stryker

Latitude® EV
Elbow Arthroplasty System

Operative technique

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

Important

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

Operative technique

Latitude EV Elbow Arthroplasty System

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Indications and contraindications

Indications

The Latitude EV Elbow Arthroplasty System is intended for total elbow arthroplasty. Prosthetic replacement with this device may be indicated to relieve severe pain or significant disability following the effects of primary or secondary osteoarthritis and rheumatoid arthritis; correction of functional deformities; revision procedures where other treatments or devices have failed; treatment of fractures that are unmanageable using other techniques. The Latitude EV Elbow Arthroplasty System is intended for cemented use only.

Contraindications

Systemic infection is an absolute contraindication. Every effort should be made to rule out the possibility of preoperative sepsis in patients who have one or more of the following abnormalities: fever and/or local inflammation; rapid joint destruction or bone resorption apparent on roentgenograms; elevation of sedimentation rate unexplained by other disease; elevation of WBC count; distant foci of infection from genitourinary, pulmonary, skin and other sites, dental focus infection which may cause hematogenous spread to the implant site; skeletally immature patients; cases where there is inadequate neuromuscular status, poor bone stock, or poor skin coverage around the elbow joint that would make the procedure unjustifiable; neuromuscular or psychiatric disorders which might jeopardize fixation and postoperative care; known allergy to one of the materials; pregnancy.

Radial head replacement considerations

The Latitude EV Elbow Arthroplasty System can be used with or without its radial head replacement component. The native radial head always needs to be resected prior to final implantation. The humeral and ulnar components must always be used in the procedure. The radial head component needs to be carefully considered in all cases, particularly when lateral joint load sharing needs to be reasonably recreated, such as in the case of unlinked arthroplasty.

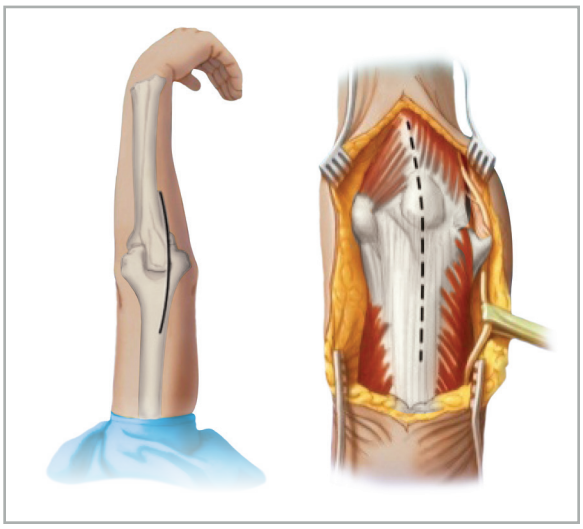
Operative steps

Elbow exposure and sizing

Exposure

Patient position

The patient may be positioned in a lateral decubitus position or a supine position based upon surgeon preference. It is important to have full mobility of the elbow during the procedure. A sterile tourniquet is employed.



Incision

A straight incision is made approximately 15cm in length and centered just medial to the tip of the olecranon. Full thickness medial and lateral flaps are elevated on the deep fascia.

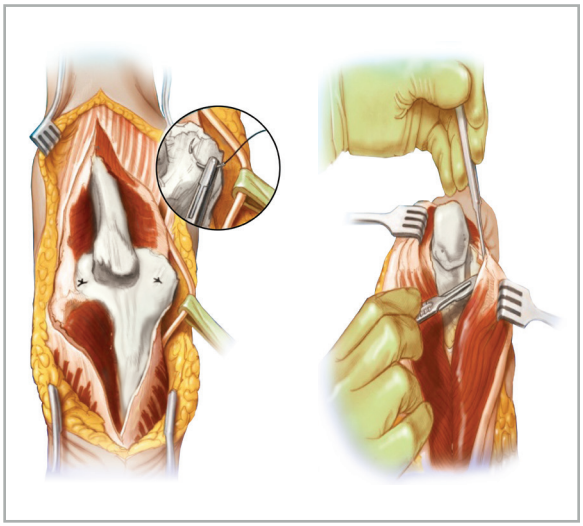
Ulnar nerve transposition

The medial aspect of the triceps mechanism is identified and the ulnar nerve is isolated. The medial intermuscular septum is excised. The ulnar nerve is mobilized and transposed anteriorly into the subcutaneous tissue.

There are three options for performing the elbow approach:

Option A: Triceps splitting approach

Management of the triceps mechanism is at the surgeon's discretion. If the surgeon does not have extensive experience with the elbow, a triceps-splitting approach is recommended. In this case, the distal 6cm to 8cm of the triceps is split in line with the center of the olecranon. The triceps is then kept in continuity with the distal forearm fascia as it is split distally along the subcutaneous border of the ulna. Both the medial and lateral triceps flaps are then elevated subperiosteally over the medial and lateral epicondyles respectively, exposing the elbow joint. Both medial and lateral ulnar collateral ligaments are elevated off the humeral insertions subperiosteally with sharp dissection, allowing dislocation of the elbow.



Note: For surgeons with greater experience, a triceps-on approach or a lateral paraolecranon surgical approach (shown below) are compatible with the instrumentation.

Option B: Lateral paraolecranon approach*

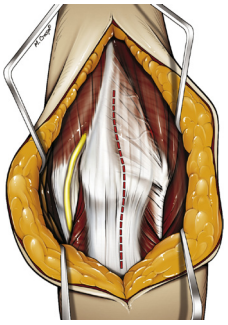
A longitudinal, 15-cm, posterior skin incision is centered just medial to the tip of the olecranon. Full-thickness fasciocutaneous flaps are elevated on the deep fascia, and the ulnar nerve is transposed.

The lateral para-olecranon approach exposes the ulnohumeral joint through medial and lateral arthrotomies, leaving most of the triceps insertion intact on the olecranon. After ulnar nerve trans-position, excise the medial intramuscular septum and dissect between brachialis and the medial head of the triceps to expose an anterior and posterior medial supracondylar area. The triceps muscle is elevated from the posterior humerus, and the posterior capsule and fat pad are excised to improve exposure.

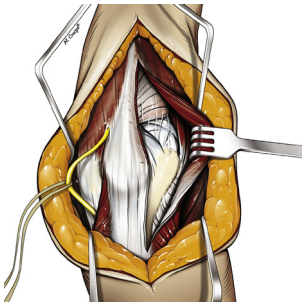
Develop the interval between the ulna and anconeus muscle as in a Boyd approach (A).

Extend the incision proximally, in line with the Boyd interval separating the portion of the triceps tendon that inserts directly on the olecranon tip from the portion that blends with the anconeus fascia to become the lateral cubital retinaculum. The triceps tendon inserting on the olecranon tip is maintained. Elevate the anconeus subperiosteally from the lateral aspect of the ulna to expose the lateral aspect of the greater sigmoid notch and the posterior radi-ocapitellar joint. Release the lateral collateral ligament from its origin on the lateral epicondyle, while preserving its insertion on the crista supinatoris. Reflect the lateral cubital retinaculum and the lateral aspect of the triceps tendon with the superficial fascia of the forearm and the anconeus laterally as a single unit (B).

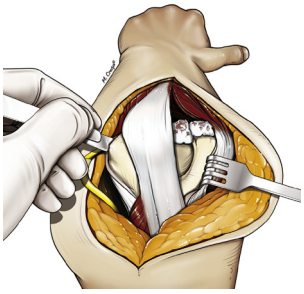
To gain medial exposure, divide the posterior bundle of the medial collateral ligament and release the anterior bundle of the medial collateral ligament and common flexor origin from the medial epicondyle (C). Elevate the anterior capsule and brachialis off the anterior humerus. Dislocate the proximal radius and ulna off the distal humerus through either the triceps split or the medial window (D).



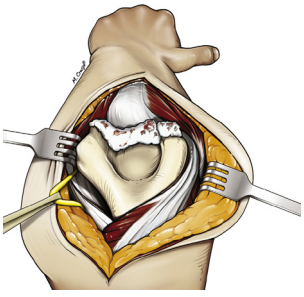
A- The interval between the ulna and anconeus is developed and extended as a central split in the triceps tendon.



B- The posterolateral arthrotomy is performed using the Boyd approach. A small cuff of the antebrachial facia is left attached to the subcutaneous ulnar shaft for closure.



C- The medial collateral ligament and the common flexor-pronator origin are released from the medial epicondyle to allow dislocation of the elbow.



D- The distal humerus is delivered through either the medial or lateral arthrotomy to allow for humeral preparation and implant insertion. As shown, the humerus has been delivered medially and the ulna with the triceps tendon insertion is anterior to the humerus.

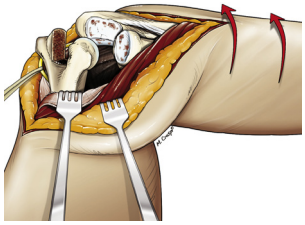
*Reproduced with permission from Journal Hand Surgery

Retraction of the triceps tendon and external rotation of the ulna facilitates exposure of the greater sigmoid notch and the base of the coronoid (E). Exposure of the proximal ulna was facilitated by hypersupination of the forearm. Distal humerus preparation can be performed before or after the ulnar cuts are done; however, in the setting of thin and osteopenic distal humeral condyles, ulnar preparation should be performed first to avoid iatrogenic condylar fractures.

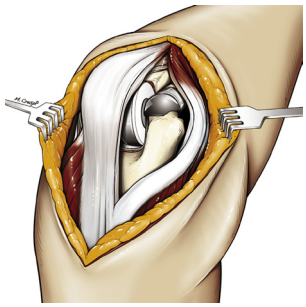
After insertion of the elbow prosthesis (F), close the interval between the triceps tendon and the lateral cubital retinaculum using buried nonabsorbable sutures. If an unlinked arthroplasty was performed, reattach the collateral ligaments to the epicondyles by placing sutures through a cannulated bolt in the prosthesis and tying them to the contralateral ligament for a secure repair. Repair the flexor-pronator origin to the medial triceps and medial epicondyle if present (G).

Option C: Paratricipital approach

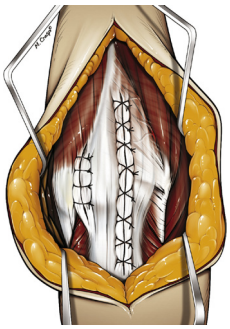
Typically used for distal humeral hemiarthroplasty or total elbow arthroplasty in the setting of distal humeral fractures where exposure of the ulna is easier due to bone loss. The medial exposure is similar to the lateral paraolecranon approach. Laterally the Kocher interval is used between the anconeus and the extensor carpi ulnaris lifting up the triceps as a single unit while releasing the lateral collateral ligament and common extensor origin off the lateral condyle to allow dislocation.



E- Exposure of the proximal ulna with the triceps intact requires reflection of the anconeus and lateral cubital retinaculum forearm as a single unit. External rotation of the ulna allows visualization of the greater sigmoid notch and the base of the coronoid.



