



3S
ORTHO



ARAMIS-S ANATOMIC

Total shoulder prosthesis — Surgical technique

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ANATOMICAL PROSTHESIS

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Note:

Annotations in blue are technical indications.

The manufacturer of this prosthesis, does not practice medicine and can't recommend neither this surgical technique nor other technique in specific cases.
The surgeon has to define the appropriate for each patient.
Read the instructions for careful use.

ARAMIS-Screw prosthesis

A pivot that preserves the bone stock

With a screwed pivot, the ARAMIS-S prosthesis proposes a stemless solution in prosthetic shoulder surgery. Designed to preserve the metaphyseal spongy, its reversed screwing gives it an intraoperative quality. The osseointegration induced by its coating of hydroxyapatite allied to this excellent mechanical stability, allows a secondary fixation of quality.

A simple anatomical solution

ARAMIS-S is positioned according to the cervico-diaphyseal angle of the humeral cut, thus allowing the respect of the anatomical orientation of the head. The adaptation of the humeral heads on the conical junction of the screwed pivot allows a precise and independent anatomical restoration of the diaphyseal axis. This can be particularly useful in post-traumatic osteoarthritis with malunion.

The mismatch between the humeral head and the anatomical glenoid has been optimized to ensure long-term implant stability.

A placement of the glenoid easy

Resection of the humeral head allows easy access to the glenoid. The preservation of the metaphyseal bone stock of the resurfacing implant and thus associated with the simplicity of glenoid implant placement.

A recovery easier

The absence of a humeral stem makes revision easier. The initial bone stock is preserved and the stability of the revision humeral implant will be achieved without necessarily resorting to long stems

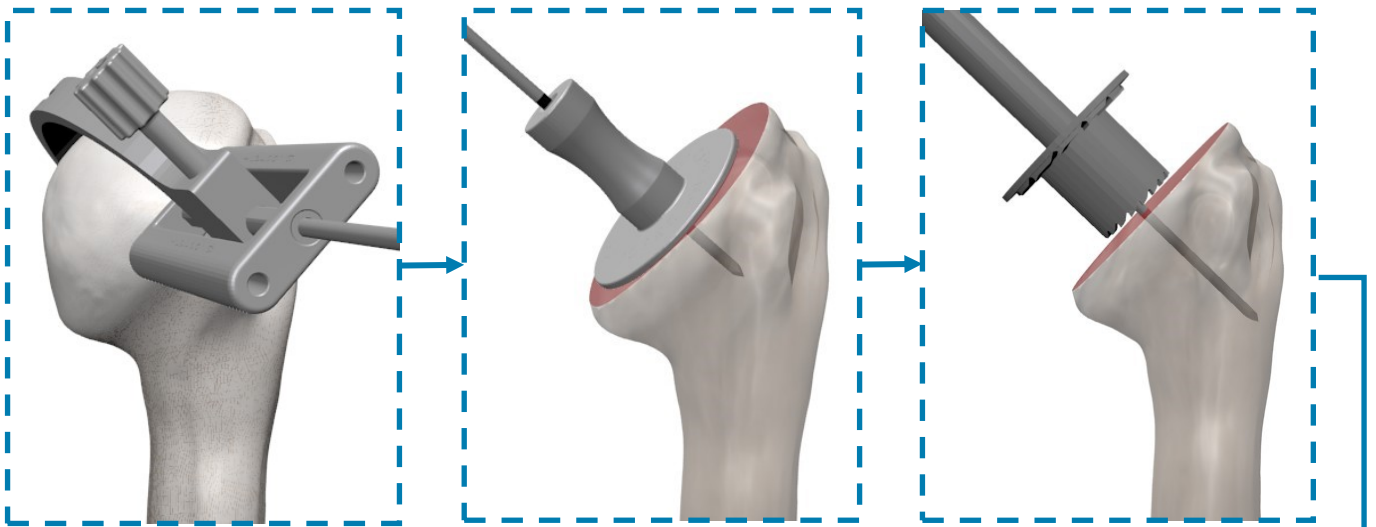
An ergonomic Instrumentation set

The instrumentation offers surgeons comfort of use and a precision which allows the precise restitution of the anatomical variables. Easy to use, it has a small compact box. Indeed, only a few instruments complete the box of the standard Aramis.



