

# **BIOSIS** **GROUP**

Reverse shoulder prosthesis



**BIOSIS**  
**GROUP**





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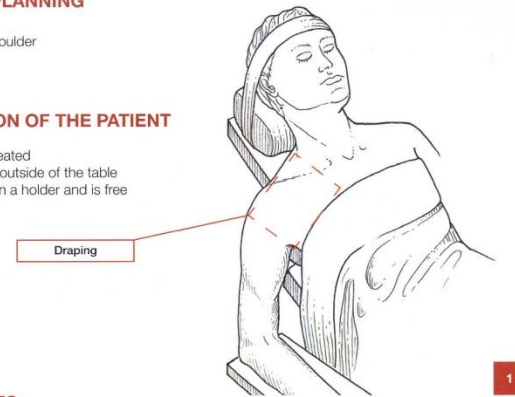
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**1. SURGICAL PLANNING**

- X-rays of the shoulder
- Arthroscanner

**2. INSTALLATION OF THE PATIENT**

- Position semi-seated
- The shoulder is outside of the table
- The arm rests on a holder and is free



**3. APPROACHES**

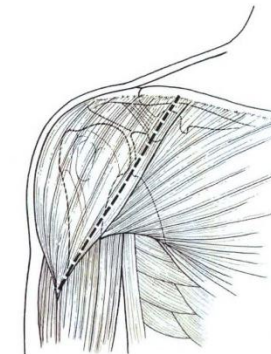
**3.1. Deltopectoral approach**

**Incision :**

- Start the incision at the clavicle.
- Extend it along the deltopectoral fold to the distal attachment of the deltoid muscle.

**Exposure :**

- Open the deltopectoral space. The cephalic vein may be left either outside or inside.
- Perform an external release with approach through the whole acromial vault and to the rotator cuff.
- Release the infrascapularis, detached from the coracohumeral ligament up to its trochanteric attachment.
- Perform a vertical section of the infra-scapularis with the anterior capsule.
- Perform a full excision of the remaining supraspinatus up to the anterior edge of the infraspinatus.
- Perform a tenodesis or tenotomy of the biceps if it is still present.
- Expose the humeral head through a movement of combined adduction-external retropulsion-rotation.



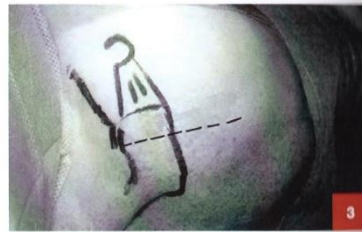
**3.2. Superolateral approach (transdeltoid)**

**Incision :**

- 10 mm posterior to the anterior edge of the acromio-clavicular joint.
- It runs down the arm's axis.

**Exposure :**

- Incision of the deltoid between the middle and anterior bundles.
- Detachment of the deltoid and of the acromio-coracoid ligament from their acromial attachment
- Resection of the subacromial bursa.
- Head dislocation: arm in repulsion and external rotation.
- To achieve a better exposure: resection of the anterior edge of the acromion and of the remaining rotator cuff; preservation of the middle and superior 1/3 of the remaining infrascapularis and supraspinatus.



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**4. HUMERAL PREPARATION**

**4.1. Installation of the reamers**

The entry point can be made - using the smallest reamer or a awl- posterior to the bicipital groove inside the medulary canal.  
Perform the diaphyseal reaming using reamers of incremental sizes in order to achieve a cortical anchorage that matches the diameter of the stem (6 / 6.5 / 9 / 10.5 / 12 mm).



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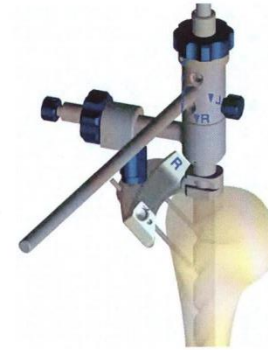
**4.2. Installation of the cutting guide and its baseplate**

Perform a primary osteophyctomy if necessary to locate the anatomical neck. The cutting guide that corresponds to the approach and the cutting plate that correspond to the side shall be used to determine the cutting angle and to select the retroversion.



