UNITED ORTHOPEDIC®

UTS™ Stem

Femoral Hip System

Direct Anterior Approach Surgical Technique Guide

Table of Contents

Device Description

United Tri-tapered Short (UTS) Stem –

Ideal for the MIS approach, the UTS Stem is a tri-tapered wedge stem suitable for minimally invasive primary hip replacement surgery. It is designed for easier insertion utilizing soft tissue sparing MIS technique, enabling rapid recovery. The shorter stem design enables the preservation of native healthy bone for implant fixation and correct alignment based on the patient's anatomy.

Provides surgeons with a variety of fits for individual anatomies:
- 16 available sizes
- Standard and high offset options
- Up to 6 head neck length selections

INDICATIONS

This device is indicated for use in total hip replacement or bipolar hip replacement undergoing primary and revision surgery for the following conditions:

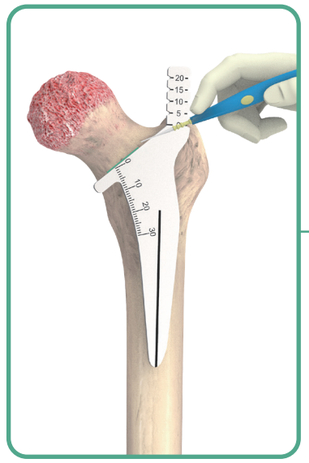
1. Non-inflammatory degenerative joint disease such as osteoarthritis, avascular necrosis, ankylosis, protrusion acetabuli, and painful hip dysplasia.
2. Inflammatory degenerative joint disease such as rheumatoid arthritis.
3. Correction of functional deformity.
4. Treatment of non-union, femoral neck fracture and trochanteric fractures of the proximal femur with head involvement, unmanageable using other techniques.
5. Revision procedures where other treatments or devices have failed.
6. This device is designed for cementless use.

CONTRAINDICATIONS

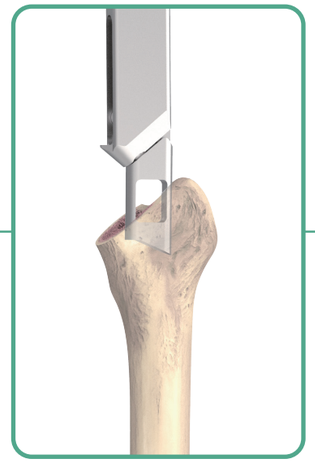
1. Any active or suspected latent infection in or about the operative site.
2. Any mental or neuromuscular disorder which would create an unacceptable risk of prosthesis instability, prosthesis fixation failure, or complications in postoperative care.
3. Bone stock compromised by disease, infection or prior implantation which cannot provide adequate support and/or fixation to the prosthesis.
4. Skeletal immaturity.
5. Overweight (> 200 lbs). An overweight patient can produce loads on the prosthesis which can lead to failure of the fixation of the device or to failure of the device itself.
6. For use as a Hip Replacement, pathological conditions of the acetabulum which would prevent achieving adequate range of motion, appropriate head stability, and/or a well-seated and supported smooth acetabular articulation of the head.
7. Patients who is sensitive to any materials of the device.

Please note, this Surgical Protocol is consistent with our validated labeling. It is not intended to substitute for each surgeon's individual medical judgment regarding patient care. It is intended to be a reference document to be utilized in support of total hip arthroplasty using United Orthopedics' UTS stem.

