

Direct Anterior Approach

Surgical Technique

Presented by:



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Direct Anterior Approach Surgical Technique

02 Surgical Technique

- 02 Preoperative Planning
- 02 Patient Positioning
- 02 Planning and Skin Incision
- 03 Capsular Exposure
- 04 Capsule Incision
- 04 Removal of the Femoral Head
- 05 Acetabular Exposure
- 05 Implantation of Acetabular Cup System
- 06 Positioning of the Leg
- 06 Femoral Exposure
- 07 Implantation of Hip Stem System

08 Instruments

- 08 Instrument Set
- 09 Individual Instruments
- 11 Additional Instruments

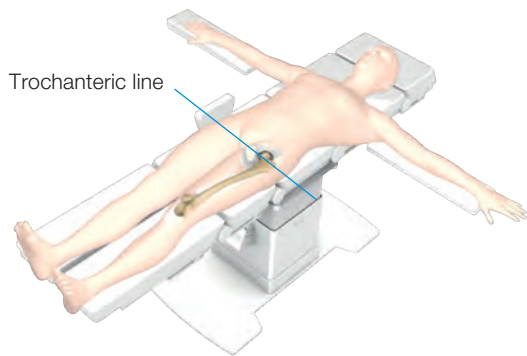
12 Literature

- 12 Additional Information / Compatible Hip Stem Systems

Important Information

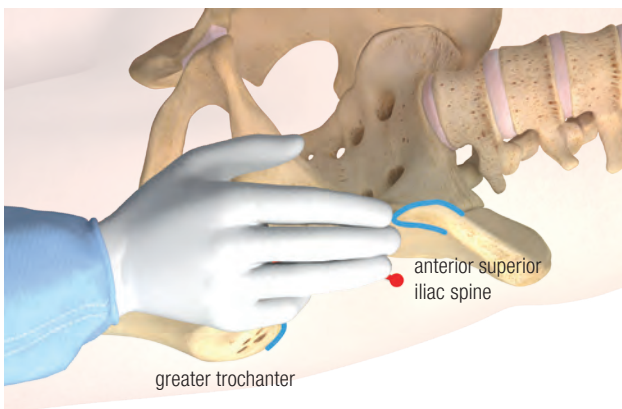
Preoperative Planning

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.



Patient Positioning

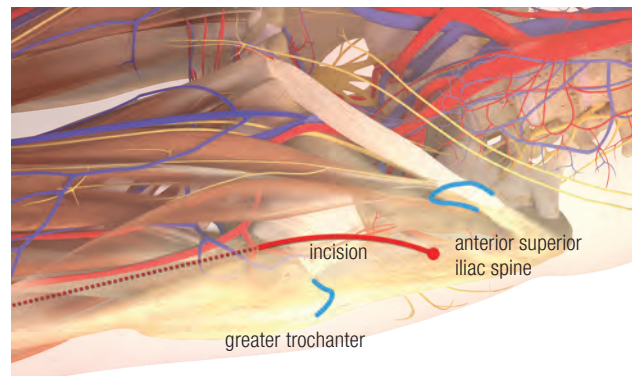
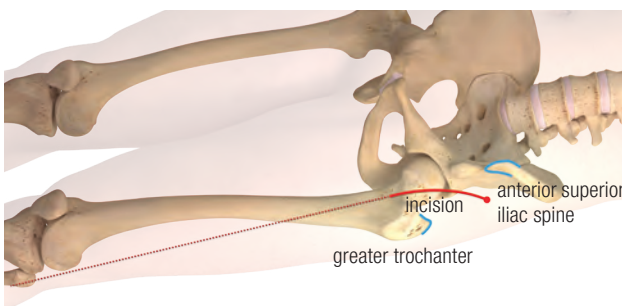
The patient is positioned in supine position with standard hip arthroplasty draping. Support the opposite non-invasive hip close to the top of the greater trochanter to create a stable pelvis position. The patient should be positioned such that the trochanteric line is parallel to the breaking axis of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

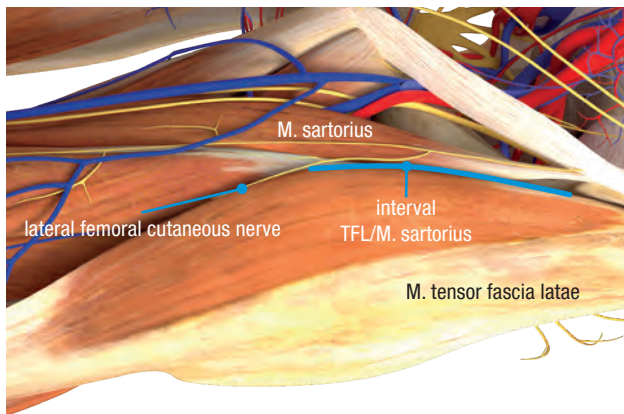


Planning and Skin Incision

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 towards 2-3 cm below the greater trochanter directed to the head of fibula or lateral epicondyle.

