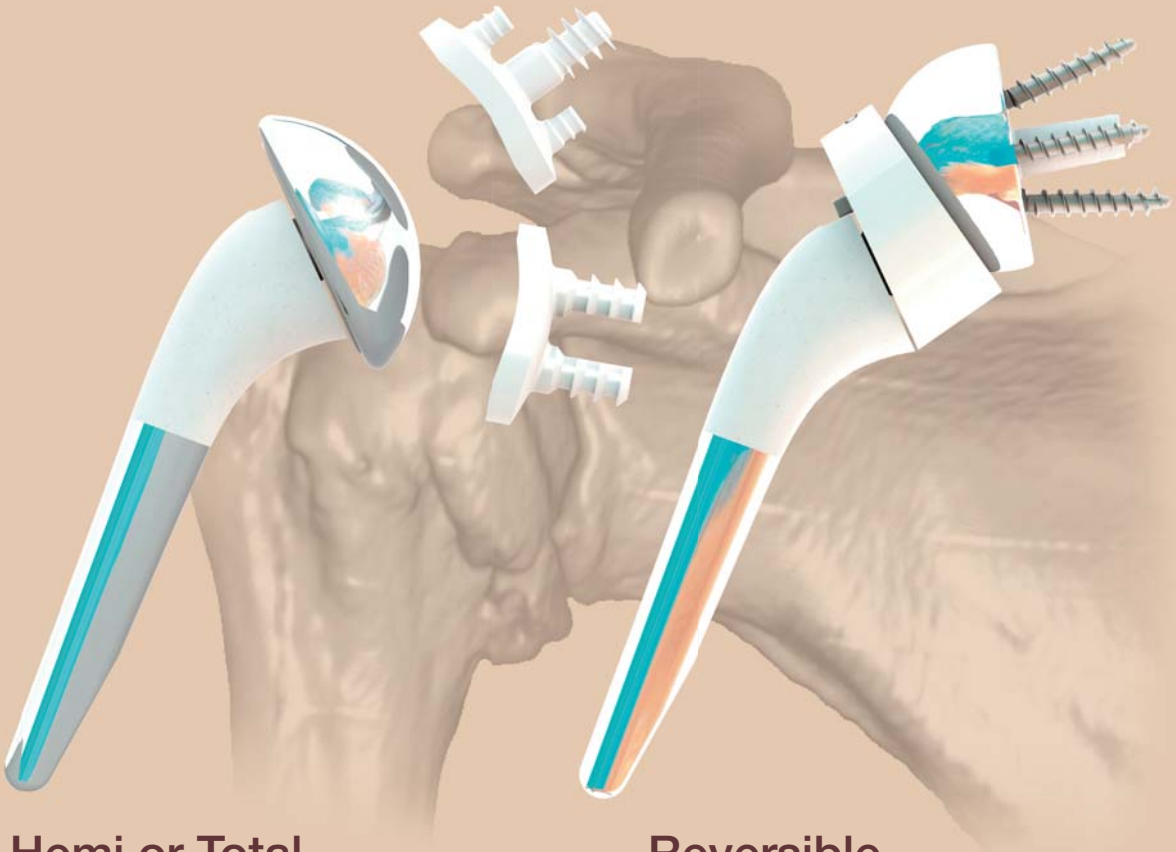
HUMERIS™

Cementless
ANATOMICAL and REVERSIBLE



Hemi or Total

Reversible

SURGICAL TECHNIQUE

FX SOLUTIONS

CONTENTS

PROPERTIES

HUMERIS is a new-generation modular implant designed for the efficacious treatment of numerous shoulder degenerative pathologies.
HUMERIS is a solution which takes account of the latest scientific developments in the treatment of shoulder degenerative pathologies.

DEVICE DESCRIPTION

The Humeris Shoulder is a system of shoulder components that can be used in either an anatomic or a reverse configuration.

The Humeris Cementless Humeral Stem is manufactured from Ti-6Al-4V alloy conforming to ISO 5832-3 and is available in diameters of 8-16mm and a length of 100mm. The distal end of the humeral stem is trapezoidal with a polished surface. The proximal portion of the humeral stem has a plasma sprayed commercially pure Titanium (CP Ti) and hydroxyapatite (HA) coating.

The Humeris Cemented Humeral Stem is also manufactured from Ti-6Al-4V alloy conforming to ISO 5832-3 and is available in diameters of 6-14mm and a length of 100mm. The distal end of the humeral stem is trapezoidal with a polished surface.

Both humeral stems incorporate a female taper for attachment of compatible components.
The Humeris humeral stems can be used with a straight or angled double taper connector or a centered spacer, a centered or offset humeral head and a 2 peg or 3 or 4 peg cemented glenoid for use in an anatomical shoulder configuration.

The straight and angled double taper connectors and the centered spacers have a male taper on each end and are used to connect the humeral stem to the humeral head. The straight double taper connector and three options of angled double taper connectors allow the angle of the head to be changed from 135° to 132° or 138° and the offset of the humeral head to be increased from +0 to +3 or +5 mm. The centered spacers also allow the offset of the humeral head to be increased from +0 to +3 or +5 mm. All of the double taper connectors and centered spacers are compatible with all sizes of humeral stems and humeral heads. The double taper connectors and the centered spacers are manufactured from Ti-6Al-4V alloy conforming to ISO 5832-3.

The humeral heads are available in diameters of 39 - 54 mm in centered and offset styles. The offset of the taper allows the head to be rotated relative to the cut surface of the humerus to provide optimal coverage of the bone. A female taper allows attachment to the double taper connector, which connects to the humeral stem. The humeral heads are manufactured from wrought Co-Cr-Mo alloy conforming to ISO 5832-12.

The 2 peg cemented glenoid component is available in sizes extra small, small, medium and large and features two pegs for cemented fixation to the glenoid bone. It is manufactured from ultra-high molecular weight polyethylene (UHMWPE) conforming to ISO 5834-2. Each peg contains a radiopaque marker manufactured from tantalum conforming to ASTM F560.

The 3 or 4 peg cemented glenoid component is also available in sizes extra small, small, medium and large. Sizes extra small and small have three fixation pegs. Sizes medium and large have four fixation pegs. The 3 or 4 peg cemented glenoid component is manufactured from ultra-high molecular weight polyethylene (UHMWPE) conforming to ISO 5834-2. The central peg contains a radiopaque marker manufactured from tantalum conforming to ASTM F560.

The Humeris humeral stems can also be used with a humeral cup and 135/145 adapter or a 135/145 humeral cup, a centered or eccentric glenosphere with or without a central screw, a glenoid baseplate, post extensions and standard (compression) or locking bone screws for use in a reverse shoulder configuration.

