




# Direct Anterior Approach

## Surgical Technique

Explanation of Pictograms			
	Manufacturer		Article number
	Material (number)	<b>Rx only</b>	Caution: Federal law restricts this device to sale by or on the order of a physician

# Direct Anterior Approach Surgical Technique

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Important Information

### Preoperative Planning

It is important to plan the procedure preoperatively in order to select the correct implant type and size and its final intraosseous position based on the patient's individual anatomy. The surgeon should perform a careful evaluation of the patient's clinical condition and consider the level of physical activity before performing a hip replacement.

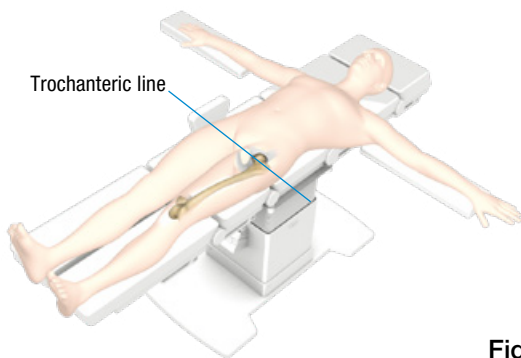


Fig. 1

### Patient Positioning

The patient is positioned in supine position with standard hip arthroplasty draping. Support the opposite non-invasive hip close to the top of the greater trochanter to create a stable pelvis position. The patient should be positioned such that the trochanteric line is parallel to the breaking axis of the leg segment of the operation table.

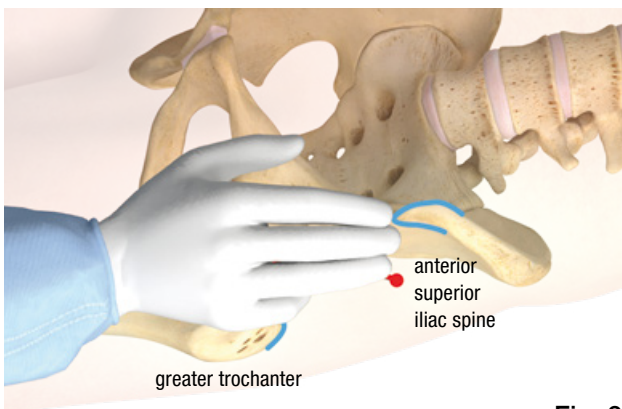


Fig. 2

### Planning and Skin Incision

Identify the greater trochanter and the anterior superior iliac spine (ASIS). Start the skin incision ~3 cm lateral and 3 cm (3 fingers) distal from ASIS. Extend it diagonally and distally 2-3 cm below the greater trochanter directed to the head of fibula or lateral epicondyle.

**INFORMATION:**

**In order to avoid damaging the lateral femoral cutaneous nerve, stay lateral from the interval between the tensor fascia latae (TFL) and sartorius muscle.**

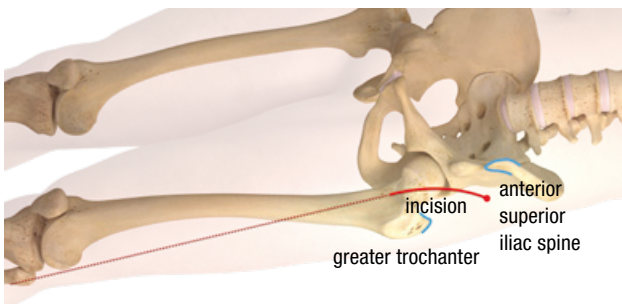
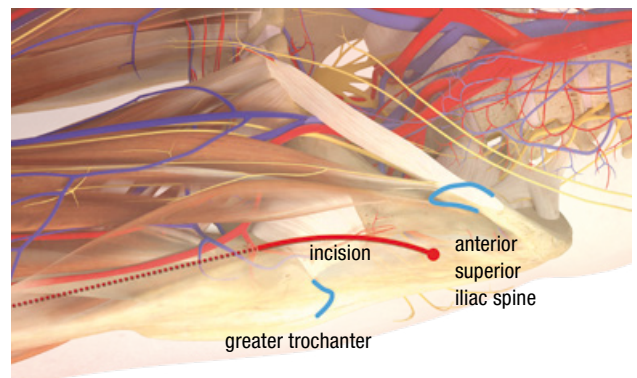