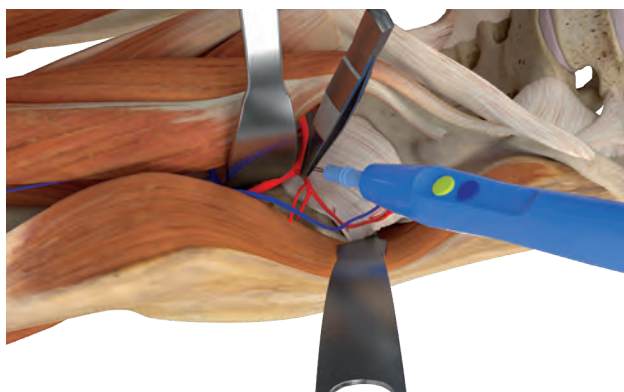
Note: In order to avoid damaging the lateral femoral cutaneous nerve, stay lateral from the interval between the tensor fascia latae (TFL) and sartorius muscle.





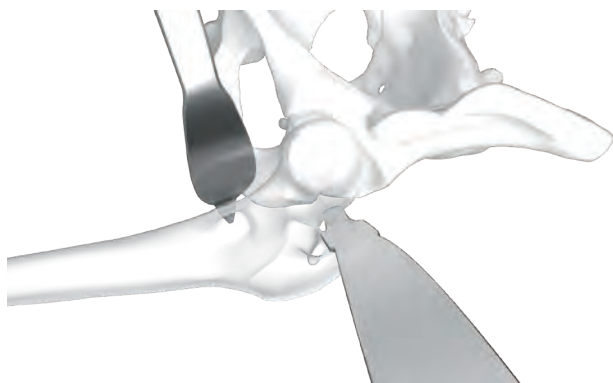
Capsular Exposure

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).

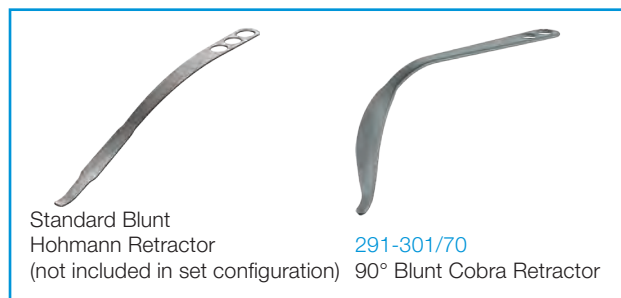


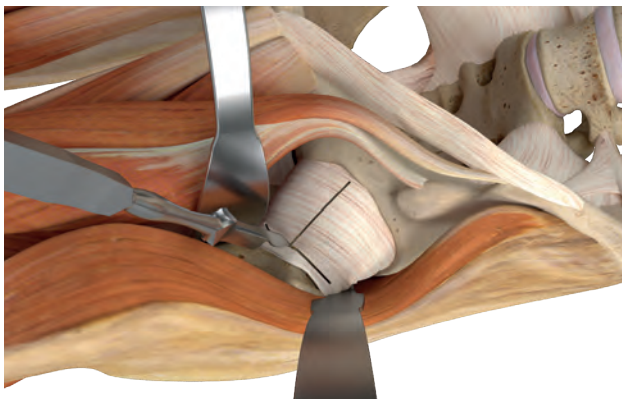
Place a Standard Blunt Hohmann Retractor deep to the gluteus medius and minimus musculature over the capsule over the superolateral part of the femoral neck. Incise the deep fascia between the rectus femoris and the TFL. Remove the fat pad under the rectus femoris which will reveal the anterior capsule. 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