Surgical Overview



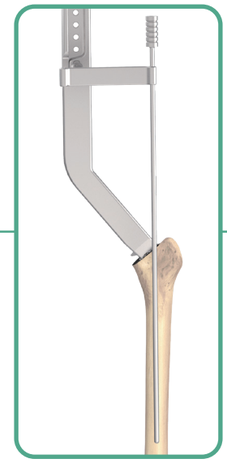
A. Femoral Osteotomy



B. Femoral Canal Accessing

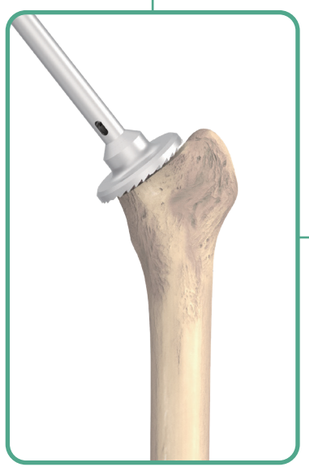
C. Canal Reaming

D. Lateralization

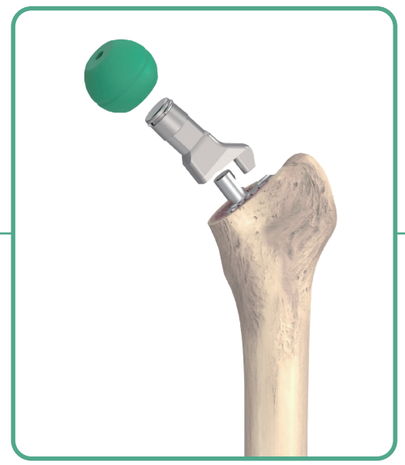


E. Alignment Check

F. Canal Broaching

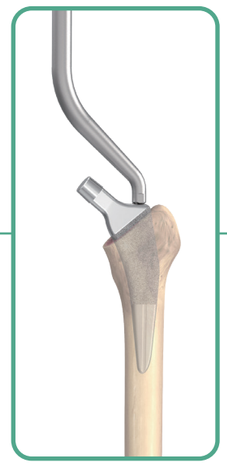


G. Calcar Preparation

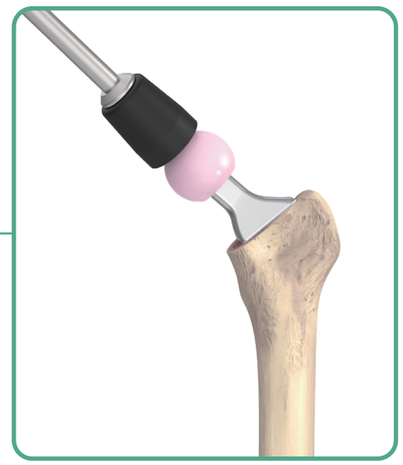


H. Trial Reduction

I. Stem Insertion



J. Stem Impaction

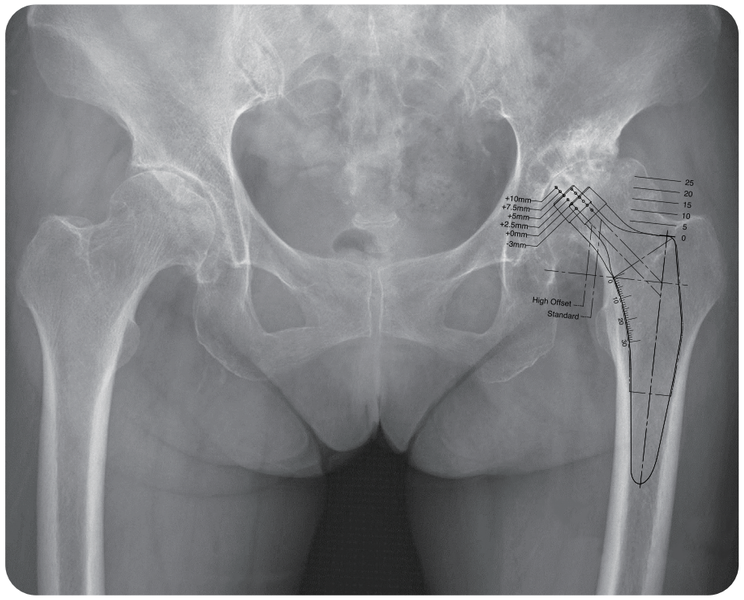


K. Femoral Head Impaction

Pre-operative Planning and Templating

