JUST®
MEDICAL

# 3DSEE®
# Trabecular Modular Stem

Foresee the future

Surgical technique

JUST®
MEDICAL

# HIP PRODUCTS FOR ALL-RO

Dynamic fatigue tests of femoral stem's head-neck conjunction and body after 10 million
Dynamic wear tests after 5 million cycles in the international E

## HARMONY™ ACETABULAR CUP SYSTEM

## SEE® 3D PRINTING TRABECULAR ACETABULAR CU

### ACETABULAR CUP


HARMONY Cup
(TiHA, DDH)


HARMONY Cup
(TiHA)


HARMONY Cup
(TiPorous)


SEE Trabecular Cup
(Titanium, DDH)


SEE Trabecular Cup
(Titanium)


SEE Trabecular Cup
(Titanium, Type I)

### LINER


22/32Standard
(UHMWPE)


28/10°
(UHMWPE)


32/10°
(UHMWPE)


28/10°
(HPE)


32/10°
(HPE)


36/10°
(HPE)


(36-60)
Dual Mobility Metal Li
(CoCrMo)

### FEMORAL HEAD


Φ22 (0/+3.5)


Φ24 (+0/3.5/7)


Φ28 (0/±3.5/+7)


Φ32 (0/±3.5/+7)


Φ28 (S/M/L)
Mysinord™ Zirconium niobium


Φ32 (S/M/L/XL)
Mysinord™ Zirconium niobium

### FEMORAL STEM


MINI®
Minimally Invasive Stem


DELTA® CLASSIC
Rectangular Stem (TiHA)


HARMONY
Tapered Stem (Tri-porous)


DELTA®
Rectangular Stem (Tri-porous)


TAICHI®
Cementless Stem

–MINIMAL INVASIVE–

PRIMARY

# OUND SURGICAL SOLUTIONS

Contact us

cycles in the international CNAS laboratory shows excellent results and no risk of fracture.
Endolab® laboratory in Germany shows excellent wear resistance.

## P SYSTEM

JCT Trabecular Cup
(Titanium, Revision)

SEE Trabecular Cup
(Titanium, Revision)

## CAGE AND MESH SYSTEM

ADS Cage (Revision)

ADS Ring (Revision)

Acetabular Mesh (Revision)

## CEMENTED ACETABULAR CUP

Cemented Acetabular Cup

(40-50) Dual Mobility PE Liner
(UHMWPE)

36-54 Ceramic Liner

28 Cemented Liner
(HPE)

32 Cemented Liner
(HPE)

36 Cemented Liner
(HPE)

Bone Model Restoration

Φ3x (S/M/L/XL)
Mpinnacle™ Zirconium niobium

Bipolar Head

Φ28 (S/M/L)
BIOLOX®Delta Ceramic

Φ32 (S/M/L/XL)
BIOLOX® Delta Ceramic

Φ36 (S/M/L/XL)
BIOLOX®Delta Ceramic

Customized Prosthesis Design

SEE 3D Printed
Trabecular Modular Stem

Hip Spacer

TAICHI® LONG
Cemented Revision Stem

RSL®
Revision Stem

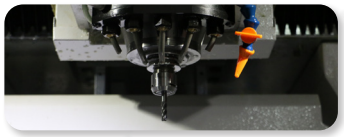
Customized product
simulated implantation

**COMPLEX PRIMARY** — **REVISION** — **CUSTOMIZED**

## Imported Raw Material

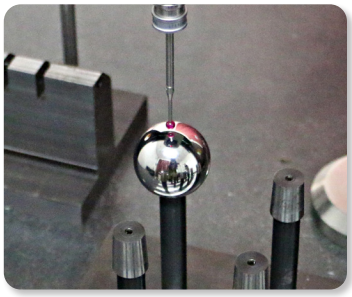
All raw material of UHMWPE inserts were manufactured in Germany, meeting the technical requirements in ISO 5834 part 2 and ASTM F648.

