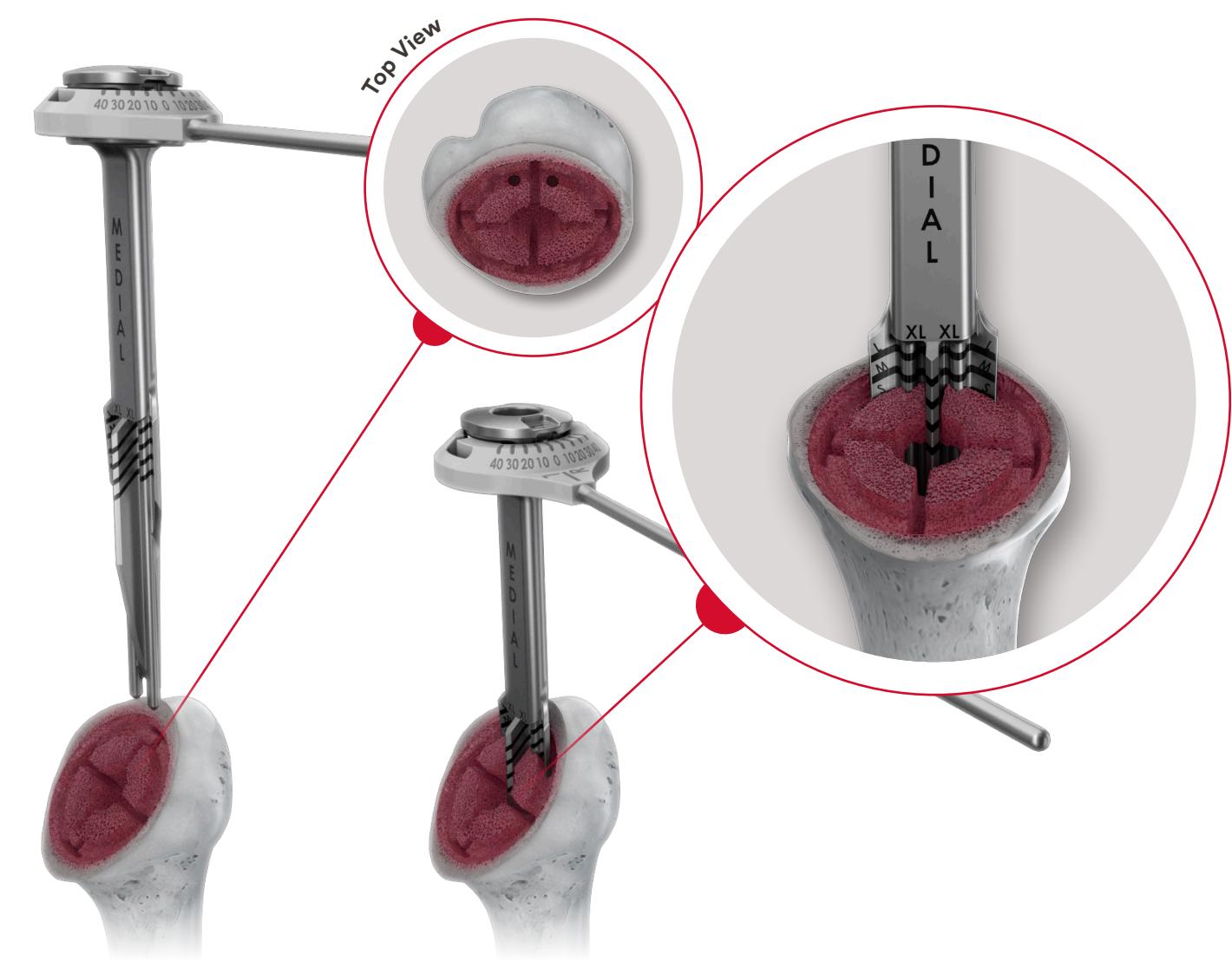


Figure 56

Figure 57



Figure 58

Figure 59

To use the Shark Fin Osteotome, attach the Shark Fin Osteotome to the Cannulated Impactor Handle. Align the fin on the Shark Fin Osteotome with the inferior-medial track prepared by the Humeral Blazer (Figure 58). Orient the Shark Fin Osteotome so that the transition from the fin to the wider portion of the Shark Fin Osteotome sits just inside the prepared central core. Advance the Shark Fin Osteotome until the laser line corresponding with the appropriate size is flush with the top of the resection (Figure 59). The bone scored by the Shark Fin Osteotome may be left in place or may be removed with Rongeurs in the case of very hard bone.

