

# Epoca Revision Instrument Set.

For extraction and revision of Epoca shoulder implants.

Technique Guide



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**IMPORTANT:** This device has not been evaluated for safety and compatibility in the MR environment. This device has not been tested for heating or migration in the MR environment.

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## Epoca Revision Instrument Set.

For extraction and revision of Epoca shoulder implants.

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Revision procedures differ from case to case. The operative strategies must be adapted to the specific case, and pre-operative planning is one of the determining factors for a successful outcome.

The following key elements must be assessed preoperatively:

- patient medical history
- individual characteristics of the patient (e.g. bone quality, activity level)
- implants to be extracted/revise (e.g. type of implant, type of fixation, stability)

The assessment of these elements influences the operative strategy, i.e. whether a longitudinal corticotomy is needed for removal and what type of implant can be reimplanted.



The Epoca Revision Instrument Set provides instrumentation for extraction and revision of Epoca shoulder implants.

The instrumentation needed depends on which implant component is to be revised. It's important that the necessary selection of revision implants is available at the time of surgery.

### **Removal/Extraction of Humeral Components**

Dedicated instruments for removal and extraction of humeral components are used with the same guide bar and ram to gently remove the implant.

#### **Articulated Head Extractor**

- For simple removal of the prosthesis head
- Self-centering independently of head size, so that forces are applied axially
- Works with all Epoca heads (40 mm – 58 mm diameters)



#### **Articulated Eccenter Extractor**

- For simple removal of eccentric
- Always centered when attached to the eccentric



#### **Stem Extractor**

- For atraumatic removal of the prosthesis stem



# Implantation of a Long or Extra-long Humeral Stem and Applications

In certain cases, long or extra-long stems must be implanted. The following instruments facilitate implantation.

2.5 mm Reaming Rod, short

- Length adapted for use in humerus
- Renders humerus reamers more rigid to facilitate reaming in revision cases

Trial Stems for Long and Extra-long Stem Implants

- Help determine correct stem implant size

General Shoulder Instrument Set

Existing instruments, such as a chisel, osteotomes and an awl should also be available.



Long

Extra-long

## Applications

The Epoca Revision Set is intended for the extraction and revision of Epoca Shoulder System Implants.

# Preparation

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## 1

### Preoperative planning

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#### Required sets

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01.401.005      Epoca Revision Set

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01.401.007      General Shoulder Instrument Set

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Preoperative planning includes deciding whether a short or long stem will be implanted. It should be decided whether the extraction requires a longitudinal corticotomy or not.

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**Note:** Ensure that long and/or extra-long stem implants and instruments are available in all cases of revision of the humeral component.

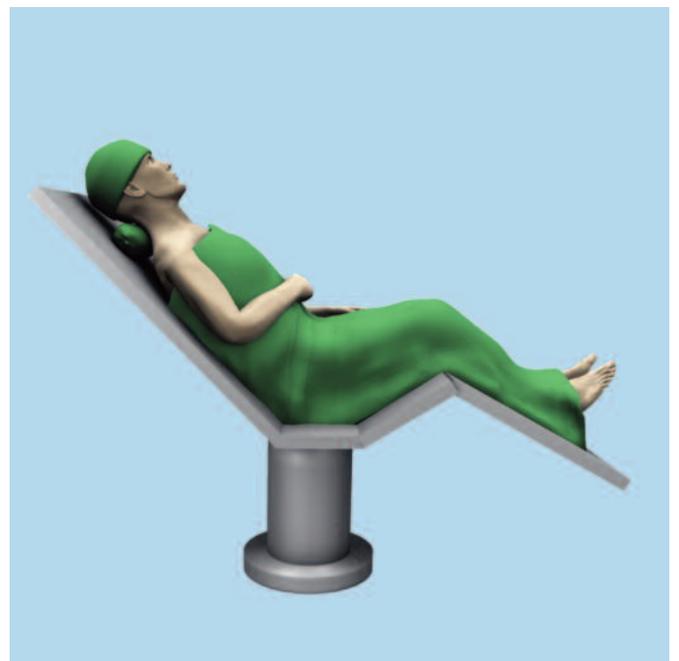
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## 2

### Patient positioning and approach

Generally, the patient is placed in the beach chair position and a deltopectoral approach is made, with exposure of the joint after subscapularis detachment, with or without osteotomy of the lesser tuberosity. Consider soft-tissue releases to expose the head.