## Precise Processing



## Strict Inspection

JUST MEDICAL Inspection Center

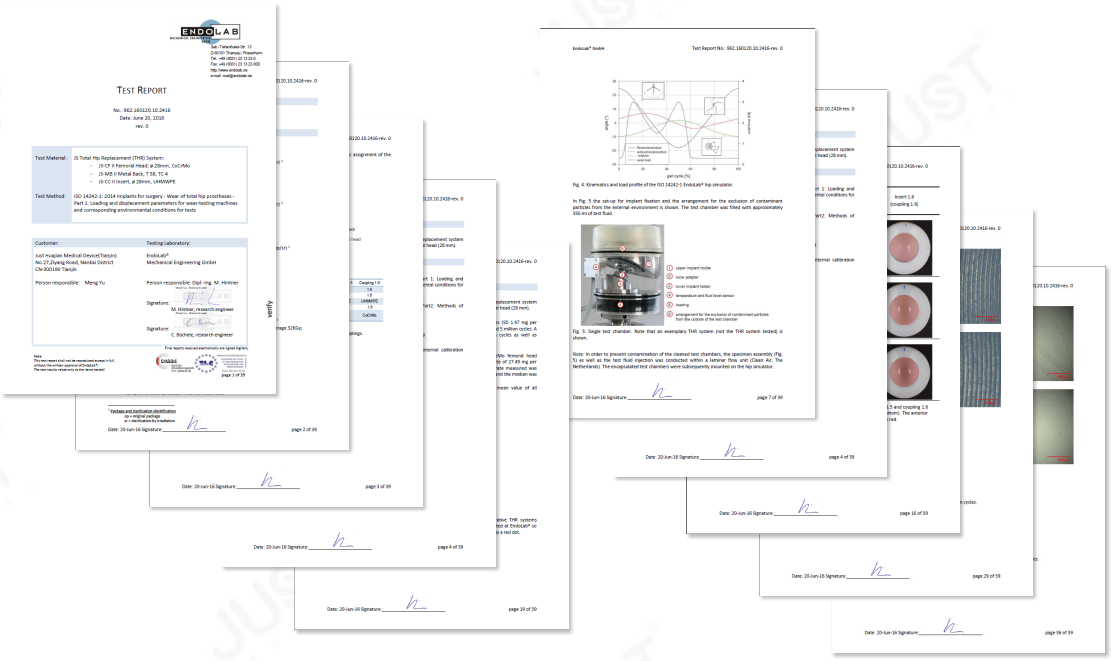


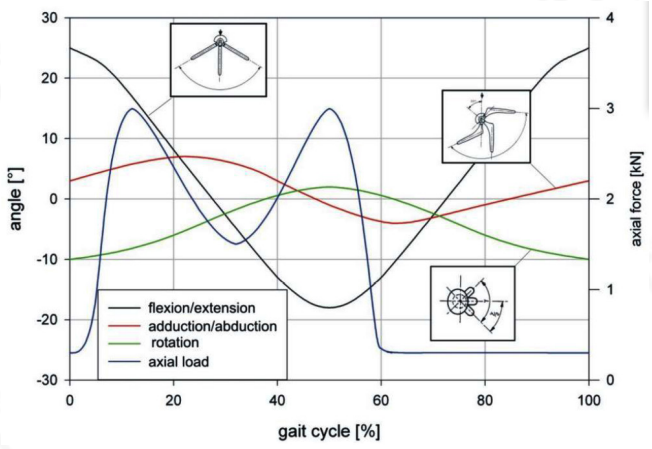
# Wear Test in EndoLab®

EndoLab® GmbH offers a variety of technological implant testingservices to develop and certify medical products.

EndoLab® is an accredited (DAkkS O-PL-18838-02-00) and certified (ZLG-P-944.98.07) test laboratory according to DIN EN ISO/IEC 17025 and 93/42/EWG.