The humeral cup and the 135/145 humeral cup are available in two sizes, Ø36 and Ø40 mm. Each size is available in two versions, standard and mobility. Each version is available in three heights: +3mm, +6mm, +9mm; and is compatible with all sizes of humeral stems. A 24mm male taper allows attachment of the 135/145 cup to the humeral stem. If the humeral cup is used, it must be used with a 135/145 adaptor. Male tapers allow attachment of the humeral cup to the 135/145 adaptor and of the 135/145 adaptor to the humeral stem. The humeral cup and 135/145 humeral cup are pre-assembled, one-piece components manufactured from UHMWPE conforming to ISO 5834-2 and Ti-6Al-4V alloy conforming to ISO 5832-3.

The glenosphere is also available in Ø36 and Ø40 mm sizes and in centered and eccentric styles. The eccentric glenospheres are designed to be offset from the center of the glenoid baseplate. All glenospheres have a 10º tilt, meaning that the curvature of the glenosphere extends 10º beyond the equator of a hemisphere. This additional articular surface lateralizes the center of rotation to help reduce the potential for scapular notching by the humeral cup. All glenospheres mate with the glenoid baseplate via a taper lock. The glenospheres are also available with an optional central, cannulated screw. This screw can be threaded through the central post of the baseplate for additional security. The glenosphere components are manufactured from wrought Co-Cr-Mo alloy conforming to ISO 5832-12. The glenosphere screw is manufactured from Ti-6Al-4V alloy conforming to ISO 5832-3.

The glenoid baseplate has a round base with a central, cannulated post and four peripheral, threaded screw holes. The outer edges of the baseplate are tapered to lock with the glenosphere component.

The glenoid baseplate is used with 4.5mm standard or locking bone screws for added stability. The bone screws are available in lengths from 20 - 50mm in 5mm increments. Each screw allows an angulation of +/- 12º around the axial axis of the screw hole.

Optional post extensions are available to extend the central post of the baseplate and provide additional anchoring in cases with poor bone quality. The post extensions are available in 6mm and 10mm lengths. When used, the post extensions screw into the baseplate post.

The glenoid baseplate, standard and locking screws, and post extensions are manufactured from Ti-6Al-4V alloy conforming to ISO 5832-3. The backside of the baseplate and the post extensions are coated with a plasma sprayed CP Titanium and Hydroxyapatite coating.

INTENDED USE / INDICATIONS

In an anatomic shoulder configuration, the Humeris Shoulder System is indicated for use in total and hemi-shoulder replacement to treat:
- A severely painful and/or disabled joint resulting from osteoarthritis or rheumatoid arthritis;
- Other difficult clinical problems where shoulder arthrodesis or resection arthroplasty are not acceptable (e.g. revision of a previously implanted primary component, a humeral plate or a humeral nail).

In a reverse shoulder configuration, the Humeris Shoulder System is indicated for primary or revision total shoulder arthroplasty for the relief of pain and to improve function in patients with a massive and non-repairable rotator cuff tear.

The patient's joint must be anatomically and structurally suited to receive the selected implants and a functional deltoid muscle is necessary to use the device.

The humeral stem of the Humeris Cementless Shoulder is intended for cementless use only. The humeral stem of the Humeris Cemented Shoulder is intended for cemented use only. The glenoid components of the Humeris Shoulder System are intended for cemented use only. The glenoid baseplate component is intended for cementless use with the addition of screws for fixation.

Contraindications:
- Non-displaced or slightly displaced fractures.
- Dislocation fractures in elderly subjects.
- Acute, chronic, local or systemic infections.
- Severe muscular, neurological or vascular impairment affecting the joint in question.
- Bone destruction or poor bone quality that could compromise the stability of the device.
- Excessive alcohol consumption or other dependency disorders.
- Allergy to the implant materials or cement.
- Any concomitant illness that could compromise the function of the device.

WARNINGS AND PRECAUTIONS

Unless otherwise indicated, instrument sets are sold non-sterile and must be completely cleaned and sterilized before use.
Instruments must not undergo accelerated autoclave sterilization inside the instrument box.
Accelerated autoclave sterilization of individual instruments has not been validated by the manufacturer.

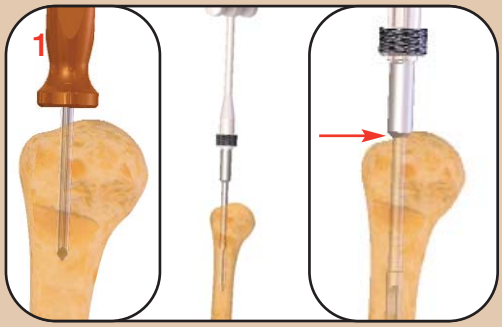
Please consult the instrument package insert for validated sterilization instructions and the implant package insert for a complete list of warnings, precautions, contraindications and adverse events.

TRIAL MATERIALS

The trial implants are manufactured from Radel polyphenylsulfone (PPSU) which meets the requirements of USP Class VI, Polypropylene (PP) which meets the requirements of USP Class VI and Ti-6Al-4V conforming to ISO 5832-3.
The colorants used in the centered head trial and in the offset head trials are Ensinger dark blue and bone.
The colorant used in the double taper trials is O'Neil dark blue.
The colorants used in the spacer trials are O'Neil yellow and orange.
The colorants used in the angulated double tapers are O'Neil white, yellow and orange.
The colorants used in the glenoid trials are O'Neil dark green, green, orange and yellow.

The colorants used in the 135/145° humeral cup trials are O'Neil dark blue and light blue.
The colorant used in the 135/145° adaptor trial is O'Neil orange.
The colorants used in the glenosphere trials and reversed cup trials are Ensinger light lime and green.

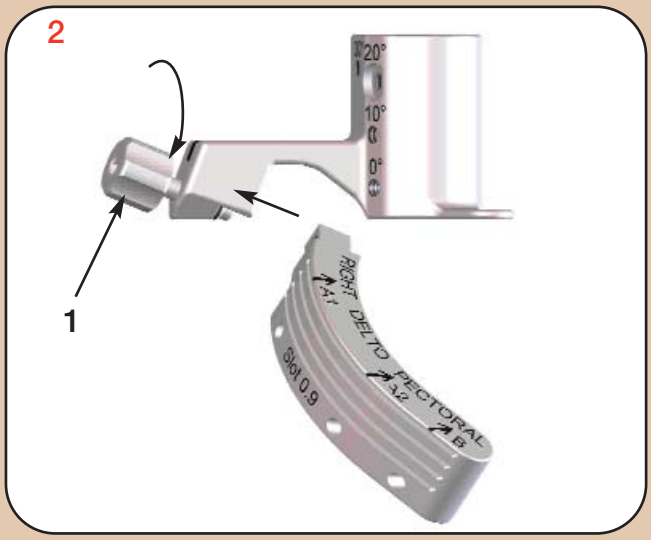
ANATOMICAL SURGICAL TECHNIQUE



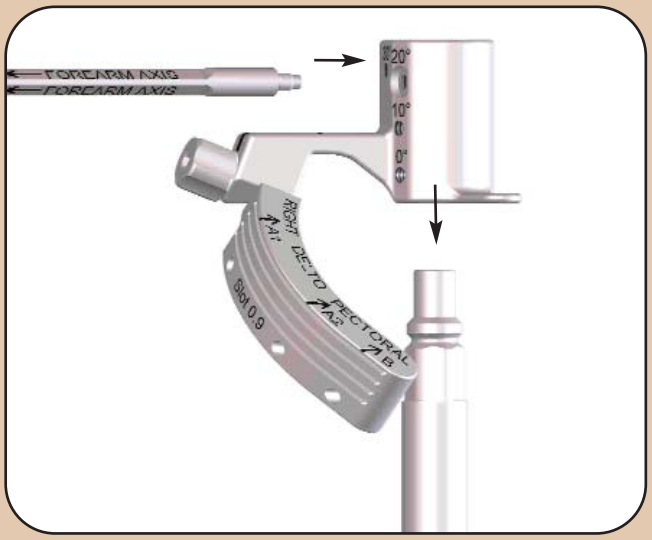
Preparation of the humeral shaft:

