



Coralis[®]
Shoulder System



Coralis[®]
Shoulder System

Surgical Technique



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Reverse Shulder System

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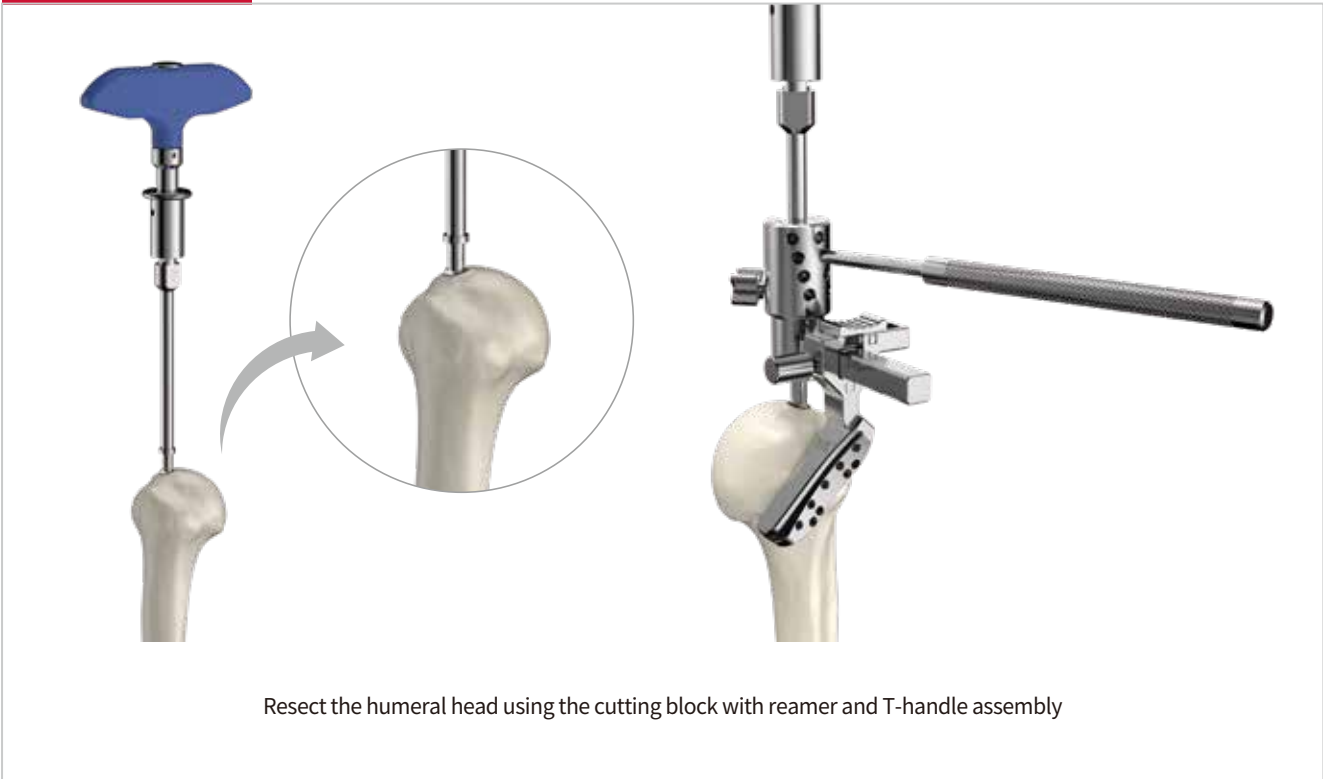
Total Shulder System

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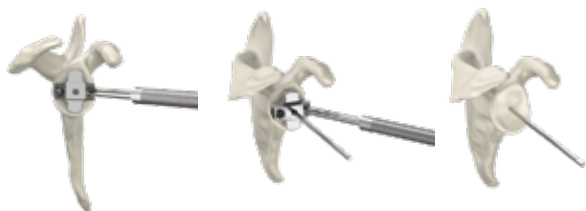
TECHNIQUE OVERVIEW

STANDARD USE



TECHNIQUE OVERVIEW

REVERSE SHOULDER



Guide Size Check, Guide Pin Insertion, Guide Removal



Reaming, Glenoid Reamer removal along Guide Pin



Drilling and Boss Cutter removal along the Guide Pin



Holder removal with insertion after combining the Baseplate and Holder



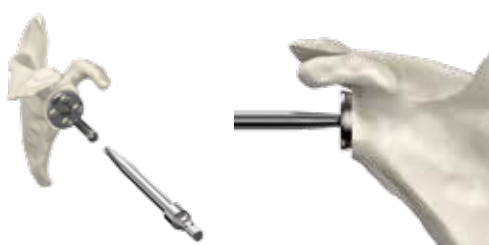
Drilling after inserting the Guide into the Center Hole



1st Depth Check



Check using Depth Gauge



Lock with Screw Driver after inserting the Modular Central Screw

Fixed Angle Drilling



Drill Guide combination, Drilling



Check using Depth Gauge

TECHNIQUE OVERVIEW

Variable Angle Drilling



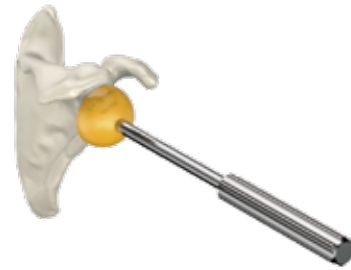
Drill Guide combination, Drilling



Check using Depth Gauge



Peripheral screw Insertion



Positioner removal after combining the Baseplate with Trial and Positioner



Insert the Tray Trial to Broach and Liner Trial to Tray Trial



Impact and combine with implant and positioner



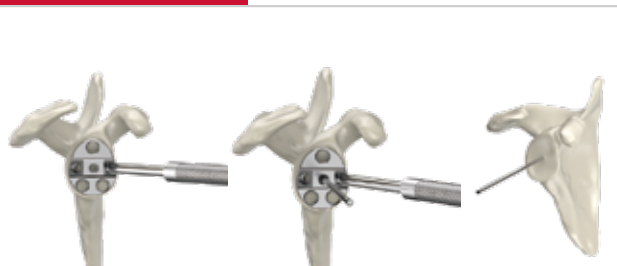
Impacting, Liner Impacting after inserting the combined Stem into the Bone



Humeral Tray Impacting

TECHNIQUE OVERVIEW

TOTAL SHOULDER



Guide removal, Guide Pin insertion, Guide Size check



Reaming, Glenoid Reamer removal along Guide Pin

Peg Type Procedure



Central Drilling, Peripheral Drilling

Keel Type Procedure



Central Drilling, Peripheral Drilling, Keel Broaching

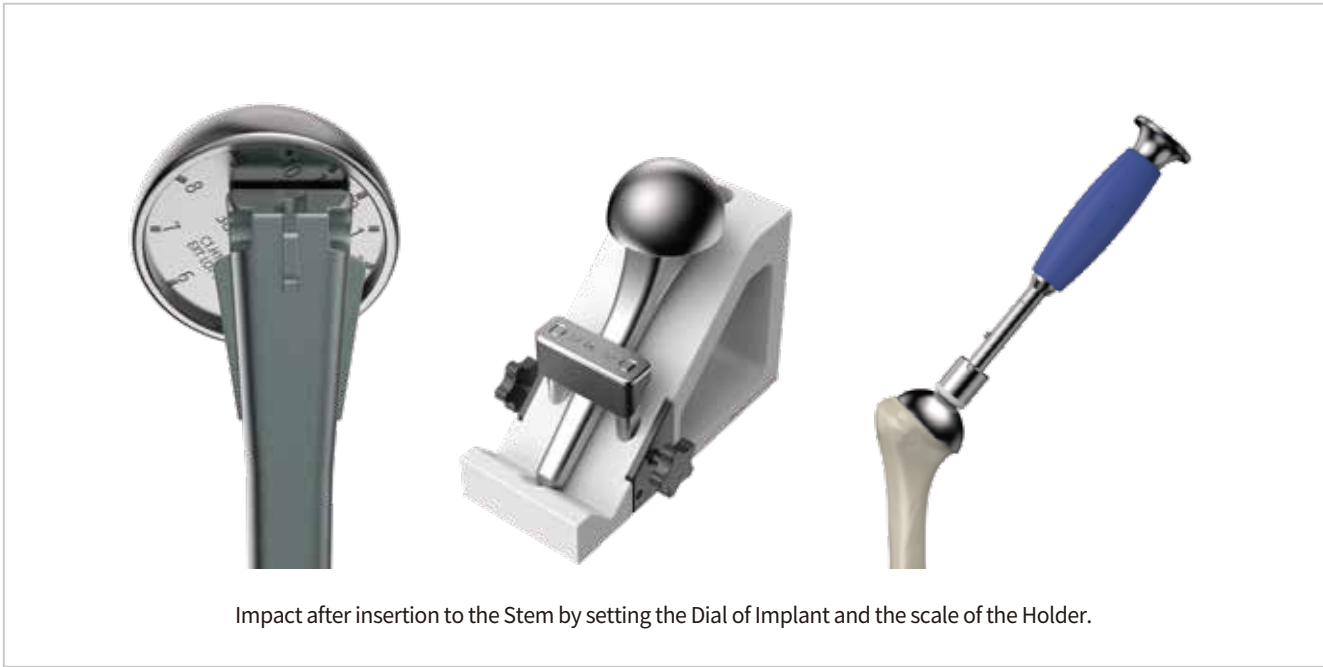
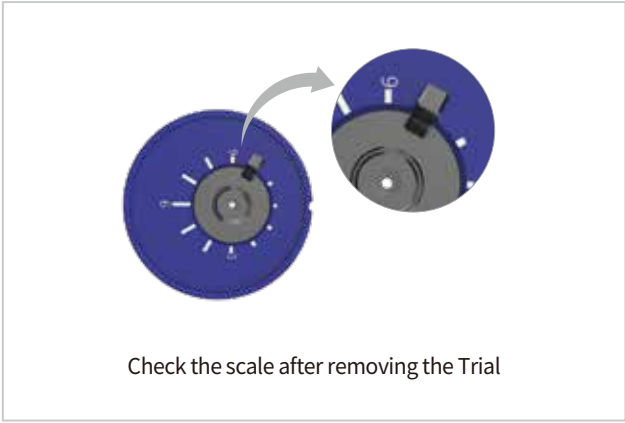