# Removal/Extraction of Humeral Components

## 1

### Head/eccenter removal and humeral stem extraction

#### Instruments

03.401.070 Guide Bar, Removal of Implants

03.401.071 Articulated Head Extractor

03.401.072 Stem Extractor

03.401.073 Articulated Eccenter Extractor

355.25 Ram

392.919 Hexagonal Wrench, 5 mm

#### Optional instruments

03.111.012 Silicone Handle, long, with quick coupling, 195 mm

03.111.016 Joint Preparation Chisel, straight, broad, 15 mm width

359.213 Awl

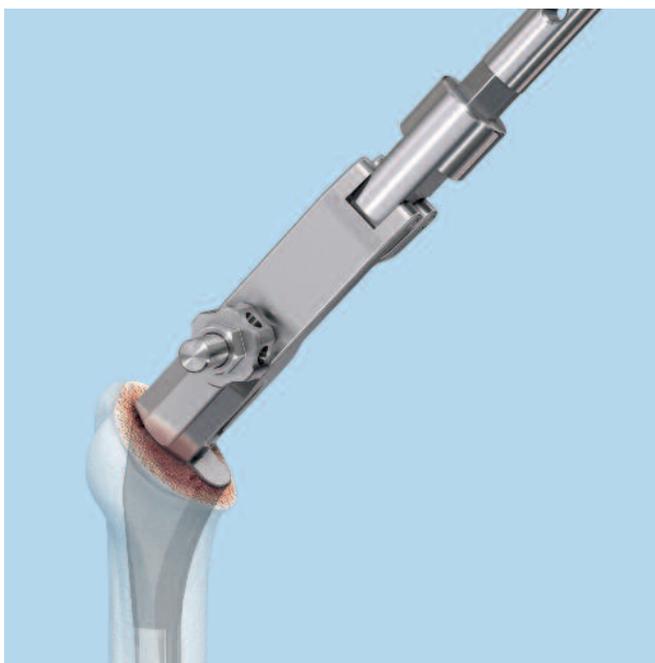
391.88 Locking Pliers, 180 mm length

399.82 Osteotome, 10 mm width, 150 mm length

Attach the articulated head extractor to the prosthetic head. Pass the guide bar through the ram, and thread the guide bar into the articulated head extractor. Ensure the thread catches fully. Apply gentle blows with the ram.

The head usually comes off without the ecenter.

Attach the articulated ecenter extractor (if necessary, use the locking pliers to rotate the ecenter into a more favorable position). Attach the ram/guide bar and apply gentle blows.



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**Note:** If the articulated extractor instruments cannot be attached correctly, carefully tap two thin chisels in between the stem and eccentric/head.

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**Important:** Take care to avoid damage to the surrounding soft tissues when using chisels.

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To ease stem extraction, the proximal bone/implant interface can be gently released using thin osteotomes.

To remove the stem, attach and fully tighten the stem extractor, using the hexagonal wrench. Attach the ram/guide bar and apply gentle blows. If the stem does not readily loosen, consider changing plans and perform a longitudinal corticotomy before irreparable damage to the humerus occurs.

Remove any residual bone cement, as necessary, using standard techniques and tools.

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**Note:** Retighten the guide bar/extractor connection after a couple of blows to ensure that it is not loose.

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**Important:** Take care to not slip off with the articulated head extractor or the articulated eccentric extractor, to avoid damaging the surrounding soft tissues.

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# Removal of Glenoid

## 1

### Remove glenoid

#### Instruments

03.111.012	Silicone Handle, with quick coupling, long
03.111.016	Joint Preparation Chisel, straight, broad, 15 mm width

#### Optional instruments

310.60	6.0 mm Drill Bit, quick coupling, 195 mm
359.213	Awl

Slide a chisel under the glenoid and mobilize the glenoid through slight tilting movements. Extract using forceps.

**Note:** If it is not possible to extract the glenoid, you may cut the pegs with the chisel and then overream the pegs with a 6 mm drill bit.

**Important:** Take care not to damage the surrounding soft tissues when using the chisel.

Remove any residual bone cement using standard tools and techniques.



# Implantation of Long- or Extra-Long Stem

## 1

### Preparation

#### Required sets

01.401.003	Epoca Shoulder Prosthesis Trial Implants Instrument Set
150.060	Flexible Reamers Set for IM Nails

## 2

### Prepare medullary canal

#### Instruments

03.401.074	2.5 mm Reaming Rod, short, 400 mm length
E5113-6L– E5113-14L	Trial Stems Epoca, long, sizes 6–14
or	
E5113-6XL– E5113-14XL	Trial Stems Epoca, extra-long, sizes 6–14

Introduce the 2.5 mm reaming rod, slide the reamer head and the reamer shaft over the reaming rod, and start gentle reaming until the desired diameter is reached. Consider that the humeral diaphysis might be relatively thin.