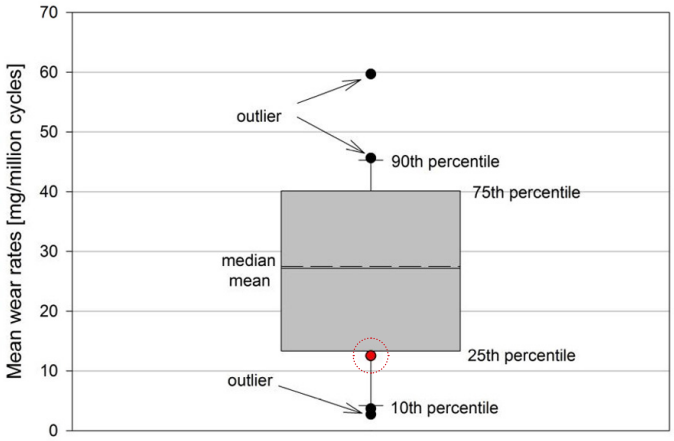
The company is a spin-off from the Technical University of Munich and is closely connected to several national and international research departments.




The experiment is to test the wear performance of JUST MED THR system (conventional UHMWPE on 28mm femoral head CoCrMo).

▲ Kinematics and load profile of the ISO 14242-1 EndoLab hip simulator




The JUST MED THR products showed a mean wear rate of 12.53 mg per million cycles. Compared with the EndoLab® database, the wear rate of JUST MED THR products is below the mean value of 27.49 mg per million cycles tested at EndoLab®, so far.

▲ JUST THR system data are marked in red.

## ◆ Patent Certificate

Patent Name: Hip Joint Prosthesis
Patent Number: ZL 2013 1 0530967.6

Patent Name: Dual-Coated Hip Joint Prosthesis
Patent Number: ZL 2012 2 0389033.6

Patent Name: Femoral Milling Device for Preserving Proximal Femoral Bone Mass
Patent Number: ZL 2016 2 0241789.4

## Modular, Multi-functional, Comprehensive

SEE modular multi-function stem is consisting of stem body and sleeve; there are more than 1000 numerous combinations of stems, sleeves and femoral heads and its flexibility and vensatility can completely meet the primary THA, DDH arthroplasty and revision surgery.

“Fit and fill” are essential elements of the SEE modular system design rational. Its independent designed parts of the stem and sleeve both have independent size that adjust a proximal-distal mismatch; “Fit and fill” have the complex fixation and excellent biomechanics and long-term curative effect.

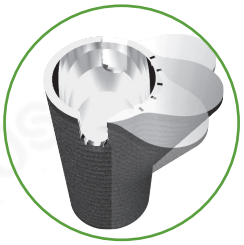
The sleeve utilizes 3D EBM printing technology to create a monolithic structure, achieving a microporous surface with high roughness. The friction coefficient reaches 1.08, providing excellent initial stability that facilitates the attachment, proliferation, and differentiation of osteoblasts.

With an 80% porosity, pore sizes ranging from 600-800 μm, and a 100% through-hole rate (3D interconnected micropores), the sleeve features a unilateral trabecular layer thickness of 1.5 mm. This design ensures reliable mechanical strength of the prosthesis while promoting bone tissue deposition, achieving three-dimensional binding, and facilitating effective bone ingrowth.

Multiple stem lengths offer a range of stability options, especially for fractures and discontinuities.

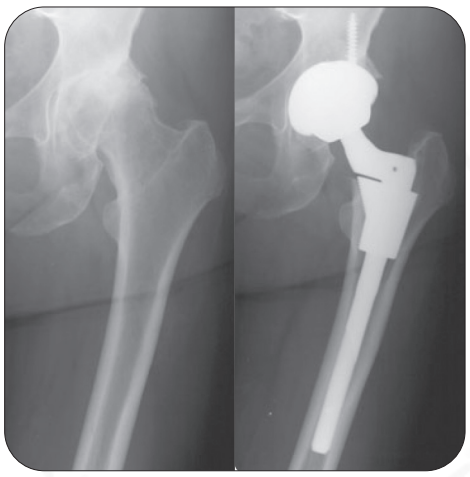
Coronal slot reduces distal stem stiffness and may help reduce end-stem thigh pain.

Distal design strengthens the anti-rotation stability.