Locate and perforate the top of the humeral head in the medullary canal axis using a triangular awl.
Use the reamers in increasing size order on the T handle.
Go from one size to the next until the diameter of the reamer fits the shaft diameter.
The reamer should enter the humeral shaft up to the guard (→).
The stem choice is made depending on the last reamer size use:
Ø08 --> Stem size 08
Ø10 --> Stem size 10
Ø12 --> Stem size 12
Ø14 --> Stem size 14
Ø16 --> Stem size 16.

Mounting delto-pectoral incision guide:



Put the delto-pectoral guide on the operating side on the guide holder.
Fasten the guide with the knurled screw (1).



Slide the assembly onto the remaining reamer.
Screw the retroversion stem into one of the four positions according to the required angle: 0, 10, 20, 30°.

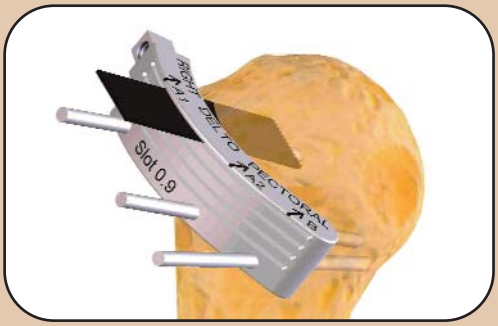
Placing the 135°cutting guide :

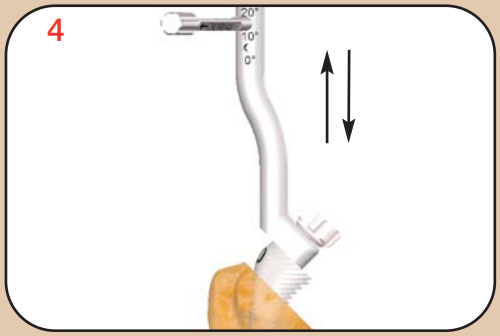
The probe stops at the top of the head and determines the incision height.
The retroversion is determined by screwing the rod into one of 4 positions (0, 10, 20, 30°) and aligning it with the forearm axis.
Fastening the retroversion rod sets the position for the cutting guide.

Place two pins (A1+A2) by drilling if necessary, using the Ø3.2 mm bit.

Remove the retroversion rod and the guide holder as well as the reamer.
Slide the cutting guide on the pins up to the bone.
Stabilize the mounting using a 3rd oblique pin (B).
Make the incision across the desired slot (0, +3, +6 or +9mm) with a saw blade of a maximum 0.9 mm thickness.

Insert the protector into the prepared humerus during the glenoid preparation.





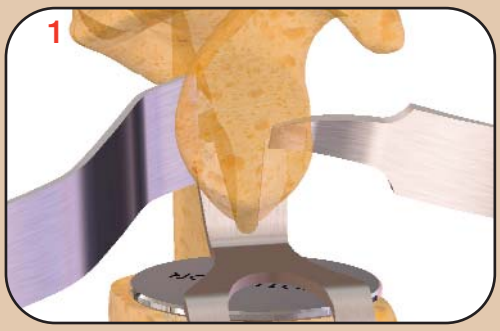
Metaphysis shaping:

The size of the metaphyseal rasp is determined by the size of the last reamer/rasp used.
Ø08 --> Rasp size 08
Ø10 --> Rasp size 10
Ø12 --> Rasp size 12
Ø14 --> Rasp size 14
Ø16 --> Rasp size 16
Connect the rasp to the rasp holder.
Screw the retroversion stem to the rasp holder.
Impact the rasp until it is flush with the height of the resected bone surface. The rasp can act as a trial stem.

Humerus protection:

Insert the protector into the prepared humerus during the glenoid preparation.

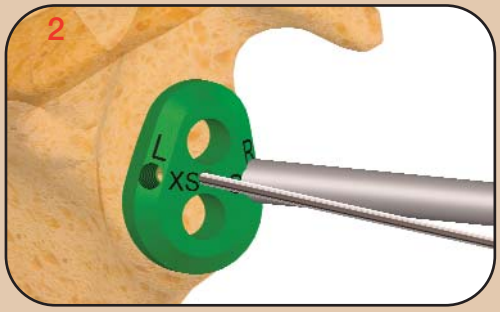
SURG. TECHNIQUE - 2 PEG GLENOID



Glenoid exposure :

Expose the glenoid fully using the three types of retractors.
- Anterior retractor,
- Superior retractor,
- Inferior retractor.

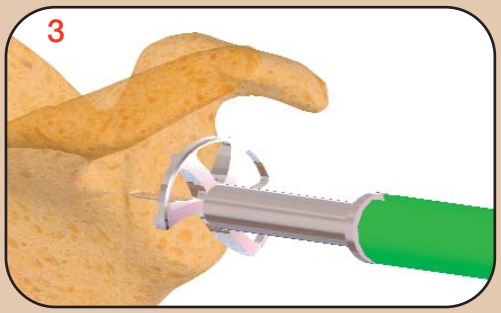
Remove the glenoid labrum.
Remove any potential osteophytes to expose the full bone anatomy.



Placing the K-wire:

Apply one of the two templates of the glenoid cavity and visualize the fixing pegs.
Small template (green) = implant XS or S
Large template (orange) = implant M or L

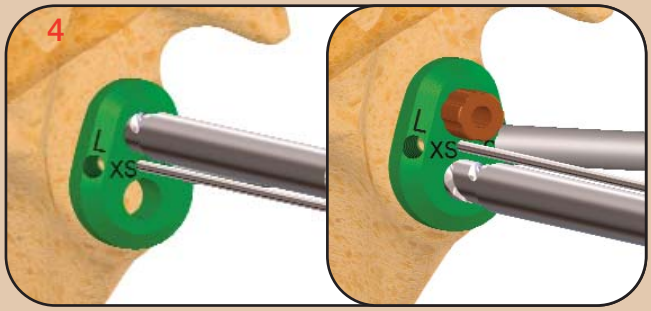
The K-wire should be centered in the antero-posterior plane.
The orientation of the K-wire will determine the inclination of the glenoid.
The position should be adapted to the patient's anatomy
and planned according to the pre-operative x-rays.
By default, the K-wire is perpendicular to the medium plane of the glenoid.