Grasp the Trial with the Glenoid Positioner and insert



Impact after insertion the Implant
by fixing the Implant by Positioner

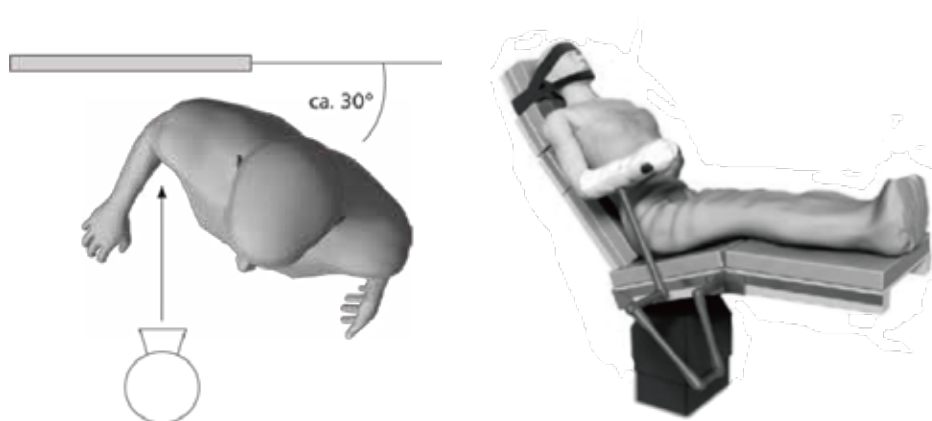
TECHNIQUE OVERVIEW



PLANNING & PATIENT POSITIONING

PRE-OPERATIVE PREPERATION

- Digital and transparent templates of the implants are available in the usual scale of 1.10:1 for preoperative determination of the implant size.
- The patient is placed in the beach chair position and the angle is 30~45° of elevation with respect to the floor.
- The arm and shoulder are prepared as they are moved free. Place the patient in a semi-fowler position.
- Remove the table's standard headrest and replace it with a headrest which allows free access to the shoulder's superior aspect.
- Position the patient so the involved shoulder extends over the top corner and edge of the table. Secure the patient's head with tape. Use a drape to isolate the anesthesia equipment from the sterile field.



REVERSED HUMERAL EXPOSURE

DLETO - PECTORAL APPROACH

- An incision is made from the tip of the coracoid along the delto-pectoral groove, slightly lateral to the axillary fold.
- The pectoralis major is identified. The deltoid and cephalic vein are retracted laterally to open the delto-pectoral groove. The coracoid process is identified. A Hohmann retractor is positioned behind the coracoid. Care should be taken to preserve the origin and insertion of the deltoid.
- The clavi-pectoral fascia is incised at the external border of the coraco-brachialis. The axillary nerve is then identified before opening the subscapularis, if still present. As the arm is externally rotated, the anterior and inferior capsule is released from the humerus to the glenoid.
- With adequate releases, the humeral head is then dislocated into the delto-pectoral interval by abduction of the arm and progressive external rotation and extension.
- In case of severe restriction of external rotation (0° or less), it is recommended to release more of the upper pectoralis insertion.

REVERSED HUMERAL EXPOSURE

SUPERO - LATERAL APPROACH

- The incision is made from the acromioclavicular joint along the anterior border of the acromion and downward approximately 4cm.
- The deltoid is split in line with its fibers. Extra care should be taken to avoid any damage to the axillary nerve, which is located approximately 4cm distal to the acromion.
- The anterior part of the deltoid and the coracoacromial ligament are then carefully detached from their acromial insertion up to the acromioclavicular joint.
- The humeral head will then become visible at the anterior border of the acromion. Next, the subscapulaar is bursa is released and the humeral head dislocated by placing the arm in flexion and external rotation.
- To optimize the exposure, the anterior border and the remaining superior cuff can be resected. In some cases, the remaining subscapularis tendon may be resected.

ANATOMIC HUMERAL EXPOSURE

HUMERAL EXPOSURE - DLETO - PECTORAL APPROACH

- Start an extended deltopectoral anterior incision from the distal clavicle above the coracoid process and end at the superior aspect of the axillary fold. There is the interval between the deltoid and pectoralis major muscles.
- Retract the cephalic vein laterally to preserve the venous drainage of the deltoid muscle while developing the deltopectoral interval. If necessary, pectoralis major insertion can be released around 1cm, and re-attach at the end of surgery.
- Externally rotate the humerus and continuously open between the subscapularis and the subscapularis tendons using a thin retractor.
- Good exposure of the humeral head can be reached through antero-superior dislocation by externally rotating the extended and adducted limb. Make sure that the humerus is displaced cranially during the next step to avoid traction injury of the axillary nerve.
- Frequently, the superior 1-2cm of the pectoralis major is released to provide exposure to the inferior aspect of the subscapularis and the anterior circumflex vessels.

REVERSE SHOULDER

1-1 Humeral Preparation

Step 1 Reaming



Figure 1

- Reaming as the first step of the humeral surgical procedure sets a reference for humeral head cutting and humeral broaching steps to be processed later.
- First, reaming is processed using a starter reamer.
- Among all the reamer sizes, starter reamer corresponds to sizes 5, 6 and 7.
- Connect with T-Handle and create a pilot hole along the axis of the humeral shaft.
- After finishing the creation of pilot hole using starter reamer, process the hole expansion using this guide as reference.
- The expansion depth proceeds to 110mm marked on the reamer.
- Until contacting to Cortical Bone, proceed the Reaming operation as increasing the size by one.

REVERSE SHOULDER

1-1 Humeral Preparation

Step 2 Humeral Neck Cutting

- Humeral neck cutting is done to make space where the humeral head or humeral tray can be placed by cutting the damaged humeral head.
- The angle of humeral neck cutting suggested is 135 degrees.
- Cutting guide method are suggested as 2 ways as IM Cutting Guide and EM Cutting Guide.



Figure 2

Option 1.

IM Cutting Guide

- IM cutting method uses the reference as already inserted reamer.
- Proceed the humeral neck cutting as a way that selects the cutting line by retroversion check through the guide connected to the reamer.
- The angle of retroversion is marked next to the thread hole of the IM Cutting Guide.
- The range of the angle increases by 10 degrees unit from 0 to 40 degrees.
- First, place on the shaft of the reamer with the guide handle connected to the thread hole at the right angle to the patient.
- On the parallel status between the guide handle and the patient's, fix the retroversion with the thread locking connected to guide.
- Fix the guide using the pin after the position selection of the proper cutting slot.
- After fixing the guide, proceed the cutting and remove the other guides with the reamer except for the cutting slot.

REVERSE SHOULDER

1-1 Humeral Preparation

Step 2 Humeral Neck Cutting



Figure 3

Option 2.

EM Cutting Guide

- EM Cutting Guide is a method of processing the Humeral Neck Cutting after selecting the location of the Cutting Guide using the patient's Anatomical Bone.
- First, connect the EM Osteotomy Guide Alignment Rod with the EM Cutting Guide, and then connect the Guide Handle with the Thread Hole.
- The Thread Hole which is connected to the Guide Pin increases by the unit of 10 degrees from 0 to 40 degrees.
- Alignment Rod of the connected Guide is placed parallel to the Humeral Shaft.
- After placing the Guide Handle in parallel with the forearm at the Humeral Head cutting area, cut and fix with Pin.

REVERSE SHOULDER

1-1 Humeral Preparation

Step 2 Broaching



Figure 4

- Broaching step is the expanding process the Humerus Bone in the same way as the Stem shape so that the Humeral Stem can be inserted into the Humerus Bone.
- Connect the Guide Handle with the Thread Hole (increasing by the units of 10 degrees from 0 to 40 degrees) to the Pad of the Broach.
- Connect the Broach and Handle while pressing the button in the middle of Broach Handle.
- Determine the position of the Broach Handle axis and Humeral Shaft Axis, and proceed the Impacting to set the Retroversion while the Guide Handle and Forearm are parallel.
- Broaching starts with a 3 size small Broach among the final Reamer sizes and increases by 1 size to a size equal to the final Reamer size.
- Adjust the size in consideration of the Metaphysis size per each patient.

REVERSE SHOULDER

1-1 Humeral Preparation

Step 3 Calcar Planer



- Calcar planer is the trimming process of the cutting surface of the humeral head centering on humeral broach after the broaching step.
- Trim the periphery. with the broach inserted, insert the post of the calcar planer into the hole located on the upper part of the broach, designate the position of the calcar planer,
- The size of Calcar Planer is 40mm, 48mm, 56mm in diameter, and select the required size.
- Must be used with humeral broach connected.