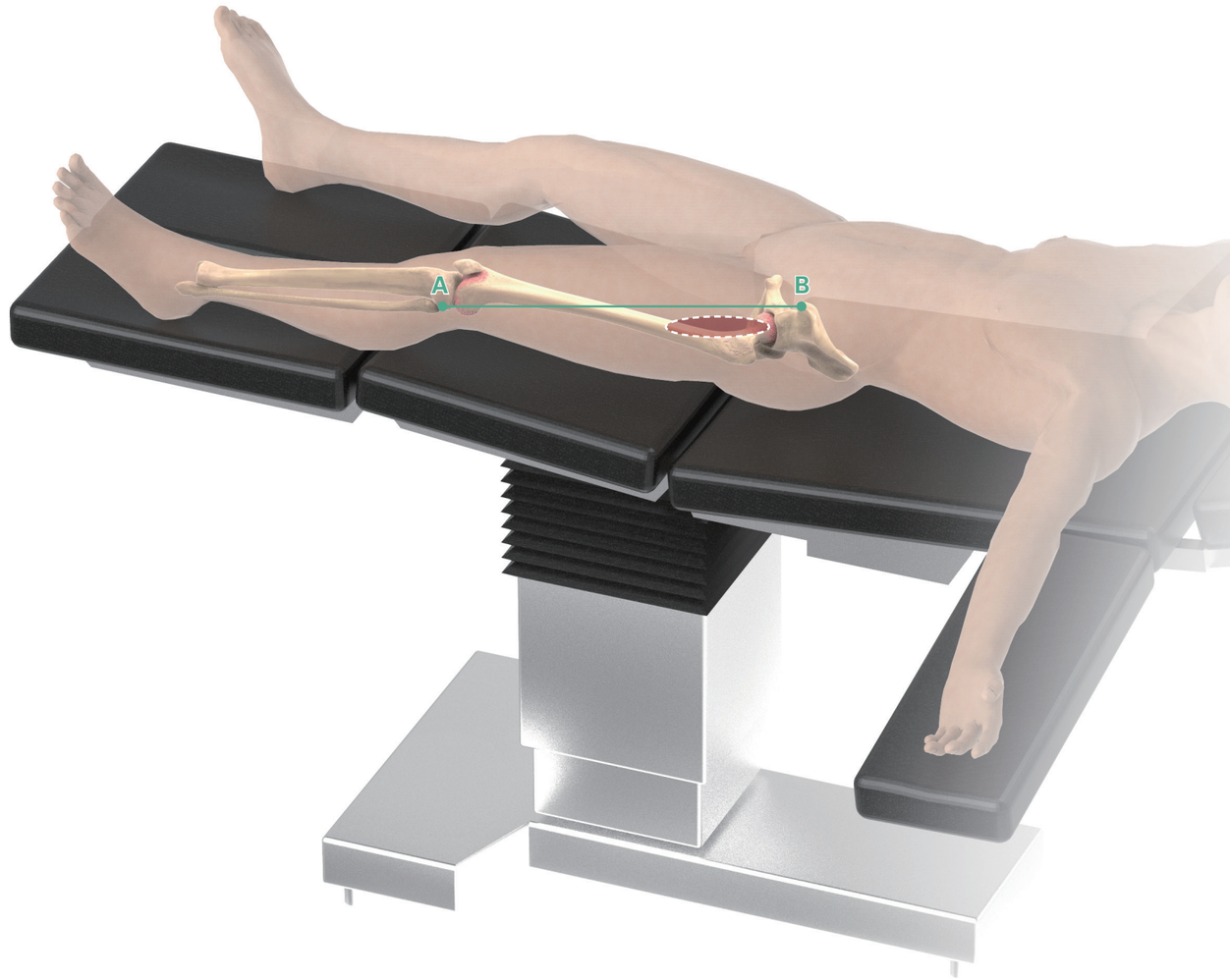
Preoperative planning is essential for determining the optimal stem size, neck resection level and the appropriate neck length. Making an accurate femoral component selection begins with thorough radiographic evaluation of the involved femur, both A/P view and lateral view. The A/P radiographic image should include bilateral hip joints to help evaluate the affected side. These radiographs provide the estimation of leg length discrepancy, femoral offset and center of rotation needed to reconstruct hip biomechanics.