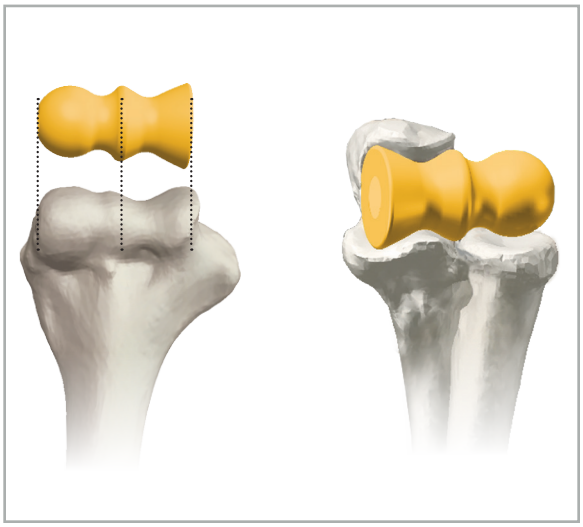
F- The inserted prosthesis with an intact triceps insertion.



G- After implantation of the arthroplasty, the medial and lateral arthrotomies are closed, as is the split between the lateral aspect of the triceps tendon and the lateral cubital retinaculum.

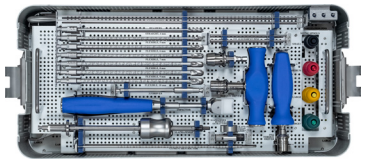
Sizing

Size the width of the humeral articular surface using the sizing spools. Start by comparing the sizing spools to the patient's capitellum and trochlear groove. Then verify that the spool fits precisely into the trochlear groove of the ulna and aligns with the center of the radial head. Small, medium, large and large+ sizes are available. The selected size will be used throughout the procedure; the humeral, ulnar and radial component sizes are not interchangeable. The large+ spool is used with a large humeral stem.



Tip: If the patient is between sizes, select the smaller size.

Note: Size is important for this implant as it has a radial head component. Ensure that the implant capitellum properly articulates with the radial head to facilitate the restoration of the natural kinematics of the elbow.



Top tray (9030501)

Small sizing spool

Medium sizing spool

Large sizing spool

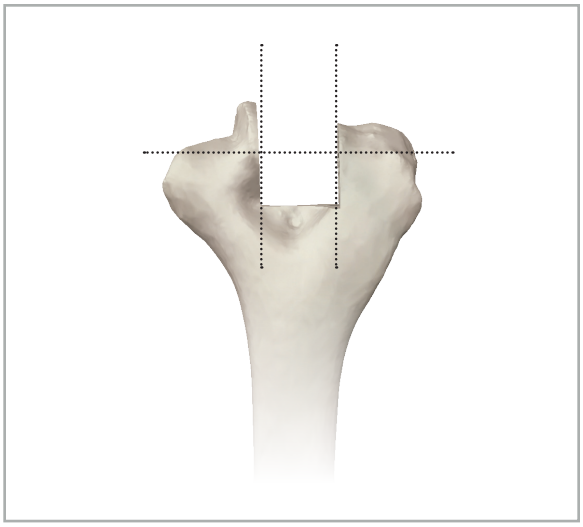
Large+ sizing spool

Tip: Consider starting the procedure with the ulna if there are any concerns about sizing - the ulna typically provides the size limitation for the implant.

Humeral preparation

Initial cut

Make a cut between the medial and lateral posterior trochlear ridges and a coronal cut at the center of the fossa. The initial cut should be wide enough to accommodate the stem of the humeral broach to allow access to the medullary canal. Nearly all of the trochlea needs to be removed in order to accommodate the humeral broach.



Tip: Be cautious not to fracture the medial or lateral condyle when making the intial cuts. It is recommended to keep any excised bone to use as a graft behind the anterior flange of the humeral component.

Initial entry

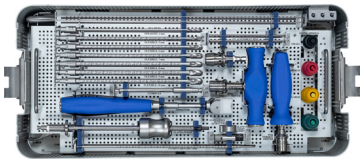
Use a high speed burr to open the medullary canal. A guide wire is placed in the medullary canal and cannulated flexible reamers are used if the canal is small to reduce the risk of fracture when using the humeral broaches. Reamers should be routinely used for revision stems.

Humeral component	Reamer size	Length to ream
Small	Up to 6mm	72mm
Medium	Up to 8mm	77mm
Large	Up to 10mm	83mm

Tip: Use the base of the olecranon fossa as a landmark for how deep to make the initial entry.

Tip: Listen for diaphyseal chatter, not entry chatter, when using the reamers to know that the canal has been sized up appropriately.

Tip: Reaming may be performed manually with the 10Nm torque handle or under power.



Top tray (9030501)

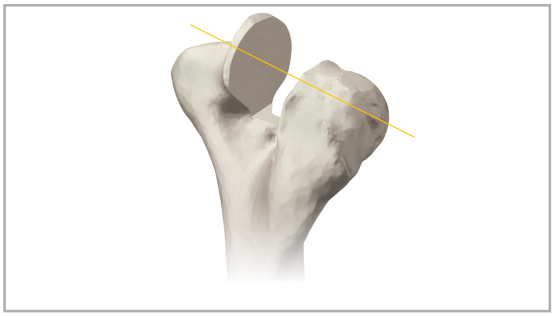
4mm straight reamer

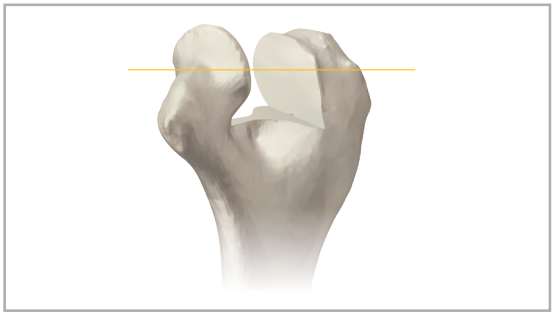
5mm -10mm flexible reamers

Guide wire

Humeral broaching

Using a mallet, insert the starting broach until the flexion/extension (F/E) line on the posterior surface is lined up with the patient's F/E axis. If performing a left elbow replacement, the words **posterior left** should be visible. If performing a right elbow replacement, the words **posterior right** should be visible. Humeral broaching should be done sequentially to the selected humeral component size. Broaches are color coded to match the correct spool size.



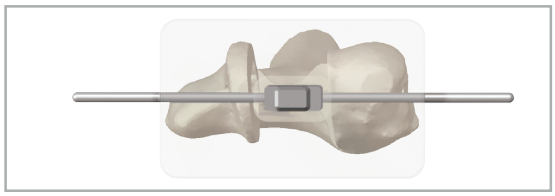


Tip: If the patient has healthy bone stock, consider tapping the broach 2-3 times, removing, and then repeating. This will reduce the bone that gets pushed down the canal and will help reduce the possibility of a fracture.

Tip: If broaching becomes difficult, use the flexible reamers to further open the diaphyseal canal.

The F/E axis can be approximated in several ways:

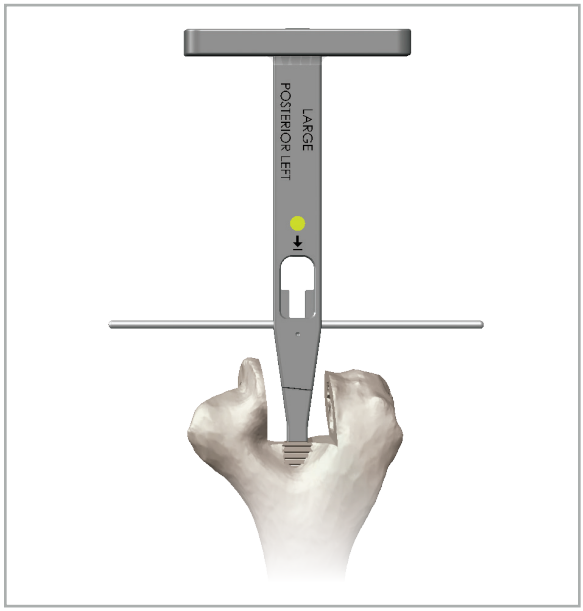
1. The easiest way is to impact the broach until the F/E line on the posterior surface of the broach lines up with the anteroinferior portion of the medial epicondyle (origin of the medial collateral ligament).



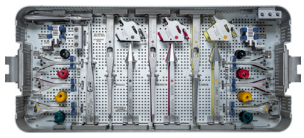
2. When viewing the internal cut surface of the trochlea, it is circular. The center of the circle will be the approximate F/E axis.

3. The internal cut surface of the capitellum on the lateral side is circular and the center of this is approximately the F/E axis.

The F/E alignment pin can be used to aid rotational alignment by inserting it through the medial/lateral hole in the humeral broach. The alignment pin should be rotated to intersect the anterior portion of the medial epicondyle. If the condyles are missing as is common with distal humeral fractures or revisions the broach should be internally rotated 15 degrees relative to the posterior flat surface of the distal humerus.



Tip: The humeral broaches allow for a 1mm cement mantle. If the broach is too tight, avoid fractures by either reaming the canal with a flexible reamer or using a broach one size lower than the definitive implant.

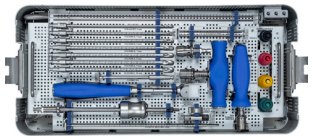

Bottom tray (9030501)


Humeral broach starting size


Humeral broach small size


Humeral broach medium size

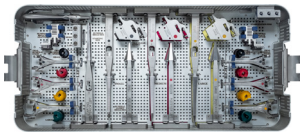

Humeral broach large size


Top tray (9030501)

F/E alignment pin

Trochlear cut

Attach the broach adaptor to the humeral broach and push it down to lock it in place. Attach the trochlear cut guide to the broach using the broach adaptor. Depress the lever on the guide and slide it on until it touches bone. Use a 3mm drill bit to drill through the two holes in this guide and insert a stabilization pin into each hole in order to secure it. **The distal cut extension on the trochlear cut guide should be over the capitellum indicating that the mediolateral and rotational orientation is correct**. Care should be taken not to place the cutting guide too proximal as it may result in a very thin medial column susceptible to fracture. Thus, it is important to line up the F/E axis correctly on the original broach to prevent overly proximal placement of the trochlear cut guide. If the medial column appears to be very thin, consider downsizing the component or shifting the humeral broach more laterally.



Bottom tray (9030501)

Humeral broach adapter: right and left

Small trochlear cut guide

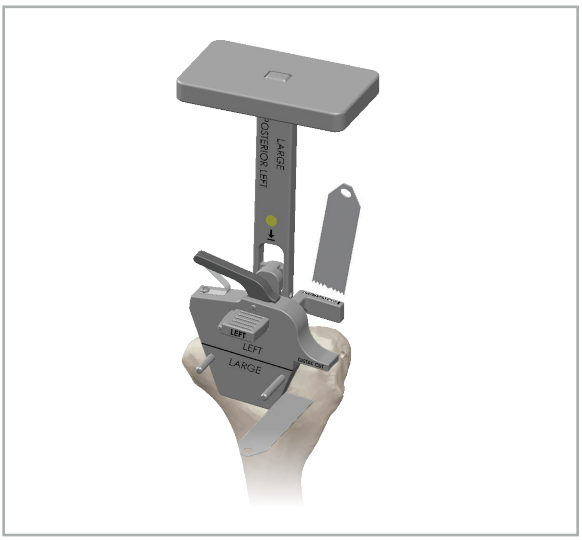
Medium trochlear cut guide

Large trochlear cut guide

Stabilization pins

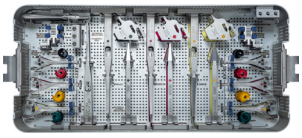
Use a reciprocating or oscillating saw to cut along the outside edges of the trochlear cut guide. There are five trochelar cuts:

1. Bottom middle cut. Be sure to stop prior to hitting the broach and avoid notching the corners as this may lead to stress risers and predispose to a column fracture.
2. Lateral cut.
3. Medial cut.
4. Distal capitellum cut. Cut along the bottom surface marked **distal cut**.
5. Anterior cut. Use the back of the broach adaptor marked **anterior cut**.