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• Cutting guide for the deltopectoral approach

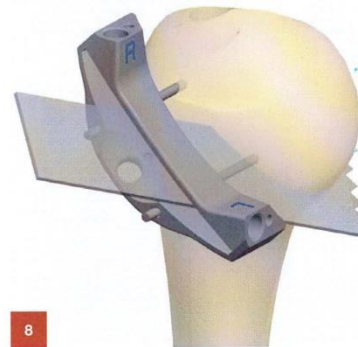


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• Cutting guide for the superolateral approach

**4.3. Resection of the head**

Resect the head along the anatomical neck that determines the cutting height.



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• Deltopectoral approach



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• Superolateral approach

**4.4. Epiphyseal preparation**

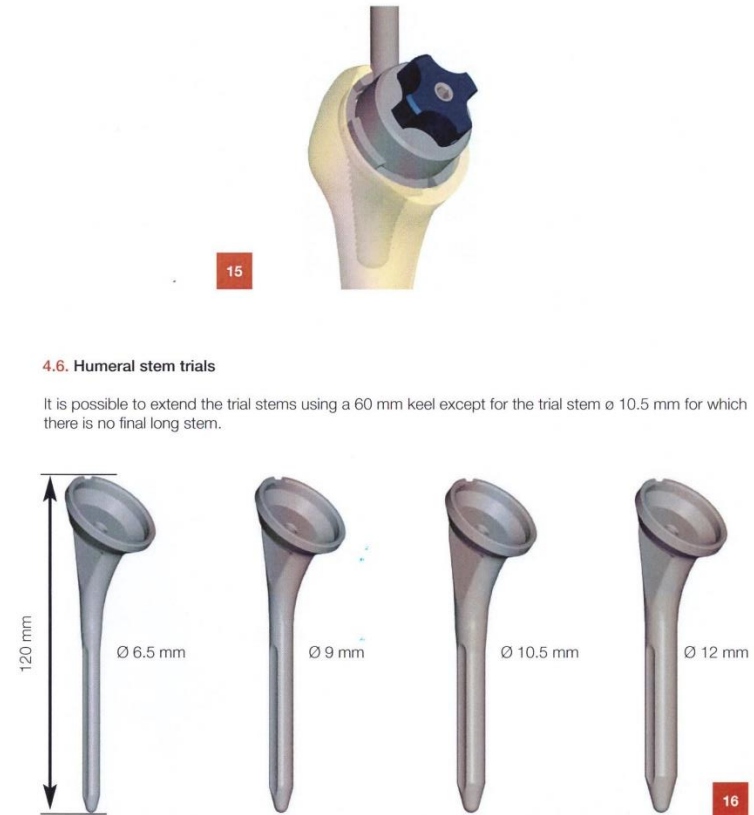
- Remove the cutting guide and prepare the metaphysis.
- Create the entry point of the implant using the humeral osteotome.

**Imprint of the metaphyseal zone and ream**

- The reamer must be flush with the cutting plane (compact reamer specific to the superolateral approach).
- A straight or curved handle may be used as a function of the exposure.



Three broaches are available (ø 6.5 mm and ø 9 mm, with a common broach for the ø 10.5 mm and ø 12 mm). The universal cone shall be used to set the proper direction of the stem.



**4.6. Humeral stem trials**

It is possible to extend the trial stems using a 60 mm keel except for the trial stem ø 10.5 mm for which there is no final long stem.

**LENOID PREPARATION**

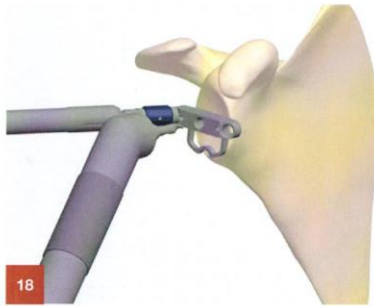
**5.1. Exposure**

- Install the humeral shield **A** on the trial stem to protect the epiphyseal cutting plane.
- Expose using a retractor **B** which bears on the scapula pillar, in order to clear the humerus.
- Perform a full periglenoid arthrolysis. It is important to restore the anatomical shape of the glenoid: resect the capsule and the peripheral osteophytes.

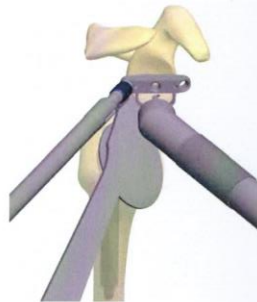


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**5.2. Drilling of the central hole**



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Place the centering guide free on the glenoid and fix it using the locking knob located at the end of the handle.