Fig. 3



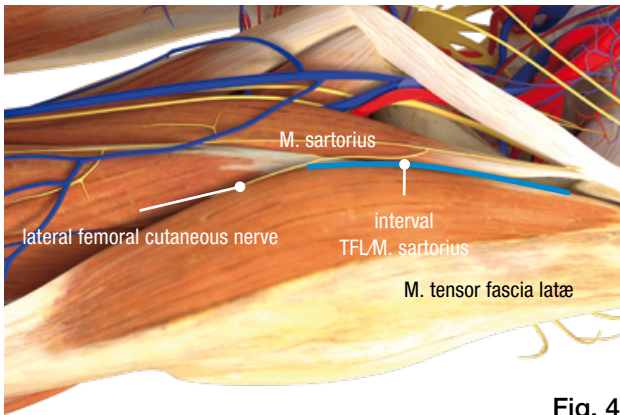


Fig. 4

### Capsular Exposure

After the initial skin incision divide the subcutaneous tissue in line with the incision. Incise the fascia of the TFL in the medial-distal part of the incision and continue along the fibres of the muscle. Bluntly dissect the fascia from the TFL. Palpate and enter the interval between the TFL and the sartorius muscle with your finger staying in the sheath of the TFL. Coagulate the lateral femoral circumflex vessels (three sisters).

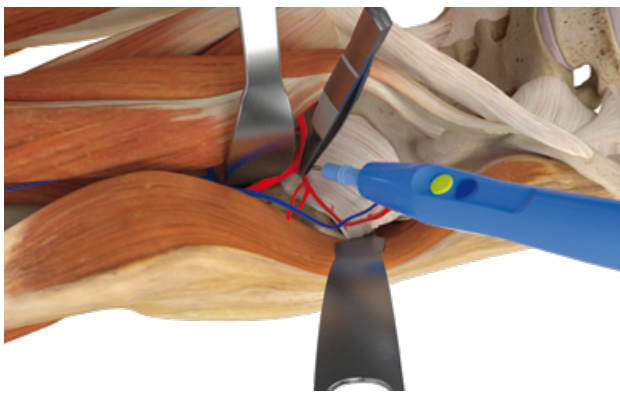


Fig. 5

Place a Standard Blunt Hohmann Retractor deep to the gluteus medius and minimus musculature over the capsule over the superolateral part of the femoral neck. Incise the deep fascia between the femoris and the TFL. Remove the fat pad under the rectus femoris which will reveal the anterior capsule. A 90° Blunt Cobra Retractor can be placed deep to the rectus femoris over the capsule on the medial side proximal to the lesser trochanter. Alternatively place a second 90° Sharp Cobra Retractor over the anterior rim of the acetabulum. Be aware of the neurovascular structures. This will allow a good exposure of the capsule.

### PLACEMENT OF RETRACTORS

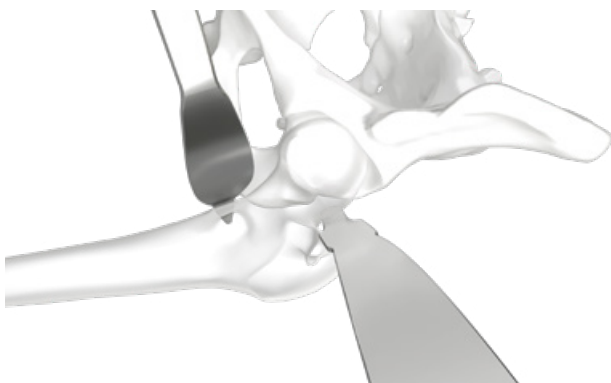
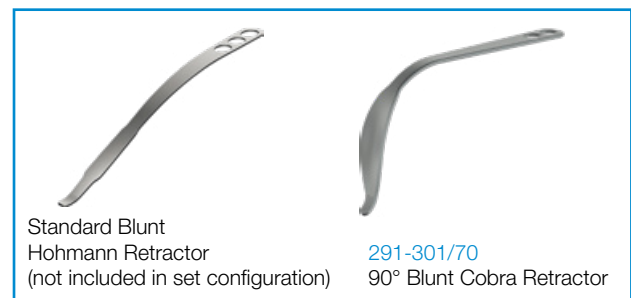