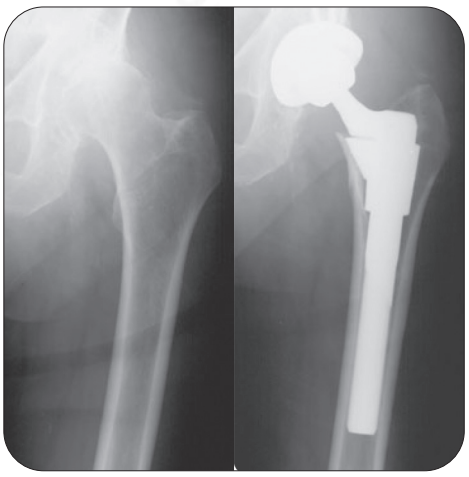


The unique 360 degrees of version, independent neck and sleeve are easy for doctors to control. These features provide the multiple diagnosis and treatment plans for doctors to complete the primary THA and complex DDH arthroplasty.

After the acetabular cup is fixed, SEE hip system enables the doctor to adjust the accurate offset and maximize the range of motion.



Champagne flute



Stovepipe

These flares correlate generally with the age, health and activity level of the patient. In the younger, high- demand patient, the diaphysis is characterized by viable cortical bone and may be disproportionately smaller than the metaphysis (the champagne flute), creating a size mismatch between the two (the champagne flute). On the contrary, as patients age, their diaphyseal Cortex becomes thinner, resulting in a wider distal canal (stovepipe). To accommodate this variable anatomy, a modular system is required to maximize fit and fill.

## Surgery Technique

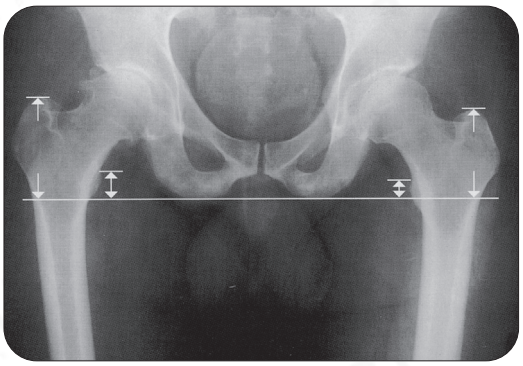
### ◆ Propose

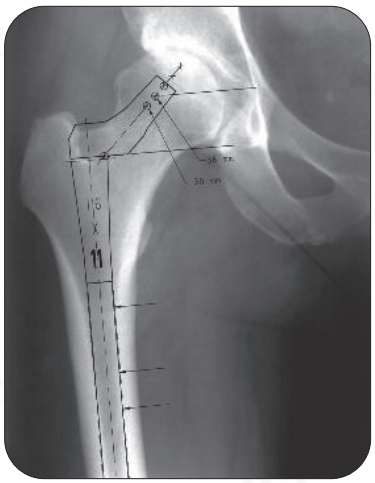
Preoperational plan can do surgical preparation for surgeon, and predict the intraoprerational problems. A sufficient preparation includes history, physical check and x-ray of the patient.

1. Determine preoperational leg length discrepancy
2. Assess acetabular component size and placement
3. Determine femoral component size,position and fit
4. Assess femoral offset

The x-ray shows apparently leg length discrepancy, then draw a reference line along the inferior aspect of the tuberosities of ischium. Measure the distance from the lesser trochanter landmark to the reference line on each side. The difference between the two is the radiographic leg length discrepancy.

The tip of the greater trochanter may be used as an alternative reference mark in conjunction with the lines along the inferior aspect of the ischial tuberosities.





### ◆ Radiographs

The first step in accurate templating is obtaining high-quality radiographs using a standardized protocol with known magnification. Obtain an anterior/posterior view of the pelvis with both extremities in 15 degrees of internal rotation to position the head and neck parallel to the coronal plane. A direct lateral radiograph should also be obtained to determine desired femoral fixation.