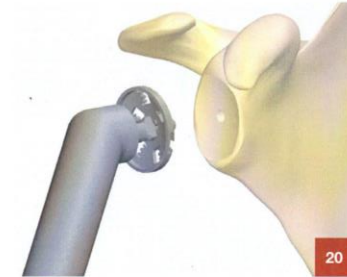
The straight or flexible motor handle can be used.

The hole is finished without the guide to bring the drilling bit to a stop.

Position the centering guide to achieve the best possible bearing for the glenoid base. The lower part of the guide must be flush with the lower rim of the glenoid.

**5.3. Glenoid reaming**

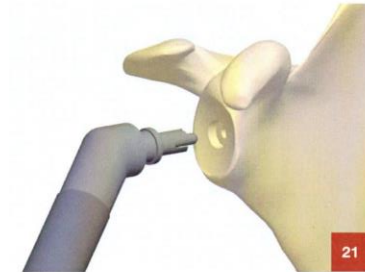
Position the axis of the reamer inside the central hole made beforehand. On completion of the reaming, the subchondrial bone must be free of its cartilage.



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**5.4. Preparation of the glenoid base peg imprint**

Collapse the cortical wall with the trephine fitted on the straight or curved handle. Drive the trephine to a stop.



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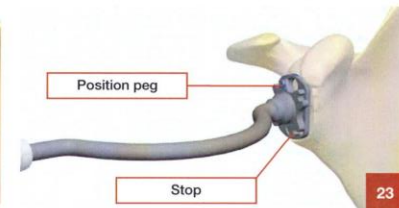
**5.5. Base impaction**

**Impaction and primary fixation of the glenoid base**

The base must be correctly positioned to enable the glenoid sphere to be eccentric distally if necessary. A position peg has been provided for this purpose on the upper pole of the implant.



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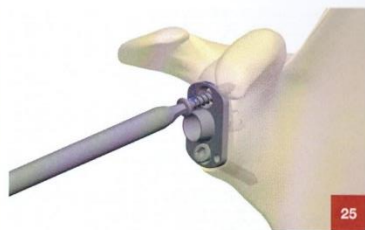
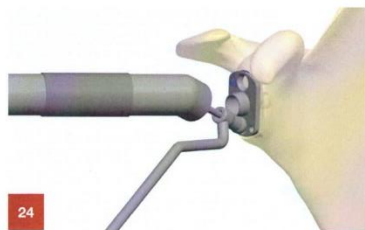


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### 5.6. Base fixation

#### Glenoid base fixation

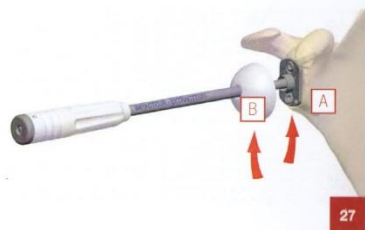
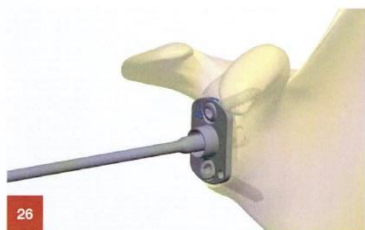
- Hole drilling: drill the hole lower in the pillar of the scapula and higher in the foot of the coracoid; then fix with two screws.
- The flexible handle may be used.



- Use screws diameter 4.5 or 6.5 mm as a function of the bone quality.
- Select the length: 25, 30, 35, 40, 45 mm.
- Hexagonal tip screwdriver : 3.5 mm.

### 5.7. Trial glenoid sphere installation

If required, a test can be performed to determine whether or not an eccentric sphere can be used; else, install the final sphere.

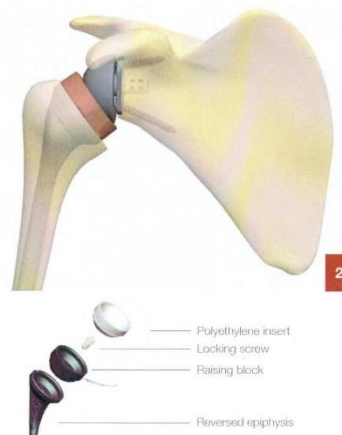


The positioning of the sphere is made easier by the presence of the indexer **A** on the base, which must correspond to the hole in the sphere **B**.