Synopsis

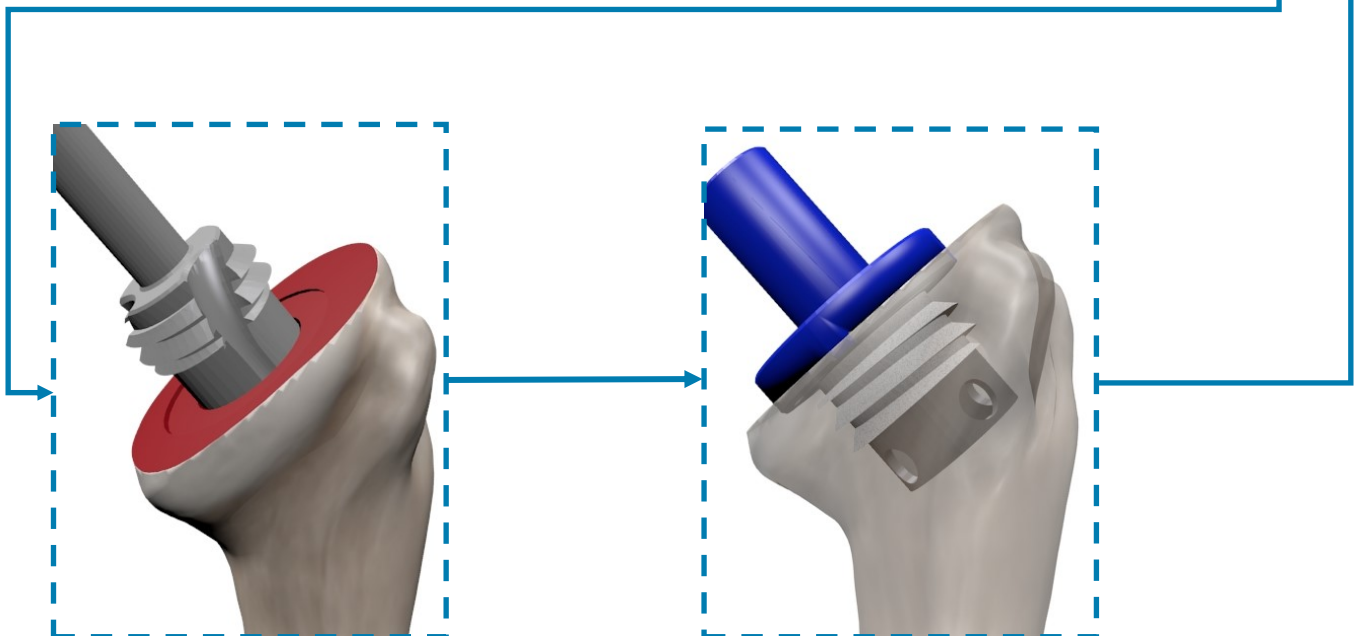
HUMERAL PREPARATION



Cutting guide
Adjustment and cutting

Setting up the
reamer

Humeral
preparation

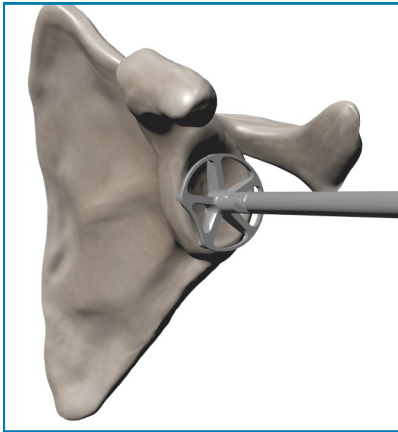


Humeral tapping

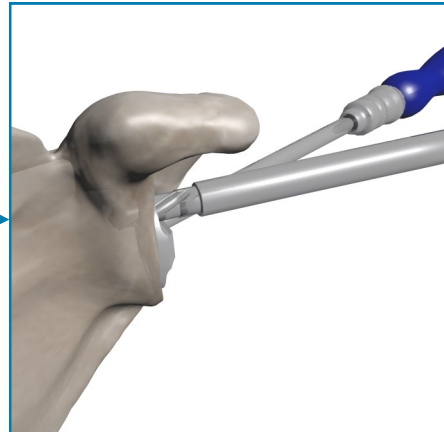
Implant
placement

Synopsis

GLENOIDIEN PREPARATION



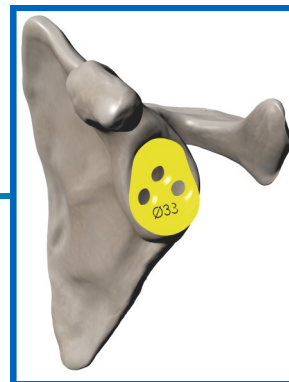
Glenoid resurfacing



Glenoid peg drilling



Head trialing



Glenoid trialing

Surgical approaches

Indications

- Inflammatory severe arthritis or evolved osteoarthritis for which conservative or alternative treatments have failed or are considered inappropriate.
- Arthropathy due to degenerative disease
- Sequel of trauma
- Avascular necrosis of the humeral head
- Failure of a previous intervention on the glenohumeral joint which does not compromise the fixation of the new implant