### ◆ Determine the Leg discrepancy in preoperative plan

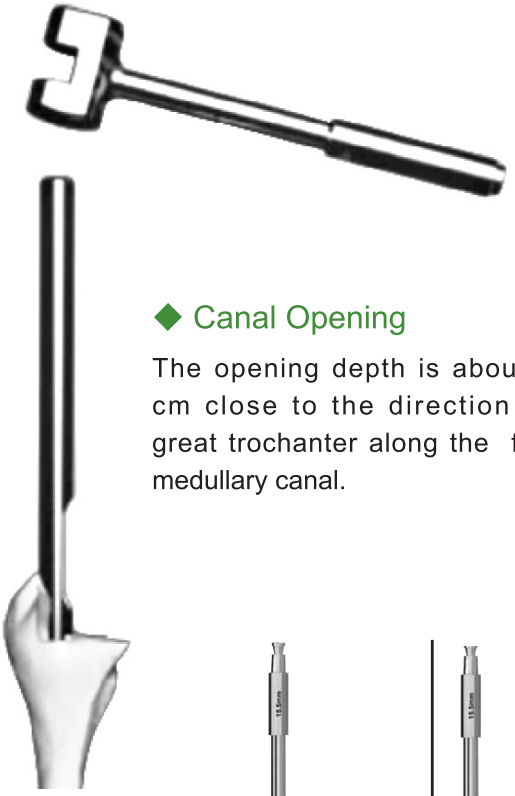
The determination preoperative leg discrepancy performs. Use both to determine intraoperative leg length management.

## Femoral Neck Cutting, Canal Opening

### ◆ Femoral Neck Cutting

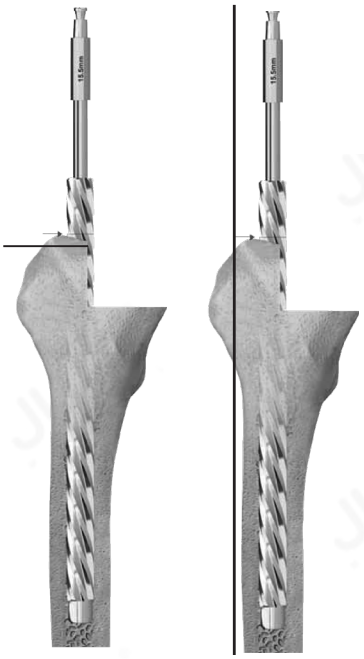
Primarily cutting the femoral neck needs to take A.S.M osteotomy ruler as reference.

Using A.S.M can fulfill the more difficult neck cutting requirement.



### ◆ Canal Opening

The opening depth is about 1-1.5 cm close to the direction of the great trochanter along the femoral medullary canal.



## 3 Simple Steps

**1.** Distal Reaming
**2.** Cone Reaming
**3.** Calcar Triangle Milling

### 1. Distal Reaming

Complying with preoperative planning, begin axial reaming with the smallest reamer and work up sequentially until cortical is achieved. In keeping with preoperative planning.The final reamer should correspond to the diameter of the selected femoral stem in accordance with preoperative planning. The diameter of chosen stem should be same to/less than 0.5mm the reamer's diameter for the marked diameter is the inferior diameter except ridge height.

The appropriate stem has been established when the witness mark on the final reamer aligns with the tip of the greater trochanter.

Note: Reamer mills the canal in vertical line.

## 2. Cone Reaming

The distal diameter chosen according to last step can make sure the SEE proximal taper reamers.

In the example shown above, if the final stem is a 15, then SEE proximal taper reamers will begin with the smallest of the “20” i.e. 20B, 20D, 20F.

Primarily employ the B type SEE proximal taper reamer, the minimum outer diameter, the up to successive D and F are used until cortical contact is achieved in the proximal femur, and the depth should be controlled by the neck length in the preoperative plan. The witness marking on the desired neck length-30,36 or 42mm--aligns with the tip of the greater trochanter. Contact will be felt first in the anterior femur in the subtrochanteric region. Do not drive the reamer in reverse.

Make sure partial sizes of sleeve when this step is finished.

## 3. Calcar Triangle Milling

Use the sleeve reamer positioner to prepare the femur to accommodate the sleeve confirmed in the last step and fit the distal guide rod and T-handle, the markings 30,36,42 on the sleeve guide keep the same to the steps to choose neck length(figure 1).