Glenoid reaming:

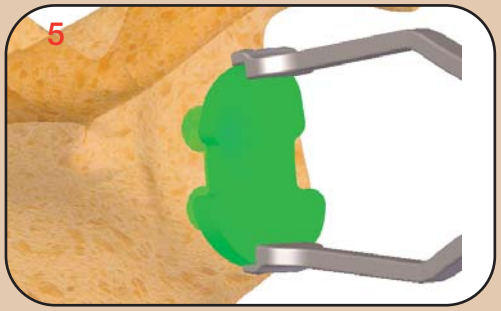
Drill and ream the glenoid using the K-wire guide.
Ream until the subchondral bone is reached.

Green reamer = implant XS or S
Orange reamer = implant M or L



Drilling pegs' holes:

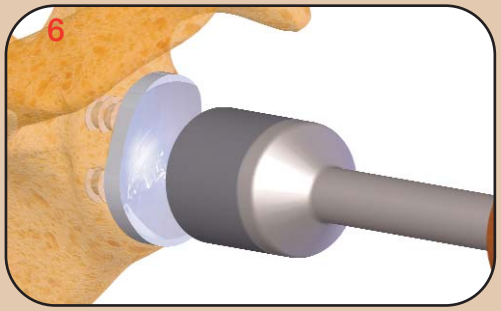
Insert the template over the K-wire.
Drill the first hole until it stops.
Stabilize the assembly with the peg.
Drill the second hole.



Trial implant:

Insert trial implant by using the glenoid holder clamp.
Dark and light green templates = trial implants XS or S.
Yellow and orange templates = trial implants M or L.

Test the mobility with the trial glenoid.
Trials are identical to final implants.



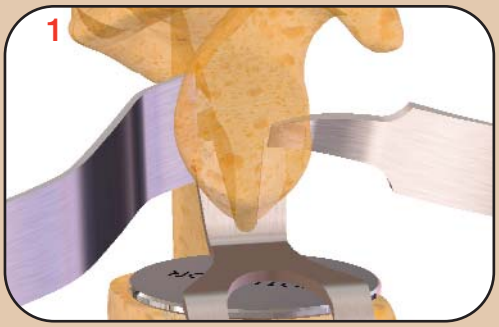
Definitive implant:

Take the implant of the same size as the trial.
The pegs must be carefully cleaned, then dried with gauze stuffed in the peg holes while the cement is being prepared.
Remove the gauze and fully cement the glenoid.
Insert the implant with the glenoid holder clamp.
Maintain the pressure with the glenoid impactor.

Allowable combinations humeral heads / glenoid components				
Glenoid size	XS	S	M	L
Head Ø	Ø39 Ø41 Ø43	Ø39 Ø41 Ø43	Ø43 Ø46 Ø48 Ø50	Ø43 Ø46 Ø48 Ø50

Ø52 and 54 mm humeral heads are intended for hemi arthroplasty only.

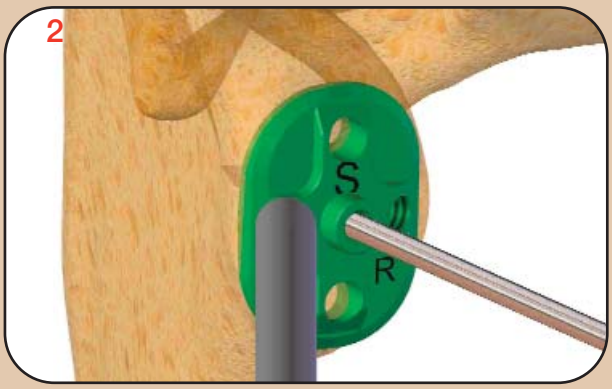
SURG. TECHNIQUE 3-4 PEG GLENOIDS



Glenoid exposure :

Expose the glenoid fully using the three types of retractors:
- Anterior retractor,
- Superior retractor,
- Inferior retractor.

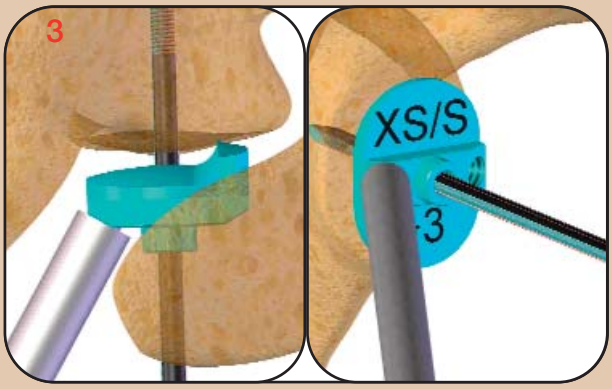
Remove the glenoid labrum.
Remove any potential osteophytes to expose the full bone anatomy.



Placing the K-Wire : (symmetrical wear)

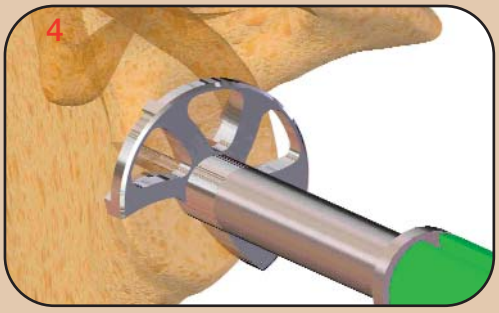
Introduce the K-wire guide - template for the symmetrical glenoid (XS, S, M or L).

The K-wire should be centered in the antero-posterior plane.
The orientation of the K-wire will determine the inclination of the glenoid.
The position should be adapted to the patient's anatomy and planned according to the pre-operative x-rays.
By default, the K-wire is perpendicular to the medium plane of the glenoid.



Asymmetrical wear of the glenoid:

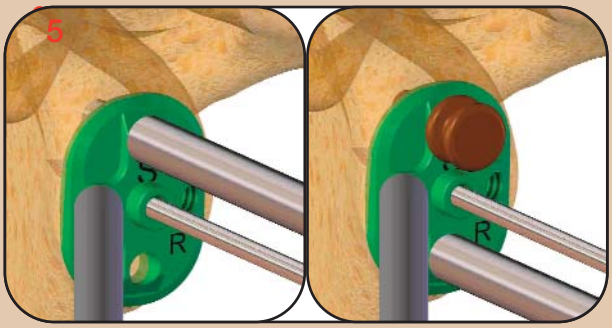
Introduce the K-wire guide for the asymmetrical glenoid (+3 or +5mm) according to the patient's anatomy and by checking the pre-operative x-rays.
Insert the K-wire through the guide.