Pre-operative planning

- Use call to define component size and positioning

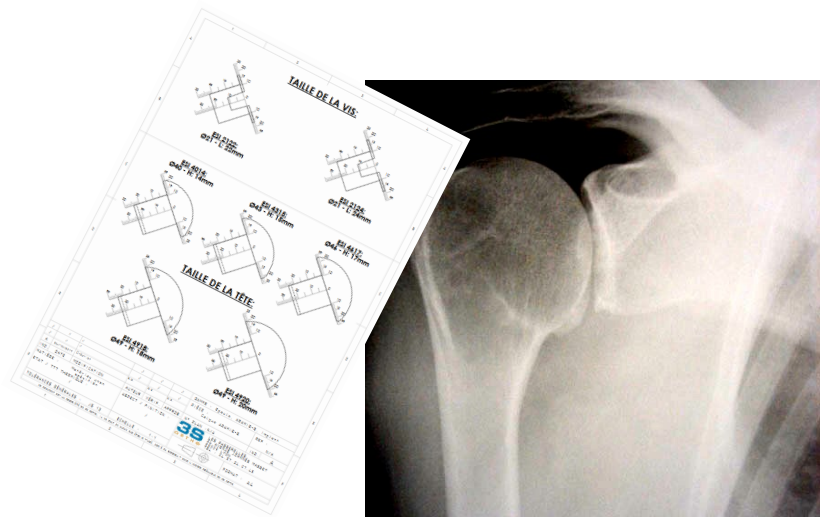


Fig. 1

Patient installa-

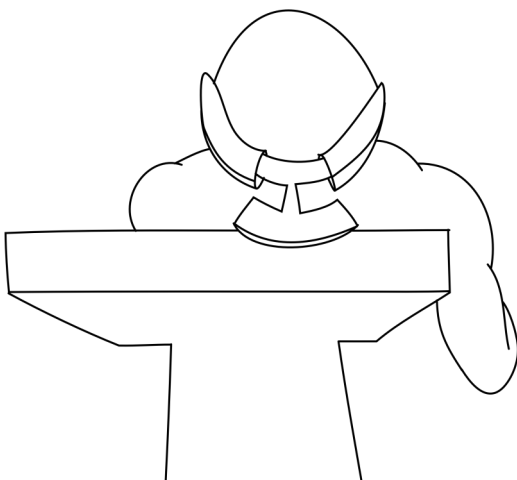


Fig. 2

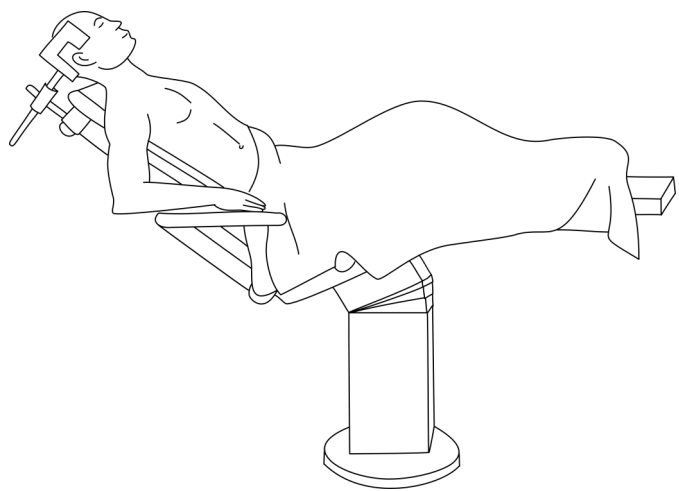


Fig. 3

The patient is sufficiently lateralized on the table :

- To release the posterior shoulder face
- And to put the arm in retropulsion

Deltopectoral approach

Deltopectoral approach

Skin incision begins to the coracoid tip, follows the deltopectoral groove and goes to the deltopectoral V (Fig. 4).

Note : Incision is outlying the groove, in its lower part to avoid the flanges of the axillary cavity.

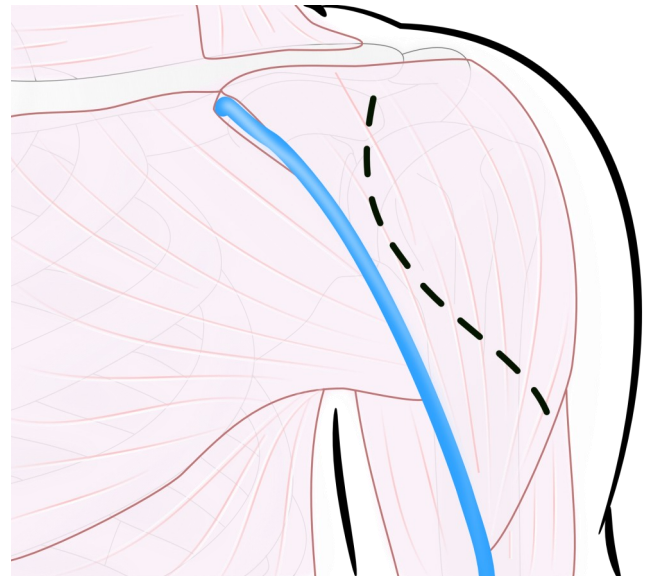


Fig. 4

Retract laterally the cephalic vein (Fig. 5) with the deltoid muscle.

Coagulate or connect the collateral veins present in the vein.

Open the path to the low part of the incision.

Note : Separation between the deltoid and the pectoralis major is clearer in the upper part of the groove, where there is a cellular fat space (Mohrenheim fossa) that has to be exposed medially with a Faraboeuf retractor.

Incision of the clavi pectoro axillary aponeurosis at the lateral side of the conjoint tendon.

Place a self-retaining retractor.

Note : Place a retractor behind the coracoid process.

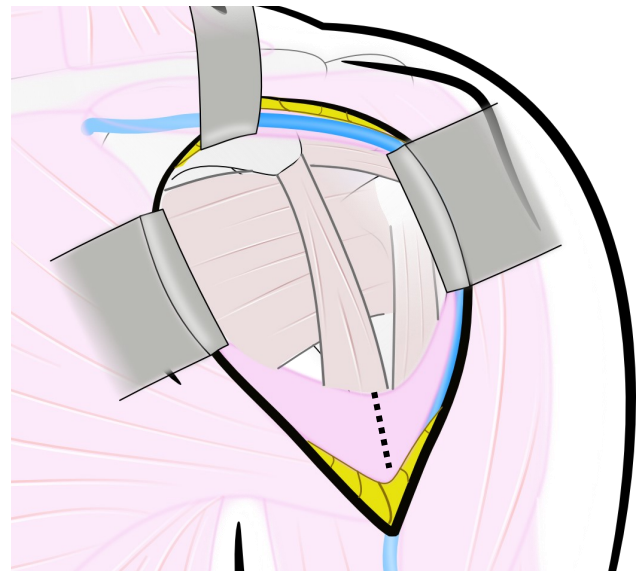


Fig. 5

Deltopectoral approach

Put the arm in abduction and external rotation.
Below, cut partially the pectoralis major tendon on the half of its length (Fig. 6).

Put the arm in abduction and internal rotation.
Locate the long biceps at the lower part of the incision.

If the subscapularis is present, identify the superior part of the tendon and at the lower part, ligature the circumflex vessels (Fig. 7).

Note: The subscapularis tendon can be absent or very degenerative with a difficult anatomical identification; **conserve it.**

- Optional identification of the musculocutaneous nerve.
- Identification of the radial nerve when the arm is in neutral rotation elbow to body in anterior flexion.
- Identification of axillary nerve under the conjoint tendon, in front of the subscapularis up to the inferior side.

On a normal tendon, begin with an horizontal arthrotomy at the superior edge.

Perform a tag suture.

Dissect the tendon and the capsule following the anatomical neck at 15mm within the bicipital groove (Fig. 7).

Leave a tendinous part on the lesser tuberosity or lift the entire tendon with bone chips from the lesser tuberosity.

Note: Save the inferior quarter of the tendon to boost the axillary nerve which passes near.

On a damaged tendon, access to the joint is direct through the vertical incised capsule.