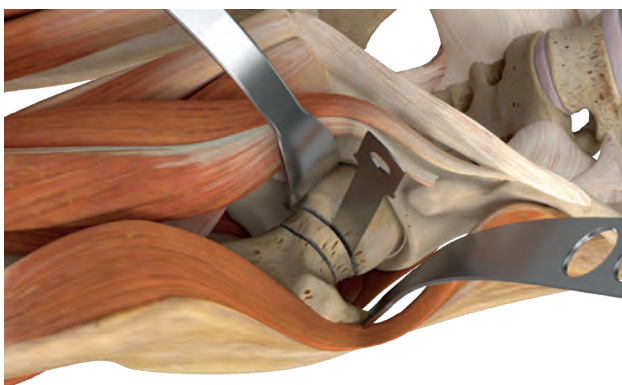
INSTRUMENTS





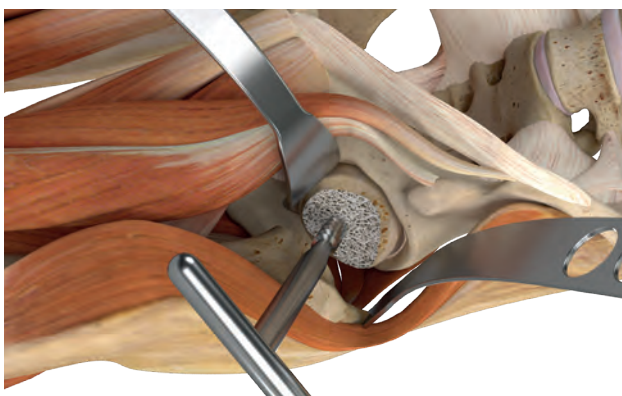
Capsule Incision

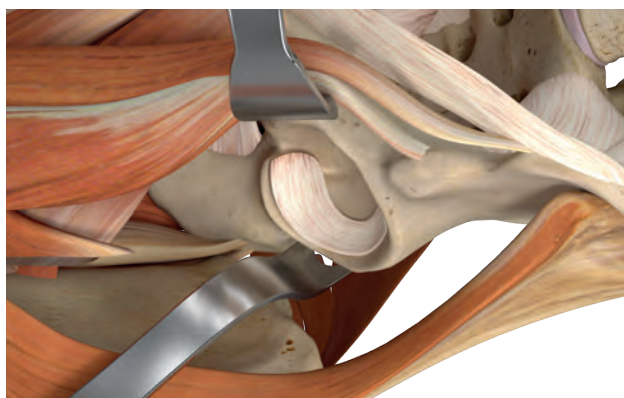
Different options exist to incise the capsule depending on the anatomy and stiffness of the capsule. Perform an inverted T-shaped capsulotomy. Start with your incision near to the acetabulum and extend it to the intertrochanteric line in line with the femoral neck. Afterwards reposition your retractors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



Removal of the Femoral Head

Mark the level of resection according to your preoperative planning and the used femoral implant. Cut the femoral neck according to your marking. To cut and take out a slice of the femoral neck can facilitate the removal of the femoral head. At first perform the distal cut and then the sub head cut. Use the retractor to protect the muscle and soft tissue from the saw blade. Also 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.





Acetabular Exposure

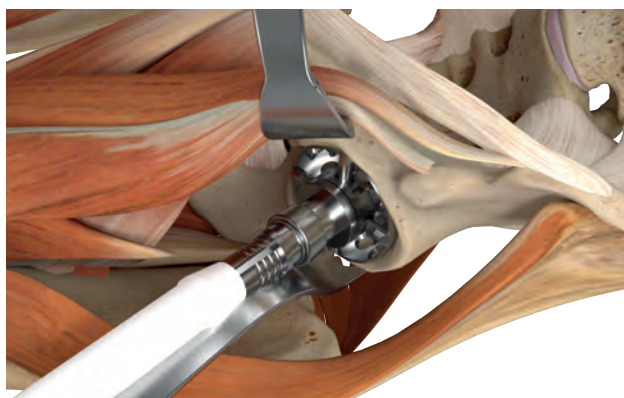
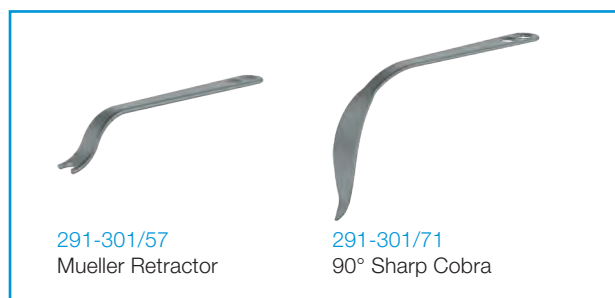
Enter a 90° Sharp Cobra Retractor over the labrum and anterior rim of the acetabulum (11 o'clock for the left hip, 1 o'clock for the right hip). Place a Mueller Retractor between the labrum and posterior capsule over the posterior rim of the capsule, directly on the bone.