Reaming the glenoid:

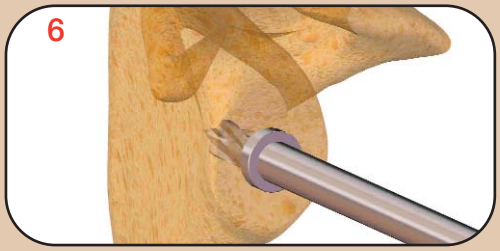
Ream the glenoid using the K-wire as a guide.
Ream until the sub-chondral bone is reached.

It is preferable to begin this reaming by hand in order to avoid osteophytes and also in cases when the glenoid is osteoporotic.



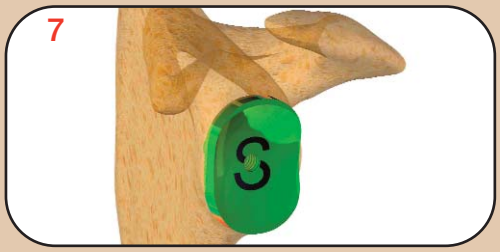
Drilling stabilization holes:

Place or replace the K-wire-guide template for the symmetrical glenoid onto the rod.
Drill the 1st anchor hole.
Install the stabilization post.
Drill the 2nd hole.
Install the 2nd stabilization post.
Drill the 3rd hole if it is a size M or L.



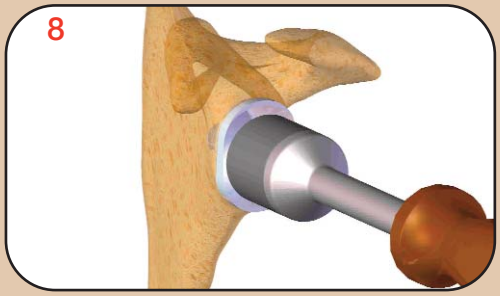
Drilling the central hole:

Remove the K-wire guide template.
Drill the central hole using a cannulated stop drill bit over the K-wire.



Trial implant:

Select the appropriate trial and insert it into the glenoid with the forceps.



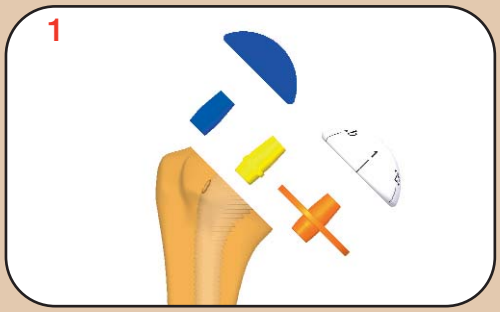
Definitive implant:

Prepare the cement.
Place cement in each stabilization hole.
Take the definitive implant and insert it into the glenoid.
Check adjustments.

Allowable combinations humeral heads / glenoid components				
Glenoid size	XS	S	M	L
Head Ø	Ø39 Ø41 Ø43	Ø39 Ø41 Ø43	Ø43 Ø46 Ø48 Ø50	Ø43 Ø46 Ø48 Ø50

Ø52 and 54 mm humeral heads are intended for hemi arthroplasty only.

ANATOMICAL SURG. TECH. - HUMERUS (2)



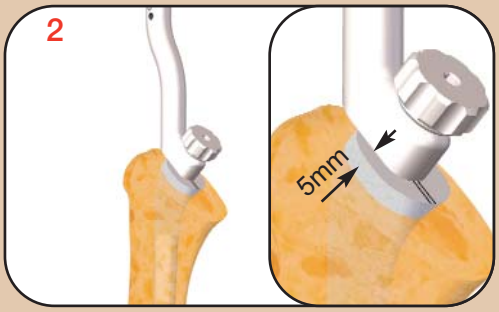
Trial:

Measure the head using the metallic ruler.

Use a smaller prosthetic head than the size measured for the native head.

Select the components:
- Straight or Angulated double taper (+0, +3, +5 mm)
- Spacer (+0, +3, +5 mm)
- Centered or Offset trial head.

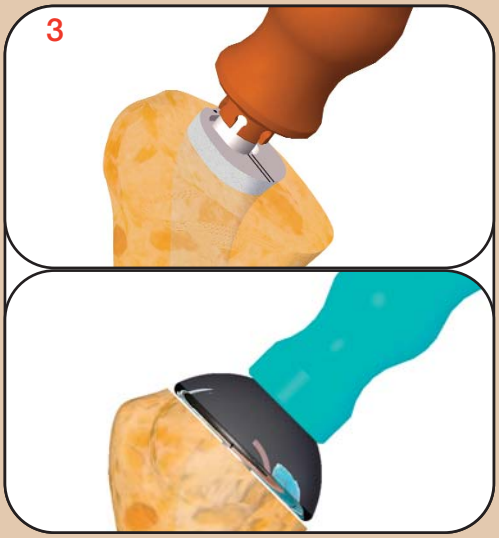
The humeral head should cover the cortical bone in an appropriate manner while being 5 to 8 mm above the greater tuberosity.
The flat side of the head should be parallel to the incision.
If an offset head is used, mark its position.



Definitive stem:

Place the rasp holder on the appropriate final-use stem.
Screw the retroversion stem to the handle to check the angle while the implant is flush with the bone resection.
Impact the stem until it is at the same height as the bone incision.

If possible, impact the stem until 5mm over the humeral cut.



Definitive taper and head:

Be sure to check that there are no splinters on the upper extremity of the humerus metaphysis hindering impaction of the morse taper.

Take the definitive double taper and impact it INTO THE STEM (not to the head) using the impactor to start with.

Select the appropriate final head and impact it onto the taper.
If using an offset head, insert it onto the double taper with the same position as determined by the trial.

Finalize impaction of the stem while impacting the head on the taper.

Reduction

REHABILITATION

Short-term immobilization (according to the surgeon's assessment) with mobilization in neutral rotation to promote recovery of external rotation.

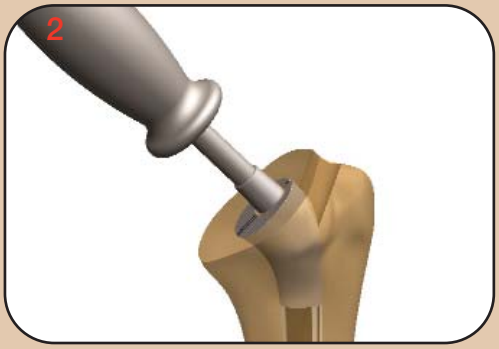
Promote pool therapy and specialist rehabilitation, without counter-resistance work for six weeks, depending on the age and objectives noted in the "patient contract".

REVERSIBILITY SURGICAL TECHNIQUE

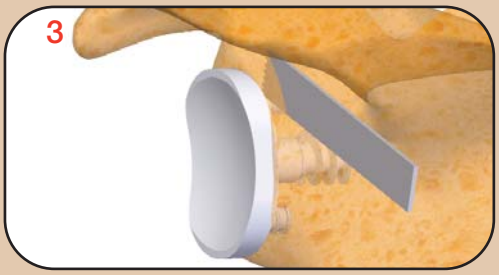
IF REVISION:

Anatomical implant removal:

Remove the head by sliding a blade between the head and the stem.