Fig. 6

### INSTRUMENTS





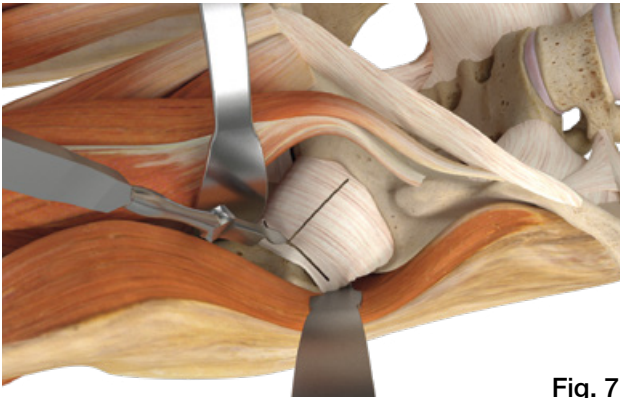


Fig. 7

### Capsule Incision

Different options exist to incise the capsule depending on the anatomy and stiffness of the capsule. Perform an inverted T-shaped capsulotomy. Start with your incision near the acetabulum and extend it to the intertrochanteric line in line with the femoral neck. Afterwards reposition your retractors intracapsular on both sides of the femoral neck.

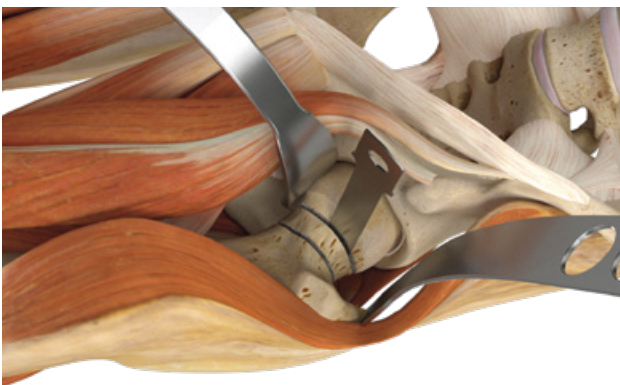


Fig. 8

### Removal of the Femoral Head

Mark the level of resection according to your preoperative planning or the planned femoral broach/rasp. Cut the femoral neck according to your marking. Removal of the femoral head can be facilitated by cutting and removing a slice of femoral neck. Perform the distal cut first and then the sub head cut. Use the retractor to protect the muscle and soft tissue from the saw blade. Remove any anterior osteophyte from the acetabulum to ease the femoral head removal. If you still have difficulties, cut the labrum and remove more antero-superior capsule. Remove the femoral head with the help of a cork-screw instrument.