Tip: It may be easier to use the guide to score the cuts and then complete the cuts once it is removed. Be sure to complete all five cuts - often the anterior cut is missed.

Use the pin puller to remove the stabilization pins from the trochlear cut guide, and then remove the trochlear cut guide, broach adaptor and humeral broach. Finish the bottom cut with an oscillating saw.



Bottom tray (9030501)

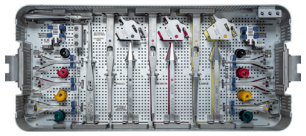
Pin puller

Note: In situations where distal humeral landmarks are not present due to previous trauma or bony erosions, several different strategies can be used to obtain a reasonable approximation of appropriate humeral positioning:

1. If the proximal portion of the olecranon fossa is still present, it can be used for a landmark as the location of the proximal portion of the yoke of the humeral component.
2. Internal rotation of the humeral component 15º relative to the flat posterior surface of the distal humerus approximates the correct rotational alignment.
3. If no distal humeral landmarks are present, appropriate positioning can be estimated by soft tissue tensioning with respect to the proximal ulna. This is better approximated with triceps-on approaches.
4. Appropriate size of the component can be estimated based on radiographic templating of the uninvolved contralateral elbow.
5. When distal humeral landmarks are not present, generally a linked component will be employed and sizing is not quite as important. Sizing can be based more on ulnar fit or intramedullary fit.

Humeral gusset broaching

To prepare the humerus for the fins of the humeral component, use the humeral gusset broach that matches the final humeral broach used (small, medium, or large). Align the tip of the gusset broach into the canal, checking for correct alignment and rotation, with the correct right or left visible. Use a mallet to insert the humeral gusset broach until the F/E mark lines up with the natural F/E axis.



Bottom tray (9030501)

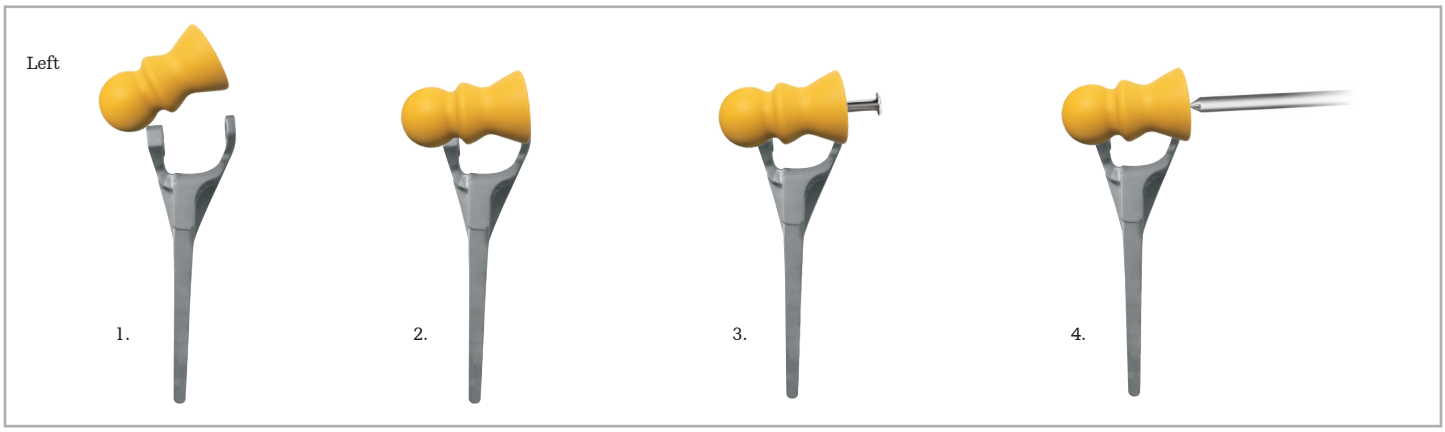
Small humeral gusset broach

Medium humeral gusset broach

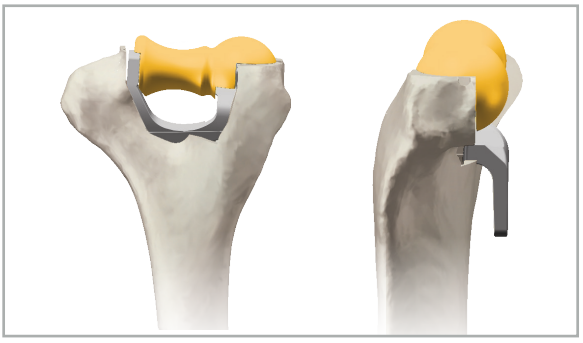
Large humeral gusset broach

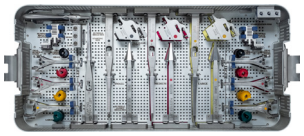
Humeral trial

Select the appropriate side, size and length trial humeral stem and corresponding trial humeral spool. Place the capitellum of the trial humeral spool on the left for a left trial stem and on the right for a right trial stem. An "M" is marked on the medial side and an "L" is marked on the lateral side. Insert the appropriate size trial humeral screw from medial to lateral, and tighten using the 3.5mm screwdriver on the 3Nm torque driver.



Position the trial stem assembly in the humeral shaft and use the impactor to seat the trial implant flush with the capitellum. Appropriate distal proximal and rotational positioning of the trial stem can be verified by ensuring the humeral screw of the trial component lines up with anteroinferior aspect of the medial epicondyle.



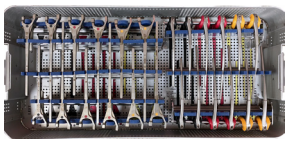


Bottom tray (9030501)

Small trial humeral spool | Medium trial humeral spool | Large trial humeral spool | Large+ trial humeral spool

Right and left

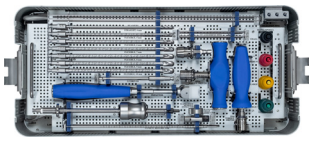
Small trial screw | Medium trial screw | Large trial screw | 3.5mm screwdriver



Long stem tray (9030503)

Small trial humeral stem | Medium trial humeral stem | Large trial humeral stem

Right and left, standard, 150mm and 200mm (tray 2 bottom)



Top tray (9030501)

3Nm torque driver

Impactor

Note: If longer stems are required for the case, the instrument set 9030503 is needed. The use of flexible reamers is recommended to prepared the medullary canals when long stem humeral components are used.

Ulnar preparation

The ulnar component will be the same size as the humeral component. The Latitude EV components are not interchangeable; they are based on the width of the articulation.

Before proceeding with ulnar preparation, the surgeon should determine whether or not the radial head will be replaced or removed. Replacing the radial head with the prosthetic component should only be done when the radial capitellar alignment is near anatomic and thus can be restored in this fashion. Removal should be considered when anatomic alignment to the capitellum is not possible; this is generally the case if the radial head has been previously resected or there is pre-existing deformity. Replacement of the radial head is preferred when performing an unlinked arthroplasty due to the improved stability with restoration of the lateral column. If a linked arthroplasty is planned replacement of the radial head is not essential.

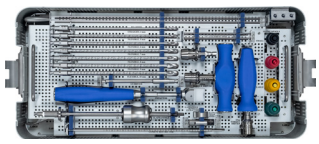
There are two options for ulnar preparation:

Ulnar preparation option 1 – ulnar jig

This option is used most commonly when proximal ulnar bonestock is preserved.

Select the correct ulnar jig, **left** or **right**, and assemble by placing the sizing spool into the greater sigmoid notch of the ulna; the capitellar portion should align and articulate with the center of the radial head where available. Slide the post of the ulnar jig into the sizing spool. Tighten the clamp on the flat portion of the olecranon. Ensure the correct alignment of the spool with the ulna and radial head while securing the jig.

Tip: Be sure to irrigate or tap the bell saw during the cut to reduce heat build-up.

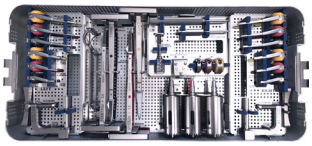

Top tray (9030501)


Small sizing spool


Medium sizing spool


Large sizing spool


Large+ sizing spool


Tray (9030502)

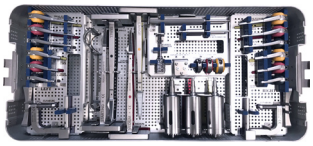

Ulnar jig: Right and left

Radial head resection option 1

If removing the radial head or planning to replace it with a standard radialstem length, use the cutting surface marked **radial cut** and resect the radialhead using an oscillating saw.

Note: Deciding not to resect the head at this point in the procedure, continue on to the steps detailed on the next page and resume preparation of the ulna using the ulnar jig.

Select the correct Bellsaw size (small, medium, or large) and attach to power. If the radial head was not removed, place the radial head protector between the radial head and the ulnar head. With the appropriate size Bellsaw under constant irrigation, cut the ulna. Ensure the ulnar nerve is protected when making this cut. After the cut is made, remove the ulnar jig assembly and bellsaw. If there is any additional bone on the ulna that needs to be removed, use the barrel reamer to refine this cut. The ulnar trial can be used as a visual aid to help in appropriate ulnar preparation when utilizing this option.



Tray (9030502)

Small bell saw

Medium bell saw

Large bell saw

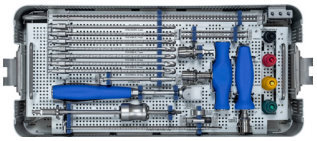
Radial head protector

Option B - Ulnar barrel reamer

Used in the setting of proximal ulnar bone loss.

Barrel reamer

Attach the barrel reamer to power and use it to shape the ulna into c-shape that will accommodate the appropriate ulnar trial. The ulnar trial can be used as a visual aid to help in appropriate ulnar preparation when utilizing this option.



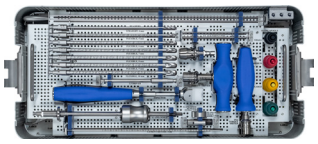
Top tray (9030501)

Barrel reamer

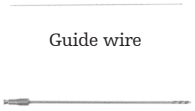
Initial entry

Open up the ulnar canal using a burr at the base of the coronoid. If preferred, cannulated flexible reamers may be used to further open the canal prior to broaching and are recommended if using a revision stem. If the flexible reamers are used, be sure to use them sequentially to avoid potential perforation.

Tip: Do not use the flexible reamers in the ulna without a guide wire to reduce the possibility of perforation.



Top tray (9030501)



Guide wire

4mm straight reamer

5mm -10mm flexible reamers

Step 11: Ulnar broaching

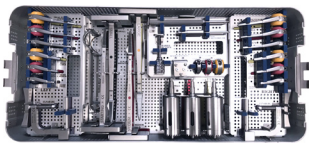
Broach the ulnar canal beginning with the starting ulnar broach and proceeding sequentially to the broach sizes that match the selected ulnar component size. Insert the ulnar broach in the ulnar canal respecting the radial inclination of the proximal ulnar shaft.

The broach should be parallel to the flat posterior portion of the proximal ulna. The F/E alignment pin can be used to aid in alignment by inserting it through the medial/lateral hole in the ulnar broach.