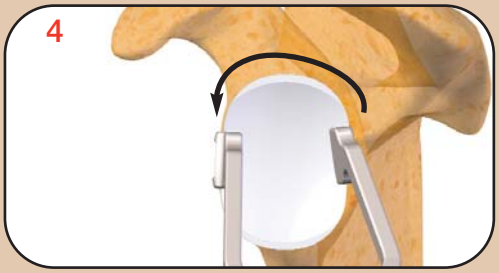


Remove the double taper by tightening the extractor in and backing the extractor out with a slap hammer.



Cutting stabilization pegs:

Using an oscillating saw, cut the stabilizing pegs in the glenoid, at their base.
Do not cut the central peg on a 3-4 peg glenoid.
For information:
All sizes of the 2 peg glenoid have two stabilizing pegs.
Sizes XS and S of the 3 - 4 peg glenoid have two stabilizing pegs and sizes M and L have three.



Extraction of the glenoid:

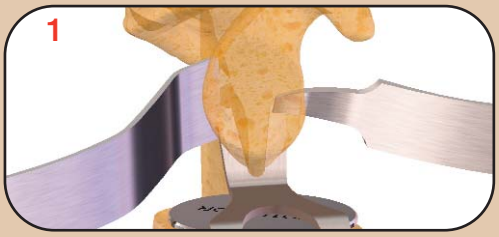
Using a forceps, hold the glenoid antero-posteriorly and unscrew the glenoid.

This step only applies to the 3 - 4 peg glenoid.

IF PRIMARY:

Follow steps 1 to 5 of this surgical technique (pages 5 and 6).
Then begin at step 1 (page 12) and follow the surgical technique till page 16.

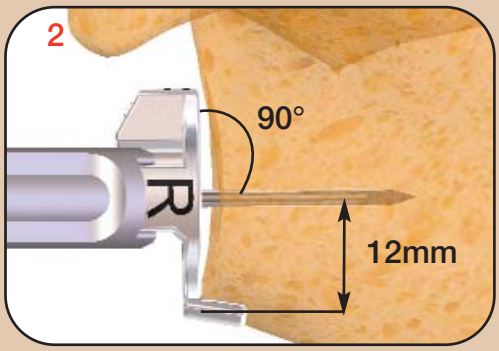
REVERSED GLENOID SURG. TECH.

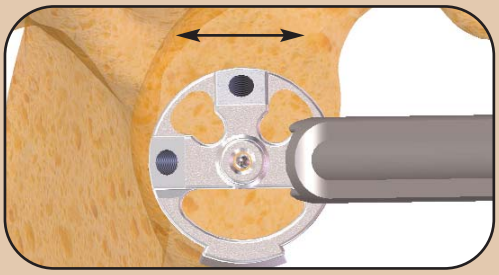


Glenoid exposure :

Expose the glenoid fully using the three types of retractors:
- Anterior retractor,
- Superior retractor,
- Inferior retractor.

Remove the glenoid labrum.
Remove any potential osteophytes to expose the full bone anatomy.

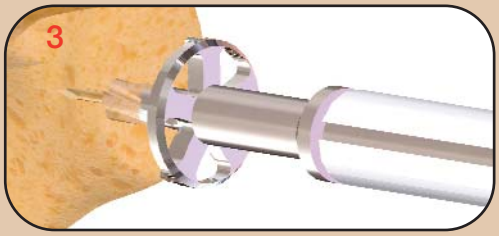




Placing the K-wire:

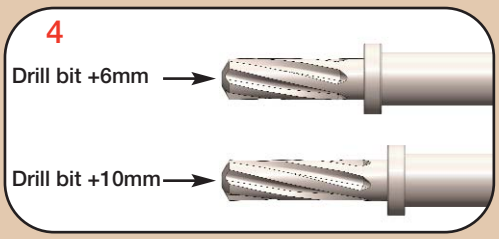
The three different positions for the guide are: Left (L), Right (R) for a deltopectoral approach and Superior lateral (S).
Position the K-wire guide on the inferior part of the glenoid to determine the correct height.
The K-wire is 12 mm above the lower edge, according to Kelly[1] and must be centered in the antero-posterior plane.
The K-wire guide orientation is important for the glenoid tilt and must be done at 90°-(see picture #2).
The glenospheres are tilted (lower lip) by 10°.
Positioning should be to fit the anatomy of the patient and planned according to the pre-operative X rays.
This element must be decided in pre-operative planning. By default, the base plate is perpendicular to the mid plane of the glenoid.
Insert the K-wire using a power tool.

(1) Kelly JD, Humphrey CS, Norris TR. Optimizing glenosphere position and fixation in reverse shoulder arthroplasty, Part One: the twelve-mm rule. J Shoulder Elbow Surg 2008;17:589-94



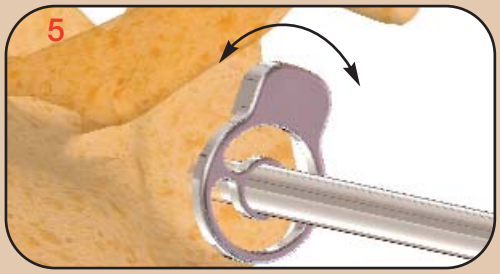
Glenoid reaming:

Drill and ream the glenoid using the K-wire guide.
Ream until the subchondral bone is reached.
This step can be done by power or by hand if the glenoid is porotic.



Extension post:

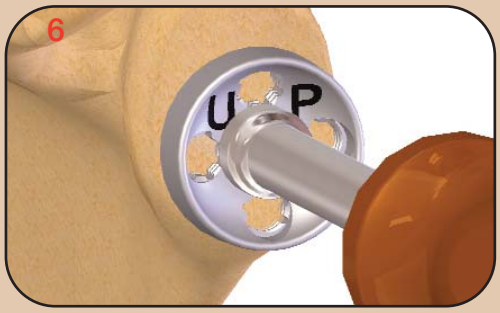
If bone graft is used between the glenoid baseplate and the native glenoid, the baseplate post can be extended by 6 or 10mm as required. It is important to check that the tip of the extension is properly implanted in the native glenoid.
Drill the post again with the stop drill bit either +6 mm or +10 mm as required.



Glenoid clearance:

Remove the K-wire.
To avoid any interference between the glenosphere and the scapula, ream the glenoid using the Ø40 mm hand reamer.

Pay attention to avoid ovalizing the post hole.
360° clearance = succesfull impaction of the glenosphere.



Positioning the baseplate: (Ø24 mm)

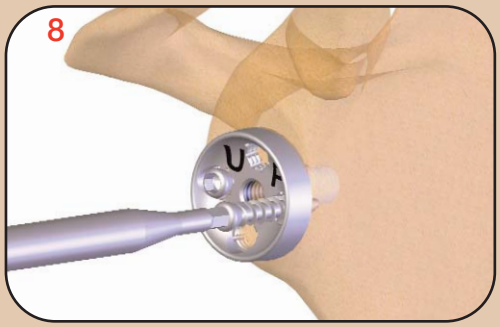
Connect the holder/impactor to the baseplate.
Impact the baseplate so that there is pressure on the whole surface.
The impactor allows for the upper and lower holes to be placed so that a screw can be positioned in the base of the coracoid and in the pillar of the scapula.