Note: To prevent the potential of humeral fracture, do not advance the Shark Fin Osteotome past the laser line that corresponds with the size prepared for in the previous surgical steps.

Stemmed Implant Assembly & Placement

In-Situ Assembly

To assemble the stemmed humeral implant in-situ, first assemble the Version Indicator to the Stem Inserter. This is done by placing the Version Indicator on the side of the Stem Inserter that matches the patient's operative side and, with slight pressure, clicking it onto the top of the Stem Inserter. The Version Indicator can then be adjusted via side-to-side movement to the version selected when making the head resection as indicated by the marks on the Version Indicator and the laser mark on the Stem Inserter.

Next, align the nub of the Stem Inserter with the hole in the appropriately sized Stemmed implant and thread the Stem Inserter Bolt on the Stem Inserter into the Stem to secure the construct (Figure 60). Attach the Cannulated Impactor Handle to the Stem Inserter Bolt to provide impaction perpendicular to the resection. Align the implant with the preparation and impact the Stem Inserter or the Cannulated Impactor Handle, taking care and fine tuning to ensure the implant is inserted on axis (Figure 61). It is recommended to leave the implant slightly proud to facilitate Humeral Head assembly. When the stem is in place, unthread the Cannulated Impactor Handle, Stem Inserter Bolt and remove the Stem Inserter Handle (Figure 62).



Figure 60

Figure 61

Figure 62

To assemble the Humeral Head and Offset Taper Adapter, orient the Impaction Stand so that the Humeral Head diameter range specified on the Impaction Stand matches the selected Humeral Head diameter and is facing up (Figure 63). Next place the Humeral Head into the Impaction Stand with the flat bottom of the Humeral Head facing up (Figure 64). Orient the Offset Taper Adapter so that the laser line aligns with the previously selected offset C/L/M/H. Thread the Concave Impactor Tip onto Impactor Handle (Figure 65). Place the Concave Impactor Tip onto the Offset Taper Adapter so that the recess securely sits over the taper (Figure 66). Impact to lock the Offset Taper Adapter into position.

Note: The Cannulated Impactor Handle should not be used with the impactor tips.



Figure 63



Figure 64



Figure 65



Figure 66

With the Humeral Head and Offset Taper Adapter assembled, place the construct onto the Stemmed implant (Figure 67). If any offset was utilized, be sure to align the appropriate clockface number with the lateral reference mark on the humerus. Using the Concave Impactor Tip and Impactor Handle, impact the Humeral Head and advance the Stemmed implant until it sits flush against the resection (Figures 68 and 69).



Figure 67



Figure 68



Figure 69

Stemmed Back Table Assembly

Alternatively, the Stemmed implant and Humeral Heads can be assembled on the back table and placed into the humerus as one construct. To assemble the components, first refer to the Humeral Head and Offset Taper Adapter assembly instructions above (Figure 70). With the Humeral Head and Offset Taper Adapter assembled on the Impaction Stand, locate the previously identified Humeral Head Trial clockface number that aligned with the lateral mark on the humerus and orient the lateral laser mark of the Stem with this number (Figure 71). When aligned, apply firm pressure to initially seat the taper in this orientation.



Figure 70



Figure 71

Next, orient the Impaction Stand so the Stemmed implant size identified on the Impaction Stand is facing up. Place the assembled implant into the Impaction Stand and seat the taper using the Concave Impactor Tip (Figures 72 and 73). Next align the assembly with the humeral preparation and using the Concave Impactor Tip, advance the Stemmed implant until it sits flush against the resection (Figure 74).