Tip: Align the flat portion of the broach with the flat spot of the bone.

Tip: Hold the trial stem up to the bone to determine how deep to broach.

Impact with a mallet and broach until the apex of the fin is in contact with the bone.



Tray (9030502)

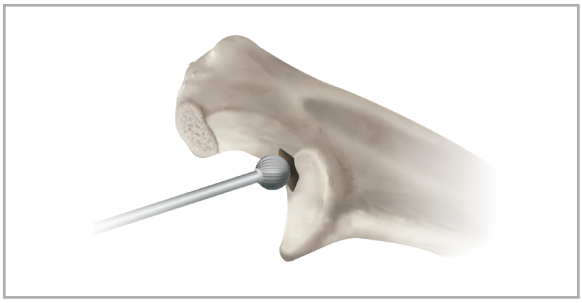
Starting ulnar broach

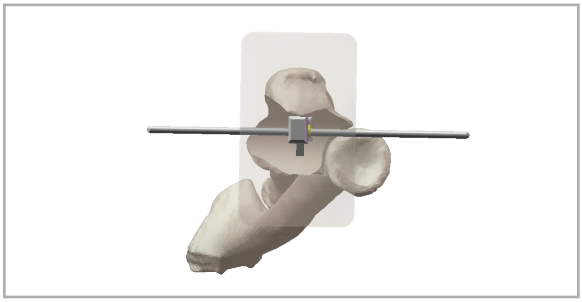
Small ulnar broach

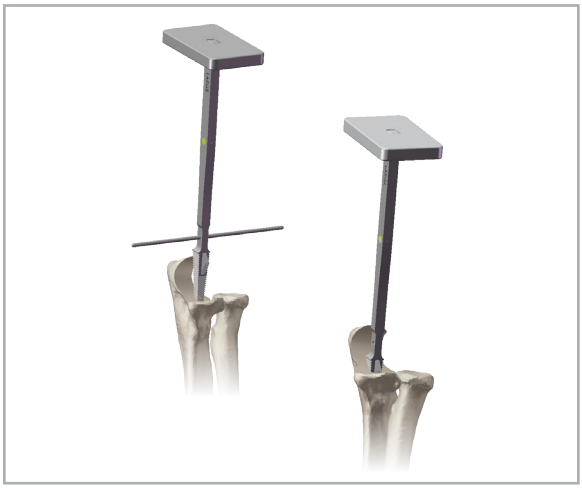
Medium ulnar broach

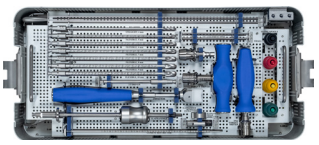
Large ulnar broach

Ulnar component	Reamer size	Length to ream
Small	Up to 5mm	27mm
Medium	Up to 6mm	33mm
Large	Up to 7mm	37mm







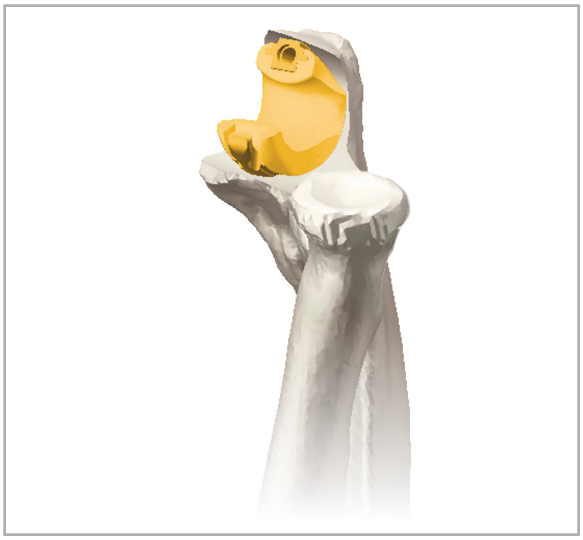


Top tray (9030501)

F/E alignment pin

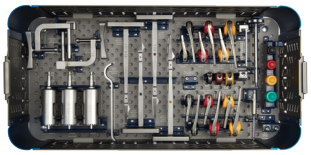
Ulnar trial

Select the correct Trial Ulnar Stem and impact it using a mallet and the Impactor. The correct ulnar component depth, rotation and position is confirmed by holding the spool in alignment with the radius.



Note: There is no large+ ulnar component; use the large if using large+ radial and humeral components.

Tip: If there are challenges seating the trial, consider trialing with the short stem. If that seats, then additional diaphyseal reaming is needed. If the short stem does not work, then check that the broach has been completed sufficiently.



Tray 1 bottom

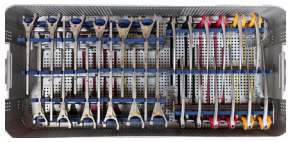
Small
trial ulnar stem

Medium
trial ulnar stem

Large
trial ulnar stem

Right and left, short, standard, 125mm and 150mm

Note: If longer stems (125mm & 150mm) are required, the instrument set 9030503 is needed. Flexible reamers are required to prepare the medullary canals for the longer ulnar components.



Long stem tray (9030503)

Radial preparation - optional

Screw the trial radial head impactor to the trial radial stem (broach). Starting with the 5mm trial radial stem, tap the handle until the collar of the broach seats on the resected surface. If a large stem is desired, broach next with the 6.5mm broach.

Upon completion, unscrew the handle leaving the broach seated in the canal. Using the same color code, select the appropriate size trial radial head and snap onto the trial stem.

Caution: Latitude EV can be used with or without its radial head replacement component. The native radial head always needs to be resected prior to final implantation. The humeral and ulnar components must always be used in the procedure. The radial head component needs to be carefully considered in all cases, particularly when lateral joint load sharing needs to be reasonably recreated, such as in the case of unlinked arthroplasty.

Note: If the radial head component is not going to be implanted during the procedure, proceed to Step 14: Trial and reduction, detailed on the next page.

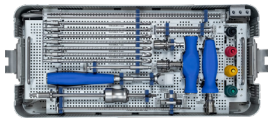
Radial head resection

Standard radial stem - Option A

Option A is used when using standard radial stem (25, 30, and 35mm).

Use the cutting surface on the ulnar jig marked **radial head** to resect the radial head as described on page 13.

Instruments for standard radial head resection.

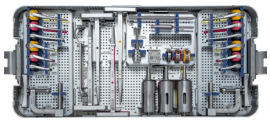

Top tray (9030501)


Small sizing spool

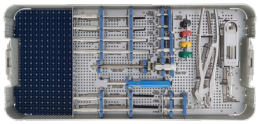

Medium sizing spool


Large sizing spool


Large+ sizing spool


Tray (9030502)


Ulnar jig: Right and left


Radial preparation tray (9030504)


Trial standard radial stems 4.5mm, 6.0mm, 8mm & 10mm diam.


Small trial radial head


Medium trial radial head


Large trial radial head


Large+ trial radial head

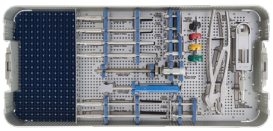
Long stem resection - Option B

Option B is used when using long radial stem (45 & 55mm).

The long stem cute guide (9030397) requires the radial head to be removed prior to use. The ulnohumeral joint must be reduced when using this device to ensure the correct radial length. With the joint reduced, rest the proximal side of the long stem cut guide against the capitellum. while maintaining contact with the humerus, rotate the cut guide to be perpendicular with the diaphyseal axis of the radius.

Finally, perform the resection using the distal side of the cut guide as a reference with a saggital saw.

Instruments for long stem radial head resection.

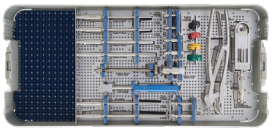

Radial preparation tray (9030504)


Trial long radial stems 6.0mm, 8mm diam.

Radial ream

Sequentially ream the radial canal starting with the 4.5mm radial stem reamer. The radial reamers should be advanced until the end of the cutting flutes are flush with the resected surface of the radius.

Instruments for radial reaming.



Radial preparation tray (9030504)

Radial stem reamers

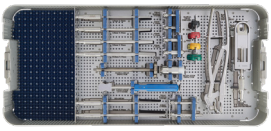
Radial trial

Select the radial stem trial which corresponds with the final size of reamer used. Screw the trial radial head impactor to the trial radial stem and insert the trial into final position.

Tip: If a long radial stem is to be used, long stem have an additional consideration of neck orientation. The angled neck of the long stem trial should be in the same orientation as the radial styloid. The long stem trial has notches within the collar which are perpendicular to the plane of neck inclination. These notches are also present on the implant and can be used to verify the long stem trial and long stem implants are placed in the same orientation.

Upon completion, unscrew the handle leaving the trial radial stem in the canal. Using the same color code, select the appropriate size trial radial head and firmly snap onto the stem.

Instruments for radial trial.



Radial preparation tray (9030504)

Radial head and stem impactor

Trial radial stems 4.5mm, 6.0mm, 8mm & 10mm

Small trial radial head | Medium trial radial head | Large trial radial head | Large+ trial radial head

Trial, reduction and implant assembly

Trial and reduction

The trial components can be placed unlinked or linked.

Unlinked

Reduce the trial humeral, ulnar and radial components. It is strongly recommended that the radial head component be carefully considered when leaving the prosthesis unlinked. Perform the initial trial reduction by placing the triceps in its anatomic position. The elbow should articulate through a full range of motion (ROM), testing for stability, articular tracking, axis of rotation, and ROM. Of particular concern is tracking of the prosthetic radial head to the capitellum. In general, for the elbow to be unlinked, lateral joint load sharing needs to be reasonably recreated. Radial capitellar articulation should be visualized through a flexion/extension arc and through supination/pronation to verify reasonable tracking. Additionally, there should be 10° of varus-valgus motion available through the elbow joint even in the presence of radial capitellar articulation. If there is less than this amount of valgus angulation possible, it indicates that the radial head component may be proud and thus, preventing normal varus-valgus freedom in the articulation. If the trial reduction is satisfactory, remove the trial components and prepare the elbow for the final implants. If the trial reduction is not satisfactory, check that the trial implants are correctly positioned and that no soft tissue impingement has occurred. Check for impingement of the coronoid process on the anterior flange of the humeral component in flexion and impingement of the olecranon process on the humeral component in extension, and resect as required. In case of an unstable elbow, use the trial cap to link the implant.

Linked

Assemble the trial ulnar cap to the trial ulnar stem and tighten the trial locking screw. Confirm appropriate component placement and perform another trial reduction. Perform the initial trial reduction by placing the triceps in its anatomic position. The elbow should articulate through a full ROM, testing for stability and axis of rotation. If the trial reduction is satisfactory, remove the trial components and prepare the elbow for the final implants. If the trial reduction is not satisfactory, check that the trial stems sit properly on the bone and that no soft tissue or boney impingement has occurred. Check for impingement of the coronoid process on the anterior flange of the humeral component in flexion and impingement of the olecranon process on the humeral component in extension, and resect as required.

If the trial radial head has been utilized, check to make sure that the trial radial head articulates congruently with the capitellum. If maltracking of the trial radial head is evident, component positioning should be adjusted.