**Important:** Be sure to not penetrate the humeral cortex with either the reaming rod or the reamer.

Prepare the proximal part with standard rasps. Probe the correct implant size with the long stem trial implants.

Continue with implantation of a hemi- or total prosthesis as described in the *Epoca Shoulder Prosthesis System Technique Guide*.



# Implantation of a New Head Without Changing the Stem

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## Required sets

01.401.001	Epoca Shoulder Prothesis Press Instrument Set
01.401.003	Epoca Shoulder Prothesis Trial Implants Instrument Set

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## 1

### Head extraction

Extract the head as described on page 6.

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## 2

### Attach trial eccentric

#### Instruments

E5114-20	Trial Eccenter
E5114-40 – E5114-54	Trial Heads, sizes 40–54

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#### Implant

5413-20/6REV	Titanium Eccenter Revision Epoca standard, sterile
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Use a surgical marker pen to extend the midline marking on the stem onto the adjacent soft tissues (supraspinatus and calcar).

Insert the trial eccentric into the trial head, in position A. Attach the construct to the stem and check for optimal offset. If the offset is inadequate, extract the construct, adjust the offset (e.g. to position B) and recheck the position.

After determination of the required offset, record the combination.



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### 3

#### Prepare and implant revision ecenter and head

Attach the revision ecenter on the head in the correct position. Put the ecenter head construct onto the ecenter/impactor for the press. Place the ecenter/impactor upside down into the press. Using the torque wrench, turn the handle of the press clockwise until a click is heard, signifying the positive engagement of the ecenter and the head. Introduce the construct onto the prosthetic shaft. Rotate it to the correct position in respect to the soft-tissue marking. Use the head impactor and apply gentle blows with a hammer.

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**Note:** Ensure that the base of the head sits flush on the neck of the stem.

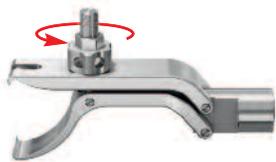
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# Care and Maintenance

## Articulated Head Extractor (03.401.071)

Remove the tightening nut to clean and sterilize the articulated head extractor or the articulated eccentric extractor.



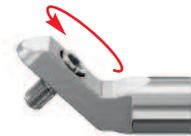
## Articulated Eccenter Extractor (03.401.073)

Remove the tightening nut to clean and sterilize the articulated head extractor or the articulated eccentric extractor.



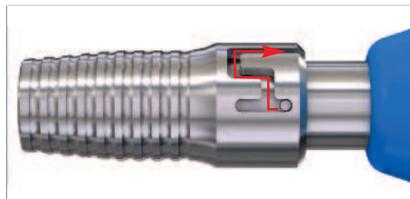
## Stem Extractor (03.401.072)

Loosen and remove the central screw for cleaning and sterilization.



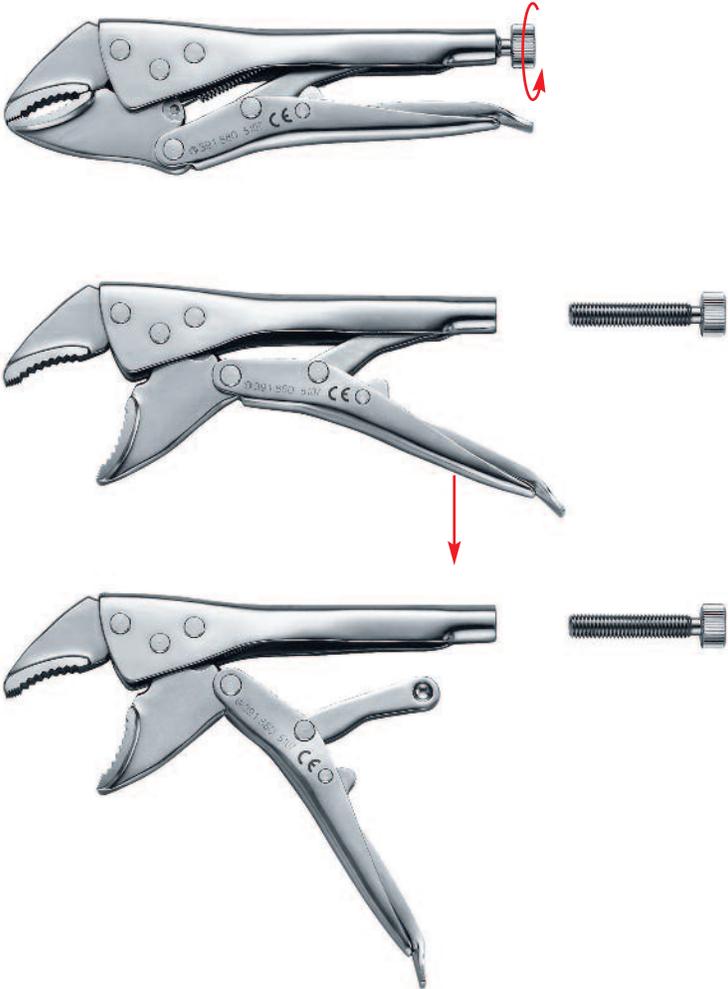
## Silicone Handle (03.111.012)

Remove the outer sleeve, then remove the spring for cleaning.