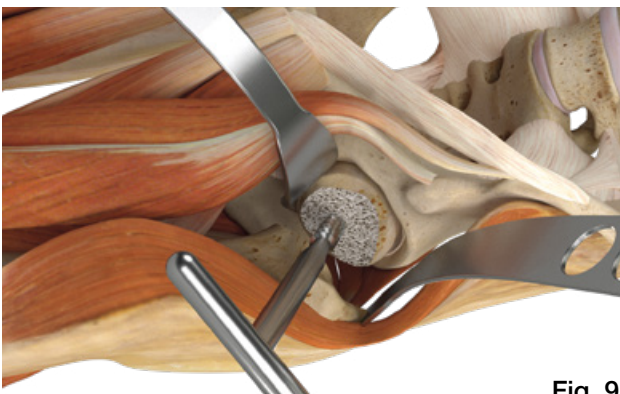


Fig. 9

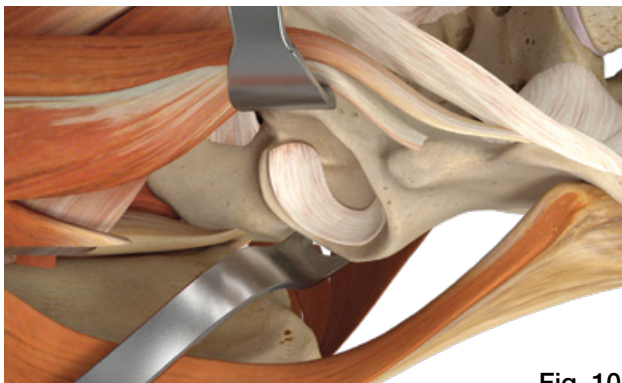


Fig. 10

PLACEMENT OF RETRACTORS

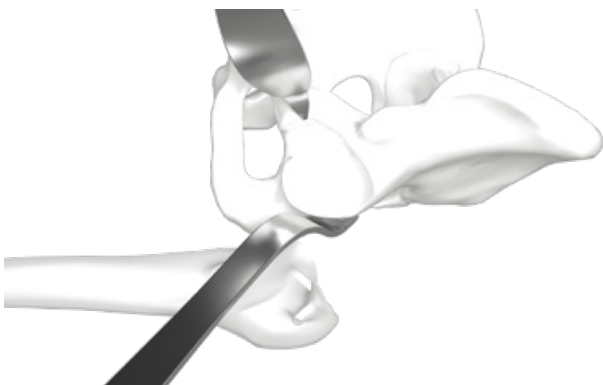


Fig. 11

**Acetabular Exposure**

Enter a 90° Sharp Cobra Retractor over the labrum and anterior rim of the acetabulum (11 o'clock for the left hip, 1 o'clock for the right hip). Place a Mueller Retractor between the labrum and posterior capsule over the posterior rim of the capsule, directly on the bone.

**INFORMATION:**

The femoral nerve and psoas tendon are approximately 2 cm medial and 1 cm anterior of the anterior rim of the acetabulum which can be damaged in case the retractor is placed in an incorrect way. Do not place the retractor in soft tissues. It should be directly placed on the wall of the acetabulum.

**INSTRUMENTS**

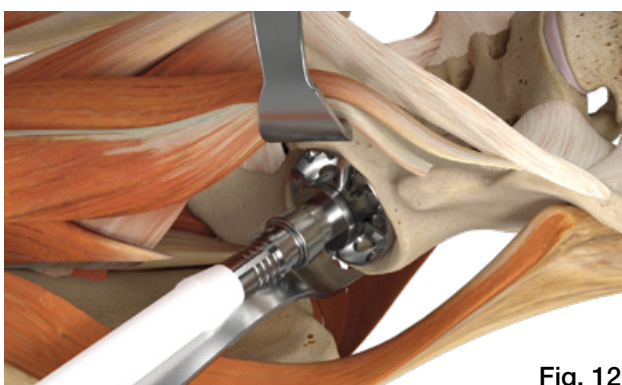
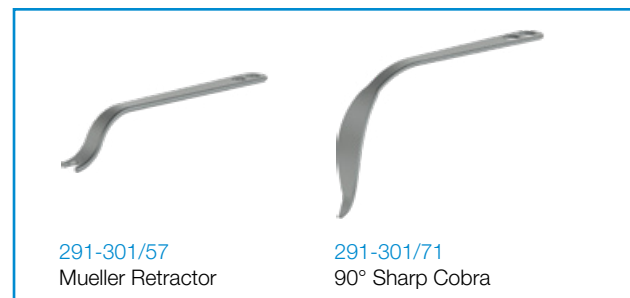


Fig. 12

**Implantation of Acetabular Cup**

Please refer to the surgical technique of the respective cup system.