Tray (9030502)

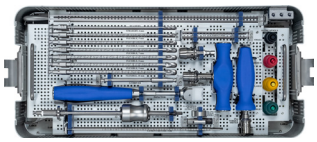

Small trial ulnar cap


Medium trial ulnar cap


Large trial ulnar cap


Trial ulnar cap screw

2.5mm screwdriver


Top tray (9030501)

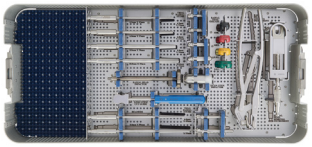

3Nm torque driver

Warning: The 2.5mm screwdriver must only by used with the 3Nm torque driver. Deviation from this technique could result in screw or instrument breakage.

Trial stem removal

Trial radial stems

To remove, screw radial head trial handle into screw hole of radial stem. Gently tap with mallet to extract.

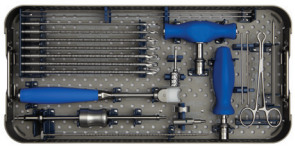


Radial preparation tray (9030504)

Radial stem impactor (9030504)

Trial ulnar stems

Use the ulnar stem extractor tool.



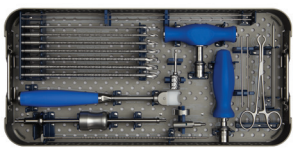
Tray 2 top

Slaphammer (9030370)

Slaphammer ulnar attachment (9030371)

Trial humeral stems

Grasp the humeral trial spool with the humeral extractor clamp. Gently tap retrograde and remove the component.



Tray 2 top

Slaphammer (9030370)

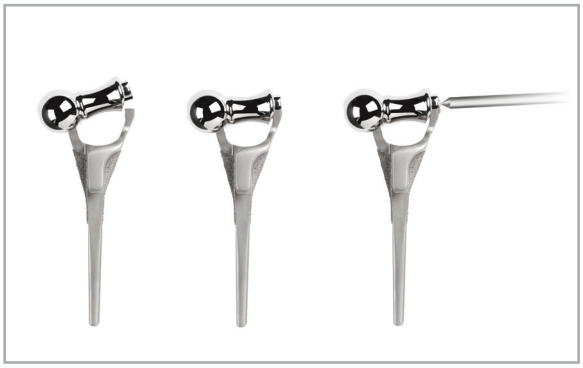
Slaphammer humeral attachment (903072)

Final implant assembly

After all trial components have been removed, lavage and dry all medullary canals.

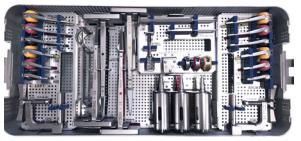
Cement restrictors should be used:

- EBO101 Diameter range of 8mm-15mm
- EBO102 Diameter range of 5mm-8mm



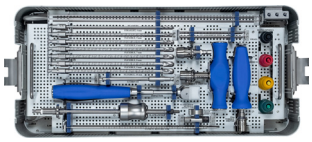
Assembly of final components

Assemble the humeral stem (side and size) to the appropriate humeral spool (side and size). Firmly tighten the implant humeral screw (cannulated) with the 3.5mm hex screwdriver using the 3Nm torque driver. The PEEK ring inside the spool deploys to prevent screw backout. Once the spool is removed it should not be reused as this locking ring is destroyed in the process.



Ulnar preparation tray (9030502)

3.5mm screwdriver

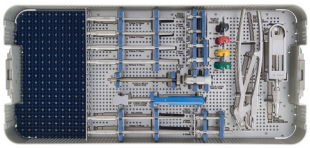


Top tray (9030501)

3Nm torque driver

Note: Leave protecting Ulnar Screw in its component to prevent cement from coming in contact with the threads during cementation.

If the radial head is going to be replaced, assemble the final radial stem with the radial head trial. This is to confirm alignment of the stem while still having access to the radial stem to remove excess cement. The final radial head should not be inserted until after the completion of the cementing step.



Tray 1 bottom

Small trial radial head

Medium trial radial head

Large trial radial head

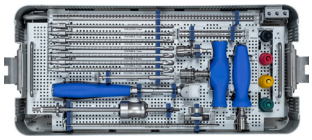
Large+ trial radial head

Cement technique and bone graft

Using a cement gun, bone cement is injected retrograde into the humeral, ulnar and radial canals if radial head is replaced. The components are placed into position, removing all excess cement, particularly around the bipolar radial head trial component. Depending on preference, the radial and ulnar components can be cemented first and then the humerus or all three can be cemented simultaneously. Reduce the elbow to ensure correct alignment of the components to each other and wait until cement has set.

Note: Avoid movement of the elbow while cement is setting. Torque may reduce alignment accuracy.

Tip: Cement both the radial head and ulnar stem at the same time. To ensure that both components are seated at the same level, use the trial humeral stem and spool as a visual guide to correct insertion.



Top tray (9030501)

Cement restrictor handle

Radial head assembly

Remove the trial radial head component once cement hardened and clean any residual cement from the collar of the radial stem.

Place the radial head implant on the radial stem and depress until the head snaps onto the stem and is loosely held by the internal lock ring.

Introduce the radial head assembly instrument as shown sliding the fork under the radial head and the plate on the poly. Firmly squeeze the instrument handles together pressing the poly into the collar of the radial head trapping the lock ring of the radial head implant.

Tip: Do not remove and reapply head on stem as repeated assembly reduces the disassembly force by damaging the PEEK ring which links the radial head and stem.

If the poly does not fully seat around the circumference of the collar, rotate the radial head 180°, depress and squeeze the assembly instrument again.

Instrument should be advanced until circular boss has been referenced.

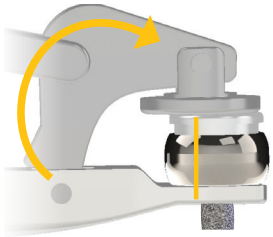
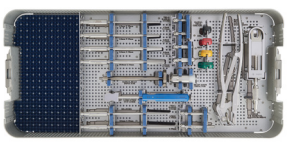


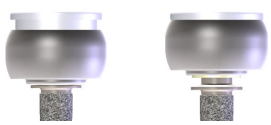
Plate begins off-center and then advances to the center while locking head.

As soon as the poly has seated into the collar the component is fully locked.



Radial head preparation tray (9030504)

Radial head assembly instrument



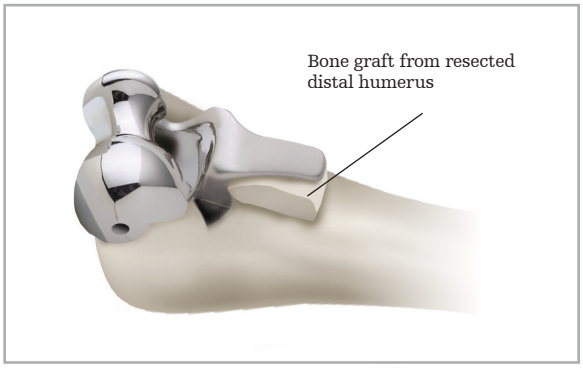
Radial head unlocked and locked

Cement technique and bone graft (continued)

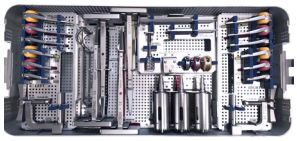
After the cement has completely set, remove the protecting Ulnar Screw with the 2.5 mm hex screwdriver and the 3 Nm torque handle. Discard the screw.

Reduce the humeral and ulnar components and flex to approximatively 140°.

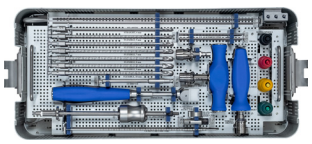
If implanting a linked prosthesis, insert ulnar cap into the ulnar stem. Tighten the supplied cap screw until the torque release is reached. Using the tab bending tool and a mallet, bend the cap tab over the screw.



Warning: The 2.5mm screwdriver must only by used with the 3Nm torque driver. Deviation from this technique could result in screw or instrument breakage.


Ulnar preparation tray (9030502)

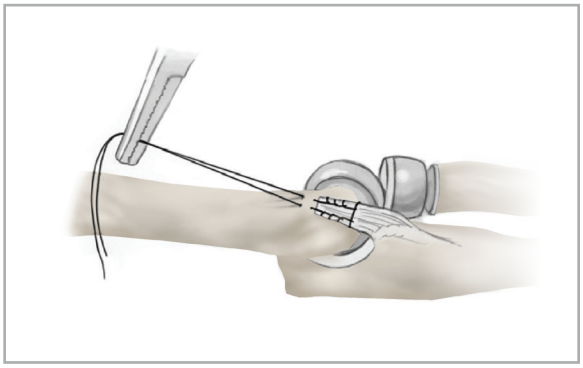
2.5mm screwdriver


Top tray (9030501)

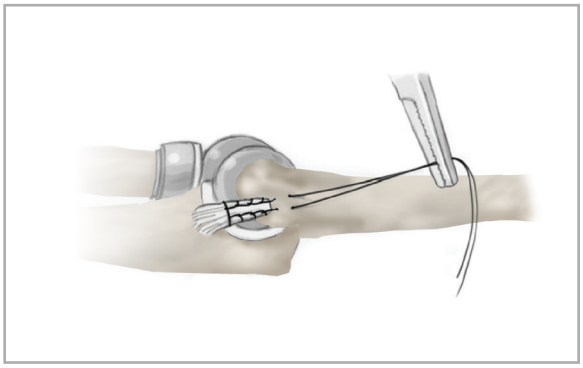

3Nm torque driver

Closure

The tourniquet is deflated and hemostasis is secured. The Latitude EV system has a cannulated humeral bolt allowing for repair of the collateral ligaments and common flexor/extensor origins to the implant and the adjacent epicondyle if desired. #2 Force Fiber sutures are placed into the medial and lateral collateral ligaments. A suture passer is used to pass these sutures across the axis bolt of the distal humerus. A 1.5 mm drill is often required to drill through the axis bolt as bone and cement in the lateral column often block the use of the suture passer. With the elbow reduced the end of these sutures are then passed through the contralateral collateral ligament as well as the common flexor and extensor origins and securely tied. The end of these sutures are left long and then passed over the posterior aspect of the olecranon to serve as a circumferential suture to prevent elbow subluxation or dislocation of an unlinked implant in the post-operative period.



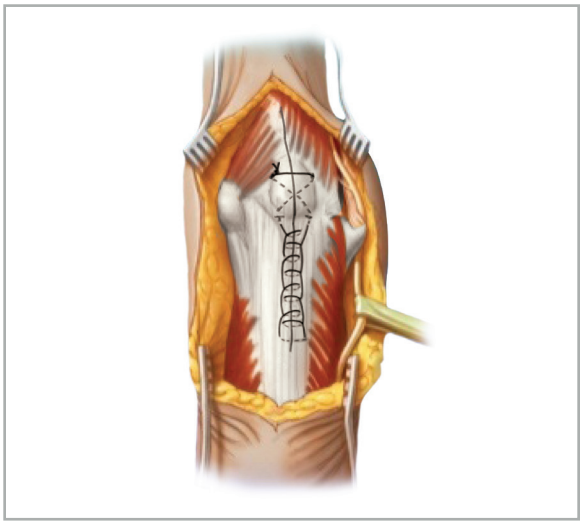
If the triceps had been detached it should be carefully repaired using non-absorbable locking Krackow sutures placed through drill holes in the ulna. Oblique and transverse drill holes are employed. Care should be taken to ensure that any knots are buried such that they will not be irritating to the patient. The ulnar nerve is secured in the anterior subcutaneous pouch using a #1 absorbable suture approximating the subcutaneous fat to the flexor pronator origin. The wound is closed in layers over a drain.