REVERSE SHOULDER

1-1 Humeral Preparation

Step 4 Protector

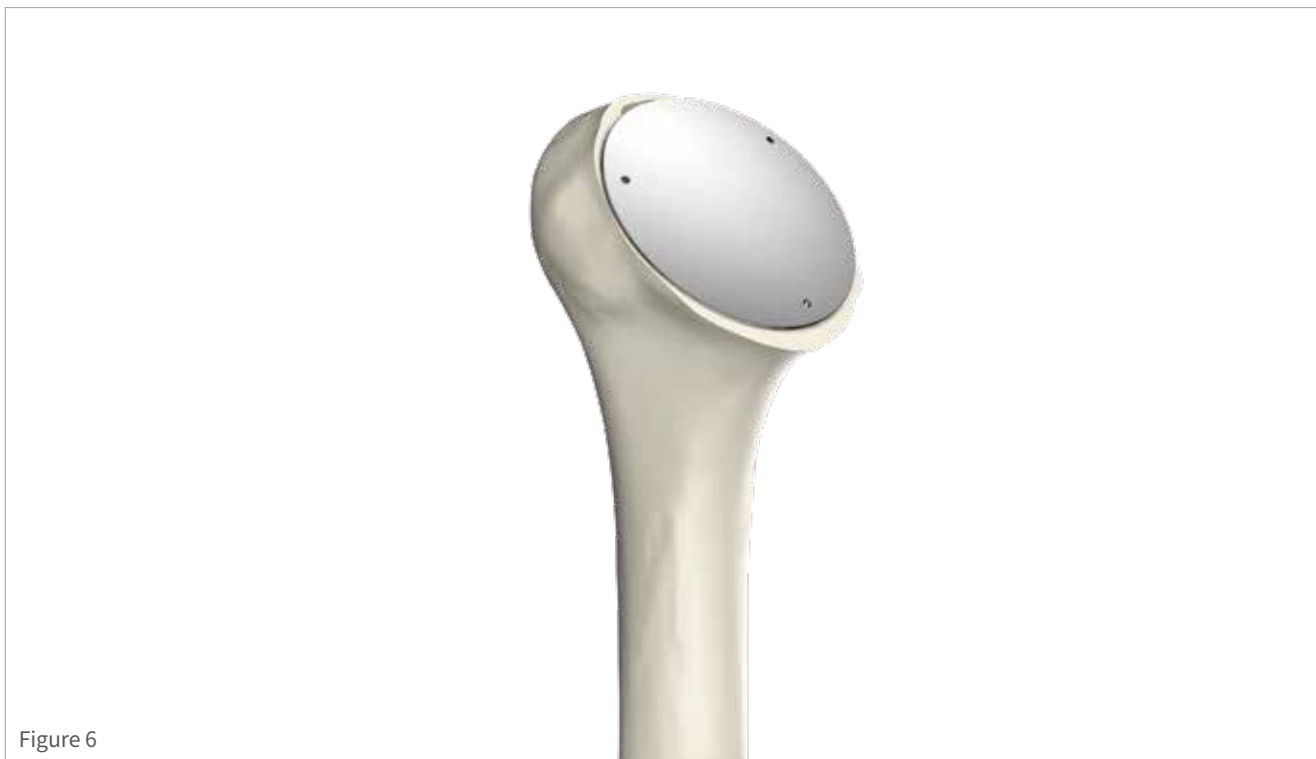


Figure 6

- Protector is the process that prevents the damage to the cutting surface of the humerus bone by the scapular and retractor and the additional insertion of the humeral broach when the Humerus Bone is moved to the back of the Scapular during the Glenoid Part surgery.
- Put the protector surface close to the cutting surface of the humerus bone where the broach is inserted, and insert three spikes into all the bone.
- Protector is divided into pin type and post type.
- After pin type fixed by spike pin, designate the position freely.
- After designating the insertion position by post, fix and insert the spike pine.

REVERSE SHOULDER

1-2 Reverse Glenoid Preparation

Step 1 The creation of Glenoid Reference



- This is the step of the glenoid baseplate size selection and the insertion of the guide pin to be the reference for the surgery step.
- There are two sizes of 26mm and 28mm in diameter, and for each size, there is a guide with a vertical pin insertion angle and a tilting product which 10 degrees in the inferior direction.
- After connecting the glenoid guide handle with the glenoid central guide, hold the guide handle with the handle and select an appropriate implant placement position by matching the contour of glenoid and contour of the central guide.
- Press the guide and temporarily fix it with the spike attached to the back of the guide, insert the headless pin into the hole located in the center, and then remove the guide.

REVERSE SHOULDER

1-2 Reverse Glenoid Preparation

Step 2 Glenoid Reaming



Figure 10

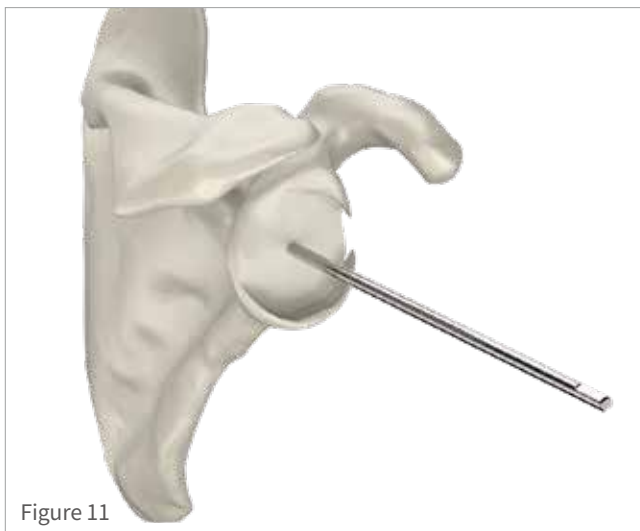


Figure 11



Figure 12



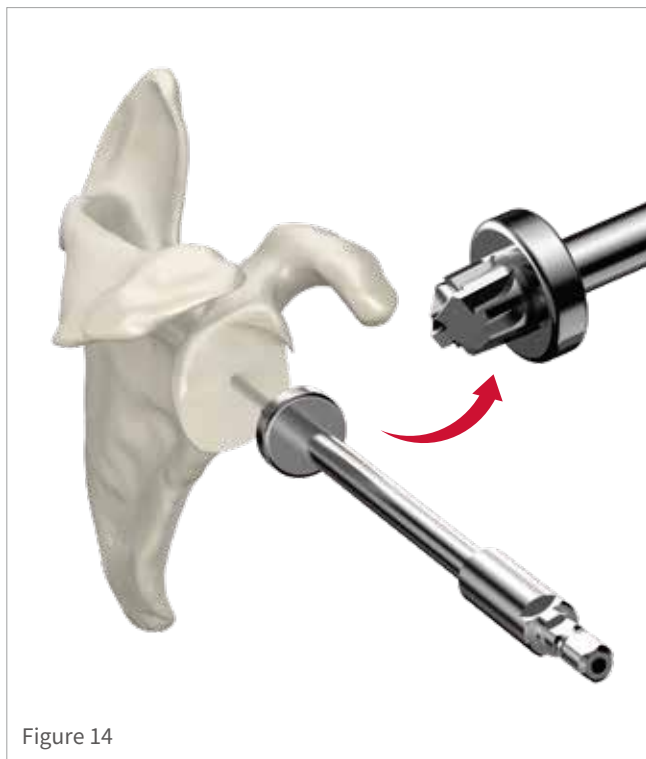
Figure 13

- This is the step of reaming the damaged area of glenoid so that the glenoid baseplate can be placed.
- The reaming process consists of reaming step which is the glenoid with the glenoid reamer according to the selected size in the previous step, and the process of a space creation so that the glenosphere can be well placed by arranging the periphery using the glenoid planer.
- Insert the previously inserted headless pin into the center hole of the reamer, specify the location of the glenoid reamer, and proceed with reaming.
- After connection of the glenoid planer with the t-handle, arrange the periphery by designating the location in the same way such as the glenoid reamer.

REVERSE SHOULDER

1-2 Reverse Glenoid Preparation

Step 3 Baseplate Post Drilling



- This is the step of creating a space where the baseplate is inserted by performing the drilling process on the reamed joint surface.
- Proceed the drilling with the position designation of the instrument after inserting the inserted headless pin to the center area hole of glenoid cannulated boss cutter.
- Drilling depth proceeds until the stopper of the device touches the joint surface.
- After drilling is completed, remove the headless pin.

REVERSE SHOULDER

1-2 Reverse Glenoid Preparation

Step 4 Baseplate Insertion

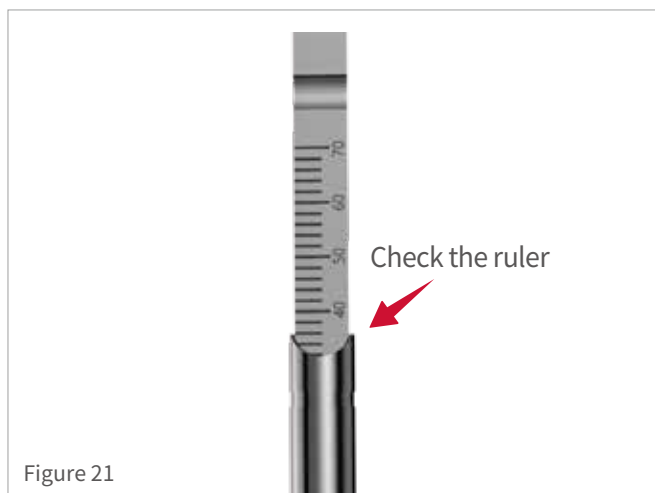
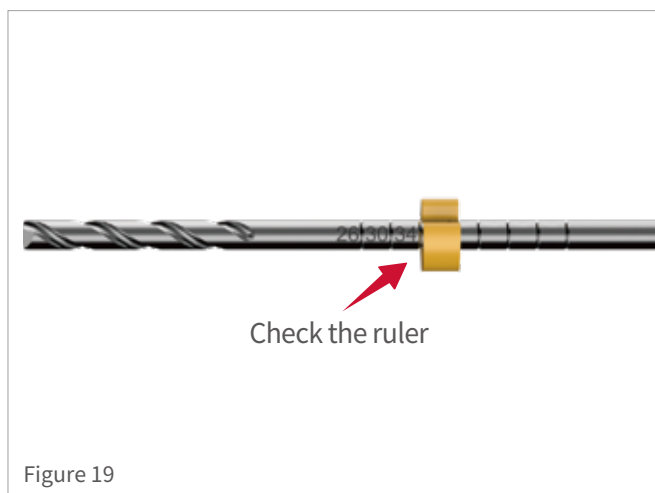


- This is the process of the baseplate insertion combined with the baseplate holder in the space created through the previous process.
- Position the locking thread of the baseplate holder at the insertion position of the peripheral screw of the baseplate.
- After placing post area to the center screw insertion position of baseplate, fix it with the knob which is located the holder upper area.
- Insert the baseplate by impacting it.
- Separate the holder and baseplate by inserting and turning the torx driver into the torx hole in the pad.

REVERSE SHOULDER

1-2 Reverse Glenoid Preparation

Step 5 Center Screw Drilling

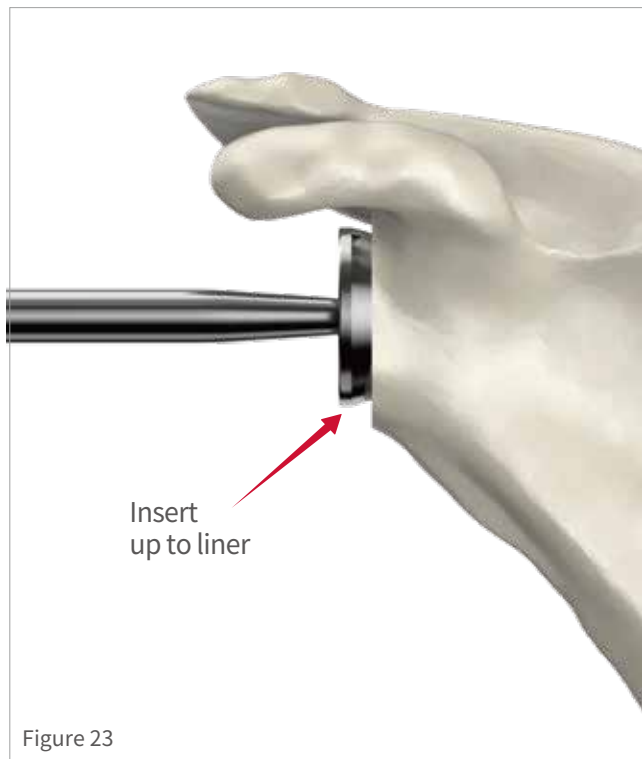


- This is the hole creation process to be inserted in an proper position which is selected an appropriated length of central screw.
- First, through the drilling process, a hole is created so that the screw can be inserted in the right position.
- Select the length of the screw by measuring the depth of the created hole.
- Insert the guide post of the central screw drill guide into the center hole of the inserted baseplate and designate the position of the guide.
- Create the hole with the central drill bit.
- After drilling, check the 1st depth check as well as the number on the left side of the drill indicator as shown in the picture.
- After the 2nd depth check using the depth gauge, select the length of the screw.