Note: The femoral nerve and psoas tendon are approximately 2 cm medial and 1 cm ventral 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.

PLACEMENT OF RETRACTORS



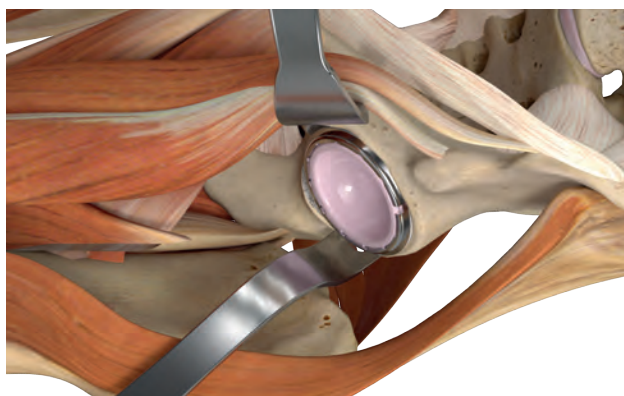
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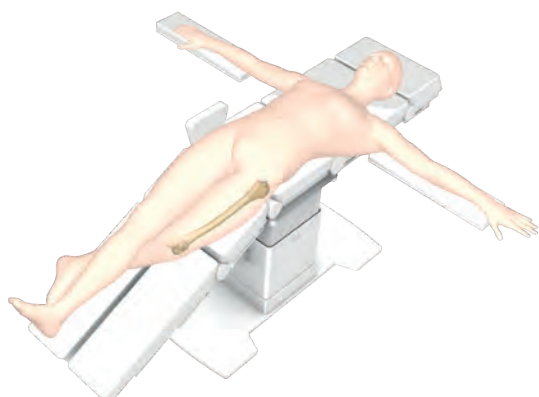


Implantation of Acetabular Cup System

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

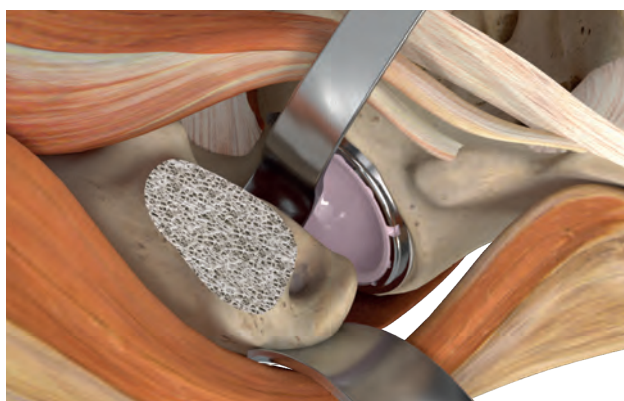
Note: With the anterior approach specific attention should be placed towards the inclination and anteversion of the cup as the femur tends to push the cup into increased inclination and/or anteversion while reaming and impacting.





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.

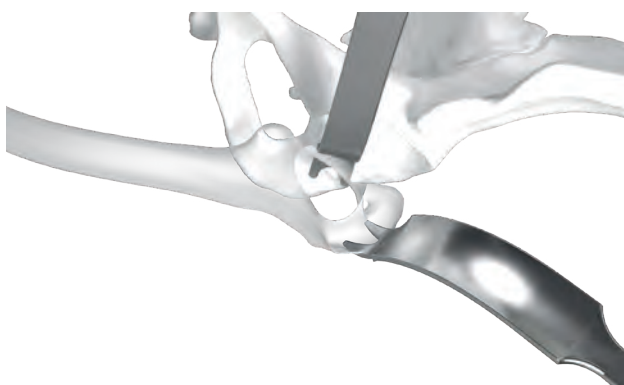


Femoral Exposure

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.