Using the sleeve reamer positioner adjusts the sleeve reamer’s position for mating with outer sleeve and calcar femur. In most cases, the final sleeve is positioned on the proximal medial femur.(figure 2) however, its position can not show the sleeve size, sleeve enables 360 degrees of version for the best match between sleeve and calcar femur.

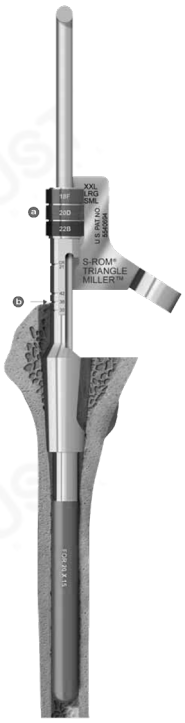


Figure1

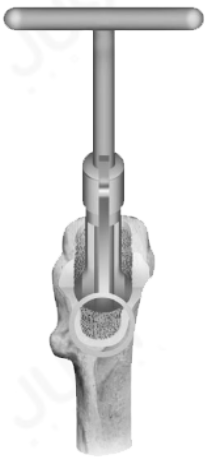


Figure2

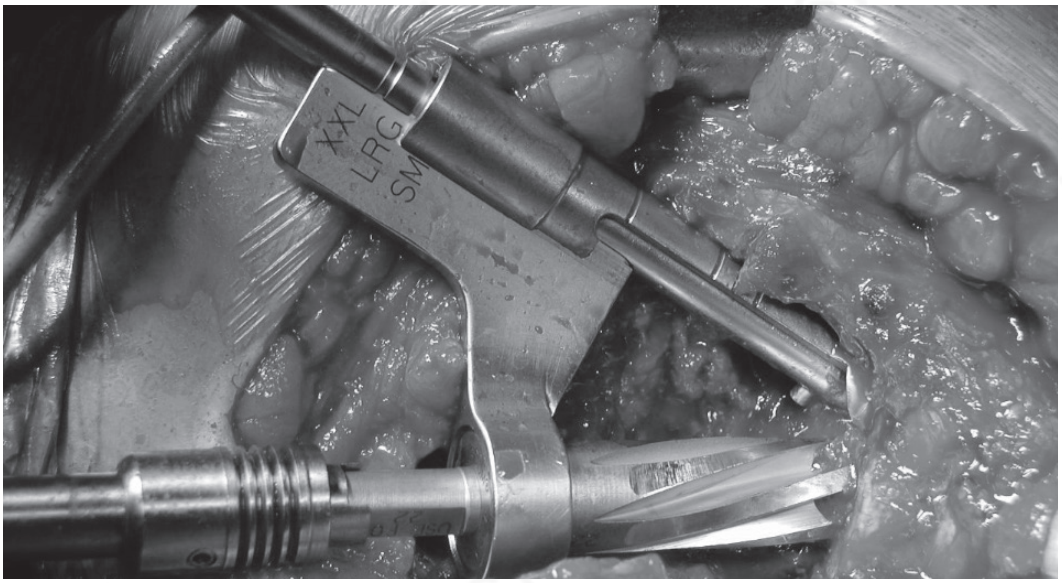
The final part to be sure is the sleeve spout. All specifications of sleeve spout are SML, LRG, XXL (shown below)

The sleeve spouts are proportional to diameters of stems:
SML extends 9.5mm from the cone;
LRG extends 13.5mm from the cone;
XXL extends17.5mm from the cone.

Selected sleeve reamer should mate with the chosen stem(6*12;8*14;11*16... ...)

Pass the SEE sleeve reamer through the ring and load the SEE sleeve reamer tip into the pilot hole. Lower the miller frame so that the SEE sleeve reamer makes contact with the cancellous bone to be milled.

Mill until desired cortical bone has been exposed. The note the size indicated where the markings on the miller frame align with the top of the miller shell to determine the appropriate sleeve spout size.

## Trial Insertion and Version Adjustment

### ◆ Tiral Sleeve Assembling

Secure the trial sleeve onto the trial sleeve connector corresponding to the selected sleeve size.(all parts are marked by colors), connect the T-handle and gently impact the sleeve into the prepared metaphysis (figure 3). Seat the handle and withdraw the introducer handle(figure 4).