To install the sphere, rotate it until it matches the indexer.

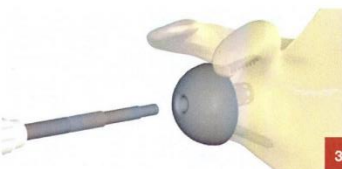
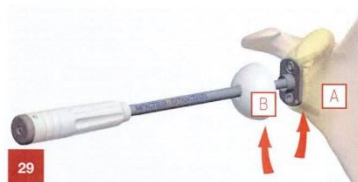
## 6. TRIAL WITH REDUCTION

- Choose the final insert
- Reduce and test the stability and tension of the deltoid. Put the arm :
  - In traction: absence of "piston" effect and correct coaptation.
  - In abduction: absence of stop effect.
  - In internal and external rotation : correct stability and ability to perform routine actions.
  - In adduction: absence of impingement between the humeral implant and the scapula pillar.
- The raising block can be inserted between the stem and the polyethylene insert. The addition of the raising block allows to extend the range of inserts for a shift of :
  - +9 mm with an insert 0
  - +12 mm with a 3 mm insert
  - +15 mm with a 6 mm insert
 It connects to the SCULTRA II REVERSE stem by screwing (the screw is packaged with the connector). The insert is clicked in the same way that it can be snapped into the stem.



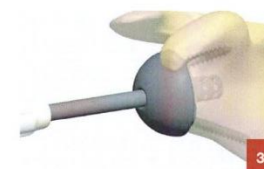
## 7. INSTALLATION OF THE FINAL IMPLANTS

### 7.1. Glenoid sphere installation



Having chosen the glenoid sphere (concentric or eccentric), install the final implant by impaction and screw fixation. This technique is identical to the installation of the trial implant.

The trial sphere, or if necessary the final sphere, can be removed using the same extractor.



7.2. Stem impaction



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7.3. Insert impaction



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The insert can be extracted using an anterior glenoid retractor that bears on the notch of the humeral implant.

8. REDUCTION OF THE PROSTHESIS



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9. REPLACING THE GLENOID BASEPLATE WITH A REVISION BASEPLATE (SCULTRA II REVISION)

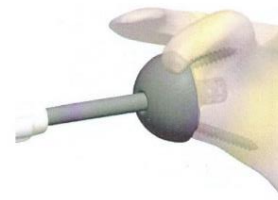
Indications:

Shoulder prosthesis revision surgery is clearly increasing.

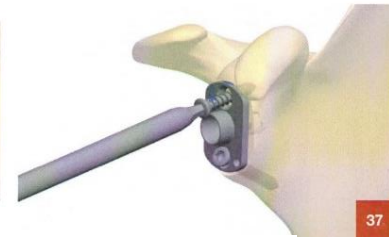
- Glenohumeral instability
- Poor quality bone
- Glenoid fracture
- Loosening of the glenoid implant

9.1. Removal of the existing glenoid component

- Unscrew the locking screw then remove the sphere using the extractor.
- Unscrew the baseplate screws.



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**9.2. Preparation of the implant**

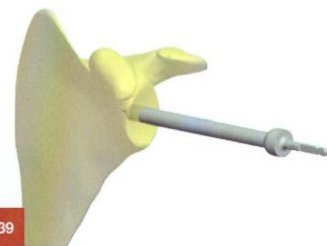
- Choice of right or left implant.
- Bend the arms of the glenoid baseplate to the desired shape using pliers.
- If necessary, cut the arms using the cutting pliers.



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**9.3. Implantation of the glenoid implant**

- Drill the glenoid with the 8 mm diameter drill-bit using the existing hole as a guide.



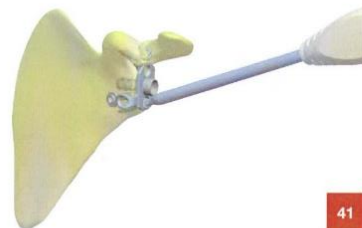
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- Position the baseplate using the impactor.



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- Fixation with Ø 4.5 mm or Ø 6.5 mm screws
- Position the screws on the different attachment areas using the screwdriver then position the glenoid sphere and follow the surgery technique from paragraph 5.7.