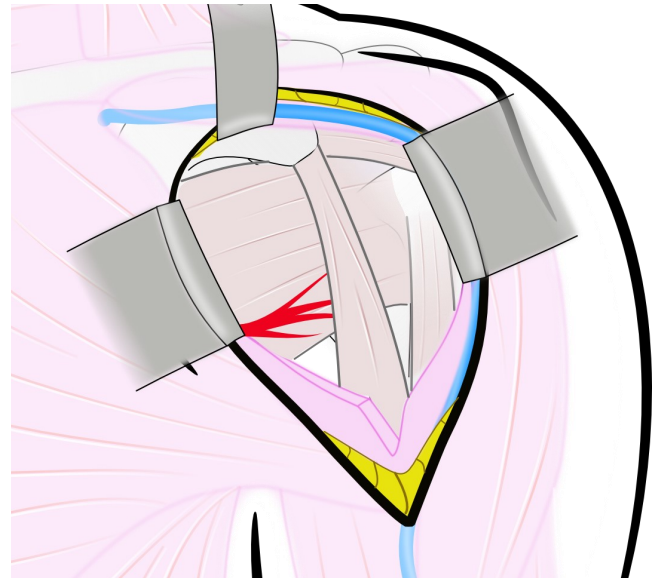


Fig. 6

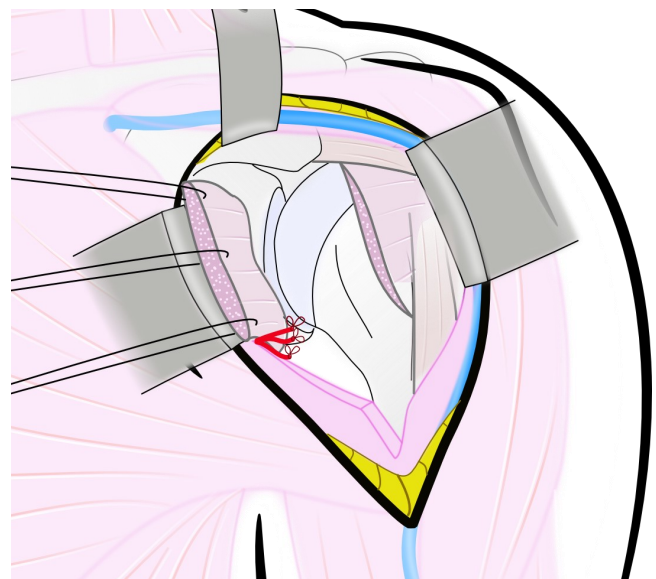


Fig. 7

Deltopectoral approach

Place a Trillat or a Fukuda retractor in the joint (Fig. 8).

Release the tendon and the subscapularis.

First perform an anterior then inferior juxta glenoidal capsulotomy.

Note : The inferior capsule release at bone contact is an important step in joint release and facilitates glenoid exposure.

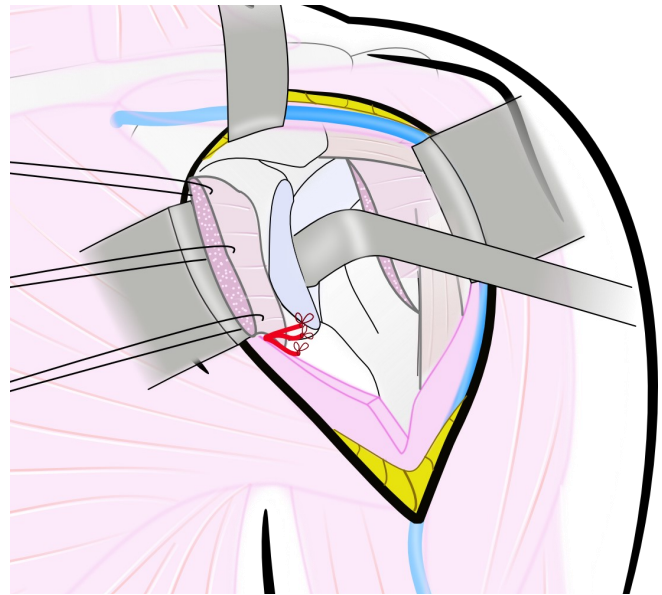


Fig. 8

Dislocation (Fig. 9) has to be done slowly and progressively in abduction, external rotation and retropulsion.

Resect the osteophytes of the anatomical neck with the bone rongeur or with a Lambotte blade.

Note : A retractor is placed behind the head to retract the coraco-biceps.

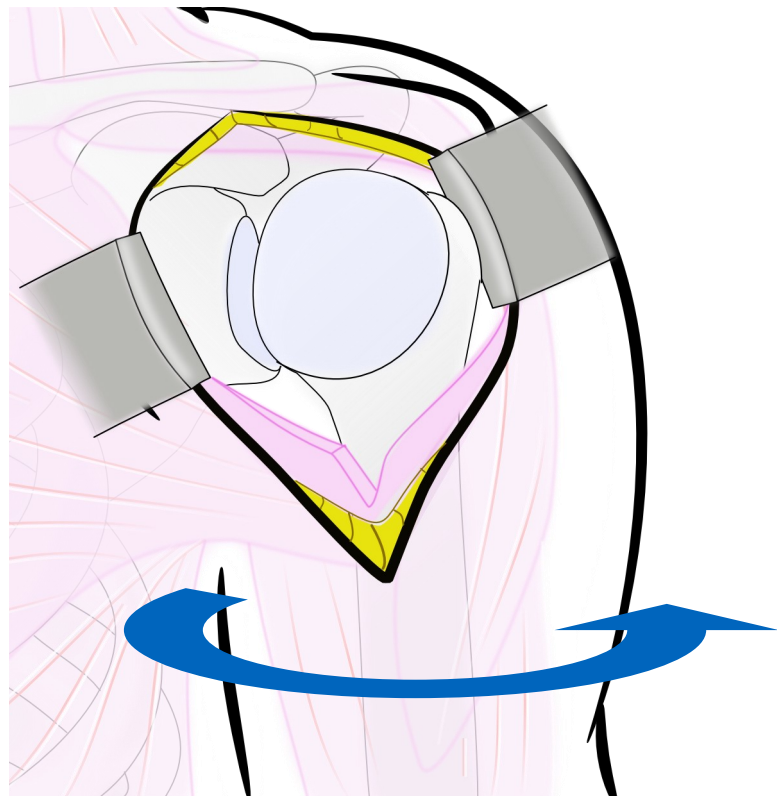


Fig. 9

Humeral resection

- Set up the cutting guide on the humerus. Adjust the diameter of the humeral head and lock it with the screw (Fig. 10).