Postoperative recommendation

Unlinked TEA

Postoperative rehabilitation is left to the discretion of the surgeon and physical therapist, and may vary from patient to patient. As a general guideline, the elbow is immobilized at 60° in a well-padded splint for 2 to 10 days depending on skin quality. Active flexion and gravity assisted extension is performed with forearm in neutral rotation. Active range of motion exercises with the patient supine and the arm overhead uses gravity to stabilize the elbow and can be useful to facilitate early motion. Abduction of the elbow away from the body should be avoided to reduce varus stress on the ligament repairs in the early postoperative period.



Active extension is avoided for 6 weeks to protect the triceps repair. If a lateral paraolecranon or paratricipital approach was used, active extension is permitted as soon as the wound is stable. Prosupination is performed with the elbow in flexion. A 90 degree resting splint is used between exercises for the first 6 weeks. Extension splinting at night may be used to assist in regaining elbow extension after six weeks. Light strengthening is initiated 10 weeks postoperatively.

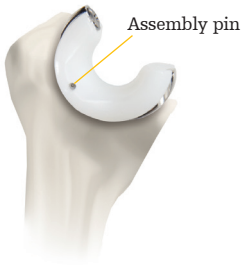
Linked TEA

The elbow is immobilized at 30 degrees with a well-padded anterior splint for 2 to 3 days depending on skin quality. Active flexion and prosupination is performed without restriction. Gravity assisted extension is used to protect the triceps repair for 6 weeks. If a lateral paraolecranon or paratricipital approach was used, active extension is permitted immediately postoperatively. Light strengthening is initiated 10 weeks postoperatively. Night extension splinting is initiated immediately postoperatively to maximize elbow extension.

Ulnar bushing revision technique

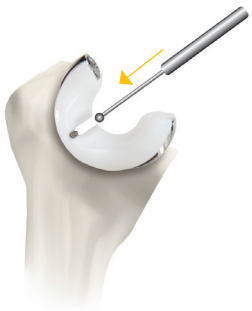
Step 1

Remove the mantle of cement surrounding the ulnar polyethylene using a fine tipped burr.



Step 2

Locate the position of the assembly pin from the medial side.

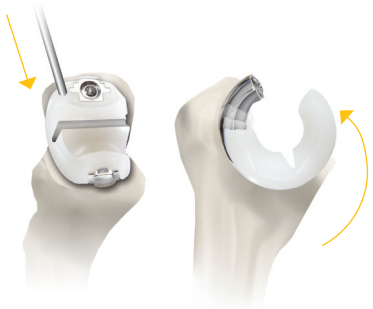


Step 3

Using a burr, remove the polyethylene to gain full access to the pin. Grasp the pin with heavy pliers and remove.

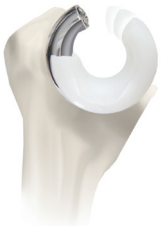
Step 4

If the pin does not come out, use a tapered device, such as the tab bending tool, and a hammer, and tap from the lateral side to remove the pin.



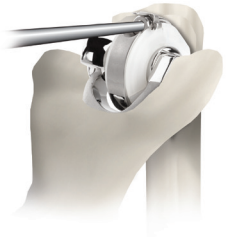
Step 5

Once the pin has been removed, the ulnar polyethylene can be slid off the ulnar stem. It can be helpful to use a tapered tool and a hammer to assist.



Step 6

Position the new polyethylene bushing on the ulnar stem and rotate it on the slide channel until it is fully engaged.



Step 7

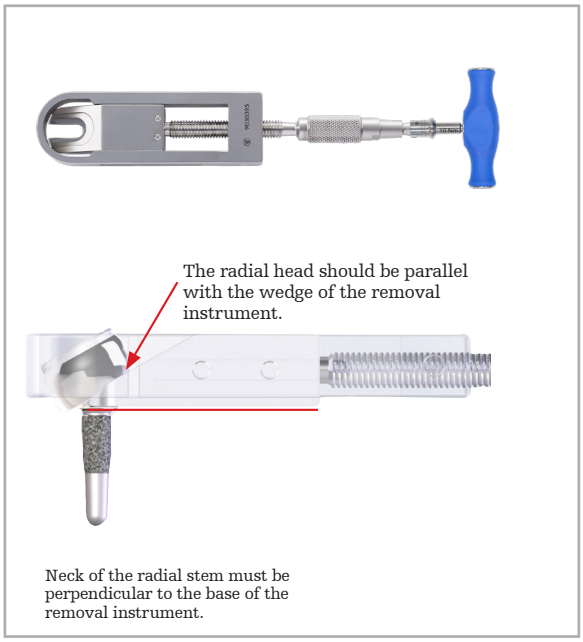
Assemble the ulnar cap to the ulnar stem after the polyethylene bushing is replaced, and bend the tab over the screw using the tab bender and a mallet. The ulnar cap secures the bushing on the ulnar stem.

Radial head revision

Radial head removal instrument should be used for removal of the radial head implant from the radial stem.

The instrument is placed over top of the head and advanced by hand using the 10 Nm T-handle. The instrument will force the head off of the stem using an inclined plane placed between the collar of the stem and the collar of the head. Alignment is simplified by aligning the instrument and tightening it loosely prior to attaching 10Nm T-handle.

If head does not fully remove, the PEEK lock ring has been permanently compromised by the removal instrument. First, rotate the radial head 180 degrees and use the removal instrument again. Alternatively, manually remove the head from the stem using heavy pliers or a vice grip.



Note: Do not use under power. Manual removal allows for tactile feedback of what is occurring within the implant. Torque will ramp quickly and then plateau as the PEEK lock ring is being pulled over the head of the radial stem. The force begins to decline as the head passes over the equator of the stem.

Generational compatibility and incompatibilities

Latitude EV Elbow Arthroplasty System implant history

Generation	Year available	Implant changes
1	2001-2002	
2	2003-Nov 2007	Redesigned ulnar stem and cap
	Nov 2007-July 2012	Redesigned humeral stem and spool
3 Latitude EV	July 2012	New humeral and ulnar stems; new plasma coated humeral stems; humeral spools centered only
4 Latitude EV	June 2019	New radial stem diameters and lengths and new radial heads with updated locking mechanism

When preparing for revision surgeries using the Latitude EV Elbow Arthroplasty System, it is important to take note of the original surgical date as well as the components used in order to ensure appropriate components are available. There are several known mating conflicts that can be avoided with adequate preparation.

Latitude EV Elbow Arthroplasty System revision incompatibilities*

Mating conflict	Component	Historic item number reference	Options
Latitude EV humeral spool with generation 1 humeral stem	Humeral spool	Generation 1 humeral stem: DKY-001, 002, 003, 006, 007, 008 Spool: DKY-011, 012, 013, 014, 016, 017, 018, 019, 021, 022, 023, 024, 026, 027, 028, 029, 031,032, 033, 034, 036, 037, 038	Revise the humeral stem with a Latitude EV humeral stem
Latitude EV ulnar cap with generation 1 ulnar components	Ulnar cap	Generation 1 ulnar stem: DKY039, 041, 042, 043, 046, 047, 048 Cap: DKY051, 052, 053	Revise the ulnar stem and cap with Latitude EV components
Latitude EV ulnar bushing with generation 1 ulnar components	Ulnar bushing	Generation 1 ulnar stem: DKY-041, 042, 043, 046, 047, 048 Cap: DKY-051, 052, 053	Revise all ulnar stem and cap with Latitude EV components
Latitude EV radial head with generation 1 radial components	Radial head	Generation 1 Radial stem: DKY061,062 Radial stem: DKY-056,057,058,059	Revise radial implants with Latitude EV components. Please note that the generation 1 radial components are not compatible with the generation 2 radial implants released in June 2019.

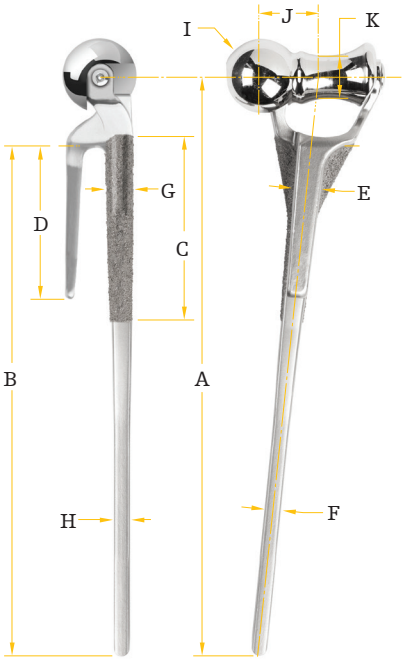
*All other revision combinations are compatible.

Product dimensions

Humeral stem and spool dimensions

Stems

Item	Description	Length	Small	Medium	Large
A	Stem length from flexion/ extension axis	Standard	90mm	97mm	104mm
		150mm	150mm	150mm	150mm
		200mm	200mm	200mm	200mm
B	Stem length from flange	Standard	72mm	77mm	83mm
		150mm	132mm	130mm	129mm
		200mm	182mm	180mm	179mm
C	Plasma spray length	Standard	28mm	28mm	28mm
		150mm	42mm	42mm	42mm
		200mm	42mm	42mm	42mm
D	Flange length	Standard	18mm	18mm	18mm
		150mm	45mm	45mm	45mm
		200mm	45mm	45mm	45mm
E	Stem width medial/lateral	All	7.7mm	8.2mm	8.7mm
F	Stem width distal	All	4.4mm	4.7mm	5mm
G	Stem depth anterior/posterior	All	6.5mm	6.7mm	7mm
H	Stem depth distal	All	4mm	4mm	4mm



Spools

Item	Description	Small	Medium	Large	Large +
I	Condyle diameter	19mm	21mm	23mm	23mm
J	Trochlea/condyle distance	15.5mm	17.5mm	19.5mm	21.5mm
K	Trochlea diameter	10mm	11mm	12.5mm	12.5mm

Using the corresponding size broach will create approximately .50mm cement mantle on the anterior, lateral and medial surfaces of the plasma spray coated areas. Downsizing one broach size will create a line to line fit on the anterior, posterior, lateral and medial surfaces of the plasma spray coated areas.

The humeral stem is made from cobalt-chromium alloy according to ASTM F799, ISO 5832-7 or ISO 5832-4 and is coated with titanium alloy according to ASTM F1580.

The humeral spool is made of chromium-cobalt alloy (CrCo) according to ISO standard 5832-7 or ISO 5832-12 and of polyetheretherketone (PEEK polymer) according to standard ASTM F2026.

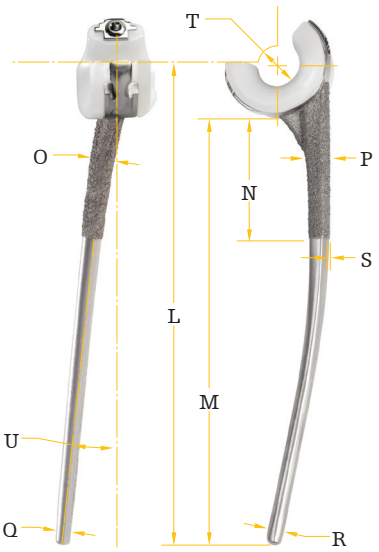
The humeral screw is made of stainless steel according to ISO 5832-9, ASTM F1586 or ASTM F1314.