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**10. REPLACEMENT OF THE REVERSE PROSTHESIS WITH A HOODED HUMERAL HEAD (SCULTRA II REVISION)**

Indications for the lateral-overhang humeral head:

- Failure of the reverse arthroplasty
- Revision surgery for the SCULTRA II REVERSE with deterioration of the glenoid bone volume

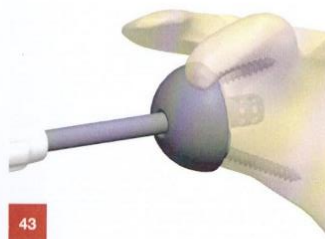
**10.1. Removal of the humeral insert**



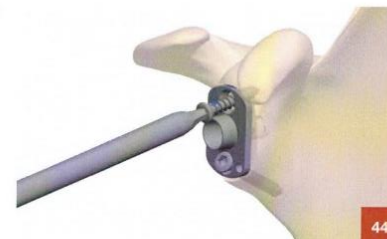
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**10.2. Removal of the existing glenoid component**

- Unscrew the locking screw then remove the sphere using the extractor.
- Unscrew the baseplate screws.



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The aim is to create a new articulation with the glenoid and the inferior aspect of the acromion.

These implants have an anatomical size but a lateral-overhang covers the greater tubercle. This therefore increases the contact surface of the humerus with the acromion and the glenoid without increasing the offset and produces excellent clinical results.



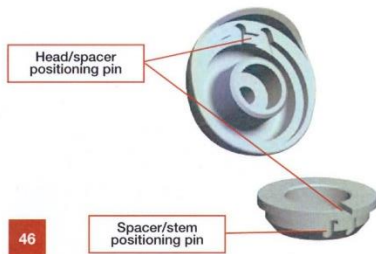
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### 10.3. Assembly

The implant consists of:

- A range of heads so the implant with the best fit in the acromion-glenoid space can be chosen
- A range of spacers for adjusting the height of the head
- A locking screw

Use the positioning pin for assembly:



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Spacer/stem positioning pin



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### 10.4. Trials

The definitive implant is chosen from trials:

- Choose the trial lateral-overhang humeral head which is the most appropriate for the acromion-glenoid space.
- Adjust the height of the head by choosing the appropriate spacer.

The trial implants are completely identical to the definitive implants apart from the following points:

- The pieces are sandblasted Ta6V and yellow anodised to prevent confusion with the definitive implant.
- The pieces are engraved with size indications (diameter and height) as well as «TRIAL-DO NOT IMPLANT» on the spherical section.

Check the ligament tensions and the fit by reducing the implant.

If necessary, lightly resect the humerus to facilitate positioning of the overhang.



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### 10.5. Implantation of the definitive implants

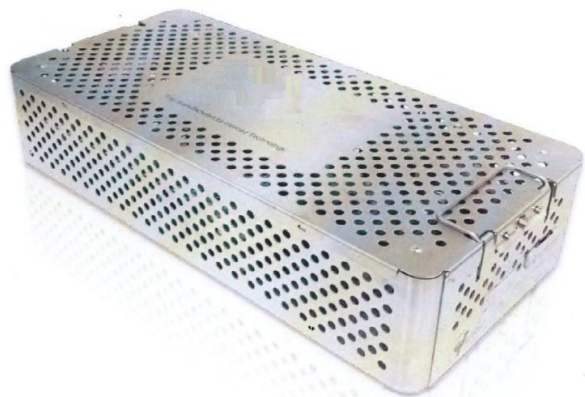
- Remove the trial implants and replace them with the corresponding implants.
- Lock the assembly using the provided screw with the spacer.
- Perform the reduction.



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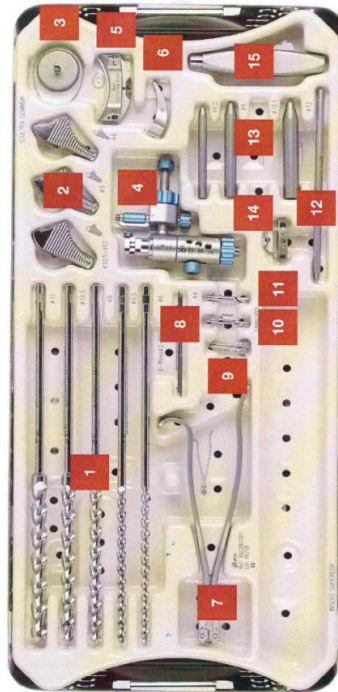
#### ATTENTION

For every hooded head implantation surgery, it is essential to have the standard and reverse instrument sets available.