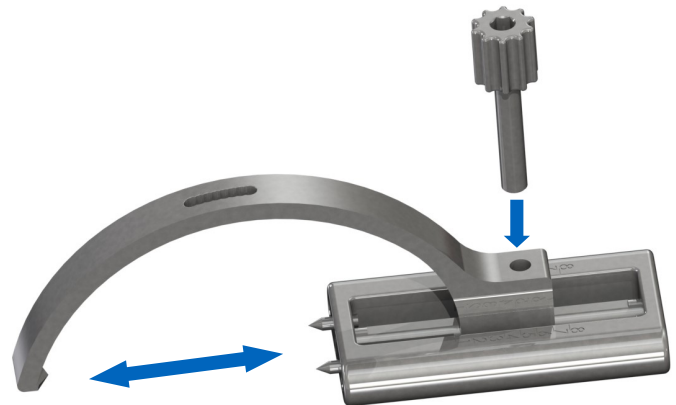


Fig. 10

- Place the pins and the probe in front of the anatomical neck (Fig. 11).
- Fix the center K-wire and adjust the cutting angle and fix the second K-wire (Fig. 12).



Fig. 11

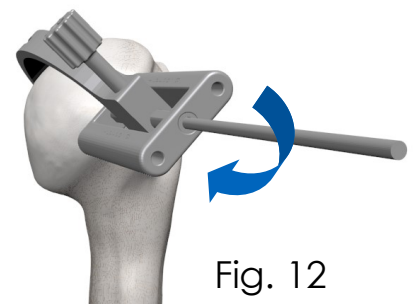


Fig. 12

- Remove the cutting guide and cut the humeral head following the K-wires (Fig. 13).

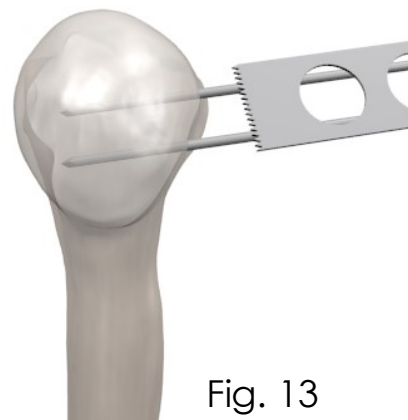


Fig. 13

- Place the centering plate on the cut, then pass the K-wires through (Fig. 13).



Fig. 14

Humeral resection

- The landmark of the K-wires gives an indication of the screw size to be implanted (Fig. 15).
- If the K-Wire passes through the cortex at the lower level of the mark: favor size 1.
- If the K-wire passes through the cortex at the upper level of the mark: favor size 2.
- Remove the centering plate and leave the K-wire in place.

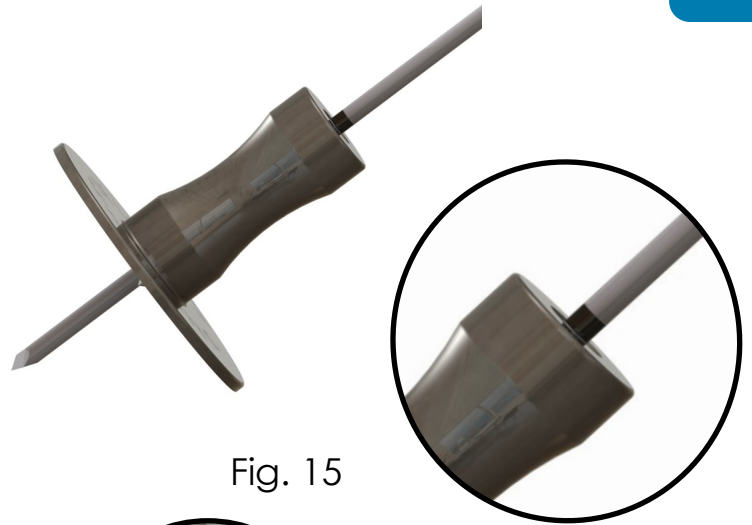


Fig. 15

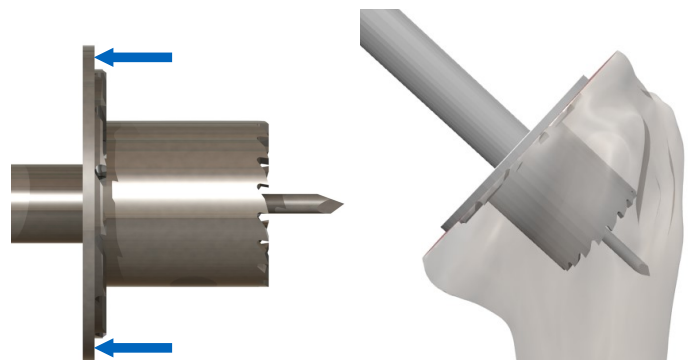


CAUTION : The trephine must be used by hand only.

- Set up the trephine of the previously selected screw size (Fig. 15).
- Go up to the stopper to prepare the surface of the humerus (Fig. 16).



Fig. 16



Humeral preparation

- The trephine makes it possible to prepare the plate of the impalnt and to create the necessary cavity for the insertion of the screw (Fig. 17).

CAUTION : Preserved the recovered bone in the trephine for implantation of the screw.