### ◆ Neck Trialing, Version Adjustment

Restoring patient biomechanics is achieved with a wide range of neck options. Assemble the trial implant by snapping the chosen neck onto the appropriate size distal stem trial with distal guide rod(figure 5). Align the laser marks in neutral in 10-degree increments until desired version is obtained(figure 6). For revision trials, assemble by sliding the proximal body trial over the shaft of the distal stem trial and snap on the chosen neck.

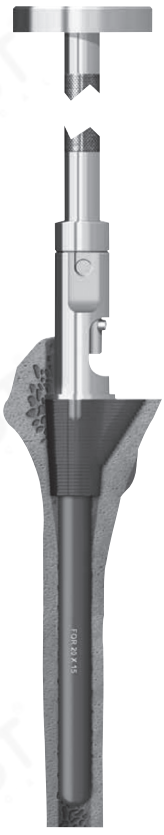


Figure 3

Figure 4

Figure 5

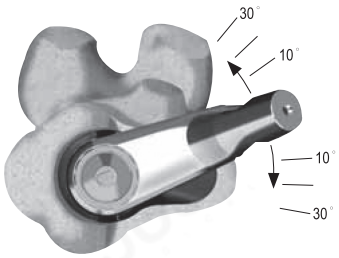



Figure 6

## Implant Insertion

### ◆ Sleeve Insertion

Place the sleeve implant onto the sleeve introducer assembly ,the seat the T-handle and gently impact the sleeve into the metaphysis(figurer 7).

### ◆ Stem Insertion

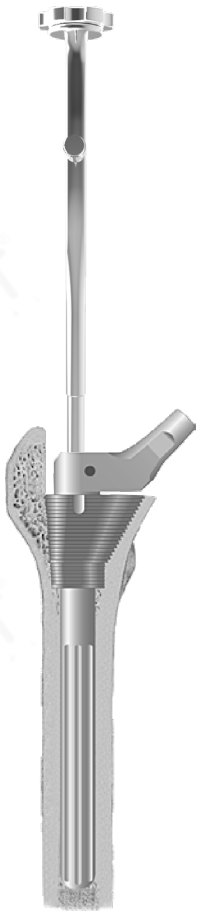
Introduction of the femoral implant into the femoral canal can be done by hand initially until the distal flutes begin to make cortical contact (figure 8). A witness mark located on the medial aspect of the femoral implant can be aligned with the corresponding radial laser markings on the superior aspect of the sleeve implant to determine anteversion.

Place the stem impactor & extractor onto the femoral implant and insert the pin punch into the rotational alignment hole in the femoral neck. Using the pin punch as a version control guide, impact the femoral implant until securely seated. The taper is locked when the stem will no longer advance and 2-3mm remains between the inferior aspect of the femoral neck and the superior aspect of the implant sleeve(figure 9).

Figure 7


Figure 8

Sleeve insertion(at least 1/3 triangle must be seated on the cortical bone).