REVERSE SHOULDER

1-2 Reverse Glenoid Preparation

Step 6 Insert Central Screw



- This is the inserting process the selected screw into the hole through step 5.
- Place the screw in the center of the baseplate and insert it through the screw driver.
- Care point is to insert the marked scale on the screw driver until it is covered by the baseplate.
- If the center screw is not inserted to the end, the bonding force of the glenosphere is weakened and there is a risk that the glenosphere may be separated.

REVERSE SHOULDER

1-2 Reverse Glenoid Preparation

Step 7 Peripheral Screw Drilling

- This is the process of creating a hole so that the length of the peripheral screw can be selected and inserted smoothly in the correct position.
- There are two options : fixed angle drilling (vertical fixed type) which allows the screw to be inserted vertically and variable angle drilling to drill at various angles according to the characteristics of the implant.
- Both processes go through the same steps as the central screw.



Figure 24



Figure 25



Figure 20

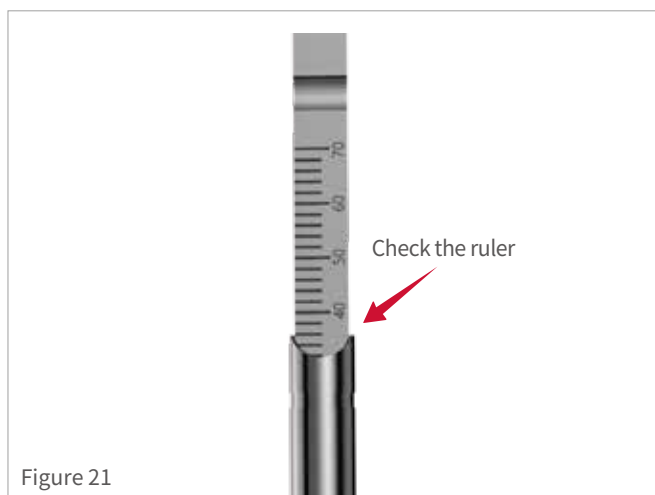


Figure 21

Option 1.

Fixed Angled Drilling

- This is the Drilling process so that the screw can be inserted vertically.
- After inserting the center post of the guide into the baseplate center hole, fit the guide post of the drill guide to the peripheral hole of the baseplate.
- Insert the torx driver into the torx hole of the guide post of lower part locking thread, and lock the thread to fix and proceed with drilling.
- After drilling, check the number on the left side of the drillindicator as shown in the picture and perform the 1st depth check.
- After the 2nd depth check using the depth gauge, select the length of the screw.

REVERSE SHOULDER

1-2 Reverse Glenoid Preparation

Step 7 Peripheral Screw Drilling

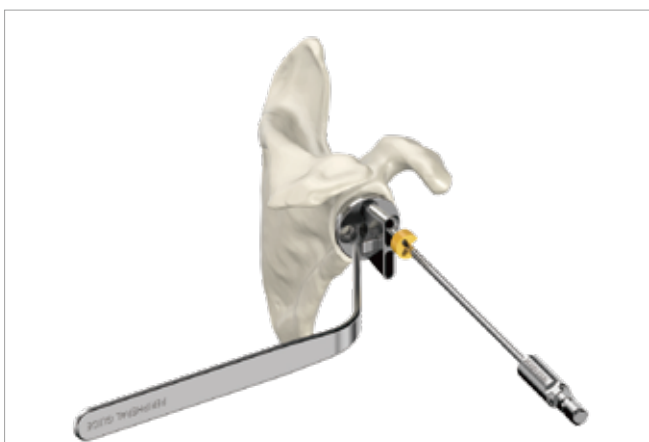


Figure 26



Figure 27



Figure 20

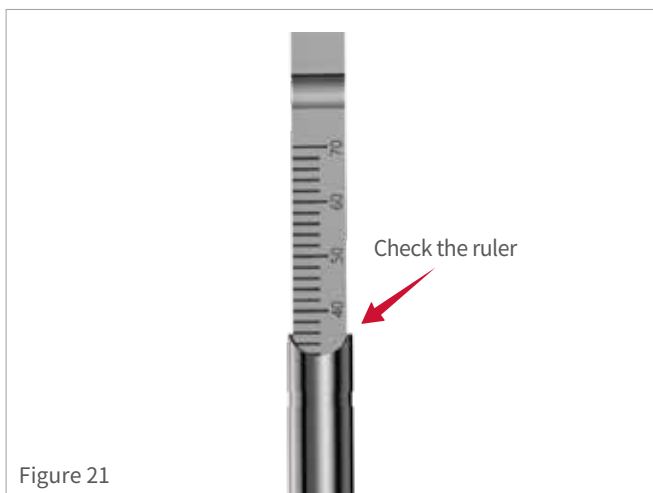


Figure 21

Option 2.

Variable Angle Drilling

- This is the process of creating a space by drilling so that the screw can be inserted at a wanted angle.
- There are two guides : single type and double type. In the case of the single type, drill by designating the desired angle by placing the guide in the peripheral hole.
- In the case of double type, the range of drilling angle is specified, and as shown in the figure, it can move freely within an angle of 5 degrees to the central axis direction and 15 degrees to the outer direction.
- After drilling, check the number on the left side of the drill indicator as shown in the picture and perform the 1st depth check.
- After the 2nd depth check using the depth gauge, select the length of the screw.