Figure 72



Figure 73



Figure 74

Glenoid Preparation

Revision Considerations

Should a Stemmed implant need to be removed, first disassociate the Humeral Head by assembling the Head Distractor to the Cannulated Impactor Handle and placing the tips of the Head Distractor between the Humeral Head and the Stemmed implant. It is important to note that the flat side of the Head Distractor shoulder be placed on the collar of the Stemmed implant, leaving the wedged side up to contact the Humeral Head (Figure 75). Once in place, impact to disassociate the Humeral Head from the Stemmed implant.

Note: If the Offset Taper Adapter is retained in the Stemmed component, thread the Taper and Shell Extractor Tip into the thread of the Offset Taper Adapter until it is freed from the Stemmed implant (Figure 76).



Figure 75

Figure 76

To remove the Stemmed implant, pass a thin flexible osteotome around the outside of the implant and along the inside of the windows of the implant to free the Stemmed implant from any bony adhesion (Figure 77). Next, attach the Stem Inserter via the Humeral Stem Inserter Bolt. While applying gentle torque, backslap the Stem Inserter to remove the implant (Figure 78).



Figure 77



Figure 78

Sizing & Pin Placement

The glenoids are offered in five sizes XS = Extra Small, S = Small, M = Medium, L = Large, and XL = Extra Large (Figure 79). The XS/S/M glenoids share the same central peg and peripheral ring geometry. The L/XL glenoids share the same central peg and ring geometry. The glenoid implant size can be confirmed by placing the Sizer onto the glenoid to evaluate the best fit.

Note: The glenoids are offered in five sizes that are compatible with all Humeral Heads.



Figure 79

The Sizer Handle features both straight and angled mating ends. This allows for Sizer attachment in either an on-axis or off-axis orientation, depending upon surgeon preference (Figures 80 and 81).



Figure 80

Figure 81

After any osteophytes are removed, attach the appropriate Sizer to the Sizer Handle and place the Sizer onto the inferior circle of the glenoid and assess the fit. The Sizer should fit just within the inferior circle of the glenoid and should not overhang the face of the glenoid or leave too much of the glenoid face uncovered (Figure 82b). When exposing the glenoid, it is critical to note the presence of the axillary nerve and protect it at all times.



Figure 82a

Figure 82b

Figure 82c

With the appropriate Sizer centered, place the Glenoid Pin (3.5mmX250mm) through the Sizer Handle ensuring the desired version and inclination and then advance the Glenoid Pin until bicortical fixation is achieved (Figure 83).

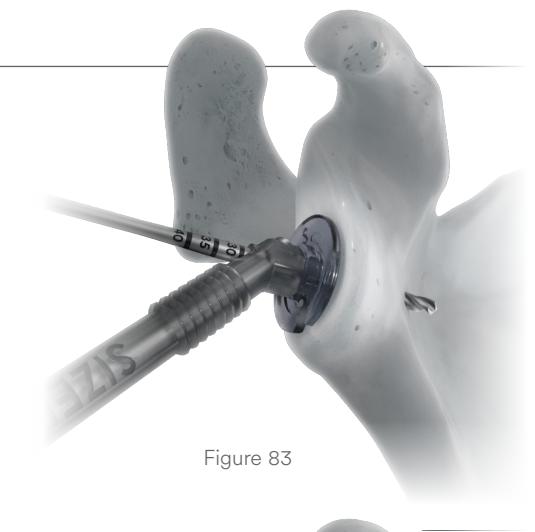


Figure 83

Next, slide the assembly off the Glenoid Pin to prepare for the ONE STEP PREP™ Glenoid reaming. In the case of difficult glenoid access, the Sizer may be disassociated from the Sizer Handle and lifted off the Glenoid Pin via the slot in the Sizer (Figure 84).