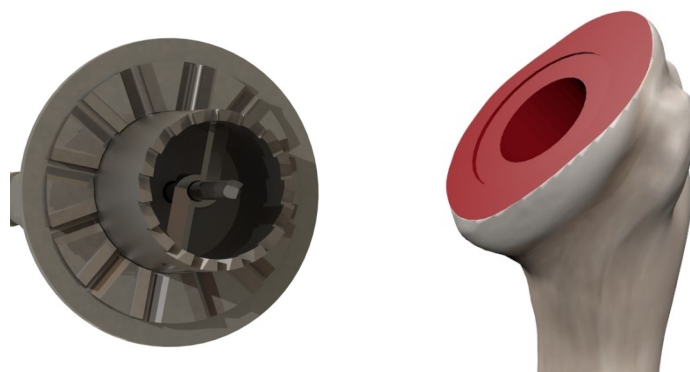


Fig. 17

- If the K-wire is still well fixed, Preserve it.

CAUTION : Always use the tap by hand.

- Fit the tap on the K-wire where you can guide the smooth part (Fig. 18).

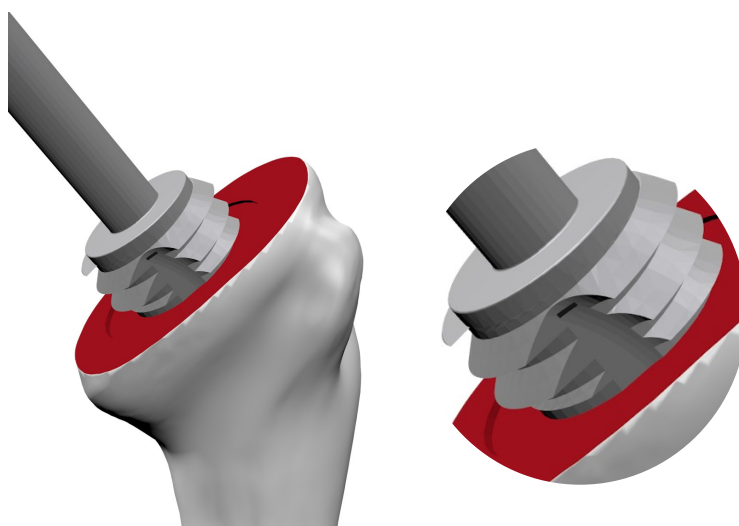


Fig. 18

- Slowly screw the tap into the bone up to stopper (Fig. 19).
- Remove the tap by unscrewing it without force so as not to damage the thread created.

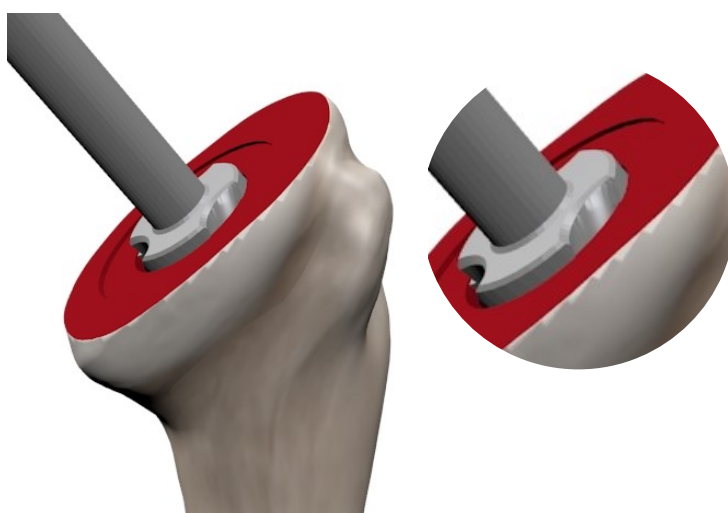


Fig. 19

Placement of the humeral implant

- Slowly screw down the implant to visualize the thread advancing through and to stop once the proximal plate is countersink (Fig. 21).

CAUTION: Do not apply excessive force. Excessive tightening may impair the primary strength of the implant

- Remove the implant holder and place the protection plate (Fig. 22).



Fig. 20

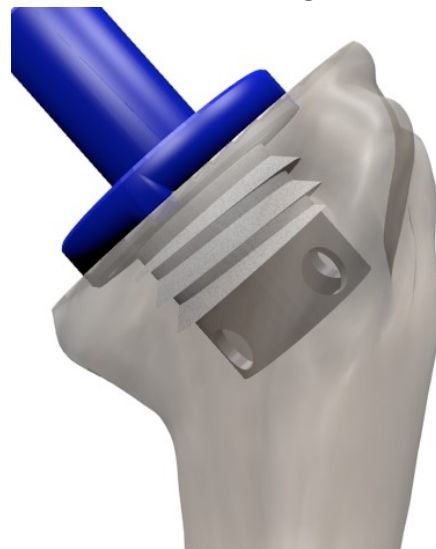


Fig. 21



Fig. 22

Glenoid Preparation

Screw the reamer on its handle and tighten with a flat key (Fig. 23). The assembly can be fixed on a motor by using the « REAM » position.

After, an eventual resection of the osteophytes, put the K-wire (BNS-025T-100) in the glenoid center and insert the reamer (Fig. 24). 3 sizes exist: $\varnothing 30$, $\varnothing 33$ and $\varnothing 36$ mm

Note : start the motor at few millimeters of the glenoid surface and apply the reamer in movement, to avoid the reamer from engaging too roughly.

Two drill guides are available (Fig. 25) :

- One for the glenoid $\varnothing 30$ mm
- One for the glenoid $\varnothing 33$ and 36mm

Use the guide adapted to the glenoid size.

WARNING : if you use the drill guide with a 18mm-gap you have to use the smallest glenoid component.