**INFORMATION:**

With the anterior approach specific attention should be placed towards the inclination and anteversion of the cup as the femur tends to push the cup into increased inclination and/or anteversion while reaming and impacting.



Fig. 13

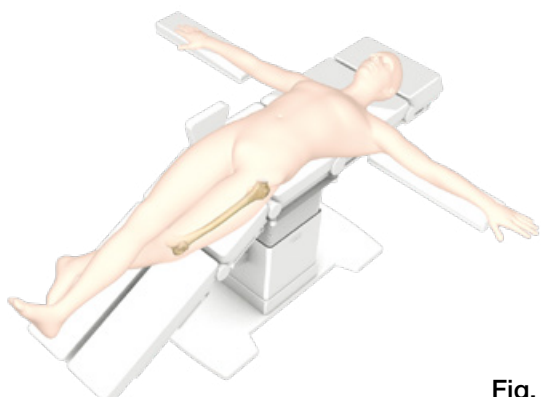


Fig. 14

### Positioning of the Leg

Positioning of the leg is a very important step for the femoral exposure during the direct anterior approach. By lowering the leg part of the operation table, hyperextend the hip by approximately 20°. Additionally rotate the leg externally by 60° - 90° with a knee flexion of 10° - 30°. To better expose the femoral neck, adduct the operated leg.

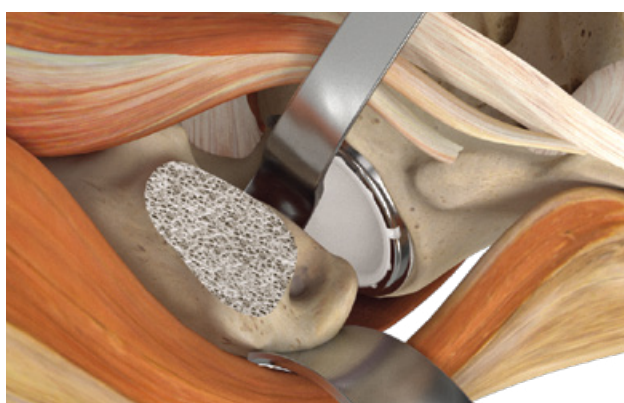


Fig. 15

### Femoral Exposure

Place a Mueller Retractor around the postero-medial calcar and a 90° Sharp Cobra Retractor or 60° V-tipped Retractor over the tip of the greater trochanter in the femoral axis.

To lift up the femur, release the capsule from the neck osteotomy line to the top of the trochanter. Be careful not to release the piriformis tendon. The fat pad should be visible.