REVERSE SHOULDER

1-2 Reverse Glenoid Preparation

Step 8 Insert Peripheral Screw

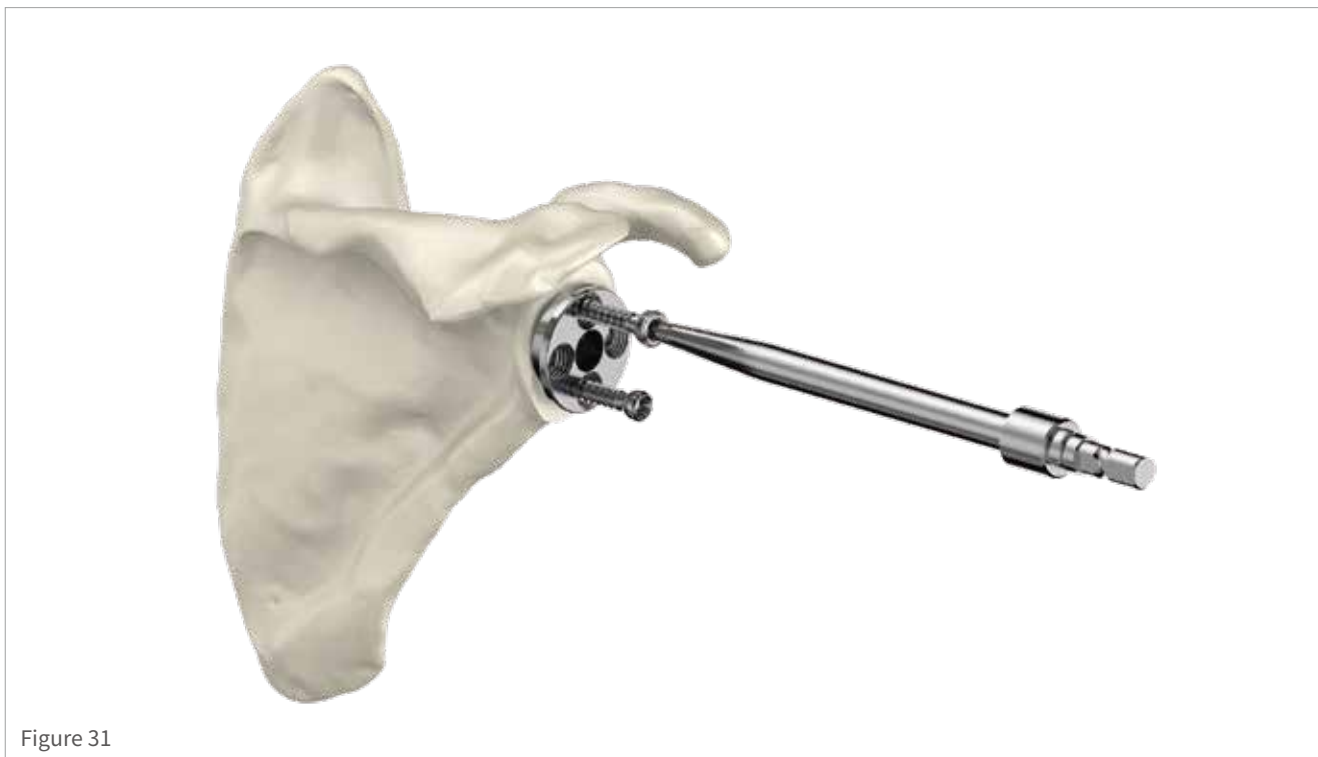


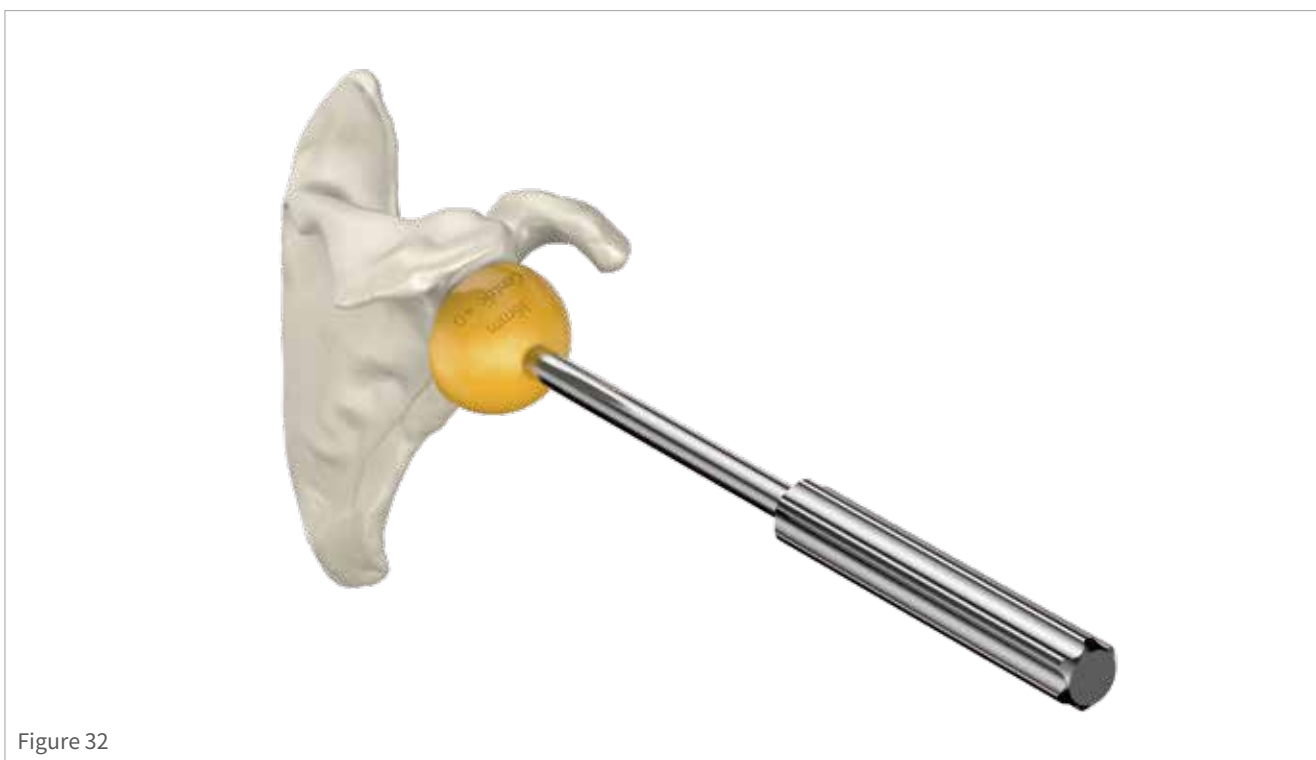
Figure 31

- This is the process of the screw insertion into the hole formed in the peripheral area of the baseplate.
- There are two types of screws : locking and non-locking.
- The locking screw is used to insert the screw into the vertical hole, and the non-locking screw can be used with both the vertical hole and tilted hole.
- Upon inserting the locking screw to the end, since the screw head can come out of the baseplate up to 0.8mm, be careful not to damage the screw head due to the excessive insertion.

REVERSE SHOULDER

1-3 Reverse Trial Reduction

Step 1 → Glenosphere Trial

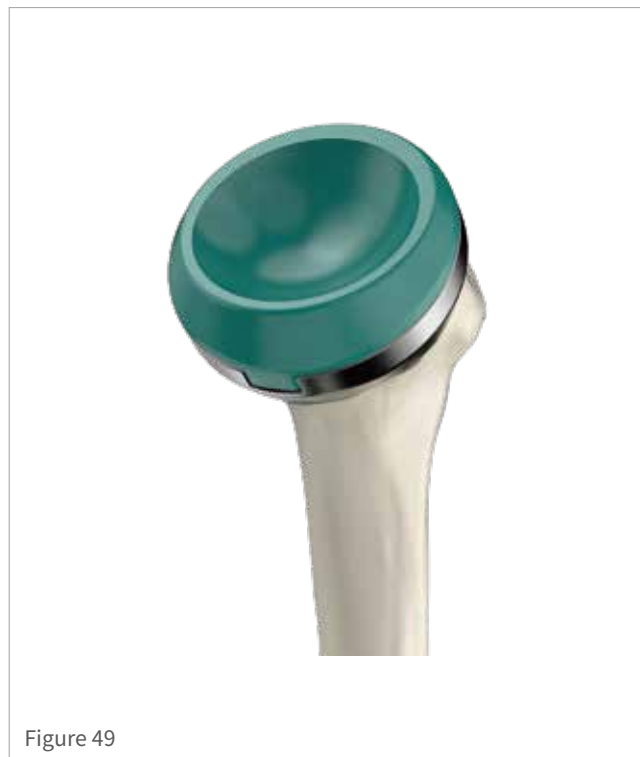
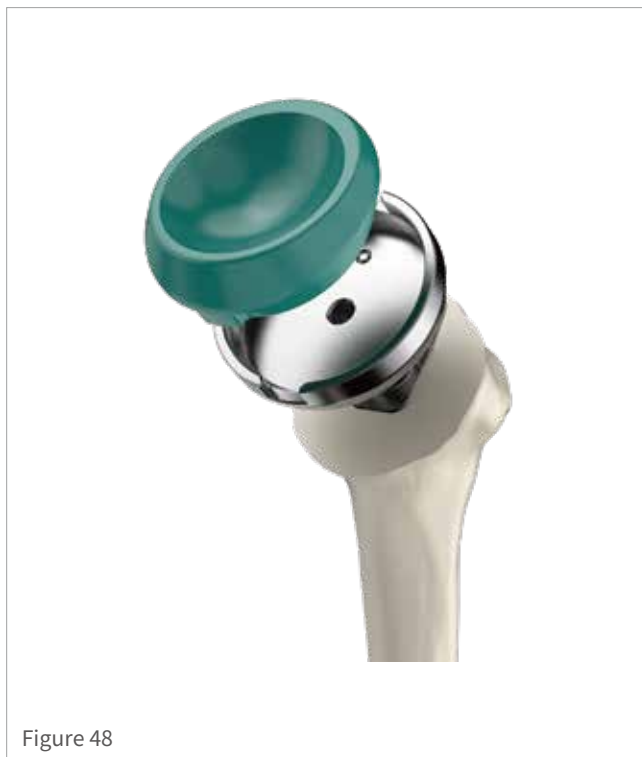


- This is the process of selecting an appropriate implant spec by checking the glenosphere size and checking the rom of hueral trial and shoulder joint.
- Glenosphere trials have 36mm and 42mm options which are the same specifications as the implant. There are also centric and 4mm eccentric options, as well as standard and lateralized options.
- Connect the glenosphere positioner to the upper thread of the glenosphere.
- Hold the handle of the glenosphere positioner, push the lower post of the trial into the center of the baseplate, and remove the positioner by making it close.

REVERSE SHOULDER

1-3 Reverse Trial Reduction

Step 2 Humeral Trial



- This is the selection process of an appropriate implant spec and rom check of shoulder joint with glenosphere trial combination with humeral tray trial and humeral liner trial.
- Both humeral tray trial and humeral liner trial have the same specifications as implant.
- Humeral tray trial is centric, medial offset 2 types, liner trial is size $\Phi 36\text{mm}$, $\Phi 42\text{mm}$, and has options of 0, 3, 6, 9 height respectively.
- After removing the protector inserted in the humerus bone, combine the humeral broach and tray. At this time, it should prevent rotation by putting the small post of tray trial into the upper slot of the broach.
- When the combination of tray trial is complete, go to the process of combining the liner trial with tray trial.
- At this time, the upper part of the liner trial should be inserted to the inferior direction.

REVERSE SHOULDER

1-4 Reverse Component Implantation

Step 1 Glenosphere Implantation



- Combine the glenosphere and the glenosphere positioner which were selected during trialing and insert the glenosphere into the center hole of the baseplate. Impact and then remove the positioner.
- In the state that the impactor handle and impactor tip are combined, fix the glenosphere with impacting.
- Check the locking connection by pulling the Implant.

REVERSE SHOULDER

1-4 Reverse Component Implantation

Step 2 Humeral Implantation



Figure 52



Figure 53



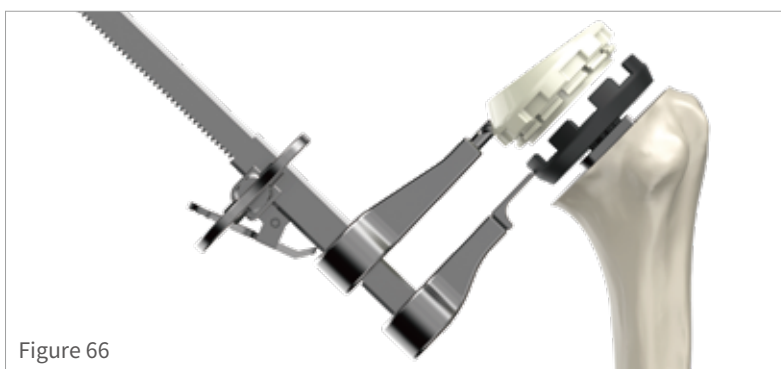
Figure 54

- This is the inserting process of humeral stem, humeral tray, and humeral liner into the humerus bone.
- Select the same humeral tray and humeral liner as the broach size selected in the previous broaching process and tray trial and liner trial size selected in the trial process.
- After putting the humeral stem on the assembly tower, combine the humeral tray with the stem.
- After catching the combined implant as a monoblock impactor that can display retroversion by combining the guide handle, insert it according to the specified retroversion.
- Then, combine humeral liner with tray.

REVERSE SHOULDER

1-5 Humeral Implant Removal · Revision

Step 1 Humeral Liner Removal · Revision

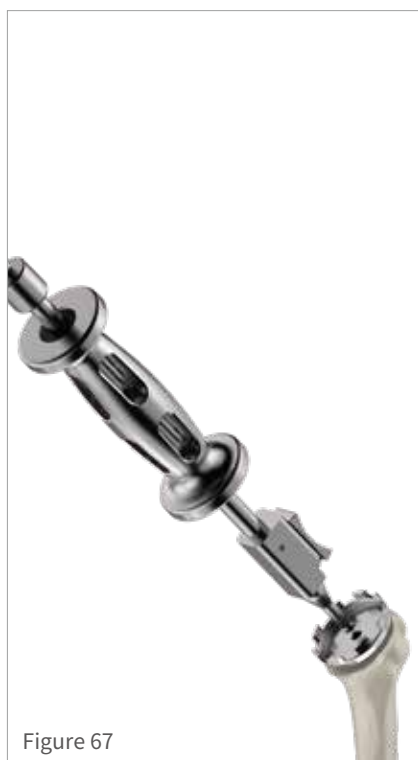


- This process is for the change or size change due to the damage of the inserted humeral liner during the implantation process.
- After placing the rear chisel part of the removal drill guide in the space between the combined humeral liner and humeral tray, use the removal drill guide as a guide to insert the drill pin from the removal tool into the humeral liner. After that, the part where the chisel of the removal tool is connected is pushed into the space between the humeral liner and the tray, and the drill pin is connected to the hole of the driving part, and move the knob with opening the space between drill pin and chisel to come out the liner from humeral tray.
- Through the above method, the humeral liner is separated and select the appropriate liner size to insert the humeral liner as suggested method at the previous implantation step.