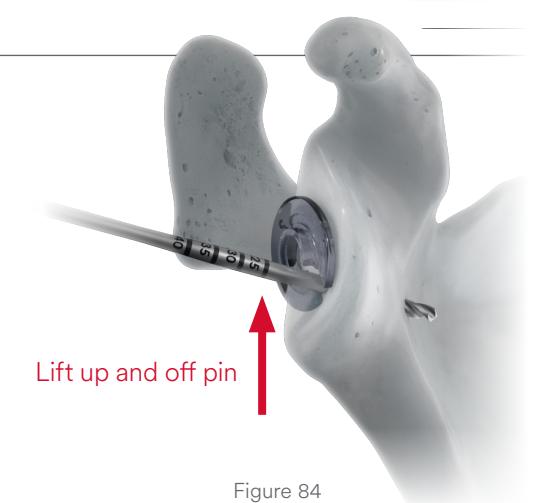


Figure 84

ONE STEP PREP™ Glenoid

The INHANCE Shoulder System features a unique ONE STEP PREP™ Glenoid Reamer that simultaneously prepares the spherical backside, central post hole and peripheral ring. These Glenoid Reamers are offered in full circular or bow tie options based on surgeon preference and exposure considerations (Figures 85 and 86).

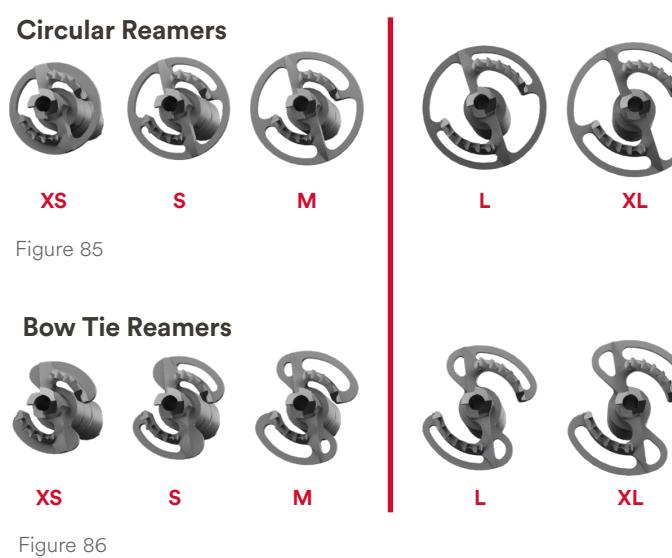


Figure 86

To assemble the appropriately sized Glenoid Reamer to Driver, insert the drive end of the Glenoid Reamer into the Driver and rotate the Glenoid Reamer until the flats on the Glenoid Reamer and Driver align (Figure 87). Once aligned, the Driver retaining feature will snap into the groove on the Glenoid Reamer (Figure 88). **When snapped into place, the laser line on the Glenoid Reamer should not be visible. If the laser line is visible, continue rotating the reamer until the flats of the Reamer and Driver align and the Reamer snaps into place.**

Note: Attaching the Driver to power or the Driver Handle first may simplify Reamer-to-Driver assembly.



Figure 87



Figure 88

The Glenoid Reamers can be used by hand with the Driver Handle or under power. If power is used, ensure the “Ream” setting is selected and actuate the Reamer prior to contacting the glenoid surface (Figure 89). Advance the Reamer until the bony surface is fully prepared, taking care to remove as little bone as possible (Figure 90).

Note: Overly aggressive reaming should be avoided. It is not advisable to ream to cancellous bone.