Product dimensions

Ulnar stem dimensions

Stems

Item	Description	Length	Small	Medium	Large
L	Stem length from flexion/ extension axis	Short	41mm	47mm	52mm
		Standard	70mm	75mm	80mm
		125mm	125mm	125mm	125mm
		150mm	150mm	150mm	150mm
M	Stem length from gusset	Short	27mm	33mm	37mm
		Standard	56mm	61mm	65mm
		125mm	111mm	111mm	110mm
		150mm	136mm	136mm	135mm
N	Plasma spray length	Short	14mm	14mm	14mm
		Standard	20mm	20mm	20mm
		125mm	31mm	31mm	31mm
		150mm	31mm	31mm	31mm
O	Stem width medial/lateral	All	6.2mm	6.7mm	7.3mm
P	Stem depth anterior/posterior	All	6.2mm	6.6mm	7.2mm
Q	Tip width medial/lateral	All	4.3mm	4.4mm	4.4mm
R	Tip depth anterior/posterior	All	4.3mm	4.4mm	4.4mm
S	Plasma spray thickness	All	.3mm	.3mm	.3mm
T	Trochlea notch diameter	All	10mm	11.5mm	13mm
U	Centerline offset angle	All	7°	7°	8°



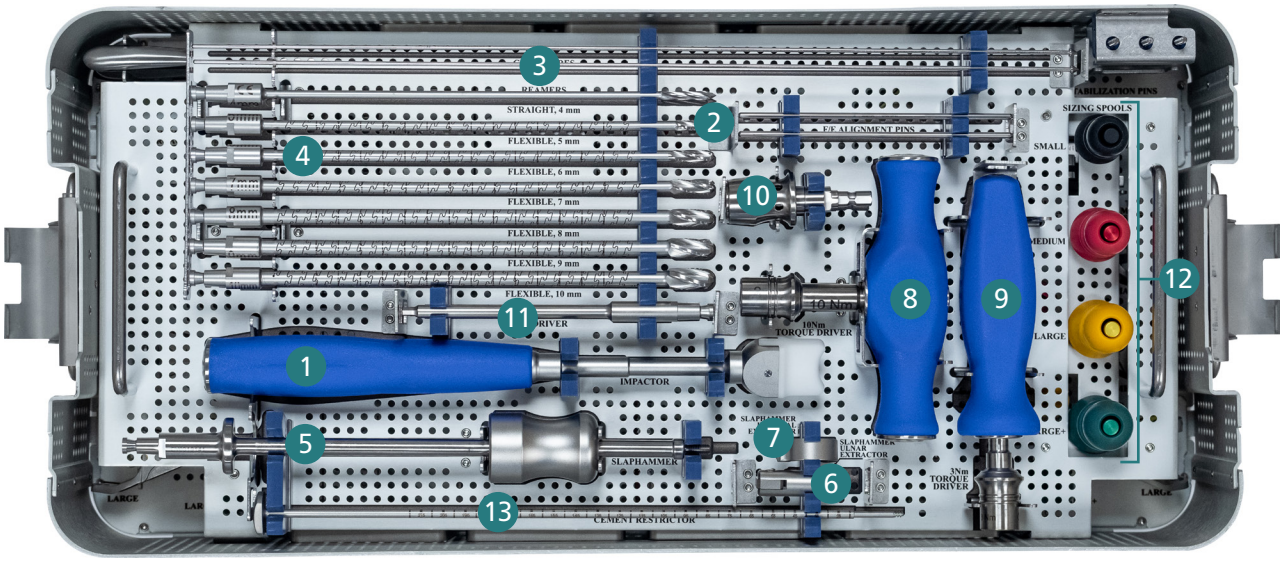
Using the corresponding size broach will create approximately .50mm cement mantle on the anterior, posterior, lateral and medial surfaces of the plasma spray coated areas.

The ulnar stem and ulnar cap are made of cobalt-chromium alloy according to ASTM F799, ISO 5832-7 and/or ISO 1832-12; ultra-high molecular weight polyethylene (UHMWPE) according to ISO 5834-2 or ASTM F648; and stainless steel according to ASTM F138, ASTM F1586, and/or ISO 5832-9. The ulnar stem is coated with titanium alloy according to ASTM F1580.

The radial head and stem are made of chromium-cobalt alloy (CrCo) according to ISO 5832-7 or ISO 5832-12, ultra high molecular weight polyethylene (UHMWPE) according to ISO 5834-2, and polyetheretherketone (PEEK polymer) according to ASTM F2026. The radial stem is coated with titanium alloy according to ASTM F1580.

Instrumentation

Tray 1 top

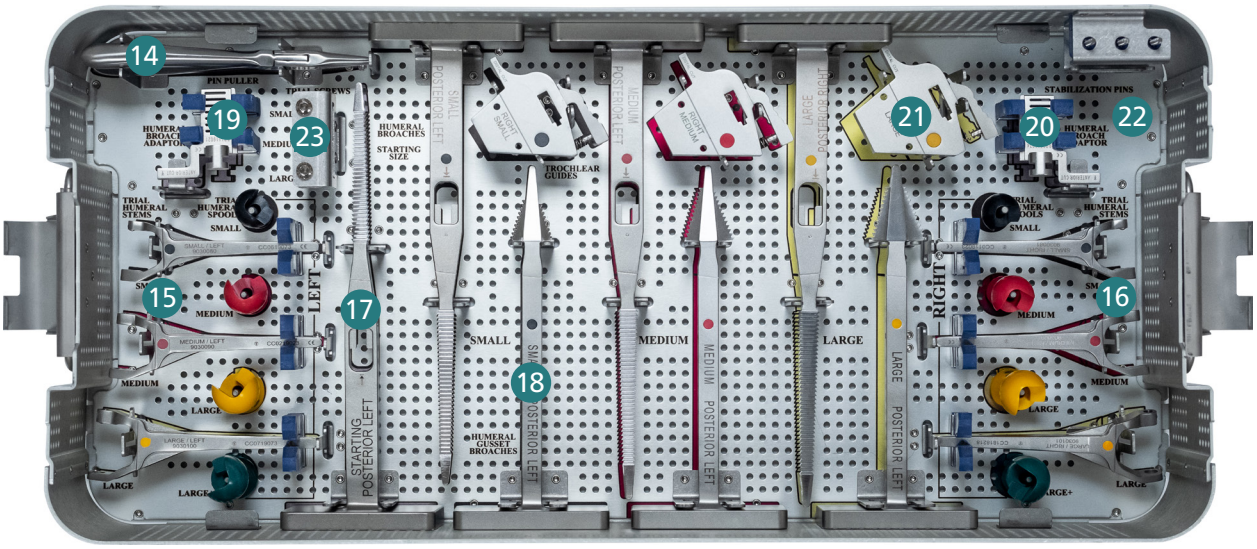


Humeral instruments tray 9030501 - top

Item	Instrument	Ref#	Quantity
1	Latitude impactor	9030120	1
2	Flexion/extension pin	9030135	2
3	2.0mm x 400mm guide wire	9030150	2
4	4mm straight reamer	9030393	1
	Flexible reamer diam. 5mm	9030394	1
	Flexible reamer diam. 6mm	9030155	1
	Flexible reamer diam. 7mm	9030160	1
	Flexible reamer diam. 8mm	9030165	1
	Flexible reamer diam. 9mm	9030170	1
	Flexible reamer diam. 10mm	9030175	1
5	Slaphammer	9030370	1
6	Slaphammer ulnar attachment	9030371	1
7	Slap hammer humeral attachment	9030372	1
8	T-Handle 10N/m torque limiting driver	9030391	1
9	3Nm torque driver handle	9030115	1
10	Hudson connector	9030392	1
11	Radial head impactor	9030315	1
12	Small sizing spool	9030001	1
	Medium sizing spool	9030003	1
	Large sizing spool	9030005	1
	Large + sizing spool	9030007	1
13	Cement restrictor inserter	MKY149	1

Instrumentation

Tray 1 bottom

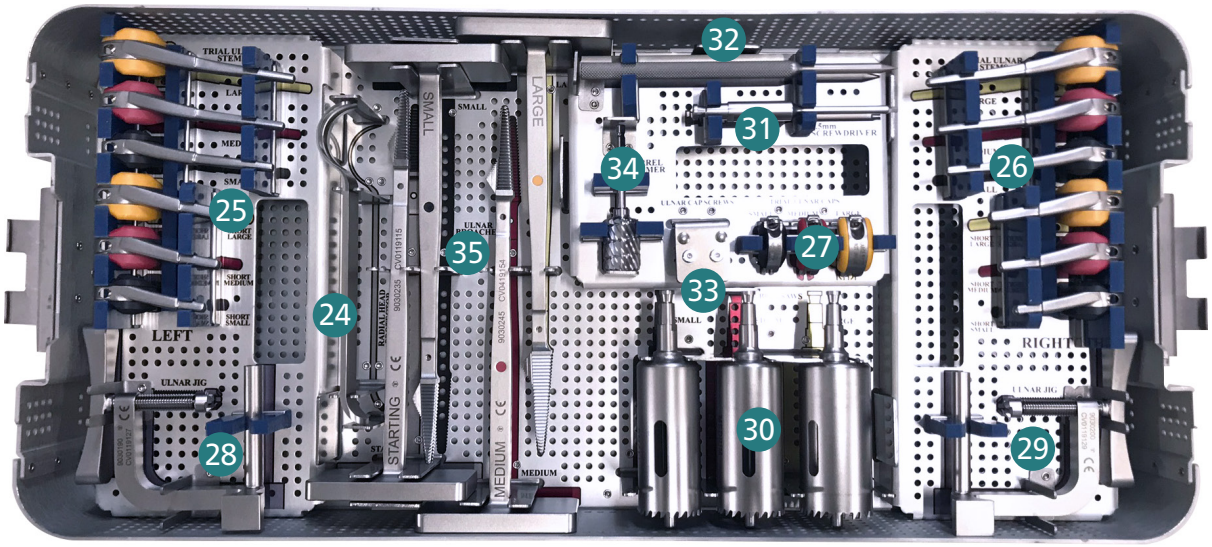


Humeral instruments tray 9030501 - bottom

Item	Instrument	Ref#	Quantity
14	Pin puller or Simpliciti grasper	MCI511 or 9722895	1
15	Humeral spool trial, small left	9030010	1
	Humeral spool trial, medium left	9030012	1
	Humeral spool trial, large left	9030014	1
	Humeral spool trial, large + left	9030016	1
	Humeral stem trial, 72mm small left	9030080	1
	Humeral stem trial, 72mm mediam left	9030090	1
	Humeral stem trial, 72mm large left	9030100	1
16	Humeral spool trial, small right	9030011	1
	Humeral spool trial, medium right	9030013	1
	Humeral spool trial, large right	9030015	1
	Humeral spool trial, large right	9030017	1
	Humeral stem trial, 72mm small right	9030081	1
	Humeral stem trial, 72mm mediam right	9030091	1
	Humeral stem trial, 72mm large right	9030101	1