REVERSE SHOULDER

1-5 Humeral Implant Removal · Revision

Step 2 ▶ Humeral Tray & Stem Removal · Revision

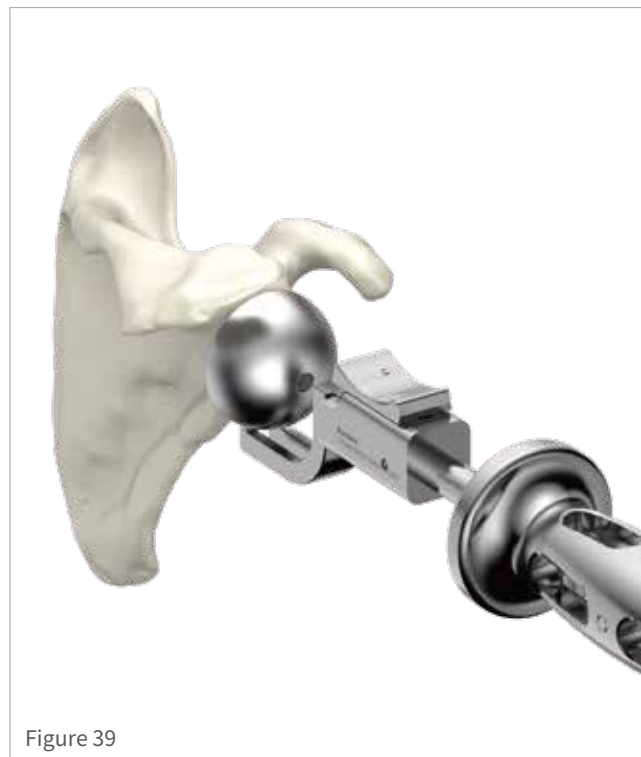
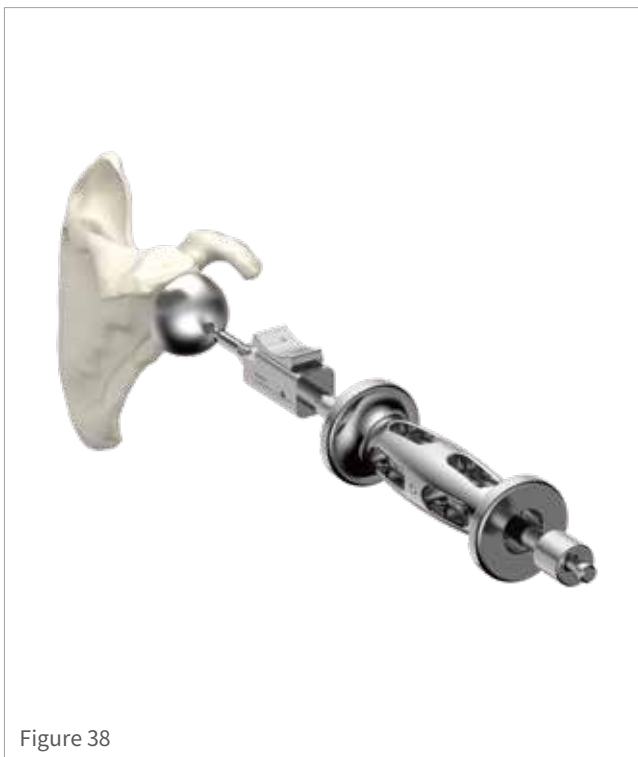


- This process is for the change or size change due to the damage of the humeral tray or stem inserted during the implantation process.
- Assemble the threaded head remover to the slap hammer. Screw the threaded head remover into the humeral tray and proceed to remove the humeral tray from the humeral stem.
- After connecting the broach handle to the humeral stem, remove the humeral stem.
- When the humeral tray and stem are removed through the above method, the appropriate size of the humeral stem and humeral tray can be inserted in the method suggested in the implantation step.

REVERSE SHOULDER

1-6 Glenoid Implant Removal · Revision

Step 1 Glenosphere Removal



- This process is for the change or size change due to the damage of the glenosphere inserted during the implantation process.
- There are two types of head removers : threaded and hook type.
- Assemble the slap hammer and preferred type of head remover. For the threaded type, use the hole at the top of the glenosphere. For the hook type, use the hook in the space between the glenosphere and the glenoid.
- When the glenosphere is removed through the above method, select an appropriate size of glenosphere and insert it in the suggested method in the implantation step.

REVERSE SHOULDER

1-6 Glenoid Implant Removal · Revision

Step 2 Baseplate Removal · Revision



- This process is for the change the size or change due to the damage of the baseplate, central screw, peripheral screw inserted in the 'insert baseplate' process, 'insert central screw' and 'insert peripheral screw' process.
- The method is to remove the peripheral screw originally inserted in the baseplate through the screw driver while the glenosphere is removed. Then, remove the central screw using the screw driver. Combine the baseplate holder to the baseplate to remove.
- When the baseplate and screws are removed through the above process, insert the required implant size by the order of 'insert baseplate', 'insert central screw' and 'insert peripheral screw' step.

TOTAL SHOULDER

2-1 Total Glenoid Preparation

Step 1 Create Glenoid Reference



- This is the inserting step of the guide pin to be reference which will be for the next surgical step for the glenoid component size and type.
- There are 4448, 5256, and 6064 specs, and there is a hole for the selection of the peg type in the guide, so it can be checked whether the peg type can be used.
- After combining the glenoid guide handle with the glenoid sizer, hold the guide handle with the handle and select the appropriate implant placement position by matching the contour of the sizer and the contour of glenoid.
- Press the guide and fix temporarily it with the spike attached to the back of the guide and insert the headless pin into the center hole, and then remove the guide.
- At this time, check the location where the peg hole is created in glenoid, and select one of the peg type and keel type.

TOTAL SHOULDER

2-1 Total Glenoid Preparation

Step 2 Glenoid Reaming

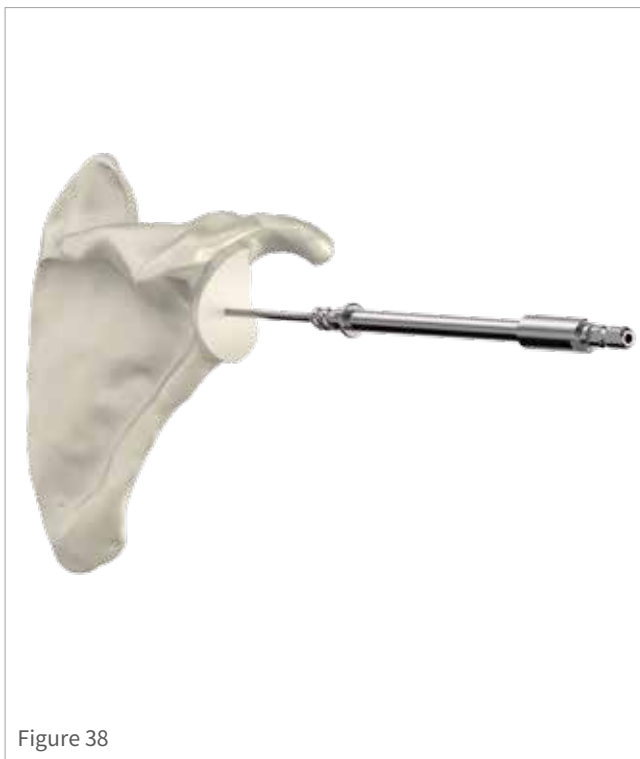


- This is the step of reaming the damaged part of glenoid so that the glenoid component can be placed.
- It has the same spec as size so that glenoid can be reamed with glenoid cannulated reamer according to the size selected in the previous step.
- Insert the inserted headless pin into the central hole of the reamer to designate the location of the glenoid cannulated reamer and proceed with reaming.

TOTAL SHOULDER

2-1 Total Glenoid Preparation

Step 3 Central Drilling



- This is the step of creating a hole that makes a space where glenoid components can be inserted by performing the drilling process on the reaming joint surface and designating the position of the surgical step to be performed.
- The instrument spec is peg type, keel type and should be used the drill to fit the type selected at previous step 1.
- The drill size was designed to be 0.4 mm to the one side larger than existing implant post size considering the cement thickness.
- Proceed to step 1 and insert the inserted headless pin into the central hole of glenoid cannulated central drill to designate and drill the location of the instrument.
- Drilling depth proceeds until stopper in the device reaches the joint surface.
- When drilling is finished, remove the headless pin.

TOTAL SHOULDER

2-1 Total Glenoid Preparation

Step 4 Peripheral Drilling

- This is process of Drill Guide selection to fit the Glenoid Component Size and Type designated and makes the space to insert the Implant.
- These processes have two same options of Peg Type and Keel Type as before.



Option 1.

Peg Type

- This is the drilling process of the holes in the peripheral area so that the glenoid component of peg type can be inserted.
- The drill guide has 4448, 5256, 6064 sizes identical to the implant size, and the drill is one size.
- The drill size was designed to be 0.4 mm to the one side larger than existing implant post size considering the cement thickness.
- Insert the post located in the center of the drill guide into the center hole created in advance at the previous step, and then align the contour of the guide and the glenoid contour to take the direction.
- Press the guide and insert the spike located on the back of the guide into the bone to fix the guide and proceed with drilling.
- On drilling, first drill a hole and insert an anti rotation peg to fix the guide so that it does not rotate, and then drill the remaining holes.

TOTAL SHOULDER

2-1 Total Glenoid Preparation

Step 4 Peripheral Drilling



Option 2.