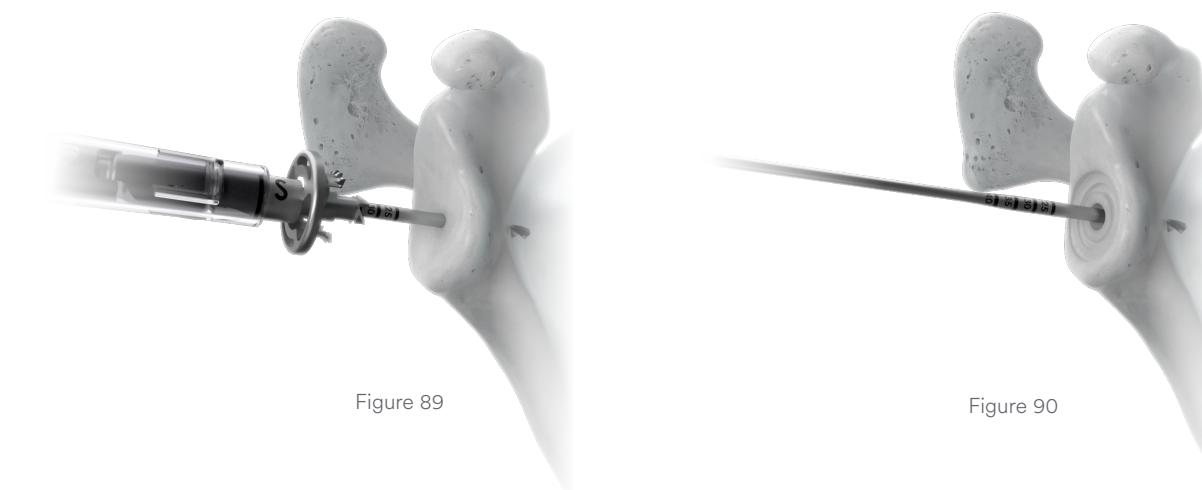


Figure 89

Figure 90

Trialing

After removing the Glenoid Reamer, place the appropriately sized cannulated Glenoid Trial over the Glenoid Pin (3.5mmX250mm) and into the prepared glenoid (Figure 91). Once the Glenoid Trial is in place, remove the Glenoid Pin (Figure 92). If desired, the Convex Impactor Tip can be threaded onto the Impactor Handle and used to fully seat the Trial. Utilizing the windows in the Glenoid Trial, visually ensuring that the Glenoid Trial has acceptable backside support.

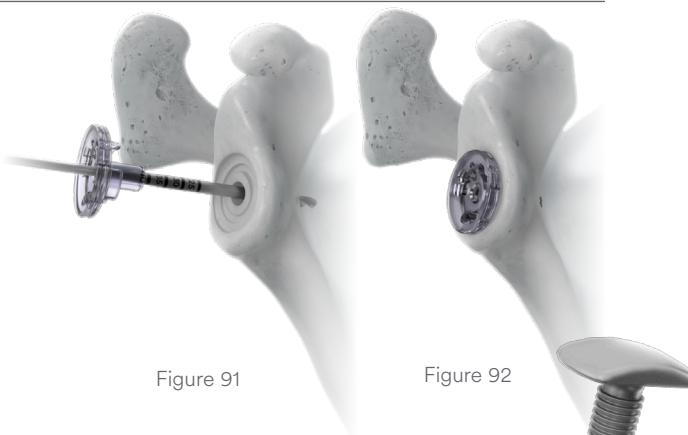


Figure 91

Figure 92

Implant Placement

The Glenoid implant is sterile packed in a thermoformed tray and retainer lid with the Inserter Tip already attached (Figure 93). For Touch-Free introduction of the implant, remove the retainer lid and thread the Impactor Handle into the Glenoid Inserter Tip (Figure 94). The implant can then be securely removed from the tray.



Figure 93

Figure 94

To prepare for the Glenoid implant, carefully clean and dry the glenoid surface, central peg hole and peripheral ring. Using a syringe, place cement around the Anchor Ring of the implant and into the peripheral ring of the prepared glenoid (Figure 95). Ensure no cement is in the central hole or on the backside of the implant that could inhibit proper seating.