### PLACEMENT OF RETRACTORS

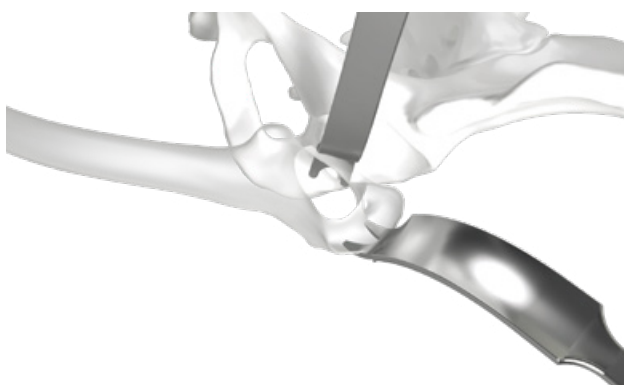


Fig. 16

### INSTRUMENTS





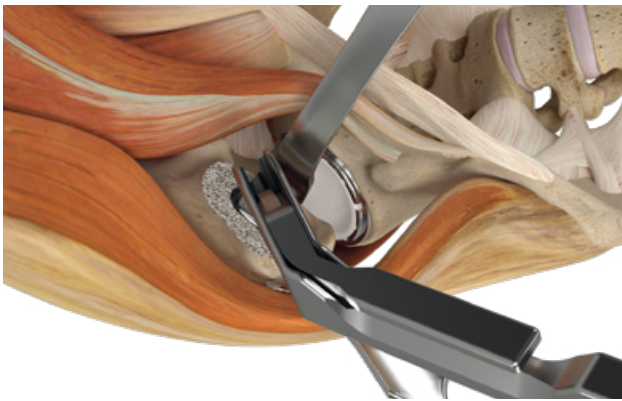


Fig. 17



Fig. 18



Fig. 19

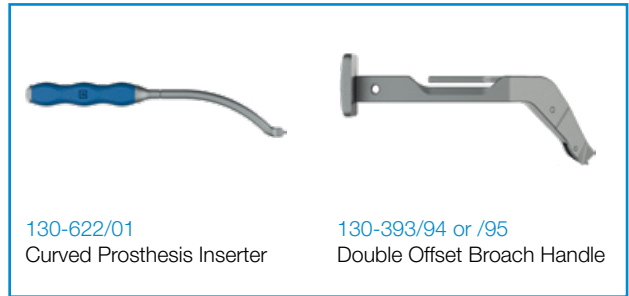
### Implantation of Hip Stem

Please refer to the surgical technique of the respective stem system. The Double Offset Broach Handle and the Curved Prosthesis Inserter facilitate the Direct Anterior Approach.

#### INFORMATION:

Be aware of the force transmission of the different Broach Handle designs during impaction of the femoral compressors or rasps. Offset and Double Offset Broach Handles can increase off-axis and rotational forces during impaction.

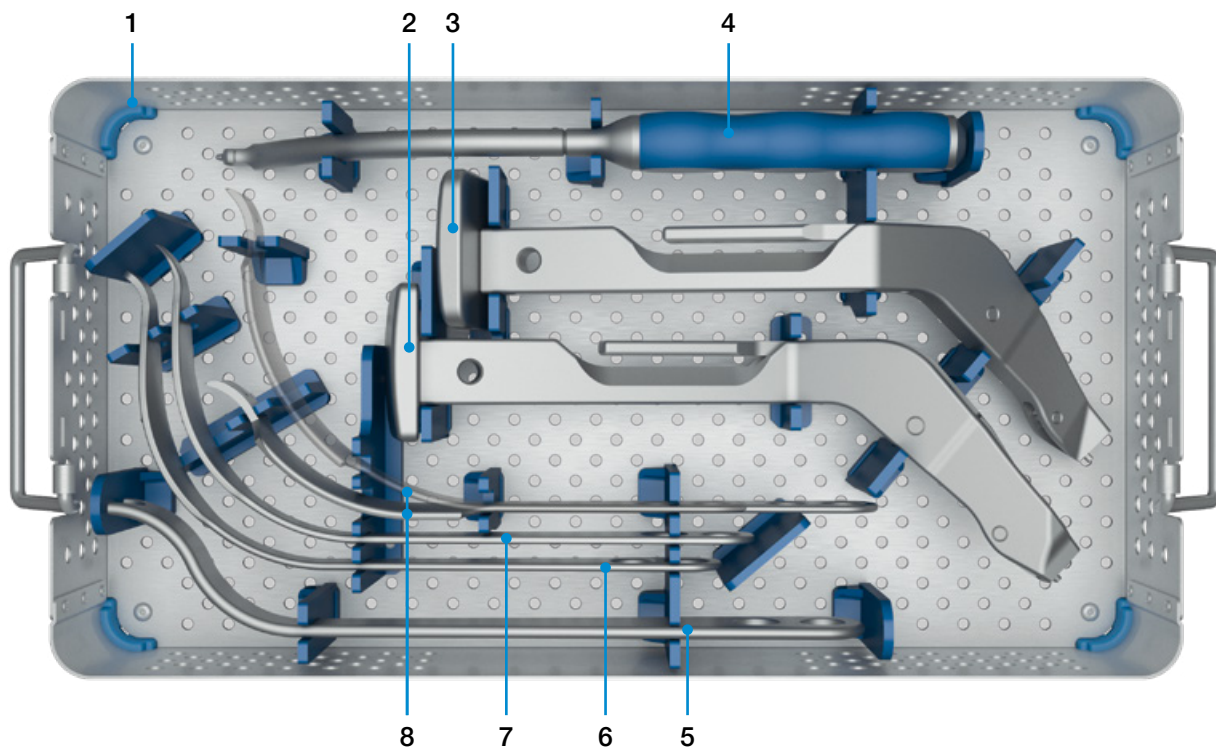
#### INSTRUMENTS



130-622/01  
Curved Prosthesis Inserter

130-393/94 or /95  
Double Offset Broach Handle

293-100/01 Instrument Set for Direct Anterior Approach (DAA)