# INSTRUMENT SET

Top tray



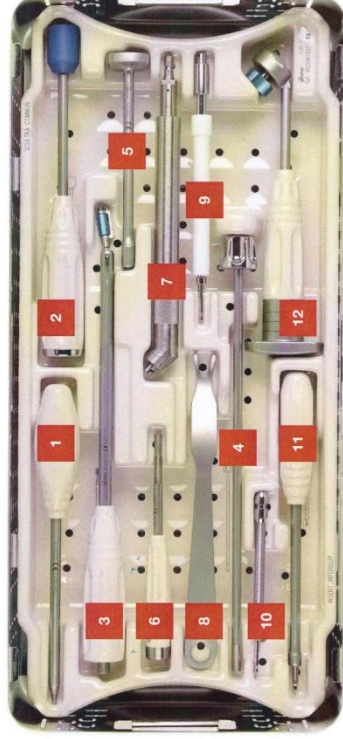
N°	Reference	Instrument	N°	Reference	Instrument
1	B229301111	Humeral drill Ø 6 mm	7	B2344131	Nail-claw forceps
1	B229301101	Humeral drill Ø 6,5 mm	8	B229511	Pin Ø 2 mm, Length 60 mm (x2)
1	B229301141	Humeral drill Ø 9 mm	8	B22930191	Pin Ø 2 mm, Length 80 mm (x2)
1	B229301191	Humeral drill Ø 10,5 mm	9	13700300	Headed pin, Length 30 mm (short) (x2)
1	B229301171	Humeral drill Ø 12 mm	10	B22930212	Glenoid centering drill Ø 4 mm
2	B2293511	Rasp Ø 6,5 mm	11	B2293231	Holed centering drill Ø 4 mm
2	B229301411	Rasp Ø 6,5 mm	12	B2294121	Retroversion control pin
2	B2293521	Rasp Ø 9 mm	12	B22930171	Retroversion control pin
2	B229301421	Rasp Ø 9 mm	13	B22900211	Trial keel Ø 6,5 mm
2	B2293531	Rasp Ø 10,5 / 12 mm	13	B22900221	Trial keel Ø 9 mm
3	B229521	Humeral protection	14	B22900231	Trial keel Ø 12 mm
4	B2293511	Guide holder	14	B22930222	Glennoid centering guide
5	B229321	Humeral cutting guide	15	B1591021	T handle
6	B229331	Removable handle			

Some of the instruments may be replaced by:



N°	Reference	Instrument
11	B2295231	Holed centering drill Ø 4 mm
14	B22930223	Glenoid centering guide

### Bottom tray



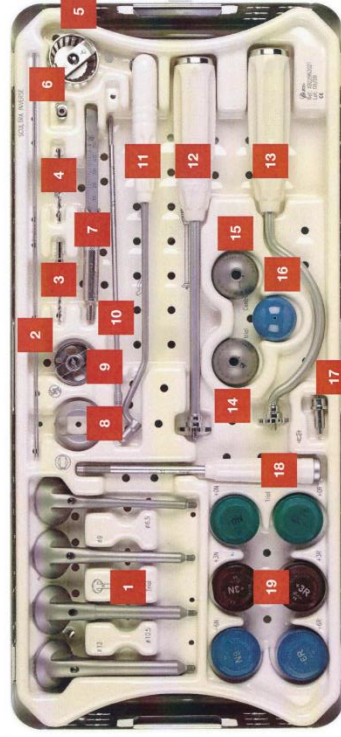
N°	Reference	Instrument	N°	Reference	Instrument
1	B250231	3,5 mm Hexagonal screwdriver	8	B229551	Forked retractor
2	B229441	Sphere impactor	8	B22940231	Forked retractor
2	B22930331	Sphere impactor	9	B229431	Canulated straight handle
3	B2294A11	Guide holder	10	1758004	Flexible shaft
4	B2294A21	Guide holder screw	11	B250241	3.5 mm Ball joint hexagonal screwdriver
5	B2295341	Osteotome	12	B2294111	Epiphysis holder impactor
5	B2296701	Impactor extractor	12	B22930171	Epiphysis holder impactor
7	03086000	Bend 3/4° 42,5°			