Keel Type

- This is the drilling process the holes of the peripheral area so that the glenoid component of keel type can be inserted.
- The drill guide has 4448, 5256, 6064 the same size as the implant size, and the drill is one size.
- The drill size was designed to be 0.4 mm to the one side larger than existing implant post size considering the cement thickness.
- Insert the post located in the center of the drill guide into the center hole created in advance at the previous step, and then align the contour of the guide and the glenoid contour to take the direction.
- Press the guide and insert the spike located on the back of the guide into the bone to fix the guide and proceed with drilling.
- On drilling, firstly, drill a hole and insert an anti rotation peg to prevent the guide from rotation, and then drill the remaining holes.

TOTAL SHOULDER

2-1 Total Glenoid Preparation

Step 5 Keel Broaching (Keel Type)

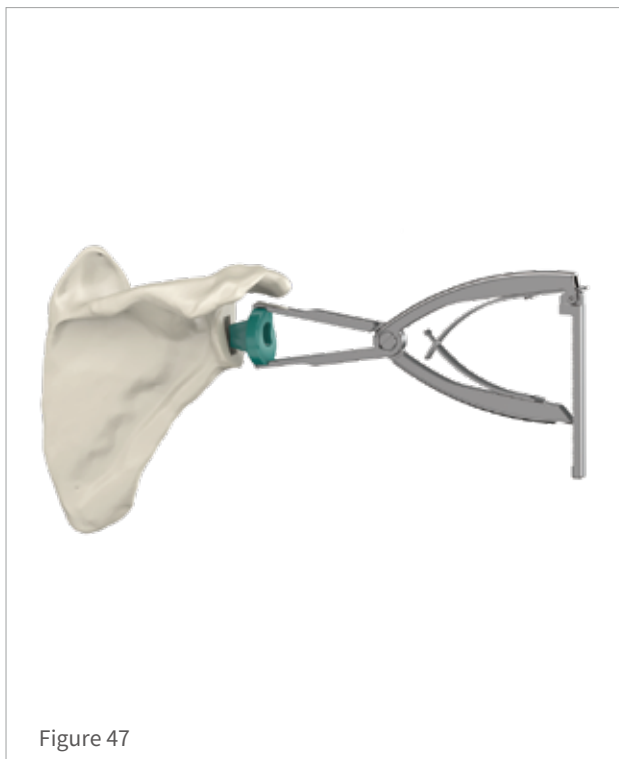


- This is a creation of a keel-shaped post shape by holding the hole created by using a keel type drill and a guide.
- The instruments have the same specifications as the implant specifications.
- The broach size is designed to be 0.4mm larger than the post size of the existing implant considering the cement thickness.
- Insert the keel broach into the formed bone, designate the position, and insert it by impacting.

TOTAL SHOULDER

2-2 Total Trial Reduction

Step 1 Glenoid Component Trial

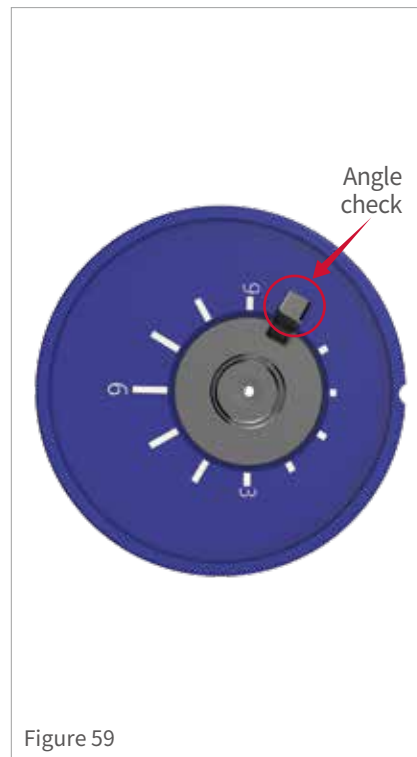


- This is the selection process an appropriate implant spec by checking the size of the glenoid component and the rom of the shoulder joint with the humeral head trial.
- Glenoid component trial has the same specifications as the implant.
The size range is 44-64mm with 2mm increments. There are two types, peg and keel.
- Remove the positioner by inserting the trial in accordance with the hole shape formed through the previous step after holding the ilium located at the outer or center of the glenoid component trial with the glenoid positioner.

TOTAL SHOULDER

2-2 Total Trial Reduction

Step 2 Humeral Trial



- This is the process of checking the rom of the shoulder joint with the glenoid component trial, selecting an appropriate implant spec as well as the implant insertion location.
- Humeral head trials have $\Phi 38, 42, 46, 50, 54, 58\text{mm}$, and the height option of 15 (except for 54 and 58), 18 and 21mm respectively.
- It is composed of centric and eccentric type and eccentric, in case of eccentric, it can be used together with adaptor.
- For centric type, after removing the protector inserted in the humerus bone, hold the humeral head trial of an appropriate size with the holder and push it to the binding area of the humeral broach to connect.
- For the eccentric type, combine the adaptor and broach. Place the appropriate size humeral head trial on the adaptor. Align the contour of the head trial with the contour of the cutting surface of the humerus and lock it with a bolt with the driver.
- Check glenoid component and rom, and if appropriate size is selected, remove it from broach that trial and adaptor are combined state.
Check the scale of the matching range with the number on the back of the Trial and the indicator on the Adaptor.

TOTAL SHOULDER

2-3 Total Component Implantation

Step 1 Glenoid Component Implantation



- This is the inserting process of the implant selected through the previous trial process into the bone.
- Before inserting the implant, inject the bone cement into the hole formed in accordance with the shape of the implant.
- Hold the implant with the glenoid positioner and push it into the hole shape.
- After that, combine the impactor tip with the impactor and impact the glenoid component and push it to the end.
- Apply the force to the implant until the bone cement hardens and the implant is fixed.

TOTAL SHOULDER

2-3 Total Component Implantation

Step 2 Humeral Component Implantation



Figure 69



Figure 62



Figure 63

- This is the inserting process of the humeral stem and humeral head into the humerus bone.
- Select the broach size selected in the previous broaching and the head trial size and type selected in the trial.
- When the eccentric type is selected, connect the humeral head to the stem after the lateral fin is placed on the targeted scale marked on the bottom side of humeral head. The targeted scale must be same as that of a trial.
- After the product above is placed and secured on top of Assembly Tower, humeral head is impacted on humeral stem
- Combined humeral stem and humeral head are inserted into humerus through impacting.

Components

Humerus Common use	Part No.	Description	Model
Reaming	CA.HR1.0001	Stopper	
	CA.HR1.0005	Humeral Reamer 5	
	CA.HR2.0006	Humeral Reamer 6	
	CA.HR2.0007	Humeral Reamer 7	
	CA.HR2.0008	Humeral Reamer 8	
	CA.HR2.0009	Humeral Reamer 9	
	CA.HR2.0010	Humeral Reamer 10	
	CA.HR2.0011	Humeral Reamer 11	
	CA.HR2.0012	Humeral Reamer 12	
	CA.HR2.0013	Humeral Reamer 13	
	CA.HR2.0014	Humeral Reamer 14	
	CA.HR2.0015	Humeral Reamer 15	
	CA.HR2.0016	Humeral Reamer 16	
	CA.HR2.0017	Humeral Reamer 17	
	CA.HR2.0018	Humeral Reamer 18	
Head Cutting	CA.HA9.0001	Stylus	
	CA.HC1.0001	Head Cutting Guide IM Type	
	CA.HC1.0001	Head Cutting Guide EM Type Right	
	CA.HC1.0003	Head Cutting Guide EM Type Left	
	CA.HC1.0003	Head Cutting Guide EM Type Left	
Broaching	CA.HB1.0006	Humeral Broach 6	
	CA.HB1.0007	Humeral Broach 7	
	CA.HB1.0008	Humeral Broach 8	
	CA.HB1.0009	Humeral Broach 9	
	CA.HB1.0010	Humeral Broach 10	
	CA.HB1.0011	Humeral Broach 11	
	CA.HB1.0012	Humeral Broach 12	
	CA.HB1.0013	Humeral Broach 13	
	CA.HB1.0014	Humeral Broach 14	
	CA.HB1.0015	Humeral Broach 15	
	CA.HB1.0016	Humeral Broach 16	
	CA.HB1.0017	Humeral Broach 17	
	CA.HB1.0018	Humeral Broach 18	
	CA.HB1.0019	Humeral Broach 19	
	CA.HB1.0020	Humeral Broach 20	
	CA.HH1.0003	Broach Handle	

Components

Humerus Common use	Part No.	Description	Model
Calar Planer	CA.HA1.0040	Calcar Planer 40	
	CA.HA1.0048	Calcar Planer 48	
	CA.HA1.0056	Calcar Planer 56	
Protector	CA.HA2.0134	Humeral Proctector Pin Type 34	
	CA.HA2.0138	Humeral Proctector Pin Type 38	
	CA.HA2.0142	Humeral Proctector Pin Type 42	
	CA.HA2.0146	Humeral Proctector Pin Type 46	
	CA.HA2.0234	Humeral Proctector Post Type 34	
	CA.HA2.0238	Humeral Proctector Post Type 38	
	CA.HA2.0242	Humeral Proctector Post Type 42	
	CA.HA2.0246	Humeral Proctector Post Type 46	
	CA.HA6.0001	Impactor Handle	
Implantation & Removal	CA.HA6.0002	Total Head Tip	
	CA.HA6.0002	Assembly Tower	
	CA.HA7.0001	Humeral Head Extractor	

Reverse	Part No.	Description	Model
Guide Reference	CB.GA1.0026	Central Guide 26 Std	
	CB.GA1.1026	Central Guide 10 26	
	CB.GA1.0028	Central Guide 28 Std	
	CB.GA1.1028	Central Guide 10 28	
Glenoid Reaming · Post Drilling · Baseplate Insertion	CB.GR1.0026	Glenoid Reamer 26	
	CB.GR1.0028	Glenoid Reamer 28	
	CB.GR1.0030	Glenoid Reamer 30	
	CB.HR1.0136	Glenoid Planer 36	
	CB.HR1.0142	Glenoid Planer 42	
	CB.GR2.0026	Cannulaterd Boss Cutter	
	CB.GA2.0002	Baseplate Holder	