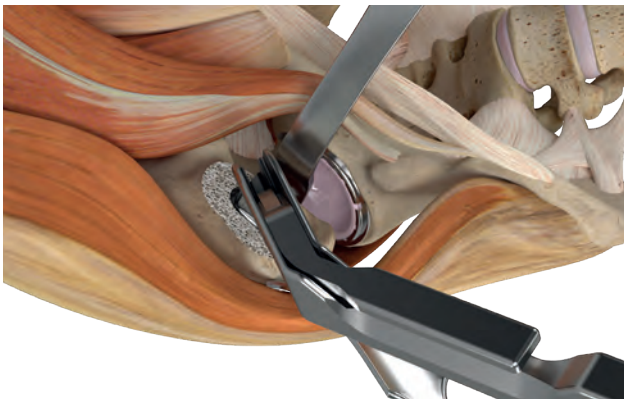
To lift up the femur, release the capsule from the neck osteotomy line to the top of the trochanter. Be careful not to release the piriformis tendon. The fat pad should be visible.

PLACEMENT OF RETRACTORS



INSTRUMENTS

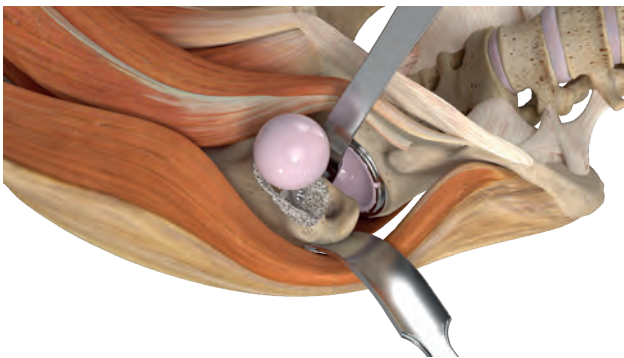




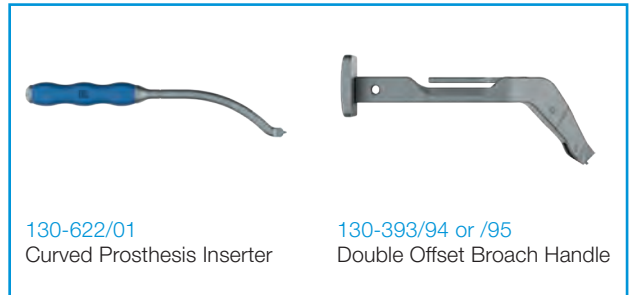
Implantation of Hip Stem System

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.

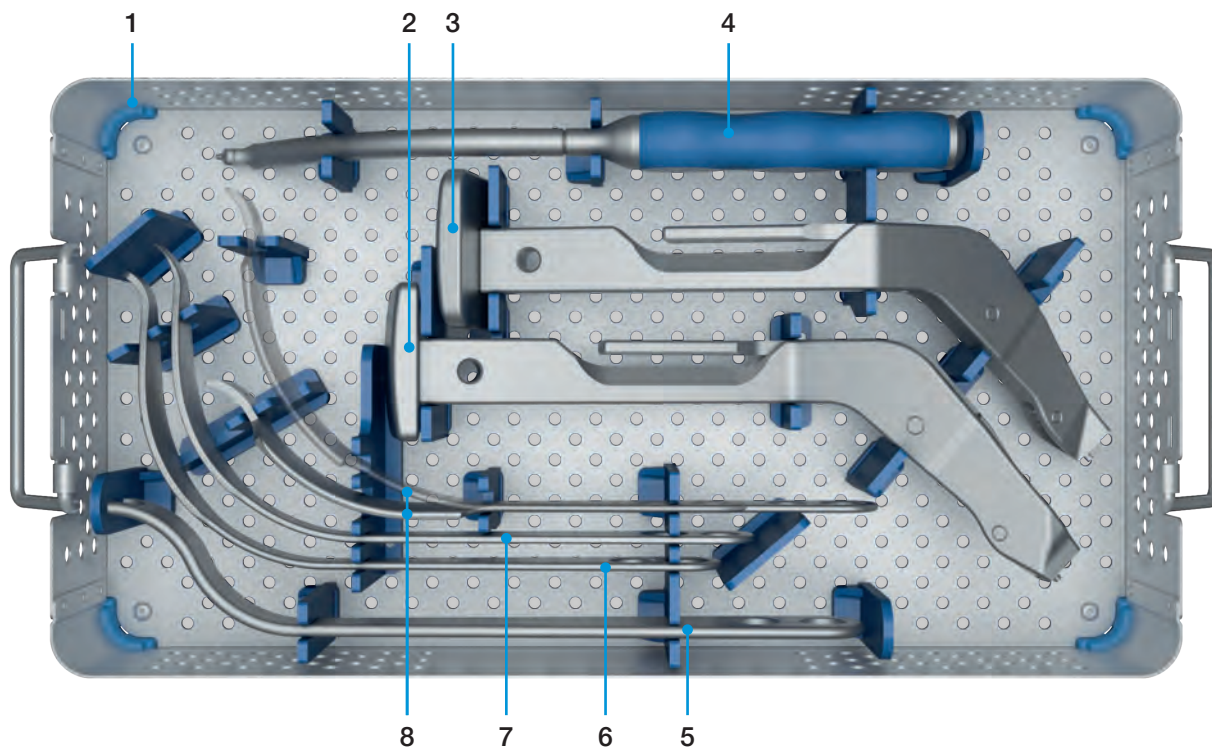
Note: Be aware of the force transmission of the different Broach Handle designs during impaction of the femoral compressors or rasps. Offset and Double Offset Broach Handles can increase off-axis and rotational forces during impaction.