	REF	Description
1	293-100/11	<b>Instrument Tray</b> , only, stainless steel, 485 x 253 x 80 mm
2	130-393/95	<b>Broach Handle</b> , left, for rasp stems and bone compressors, double offset
3	130-393/94	<b>Broach Handle</b> , right, for rasp stems and bone compressors, double offset
4	130-622/01	<b>Stem Impactor</b> , curved
5	291-301/57	<b>Mueller Retractor</b> , dove tail
6	291-301/70	<b>Cobra Retractor</b> , blunt, curved 90°
7	291-301/71	<b>Cobra Retractor</b> , sharp, curved 90°
8	291-301/75	<b>Retractor</b> , V-tip, curved 60°
	Optional (instead of 291-301/75)	
	291-301/76	<b>Retractor</b> , V-tip, curved 90°

Individual Instruments

130-393/94 Broach Handle, right, double offset

130-393/95 Broach Handle, left, double offset



130-622/01 Stem Impactor, curved



291-301/57 **Mueller Retractor**



291-301/70 **Cobra Retractor, curved 90°, blunt**



291-301/71 **Cobra Retractor, curved 90°, sharp**



291-301/75 **Retractor, curved 60°, V-tipped**



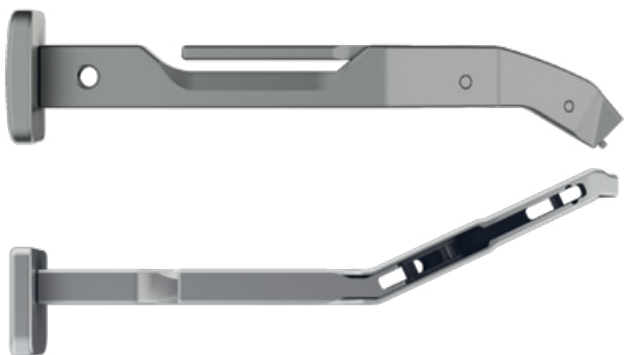
291-301/76 **Retractor, curved 90°, V-tipped**



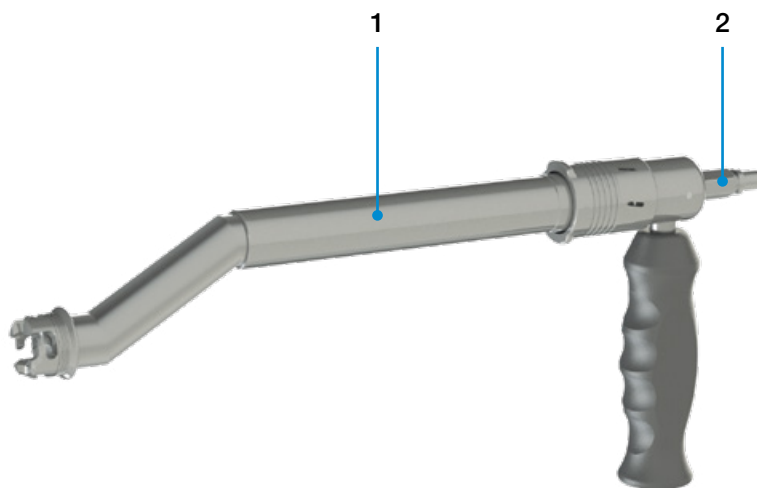
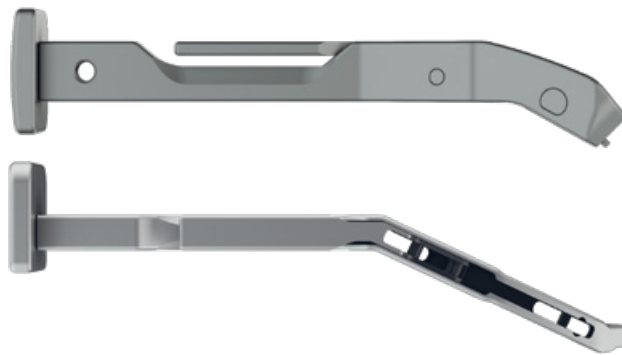