Components

Reverse	Part No.	Description	Model
Central Peripheral Drilling	CB.GA3.0001	Depth Gauge	
	CB.GB1.0129	Peripheral Drill Bit	
	CB.GB1.0139	Central Drill Bit	
	CB.GD1.0001	Screw Driver	
	CB.GG1.0001	Fixed Angle Drill Guide	
	CB.GG3.0001	Variable Angle Drill Guide	
	CA.HC1.0001	Central Drill Guide	
Trial	CB.HT1.4100	Humeral Tray Trial Centric	
	CB.HT1.4103	Medial Offset Tray Trial	
	CB.HT4.3600	Humeral Liner Trial 36 STD	
	CB.HT4.3603	Humeral Liner Trial 36 +3	
	CB.HT4.3606	Humeral Liner Trial 36 +6	
	CB.HT4.3609	Humeral Liner Trial 36 +9	
	CB.HT4.4200	Humeral Liner Trial 42 STD	
	CB.HT4.4203	Humeral Liner Trial 42 +3	
	CB.HT4.4206	Humeral Liner Trial 42 +6	
	CB.HT4.4206	Humeral Liner Trial 42 +9	
	CB.GT2.3600	Glenosphere Trial 36 Centric +0	
	CB.GT2.3604	Glenosphere Trial 36 Centric +4	
	CB.GT2.3640	Glenosphere Trial 36 Ecc +0	
	CB.GT2.3644	Glenosphere Trial 36 Ecc +4	
	CB.GT2.4200	Glenosphere Trial 42 Centric +0	
	CB.GT2.4204	Glenosphere Trial 42 Centric +4	
	CB.GT2.4240	Glenosphere Trial 42 Ecc +0	
	CB.GT2.4244	Glenosphere Trial 42 Ecc +4	
	CB.HT3.0002	Spacer Trial	
	CA.HH1.0001	Broach Handle	

Components

Reverse	Part No.	Description	Model
Implantation & Removal	CB.GT1.0001	Glenosphere Positioner	
	CB.HA2.0001	Monoblock Impactor Fixed Type	
	CB.GA4.0001	Head Remover Hook Type	
	CB.GA4.0002	Head Remover Thread Type	
	CA.SA3.0001	Slap Hammer	
	CB.HA6.0001	Removal Tool	

Total	Part No.	Description	Model
Guide Reference	CA.GA2.4448	Glenoid Sizer 44, 48	
	CA.GA2.5256	Glenoid Sizer 52, 56	
	CA.GA2.6064	Glenoid Sizer 60, 64	
Glenoid Reaming	CA.GR1.4448	Glenoid Cannulated Reamer 44, 48	
	CA.GR1.5256	Glenoid Cannulated Reamer 52, 56	
	CA.GR1.6064	Glenoid Cannulated Reamer 60, 64	
Central Drilling	CA.GA4.4073	Cannulated Central Peg Drill	
	CA.GA4.4053	Cannulated Central Keel Drill	
Peripheral Drilling	CA.GP1.4448	Peg Drill Guide 44, 48	
	CA.GP1.5256	Peg Drill Guide 52, 56	
	CA.GP1.6064	Peg Drill Guide 60, 64	
	CA.GK1.4448	Keel Drill Guide 44, 48	
	CA.GK1.5256	Keel Drill Guide 52, 56	
	CA.GK1.6064	Keel Drill Guide 60, 64	
	CA.GP2.0001	Peg Drill	
	CA.GK2.0001	Keel Drill	
	CB.GG1.0001	Anti-rotation Peg	
	CA.PK1.0002	Anti-rotation Peg Holder	



Components

Total	Part No.	Description	Model
Keel Broaching	CA.GK3.4448	Central Drill Guide	
	CA.GK3.5256	Humeral Tray Trial Centric	
	CA.GK3.6064	Medial Offset Tray Trial	
Trial	CA.GP4.0144	Pegged Glenoid Trial 44	
	CA.GP4.0148	Pegged Glenoid Trial 48	
	CA.GP4.0152	Pegged Glenoid Trial 52	
	CA.GP4.0156	Pegged Glenoid Trial 56	
	CA.GP4.0160	Pegged Glenoid Trial 60	
	CA.GP4.0164	Pegged Glenoid Trial 64	
	CA.GK4.0144	Keeled Glenoid Trial 44	
	CA.GK4.0148	Keeled Glenoid Trial 48	
	CA.GK4.0152	Keeled Glenoid Trial 52	
	CA.GK4.0156	Keeled Glenoid Trial 56	
	CA.GK4.0160	Keeled Glenoid Trial 60	
	CA.GK4.0164	Keeled Glenoid Trial 64	
	CA.GA8.0001	Glenoid Component Positioner	
	CA.HA3.0001	Humeral Head Sizer	
	CA.HA4.0001	CA.HA4.0001	
	CA.HT1.3815	Humeral Head Trial Std 3815	
	CA.HT1.3818	Humeral Head Trial Std 3818	
	CA.HT1.3821	Humeral Head Trial Std 3821	
	CA.HT1.4215	Humeral Head Trial Std 4215	
	CA.HT1.4218	Humeral Head Trial Std 4218	
	CA.HT1.4221	Humeral Head Trial Std 4221	
	CA.HT1.4615	Humeral Head Trial Std 4615	
	CA.HT1.4618	Humeral Head Trial Std 4618	
	CA.HT1.4621	Humeral Head Trial Std 4621	
	CA.HT1.5015	Humeral Head Trial Std 5015	
	CA.HT1.5018	Humeral Head Trial Std 5018	
	CA.HT1.5021	Humeral Head Trial Std 5021	
	CA.HT1.5418	Humeral Head Trial Std 5418	
	CA.HT1.5421	Humeral Head Trial Std 5421	
	CA.HT1.5818	Humeral Head Trial Std 5818	
	CA.HT1.5821	Humeral Head Trial Std 5821	

Components

Total	Part No.	Description	Model
Trial	CA.HT2.3815	Humeral Head Trial Ecc 3815	
	CA.HT2.3818	Humeral Head Trial Ecc 3818	
	CA.HT2.3821	Humeral Head Trial Ecc 3821	
	CA.HT2.4215	Humeral Head Trial Ecc 4215	
	CA.HT2.4218	Humeral Head Trial Ecc 4218	
	CA.HT2.4221	Humeral Head Trial Ecc 4221	
	CA.HT2.4615	Humeral Head Trial Ecc 4615	
	CA.HT2.4618	Humeral Head Trial Ecc 4618	
	CA.HT2.4621	Humeral Head Trial Ecc 4621	
	CA.HT2.5015	Humeral Head Trial Ecc 5015	
	CA.HT2.5018	Humeral Head Trial Ecc 5018	
	CA.HT2.5021	Humeral Head Trial Ecc 5021	
	CA.HT2.5418	Humeral Head Trial Ecc 5418	
	CA.HT2.5421	Humeral Head Trial Ecc 5421	
	CA.HT2.5818	Humeral Head Trial Ecc 5818	
	CA.HT2.5821	Humeral Head Trial Ecc 5821	
	CA.HA5.0002	Humeral Head Trial Holder	
Implantation	CA.HA8.0002	Humeral Head Holder	
	CA.GP3.4448	Pegged Cement Pressurizer 44, 48	
	CA.GP3.5256	Pegged Cement Pressurizer 52, 56	
	CA.GP3.6064	Pegged Cement Pressurizer 60, 64	
	CA.GK4.4448	Keeled Cement Pressurizer 44, 48	
	CA.GK4.5256	Keeled Cement Pressurizer 52, 56	
	CA.GK4.6064	Keeled Cement Pressurizer 60, 64	
	CA.HR1.0001	T-Handle	
Shared	CA.SA1.0028	Headless Pin 2.8	
	CA.SA1.0128	Headless Pin 2.8_Long Type	
	CA.SA1.0228	Headless Pin_Long Type 145mm	
	CA.SA5.0001	Pin Driver	
	CA.SA2.0028	Pin Puller	
	CA.GA1.0001	Glenoid Guide Handle	
	G117974	4-Sided Ratchet Handle	

Reverse Shoulder System

Glenoid Baseplate · Central Screw · Peripheral Screw



Diameter
ø26mm, ø28mm



Length
18mm, 22mm, 26mm,
30mm, 34mm, 38mm, 42mm



Length
14mm, 16mm, 18mm, 20mm, 22mm,
24mm, 26mm, 30mm, 32mm, 34mm,
36mm, 38mm, 42mm

Glenosphere

Head diameter
ø36mm, ø42mm

Lateralized
offset



0



+4



Eccentric
offset



0



+4

Humeral Liner

Inner diameter
ø36mm, ø42mm

Height



0



+3



+6



+9

Humeral Tray · Humeral Spacer Assembly

Humeral Tray size
ø40mm

Spacer height
+8mm



Centric type
Medial offset type (3mm)



Humeral Spacer
Assembly

Humeral Stem

Size
6mm ~ 14mm (1mm increment)
* Optional Size : 15mm ~ 18mm



Materials

- Glenoid Baseplate : Ti6Al4V · TPS Coating
- Glenosphere : Cobalt Chrome Alloy
- Humeral Liner : XLPE
- Humeral Tray : Ti6Al4V
- Humeral Stem : Ti6Al4V · Grit Blasting
- Screws : Ti6Al4V

Total Shoulder System

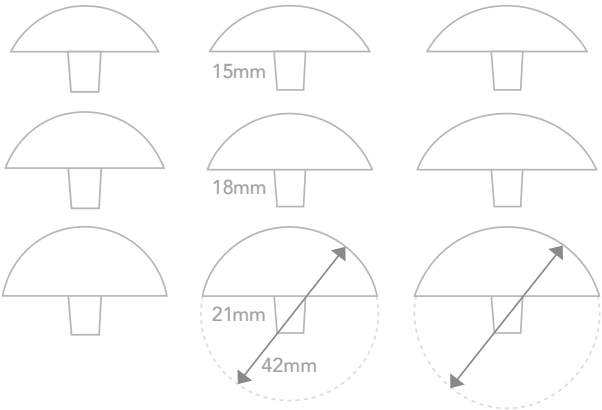
Humeral Stem	Glenoid Component		Humeral Head			
6 ~ 14mm	Pegged	Keeled	38	42	46	50
	44		●	●		
	48		●	●	●	
	52			●	●	●
	56				●	●
	60					●

* Optional Size : 64

* Optional Size : 54, 58

Humeral Head Size Option

Offset 0 · Offset 4				
Size \ Height	38	42	46	50
15	●	●	●	●
18	●	●	●	●
21	●	●	●	●



Materials

- Humeral Head : Cobalt Chrome Alloy
- Glenoid Component : UHMWPE
- Humeral Stem : Ti6Al4V · Grit Blasting