Fig. 23

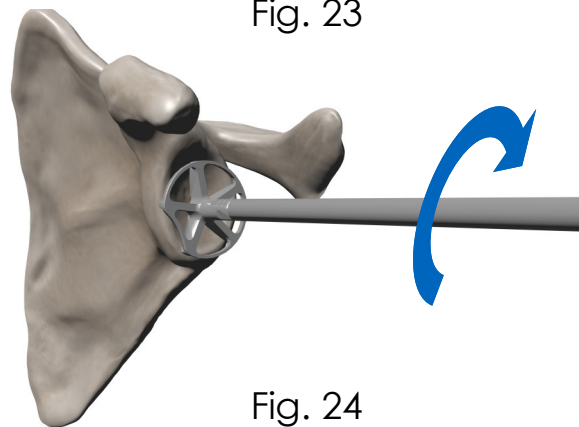


Fig. 24

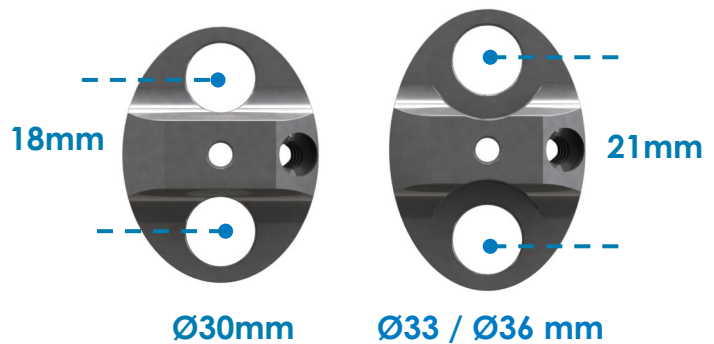


Fig. 25

Drill the first tunnel (Fig. 26) :

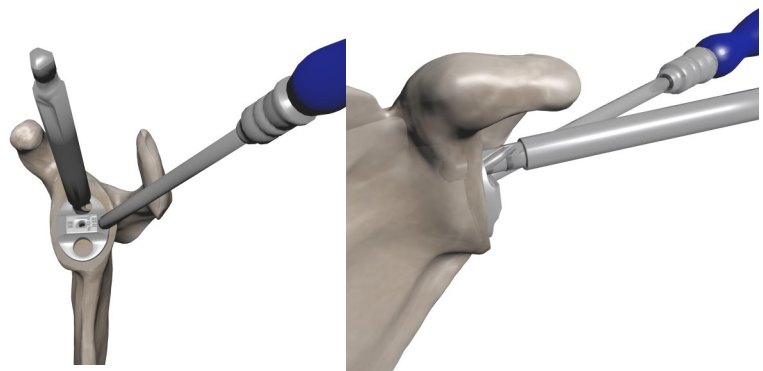


Fig. 26

Trials

Once, the first drilling is realized (Fig. 26), place the stabilization peg (Fig. 27). Drill the second tunnel.

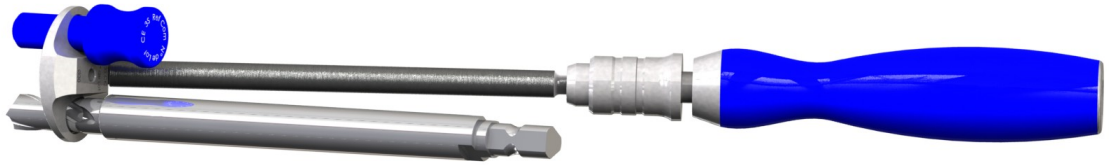


Fig. 27

Place the glenoid trial (Fig. 28).

- Choose the size of the humeral head according to the size of the resected humeral head. 4 diameters are available : Ø40, 43, 46 and 49mm (Fig. 29).



Fig. 28

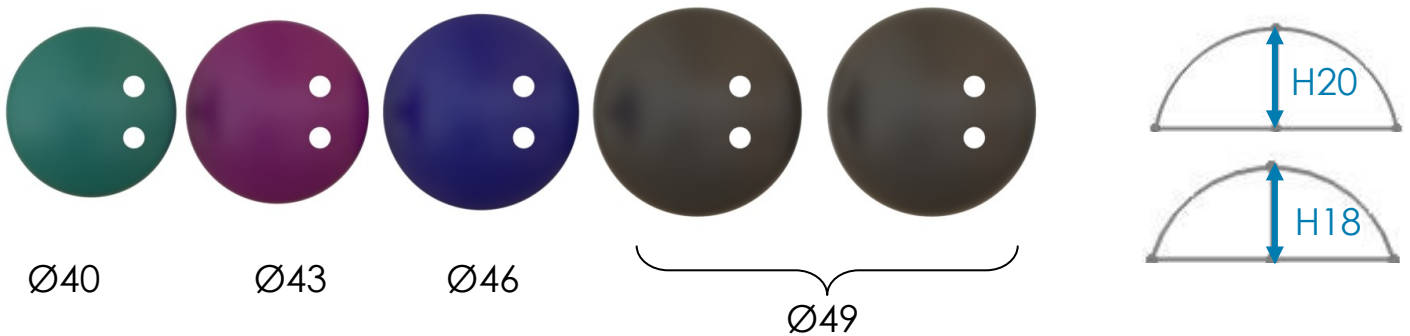


Fig. 29

- Perform the tests on the final implant (Fig. 30).

Note :

In the case where the humeral implant has not been implanted in the center of the humerus (because of a bone defect for example), off-center humeral heads are available to correct the offset.

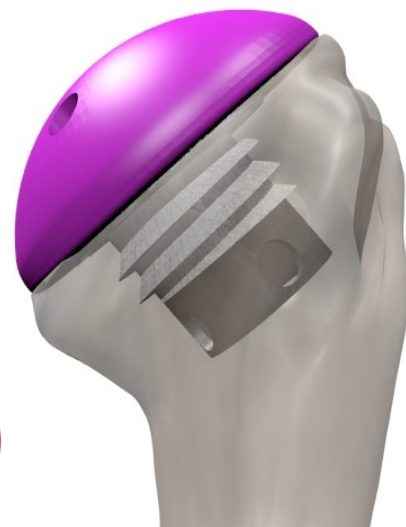
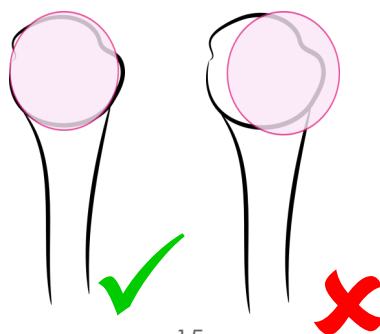