**Additional Instruments**



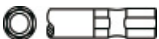
**130-394/02 Universal Handle**  
for rasp stems and compressors,  
angled, right



**130-394/03 Universal Handle**  
for rasp stems and compressors,  
angled, left



<b>1</b>	<b>131-174/05</b>	<b>Offset Acetabular Reamer Handle w/o Drive Shaft</b>
	<b>131-174/04B</b>	<b>Drive Shaft</b> , stainless steel, Hudson Fitting (B)
<b>2</b>	<b>131-174/04D</b>	<b>Drive Shaft</b> , stainless steel, AO Fitting (D)
	<b>131-174/04H</b>	<b>Drive Shaft</b> , stainless steel, Zimmer Fitting (H)

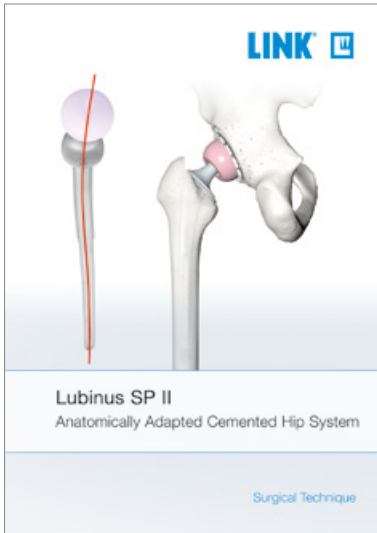
		
<b>B</b>	<b>D</b>	<b>H</b>
Hudson	AO	Zimmer

**INFORMATION:**

Both, Offset Reamer Handle and Drive Shaft are required for the application of the Offset Acetabular Reamer Handle.

### Additional Information

LINK hip stem systems



For more information please register for our LINK Media Library ([linkorthopaedics.com](http://linkorthopaedics.com))

**Please note the following regarding the use of our implants:**

**1. Choosing the right implant is very important.**

The size and shape of the human bone determines the size and shape of the implant and also limits the load capacity. Implants are not designed to withstand unlimited physical stress. Demands should not exceed normal functional loads.

**2. Correct handling of the implant is very important.**

Under no circumstances should the shape of a finished implant be altered, as this shortens its life span. Our implants must not be combined with implants from other manufacturers.

The instruments indicated in the Surgical Technique must be used to ensure safe implantation of the components.

**3. Implants must not be reused.**

Implants are supplied sterile and are intended for single use only. Used implants must not be used again.

**4. After-treatment is also very important.**

The patient must be informed of the limitations of the implant. The load capacity of an implant cannot compare with that of healthy bone!

**5. Unless otherwise indicated, implants are supplied in sterile packaging.**

Note the following conditions for storage of packaged implants:

- Avoid extreme or sudden changes in temperature.
- Sterile implants in their original, intact protective packaging may be stored in permanent buildings up until the "Use by" date indicated on the packaging.
- They must not be exposed to frost, dampness or direct sunlight, or mechanical damage.
- Implants may be stored in their original packaging for up to 5 years after the date of manufacture. The "Use by" date is indicated on the product label.
- Do not use an implant if the packaging is damaged.

**6. Traceability is important.**

Please use the documentation stickers provided to ensure traceability.

**7. Further information** on the material composition is available on request from the manufacturer.


**Follow the instructions for use!**

Waldemar Link GmbH & Co. KG, Hamburg

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