Item	Instrument	Ref#	Quantity
17	Humeral broach, starting size	9030035	1
	Humeral broach, small size	9030040	1
	Humeral broach, medium size	9030045	1
	Humeral broach, large size	9030050	1
18	Humeral gusset broach, Small	9030056	1
	Humeral gusset broach, medium size	9030057	1
	Humeral gusset broach, large size	9030058	1
19	Humeral broach adapter left	9030030	1
20	Humeral broach adapter right	9030031	1
21	Small trochlear guide assembly, R/L	9030060	1
	Medium trochlear guide assembly, R/L	9030065	1
	Large trochlear guide assembly, R/L	9030070	1
22	3.0 x 55mm pin	MKY062	3
23	Trial humeral screw, small	MKY104	1
	Trial humeral screw, medium	MKY105	1
	Trial humeral screw, large	MKY106	1

Instrumentation

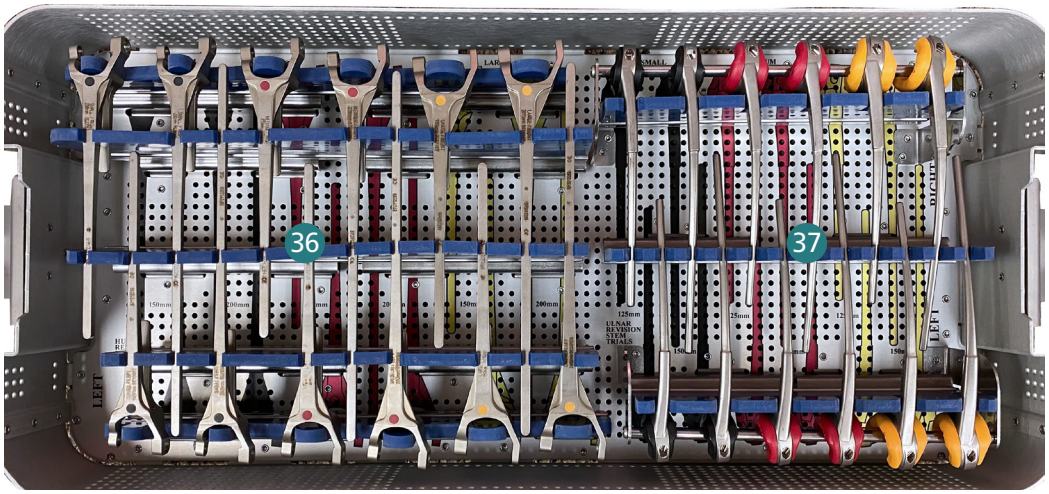


Ulnar instruments tray 9030502

Item	Instrument	Ref#	Quantity
24	Radial head protector	9030210	1
25	Ulnar stem trial, 41mm small, left	9030280	1
	Ulnar stem trial, 41mm medium, left	9030290	1
	Ulnar stem trial, 41mm large, left	9030300	1
	Ulnar stem trial, 70mm small, left	9030282	1
	Ulnar stem trial, 70mm medium, left	9030292	1
	Ulnar stem trial, 70mm large, left	9030302	1
26	Ulnar stem trial, 41mm small, right	9030281	1
	Ulnar stem trial, 41mm medium, right	9030291	1
	Ulnar stem trial, 41mm large, right	9030301	1
	Ulnar stem trial, 70mm small, right	9030283	1
	Ulnar stem trial, 70mm medium, right	9030293	1
	Ulnar stem trial, 70mm large, right	9030303	1
27	Trial ulnar cap, small	MKY113	1
	Trial ulnar cap, medium	MKY114	1
	Trial ulnar cap, large	MKY115	1

Item	Instrument	Ref#	Quantity
28	Ulnar jig, left	9030190	1
29	Ulnar jig, right	9030200	1
30	Small bellsaw	9030215	1
	Medium bellsaw	9030220	1
	Large bellsaw	9030225	1
31	2.5mm screwdriver bit	9030375	1
	3.5mm hex screwdriver bit	9030110	1
32	Ulnar cap bending tool	MKY124	1
33	Ulnar cap screw	DKY066	2
34	Barrel reamer	9030125	1
35	Ulnar broach - starting size	9030235	1
	Ulnar broach - small size	9030240	1
	Ulnar broach - medium size	9030245	1
	Ulnar broach - large size	9030250	1

Instrumentation

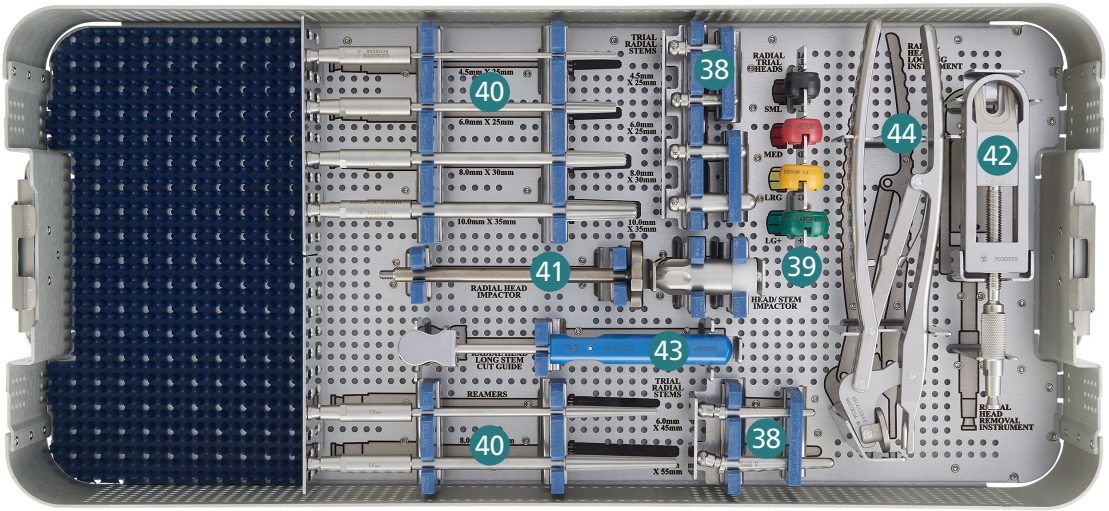


Long stem instruments tray 9030503 (special order)

Item	Instrument	Ref#	Quantity
36	Humeral stem trial 150 mm small left	9030082	1
	Humeral stem trial 150 mm small right	9030083	1
	Humeral stem trial 200 mm small left	9030084	1
	Humeral stem trial 200 mm small right	9030085	1
	Humeral stem trial 150 mm medium left	9030092	1
	Humeral stem trial 150 mm medium right	9030093	1
	Humeral stem trial 200 mm medium left	9030094	1
	Humeral stem trial 200 mm medium right	9030095	1
	Humeral stem trial 150 mm large left	9030102	1
	Humeral stem trial 150 mm large right	9030103	1
	Humeral stem trial 200 mm large left	9030104	1
	Humeral stem trial 200 mm large right	9030105	1

Item	Instrument	Ref#	Quantity
37	Ulnar revision stem trial 125 mm small left	9030284	1
	Ulnar revision stem trial 125 mm small right	9030285	1
	Ulnar revision stem trial 150 mm small left	9030286	1
	Ulnar revision stem trial 150 mm small right	9030287	1
	Ulnar revision stem trial 125 mm medium left	9030294	1
	Ulnar revision stem trial 125 mm medium right	9030295	1
	Ulnar revision stem trial 150 mm medium left	9030296	1
	Ulnar revision stem trial 150 mm medium right	9030297	1
	Ulnar revision stem trial 125 mm large left	9030304	1
	Ulnar revision stem trial 125 mm large right	9030305	1
	Ulnar revision stem trial 150 mm large left	9030306	1
	Ulnar revision stem trial 150 mm large right	9030306	1

Instrumentation



Radial head instruments tray 9030504 (special order)

Item	Instrument	Ref#	Quantity
38	4.5mm x 25mm trial radial stem	9039000	1
	6.0mm x 25mm trial radial stem	9039001	1
	6.0mm x 45mm trial radial stem	9039002	1
	8.0mm x 30mm trial radial stem	9039003	1
	8.0mm x 55mm trial radial stem	9039004	1
	10.0mm x 35mm trial radial stem	9039005	1
39	Radial trial head, small	9030341	1
	Radial trial head, medium	9030346	1
	Radial trial head, large	9030351	1
	Radial trial head, large +	9030356	1
40	4.5mm x 25mm reamer	9039006	1
	6.0mm x 25mm reamer	9039007	1
	6.0mm x 45mm reamer	9039008	1
	8.0mm x 30mm reamer	9039009	1
	8.0mm x 55mm reamer	9039010	1
	10.0mm x 35mm reamer	9039011	1
41	Radial head/stem impactor	9030434	1
42	Radial head removal instrument	9030395	1
43	Radial head long stem cut guide	9030397	1
44	Radial head locking instrument	9030398	1

Implant ordering information

Humeral spools	
DKY211	Small right
DKY212	Small left
DKY213	Medium right
DKY214	Medium left
DKY215	Large right
DKY216	Large left
DKY217	Large+ right
DKY218	Large+ left

Humeral stems	
0030302 or 0030700	Small standard right
0030303 or 0030701	Small standard left
0030402 or 0030710	Medium standard right
0030403 or 0030711	Medium standard left
0030502 or 0030720	Large standard right
0030503 or 0030721	Large standard left
0030312	Small 150mm right*
0030313	Small 150mm left*
0030412	Medium 150mm right*
0030413	Medium 150mm left*
0030512	Large 150mm right*
0030513	Large 150mm left*
0030322	Small 200mm right*
0030323	Small 200mm left*
0030422	Medium 200mm right*
0030423	Medium 200mm left*
0030522	Large 200mm right*
0030523	Large 200mm left*

Ulnar caps	
DKY067	Small
DKY068	Medium
DKY069	Large

Ulnar bushings†*	
DKY120	Small right
DKY121	Medium right
DKY122	Large right
DKY123	Small left
DKY124	Medium left
DKY125	Large right

Cement restrictors	
EBO101	Cement restrictor (diameter range 8mm-15mm)
EBO102	Cement restrictor (diameter range 5mm-8mm)

Single use items	
DKY090	Single use suture passer
DWD060	3mm drill bit

Ulnar stems	
0030010	Small short right
0030011	Small short left
0030110	Medium short right
0030111	Medium short left
0030210	Large short right
0030211	Large short left
0030020	Small standard right
0030021	Small standard left
0030120	Medium standard right
0030121	Medium standard left
0030220	Large standard right
0030221	Large standard left
0030030	Small 125mm right*
0030031	Small 125mm left*
0030130	Medium 125mm right*
0030131	Medium 125mm left*
0030230	Large 125mm right*
0030231	Large 125mm left*
0030040	Small 150mm right*
0030041	Small 150mm left*
0030140	Medium 150mm right*
0030141	Medium 150mm left*
0030240	Large 150mm right*
0030241	Large 150mm left*

Radial heads*	
0830822	Small 18mm radial head
0830823	Medium 20mm radial head
0830824	Large 22mm radial head
0830825	Large+ 24mm radial head

Radial stems*	
0830816	ø4.5mm x 25mm radial stem
0830817	ø6.0mm x 25mm radial stem
0830819	ø8.0mm x 30mm radial stem
0830821	ø10mm x 35mm radial stem
0830818	ø6.0mm x 45mm radial stem long
0830820	ø8.0mm x 55mm radial stem long

*Available upon request only

†For Ulnar bushings, reference revision incompatibilities chart on page 29

Latitude EV Total Elbow Arthroplasty has been designed in conjunction with:
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Notes

Notes

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