The UP marking must be on top under the coracoid basis.

Length of screws (16 sizes from 20 to 50 mm) :

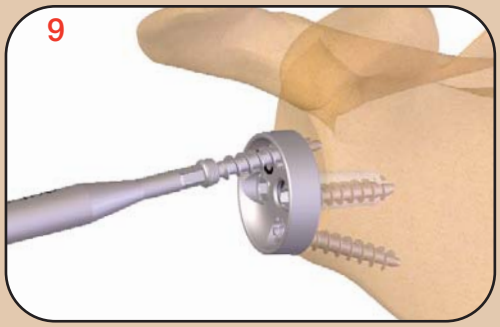
An adapted guide allows drilling and measuring the screws with the Ø 3.2 mm drill bit.
The length of the screws is measured directly.

The screw length is measured from under the head.
Two types of screws are available, locking or standard (compression).



Fixation of the baseplate: (Ø24 mm)

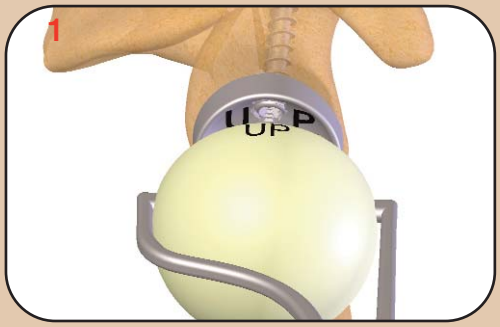
Standard screws allow the baseplate to be lagged to the bone, and locking screws fix the mounting.
Each screw allows an angulation of +/-12° around the axial hole.
The upper hole is pre-oriented by 10° to optimize its position in the base of the coracoid.



Recommendations:

2 compression screws (std) for anterior and posterior holes.
2 locking screws for superior and inferior holes.

TRIAL IMPLANTS



Glenosphere trial (10° tilt):

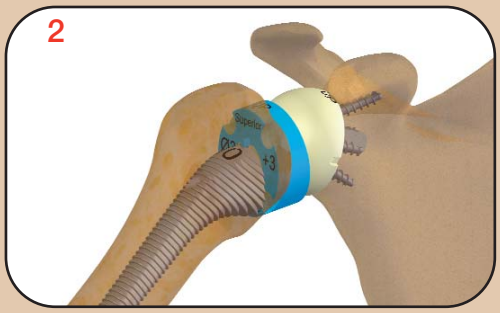
There are two diameters of glenospheres: Ø36 and 40 mm.
All glenospheres are centered or eccentric with or without a screw.
The choice of glenosphere does not depend on the size of the humeral stem.
All glenospheres are tilted downwards by 10°.

Position the glenosphere with the special clamp allowing the humerus to be circumvented by the delto-pectoral approach.

The choice of the suitable glenoid implant depends on the stability of the shoulder:

Proceed with a trial reduction using a 36 mm diameter glenosphere trial implant.
- If tension of the conjoint tendon is substantially decreased by palpation, change from the 36 to the 40 mm diameter trial implant.
- Perform longitudinal traction holding the arm in neutral position trying to detect maximum separation of the trial prosthetic surface. If this maneuver causes inferior subluxation change from the 36 to the 40 mm diameter trial implant.
- External rotation may demonstrate a slight gapping (2 to 3 mm) between the glenosphere and the articular surface. If the gap is increased, change from the 36 to the 40 mm diameter trial implant.
- If external and internal rotation cause early contact between the metaphyseal bone and the scapular pillar with a tendency to sublux, change from the 36 to the 40 mm diameter trial implant.
- Perform forced adduction of the arm with your fist in the axilla as a fulcrum. This is supposed to cause a slight opening of the joint gap (not more than 2 to 3 mm) without lateral dislocation, otherwise change from the 36 to the 40 mm diameter trial implant.
- Finally, assess stability at 90° of abduction with the humerus in external, neutral and internal rotation.

If on the other hand reduction with the 40 mm diameter trial implant is impossible or very difficult, you will need to use the 36 mm diameter trial implant.



135/145° cup trial:

The cup diameter matches the glenosphere diameter.
Three heights are available (+3, +6, +9 mm).

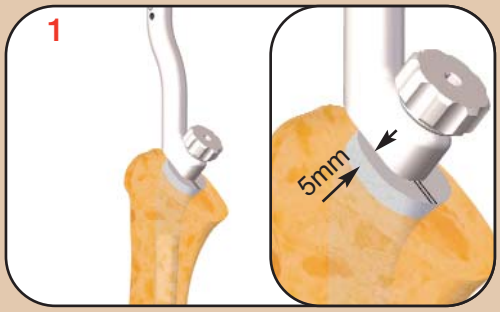
Choice of humeral cup:

The choice of humeral cup depends on the stability of the shoulder and the activity level of the patient:
The Mobility Cup is a good option for active patients with good to excellent stability and strength of the subscapularis and infraspinatus muscles.
The Standard Cup should be considered in less active patients with instability due to rotator cuff insufficiency.
The choice of the Standard 135/145° Humeral Cup or the Standard Humeral Cup plus 135/145° Adaptor is based on the height needed for the humeral side of the joint reconstruction. Most patients can achieve adequate humeral height with the +3 mm, +6 mm or +9 mm options available with the 135/145° Humeral Cup. The choice of height depends on the location of the humeral cut, the stability of the reconstruction, the tension of the deltoid muscle (based on palpation) and the activity level of the patient. In rare cases with significant metaphyseal bone resection (e.g. revisions, tumor resections), additional humeral height may be desired. In these cases, the 135/145° Adaptor may be used with the Standard Humeral Cup to provide an additional 9 mm of height, resulting in humeral construct heights of +12 mm, +15 mm and +18 mm.

Take care to respect index marks on the stem and cup.

Test for stability and mobility.
Trials are identical to final implants.

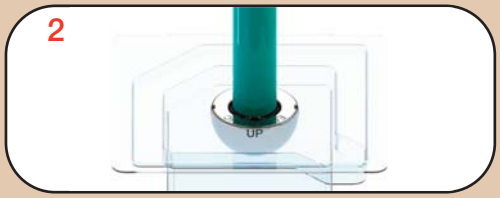
DEFINITIVE IMPLANTS



Definitive stem:

Place the rasp holder on the appropriate final-use stem.
Screw the retroversion stem to the handle to check the angle while the implant is flush with the bone resection.
Impact the stem until it is at the same height as the bone incision.

If possible, impact the stem until 5mm over the humeral cut.