**Locking Pliers (391.88)**

Loosen the nut and lubricate where indicated.



# Implants

## CoCr Humeral Stem, long, cemented, sterile

– Cobalt chromium alloy (Co-28Cr-6Mo)

	Size (mm)	Length (mm)
5624-6/15L	6	155
5624-8/16L	8	160
5624-10/16L	10	165
5624-12/17L	12	170
5624-14/17L	14	175



## CoCr Humeral Stem, extra-long, cemented

– Cobalt chromium alloy (Co-28Cr-6Mo)

	Size (mm)	Length (mm)
5624-6/19XL	6	195
5624-8/20XL	8	200
5624-10/20XL	10	205
5624-12/21XL	12	210
5624-14/21XL	14	215



## Titanium Revision Eccenter, standard, sterile

– Titanium alloy (Ti-6Al-7Nb)

	Usage
5413-20/6REV	Revision



The revision eccentric is slightly larger in diameter than the standard eccentric. The increased thickness allows for a pressfit connection between the original stem and the new head implant.

For standard Epoca implants, please refer to the *Epoca Shoulder Prosthesis System Technique Guide*.

# Instruments

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03.111.012      Silicone Handle, long, quick coupling



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03.111.016      Joint Preparation Chisel, straight, broad,  
15 mm width



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03.401.070      Guide Bar for Removal of Implants  
Used with 355.25



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03.401.071      Articulated Head Extractor, for Guide Bar  
(03.401.070)  
Used with 355.25



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03.401.072      Stem Extractor, for Guide Bar (03.401.070)  
Used with 355.25



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03.401.073      Articulated Eccenter Extractor, for Guide  
Bar (03.401.070)  
Used with 355.25



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03.401.074      2.5 mm Reaming Rod, short,  
400 mm length

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355.25      Ram  
Used with Guide Bar (03.401.070)



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E5113-6L–      Trial Stem Epoca, long, sizes 6–14  
E5113-14L



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E5113-6XL –      Trial Stem Epoca, extra-long, sizes 6–14  
E5113-14XL



## Optional Instruments

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310.60      6.0 mm Drill Bit, 195 mm



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359.213      Awl



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391.88      Locking Pliers, 180 mm length



## Epoca Revision Instrument Set (01.401.005)

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68.401.041	Vario Tray for Trial Stems, Epoca Revision
68.401.043	Vario Tray for Extraction Instruments, Epoca Revision
689.507	Lid for Vario Case, Full Size, 2 ea.
689.511	Vario Case, Full Size, 2 ea.

### Instruments Modular Tray 1

03.111.012	Silicone Handle, long, quick coupling
03.111.016	Joint Preparation Chisel, straight, broad, 15 mm width
03.401.070	Guide Bar for Removal of Implants
03.401.071	Articulated Head Extractor, for Guide Bar (03.401.070)
03.401.072	Stem Extractor, for Guide Bar (03.401.070)
03.401.073	Articulated Eccenter Extractor, for Guide Bar (03.401.070)
310.60	6.0 mm Drill Bit, quick coupling, 195 mm,
355.25	Ram
359.213	Awl
391.88	Locking Pliers, 180 mm length
392.919	Hexagonal Wrench, 5.0 mm
399.82	Osteotome, 10 mm width, 150 mm length 2 ea.

### Instruments Modular Tray 2

E5113-6L	Trial Stem Epoca, long, size 6
E5113-8L	Trial Stem Epoca, long, size 8
E5113-10L	Trial Stem Epoca, long, size 10
E5113-12L	Trial Stem Epoca, long, size 12
E5113-14L	Trial Stem Epoca, long, size 14
E5113-6XL	Trial Stem Epoca, extra-long, size 6
E5113-8XL	Trial Stem Epoca, extra-long, size 8
E5113-10XL	Trial Stem Epoca, extra-long, size 10
E5113-12XL	Trial Stem Epoca, extra-long, size 12
E5113-14XL	Trial Stem Epoca, extra-long, size 14
03.401.074	2.5 mm Reaming Rod, short, 400 mm, 2 ea.

Note: For additional information, please refer to package insert.



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