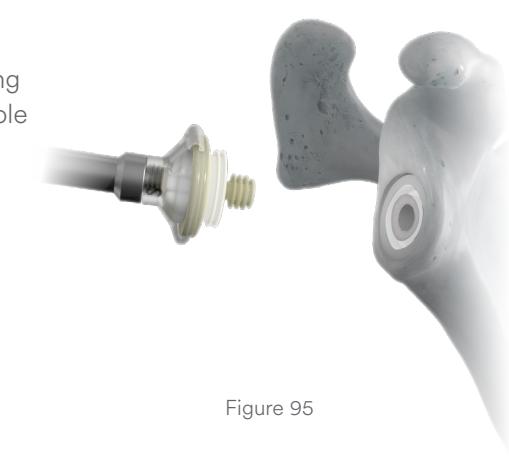


Figure 95

Insert the glenoid implant into place taking care to maintain axial alignment with the glenoid preparation. Maintain pressure on the glenoid face and ensure alignment until the cement has hardened (Figure 96). The Glenoid Inserter Tip can then be slid off the side of the implant and removed (Figure 97).

▲ Warning: Excess cement between the prosthesis and glenoid fossa is undesirable. It may create an uneven mantle for the glenoid prosthesis, and cement may fragment with repetitive loading and become loose in the joint causing damage to implant surfaces. It is essential that the cement manufacturer's instructions for use be followed carefully.

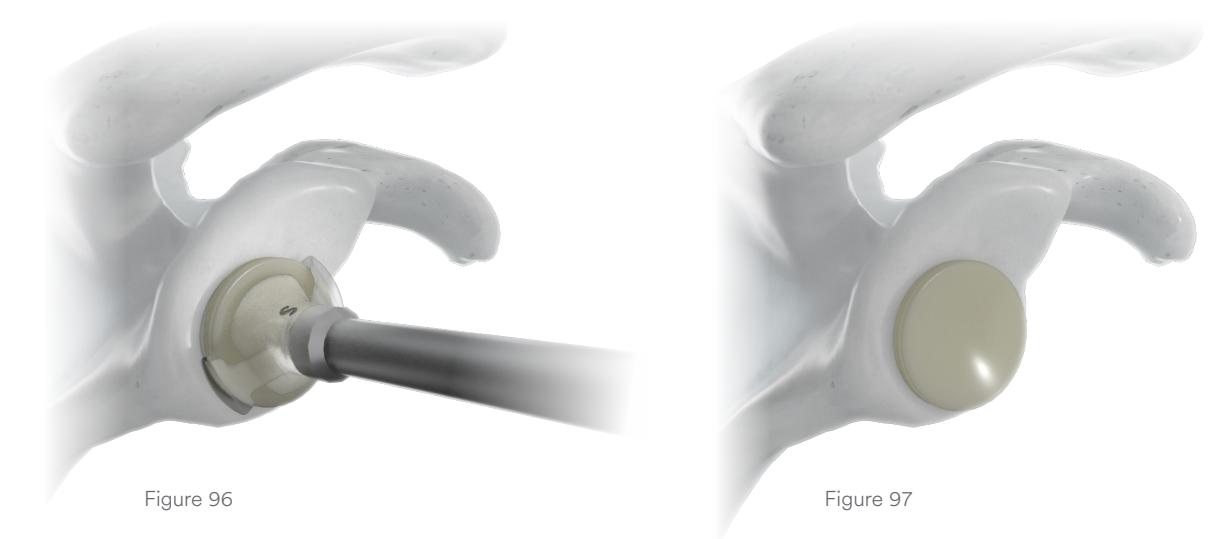


Figure 96

Figure 97

■ Note: Once a specific anchorage size has been prepared (XS/S/M, L/XL) it is not advisable to upsize or downsize the anchorage size.

Notes

References

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1. Churchill RS, Chuinard C, Wiater JM, Friedman R, Jacobson S, Spencer E, Holloway B, Wittstien J, Lassiter T, Smith M, Blain T, Nicholson GP. Clinical and Radiographic Outcomes of the Simplicity Canal-Sparing Shoulder Arthroplasty System. *J Bone Joint Surg Am.* 2016;552-560.

Please refer to the instructions for use for a complete list of indications, contraindications, warnings and precautions.
Please also refer to the package labeling associated with the devices identified in this surgical technique for additional information.
CAUTION: Federal Law restricts this device to sale by or on the order of a physician.
Not all products may currently be available in all markets.



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