Handling of the definitive glenosphere:

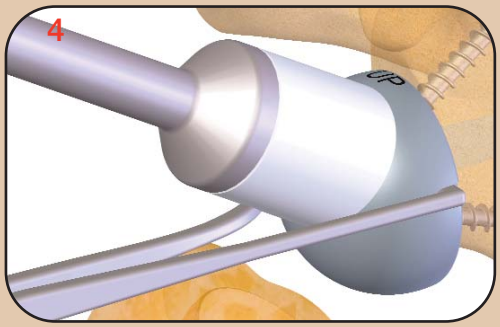
Impacted glenosphere

Insert the glenosphere implant holder into the definitive implant. On the specially designed clamp, there are notches on the jaws which should be positioned to coincide with those on the middle of the glenosphere implant.

Handling of the definitive glenosphere w/screw:

Impacted glenosphere w/screw

Insert the 3.5 mm hex screwdriver in the screw of the glenosphere.



Fitting of the definitive implants:

Impacted glenosphere

When positioning the glenosphere, pay attention to the "UP" marking, if an eccentric glenosphere is used.
First introduce the guiding post, then the female taper of the glenosphere into the male taper of the baseplate.
Be sure to check that the baseplate is clean and free of any bone or tissue particles that could hinder impaction of the morse taper.

Impact the glenosphere and check it before closure.

Fitting of the definitive implants:

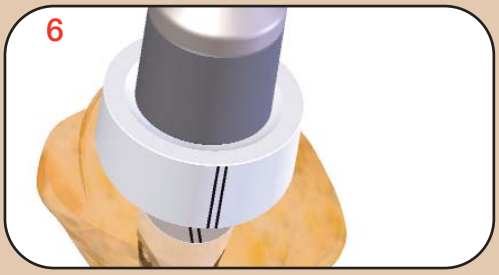
Impacted glenosphere w/screw

Insert the glenosphere paying attention to the «UP» marking, if an eccentric glenosphere is used.
Introduce the screw of the glenosphere in the post of the baseplate.

Be sure to check that the baseplate is clean and free of any bone or tissue particles that could hinder impaction of the morse taper.

1- Begin to screw the glenosphere w/screw.
2- Impact the glenosphere with the impactor.
3- Finish screwing

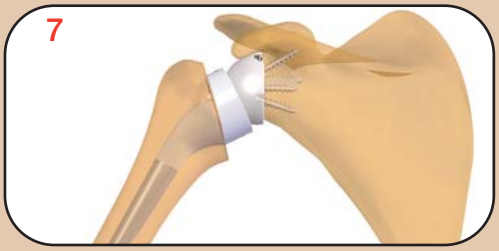
Do not impact the glenosphere with the screwdriver.



Index of the definitive cup 135/145°:

Find the index marks on both the definitive cup and the stem.
Position the cup so that the index matches the index on the stem.

Insert the cup into the taper of the stem so that indices of the cup and stem are correctly aligned.
Check there is nothing impeding impaction of the cup and impact it.



Definitive implants.

REHABILITATION

Short-term immobilization (according to the surgeon's assessment) with mobilization in neutral rotation to promote recovery of external rotation.

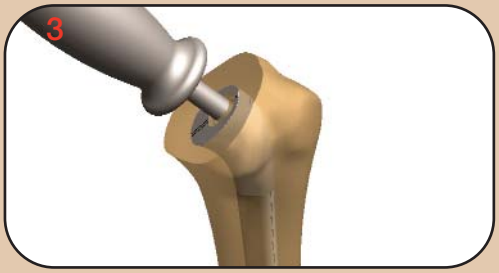
Promote pool therapy and specialist rehabilitation, without counter-resistance work for six weeks, depending on the age and objectives noted in the "patient contract".

ANATOMICAL IMPLANT REMOVAL

Humeral head removal:

Remove the head by sliding a Powels blade between the head and the stem.

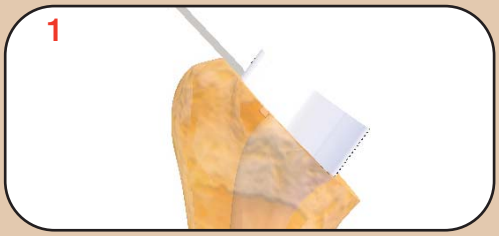
Remove the double taper by tightening the extractor in and backing the extractor out with a slap hammer.



Extraction of the stem:

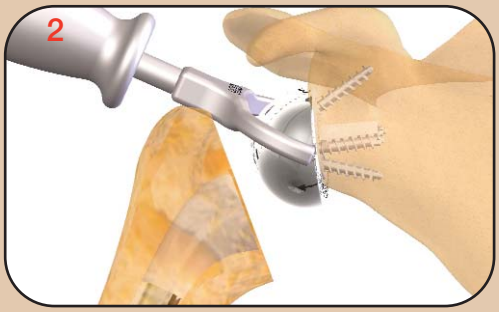
Tighten the extractor with slap hammer into the threaded hole of the stem.
Remove the stem.
If it does not remove easily, make a vertical corticotomy and loosen the complete circumference of the stem from the cut bone.

REVERSIBLE IMPLANT REMOVAL



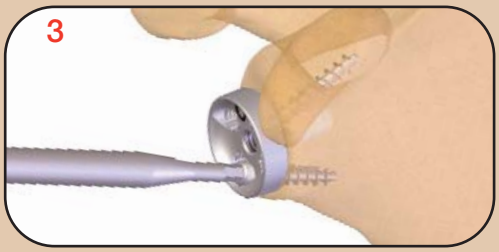
Humeral cup removal:

Remove the cup by sliding a Powels blade between the cup and the stem.



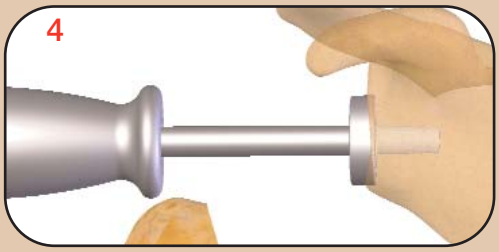
Glenosphere removal:

Untighten the glenosphere screw, if there is one, with the 3.5 mm hex screwdriver.
Tighten the arch on the extractor with the corresponding Ø to remove the glenosphere.
Slide the spurs onto the internal face of the glenosphere to fit them in the designed notches.
Separate tapers with the slap hammer.

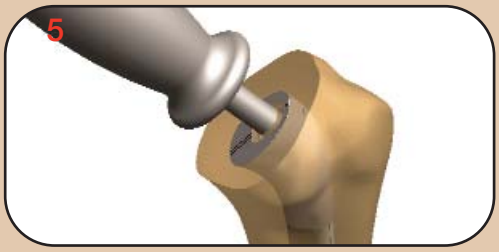


Baseplate removal:

Untighten the baseplate screws with the 3.5 mm hex screwdriver.



Tighten the extractor with slap hammer into the baseplate post and remove it.



Extraction of the stem:

Tighten the extractor with slap hammer into the threaded hole of the stem.
Remove the stem.
If it does not remove easily, make a vertical corticotomy and loosen the complete circumference of the stem from the cut bone.

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