Some of the instruments may be replaced by:



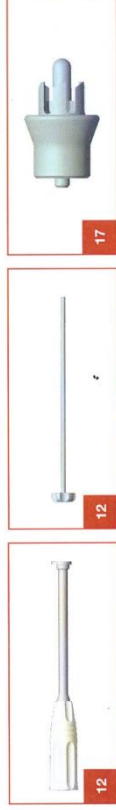
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N°	Reference	Instrument
12	B2294112	Epiphysis holder impactor



N°	Reference	Instrument	N°	Reference	Instrument
1	B22920111	Reversed trial stem Ø 6.5 mm	11	B2294771	Drilling guide for glenoid base screw
1	B22920111	Reversed trial stem Ø 8 mm	11	B2294771	Drilling guide for glenoid base screw
1	B22920141	Reversed trial stem Ø 9.5 mm	12	B2294921	Drilling guide for glenoid base screw
1	B22920131	Reversed trial stem Ø 12 mm	13	B2294911	Curved glenoid base impactor
2	146309	K-pin Ø 1.5 mm, Length 300 mm	14	B22920542	Trial centered glenoid sphere
3	B2293221	Drill bit Ø 3.2 mm	15	B22920552	Trial off-centered glenoid sphere
3	B22950251	Drill bit Ø 3.2 mm for flexible	16	B2294831	Impaction sphere
4	B2293251	Humeral reamer	17	B22950212	Baseplate tip reamer
5	B2293611	Humeral reamer	18	B229481	Glenoid sphere impactor-extractor
6	B229321	Humeral reamer	18	B229481	Glenoid sphere impactor-extractor
7	319.04	Depth gauge	19	B22920211	Trial insert 0 neutral
7	319.06	Depth gauge	19	B22920221	Trial insert + 3 neutral
8	KM47.936	Depth gauge	19	B22920231	Trial insert + 6 neutral
8	B2294131	Adapter for reverse rasp	19	B22920241	Trial insert 0 retentive
9	B229301791	Adapter for reverse rasp	19	B22920251	Trial insert + 3 retentive
9	B2293141	Flat glenoid reamer	19	B22920261	Trial insert + 6 retentive
10	B2293221	Glenoid sphere rod guide			
10	B2293271	Glenoid sphere rod guide			

Some of the instruments may be replaced by:

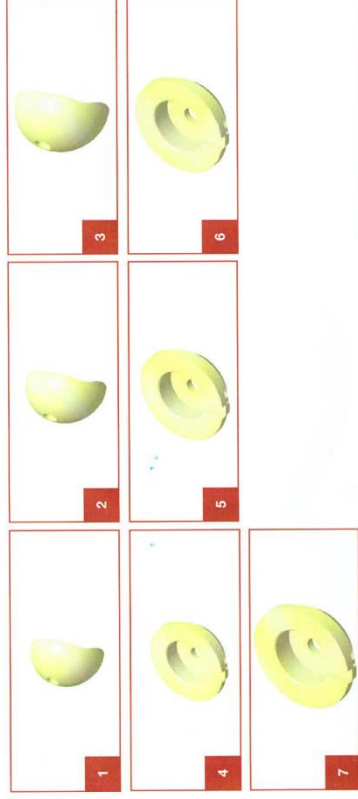


Some instruments are available upon request:



N°	Reference	Instrument
12	B2294922	Straight glenoid base Impactor
17	B2294923	Prehensile rod
17	B22950213	Baseplate tip reamer
20	B2293151	Glenoid half reamer

Instruments used for the Hooded Humeral Head:



Instruments used for the Revision Glenoid Baseplate:



N°	Reference	Instrument
1	B22960111	Hooded humeral head Ø 42 mm Thickness 19 mm
2	B22960131	Hooded humeral head Ø 42 mm Thickness 22 mm
3	B22960141	Hooded humeral head Ø 45 mm Thickness 22 mm
4	B22960201	Spacer 0 mm
5	B22960231	Spacer +3 mm
6	B22960261	Spacer +6 mm
7	B22960291	Spacer +9 mm
8	B22950221	Revision baseplate tip reamer
9	LX16BR PI 320 08	Cutting pliers