Fig. 30

Trials

CAUTION: Verify the compatibility between glenoid component and humeral head



Head	Glenoid	Ø30	Ø33	Ø36	Ø36 R34
	Ø40H14	✓ 5mm	✓ 5mm	✓ 5mm	✗ 9mm
	Ø43H15	✓ 5mm	✓ 5mm	✓ 5mm	✗ 9mm
	Ø46H17	✓ 5mm	✓ 5mm	✓ 5mm	✗ 9mm
	Ø49H18	✗ 1mm	✗ 1mm	✗ 1mm	✓ 5mm
	Ø49H20	✗ 1mm	✗ 1mm	✗ 1mm	✓ 5mm

Glenoid and the final head implantation

- Remove the glenoid and the trial head.
- Inject the cement into the two glenoid holes and place the final glenoid by hand and impact it with the glenoid impactor (Fig. 31).

Note :

Previously, place transosseous wires in order to reinsert the subscapularis.

- Position the humeral head on the humeral implant and impact with head impactor (Fig. 32).

CAUTION: The cone of the humeral head should be inserted in a perfectly cleaned and dried place.

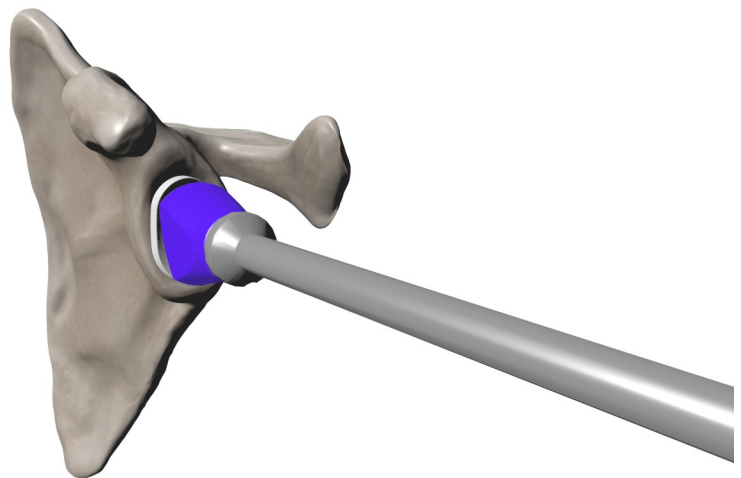


Fig. 31



Fig. 32

- Reduce and then reinsert the subscapularis with a transosseous suture.

Humeral implant extraction

To remove a humeral implant:

- Use a thin Lambotte blade to break the bone bridges.
- Pass the Lambotte slices through the notches (Fig. 33).
- Insert the implant holder and unscrew the implant (Fig. 34).

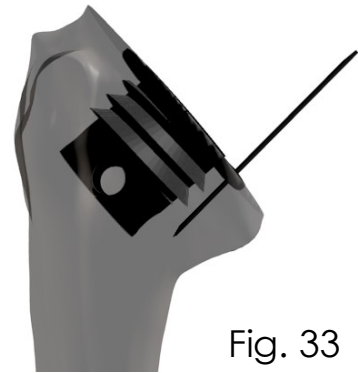


Fig. 33



Fig. 34

ARAMIS-S implants references

Humeral screw

ESI 2122

ARAMIS-S- humeral implant Ø21 L22mm

ESI 2124

ARAMIS-S- humeral implant Ø21 L24mm

Humeral head centered

EAI 4013

Humeral head Ø40 H13mm

EAI 4315

Humeral head Ø43 H15mm

EAI 4617

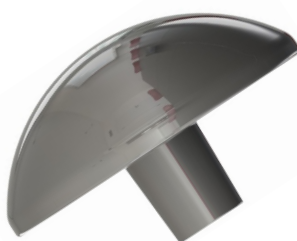
Humeral head Ø46 H17mm

EAI 4918

Humeral head Ø49 H18mm

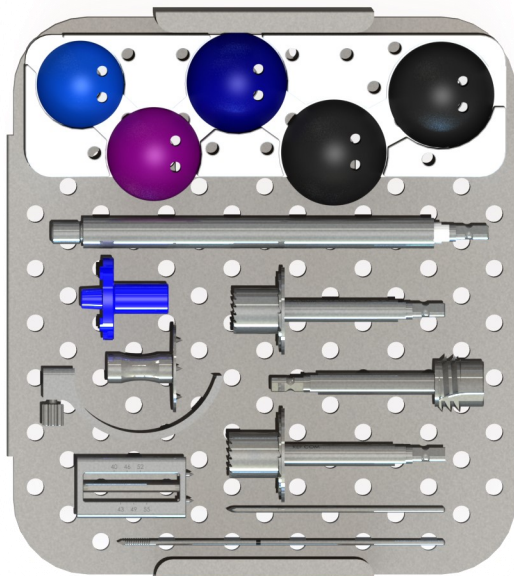
EAI 4920

Humeral head Ø49 H20mm



Instruments references

ESA GC00	Cutting guide
ESA GC00	Arch of measurement
ESA GC00	Tightening wheel
ESA PC00	Centering plate
ESA BG00	Scalable K-Wire
ESA F001	Trephine size 1
ESA F002	Trephine size 2
ESA T001	Universal taper
ESA MF00	Reamer handle
ESA PI00	Humeral implant holder
ESA 4014	Humeral head trial \varnothing 40H14
ESA 4315	Humeral head trial \varnothing 43H15
ESA 4617	Humeral head trial \varnothing 46H17
ESA 4918	Humeral head trial \varnothing 49H18
EAA 4920	Humeral head trial \varnothing 49H20



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Class III medical device // Indication: joint arthroplasty of the glenohumeral joint

 Consult the surgical technique before use

 Read the IFU carefully