INSTRUMENTS



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

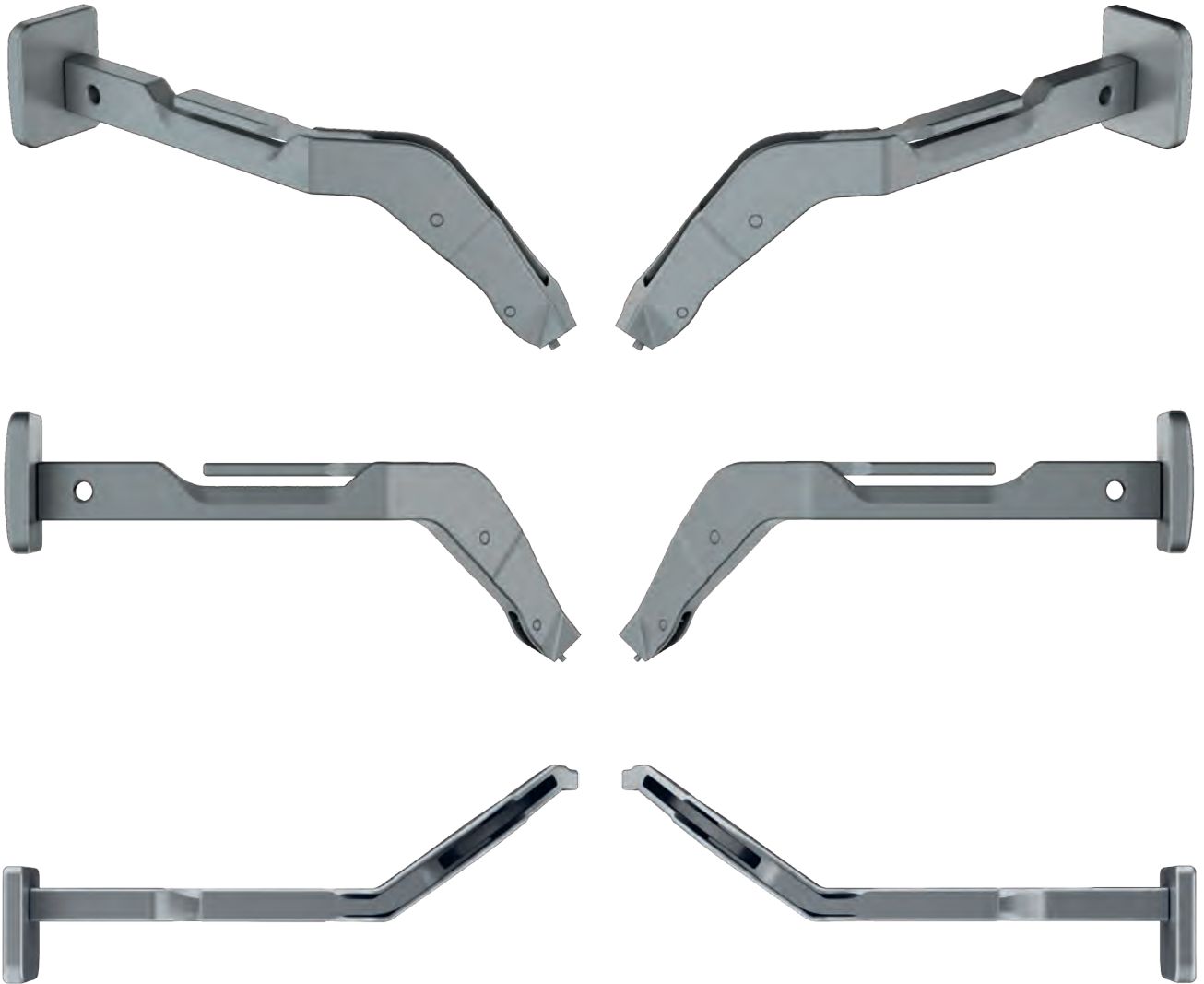


1	293-100/11	Instrument Tray , only, stainless steel, 485 x 253 x 80 mm
2	130-393/95	Broach Handle , left, for rasp stems and bone compressors, double offset
3	130-393/94	Broach Handle , right, for rasp stems and bone compressors, double offset
4	130-622/01	Stem Impactor , curved
5	291-301/57	Mueller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

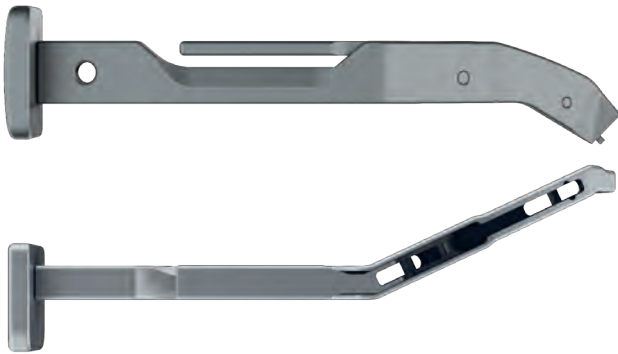


291-301/76 **Retractor, curved 90°, V-tipped**

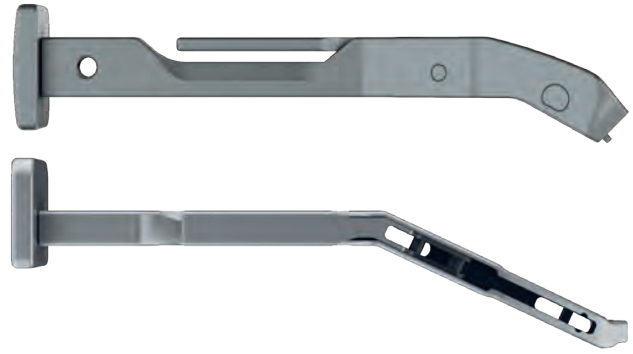


Additional Instruments