Fighure 9

**Parameter**

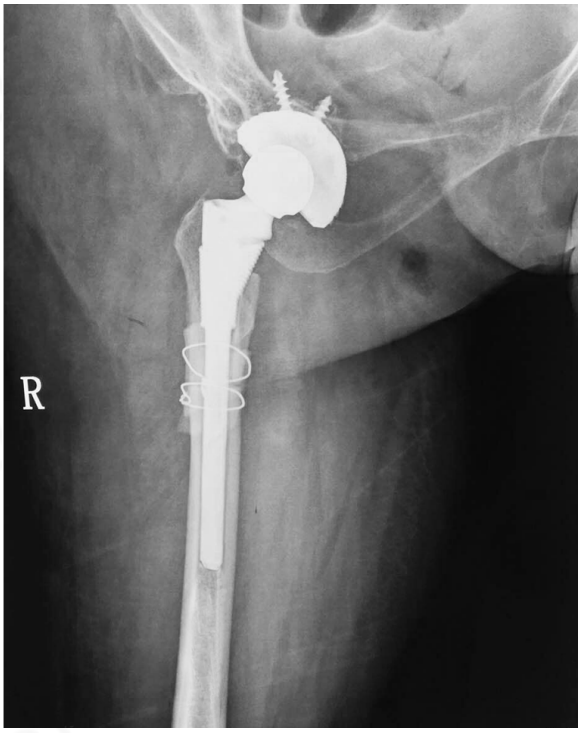
| REF | Specification | Stem Length | Neck Shaft Angle | Offset |
|---|---|---|---|---|
| 853177 | 6×12×115/30/0 | 115 | 135° | 28 |
| 853178 | 7×12×115/30/0 | | | |
| 853179 | 8×14×130/30/0 | 130 | | |
| 853180 | 9×14×130/30/0 | | | |
| 853181 | 9×14×115/30/0 | 115 | | |
| 853182 | 11×16×150/30/0 | 150 | | |
| 853183 | 11×16×150/36/0 | | | |
| 853184 | 13×18×160/30/0 | 160 | | |
| 853185 | 13×18×160/36/0 | | | |
| 853186 | 13×18×160/42/0 | | | |
| 853187 | 15×20×165/36/0 | 165 | | |
| 853188 | 15×20×165/42/0 | | | |
| 853189 | 17×22×165/36/0 | | | |
| 853190 | 17×22×165/42/0 | | | |

| | REF | Model | Specification |
|---|---|---|---|
| Straight Sleeve | 549126 | OS-II | 15×12 (12B) |
| | 549127 | | 17×12 (12D) |
| | 549128 | | 17×14 (14B) |
| | 549129 | | 19×14 (14D) |
| | 549130 | | 19×16 (16B) |
| | 549131 | | 21×16 (16D) |
| | 549132 | | 23×16 (16F) |

| | REF | Model | Specification |
|---|---|---|---|
| Triangle Sleeve | 549090 | OS-I | 15x12-9.5 (12BS) |
| | 549091 | | 15x12-13.5 (12BL) |
| | 549092 | | 17x12-9.5 (12DS) |
| | 549093 | | 17x12-13.5 (12DL) |
| | 549094 | | 17x14-9.5 (14BS) |
| | 549095 | | 17x14-13.5 (14BL) |
| | 549096 | | 19x14-9.5 (14DS) |
| | 549097 | | 19x14-13.5 (14DL) |
| | 549098 | | 19x16-9.5 (16BS) |
| | 549099 | | 19x16-13.5 (16BL) |
| | 549100 | | 21x16-9.5 (16DS) |
| | 549101 | | 21x16-13.5 (16DL) |
| | 549102 | | 23x16-9.5 (16FS) |
| | 549103 | | 23x16-13.5 (16FL) |
| | 549104 | | 23x16-17.5 (16FX) |
| | 549105 | | 21x18-9.5 (18BS) |
| | 549106 | | 21x18-13.5 (18BL) |
| | 549107 | | 23x18-9.5 (18DS) |
| | 549108 | | 23x18-13.5 (18DL) |
| | 549109 | | 25x18-9.5 (18FS) |
| | 549110 | | 25x18-13.5 (18FL) |
| | 549111 | | 25x18-17.5 (18FX) |
| | 549112 | | 23x20-9.5 (20BS) |
| | 549113 | | 23x20-13.5 (20BL) |
| | 549114 | | 25x20-9.5 (20DS) |
| | 549115 | | 25x20-13.5 (20DL) |
| | 549116 | | 27x20-9.5 (20FS) |
| | 549117 | | 27x20-13.5 (20FL) |
| | 549118 | | 27x20-17.5 (20FX) |
| | 549119 | | 25x22-9.5 (22BS) |
| | 549120 | | 25x22-13.5 (22BL) |
| | 549121 | | 27x22-9.5 (22DS) |
| | 549122 | | 27x22-13.5 (22DL) |
| | 549123 | | 29x22-9.5 (22FS) |
| | 549124 | | 29x22-13.5 (22FL) |
| | 549125 | | 29x22-17.5 (22FX) |

## Preoperative and Postoperative Radiographs

Preoperative




Postoperative

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