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



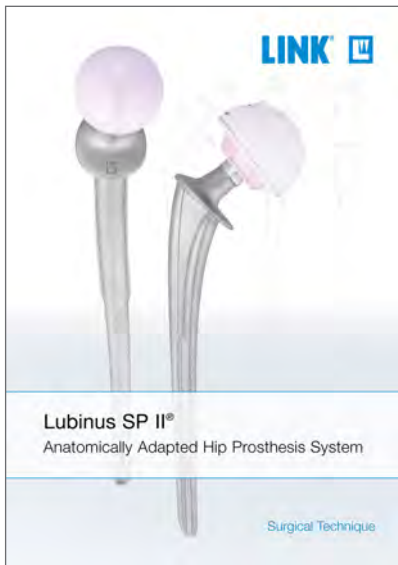
130-394/03 Universal Handle
for rasp stems and compressors,
angled, left



Note:
Dedicated MIS/curved instruments for the
Acetabular Cup System are listed in the separate
Acetabular Cup System surgical technique.

Additional Information

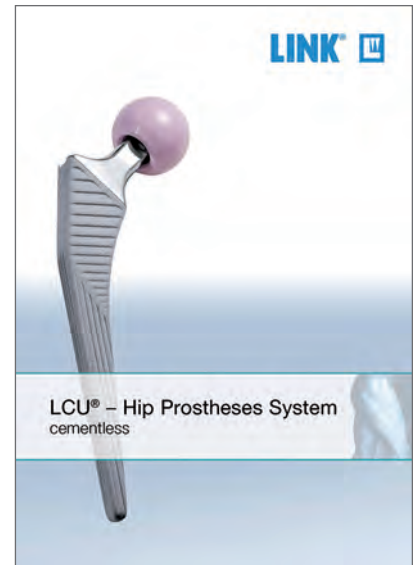
Compatible hip stem systems



643_SP II_Impl Instr OP_en



644_SP-CL_HX_Impl Instr OP_en



640_LCU_Impl-Instr-OP_en



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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!

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