UTS templates in 115% magnification are offered in accordance with the common enlargement of x-ray image. The UTS stem is designed to provide immediate geometrical stability dependent upon on medial and lateral cortex contact. Templating the prosthesis size that best fits the metaphysis canal area is recommended. Standard and high offset neck options are available for all stem sizes. The high offset neck provides femoral lateralization, increasing stem offset while maintaining leg length. Multiple head offsets are also offered for the adjustment of neck length. The final determination of implant choice should take into account the acetabular cup position, cup size, and hip center.



Initial Incision Planning

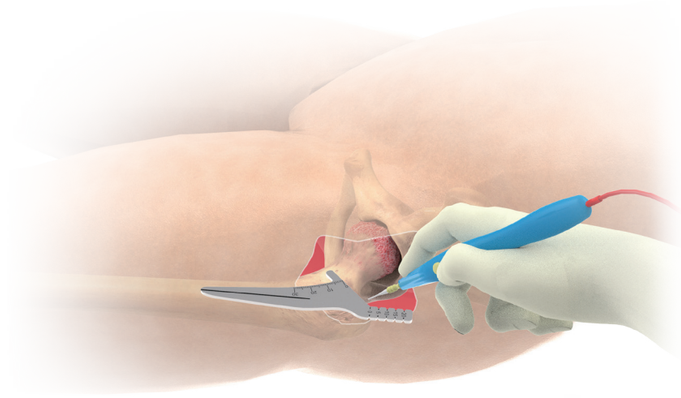
Location of the incision is determined using the ASIS as a reference. For the direct anterior approach, an incision placement 1 cm lateral, and 3 cm distal, to the ASIS is recommended. Incision length is generally 8-10 cm aimed towards the lateral aspect of the patella and generally targeting the greater trochanter to be the mid aspect of the incision.

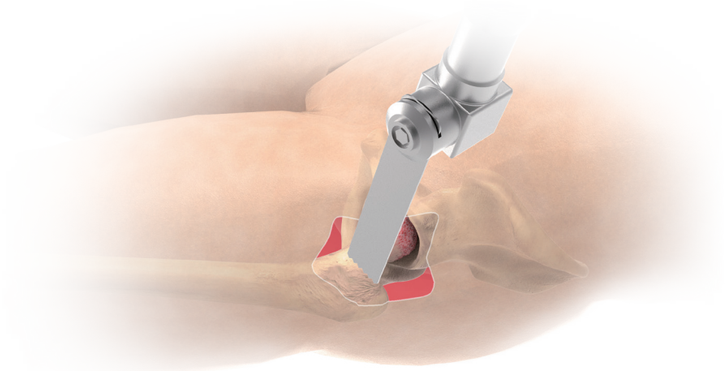


A. Femoral Osteotomy

The osteotomy is made in accordance with the pre-operative templating. The initial osteotomy typically starts at the saddle (curved area where the greater trochanter and femoral neck meet) and proceeds at approximately 45° to the axis of the femur. Care should be taken to avoid cutting the greater trochanter. A blunt retractor may be placed in this location to protect the tip of the trochanter.

Next, align the **UTS Neck Resection Guide** with the anatomical axis of the femoral canal. Mark the cut line using electrocautery, then complete the femoral neck resection with a power saw.



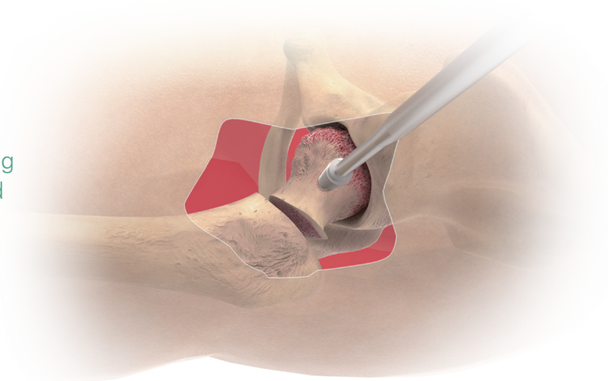


Instruments

UTS Neck Resection Guide

Connect the **Femoral Head Extractor** with **Modular T-Handle** or power tool then remove the femoral head.

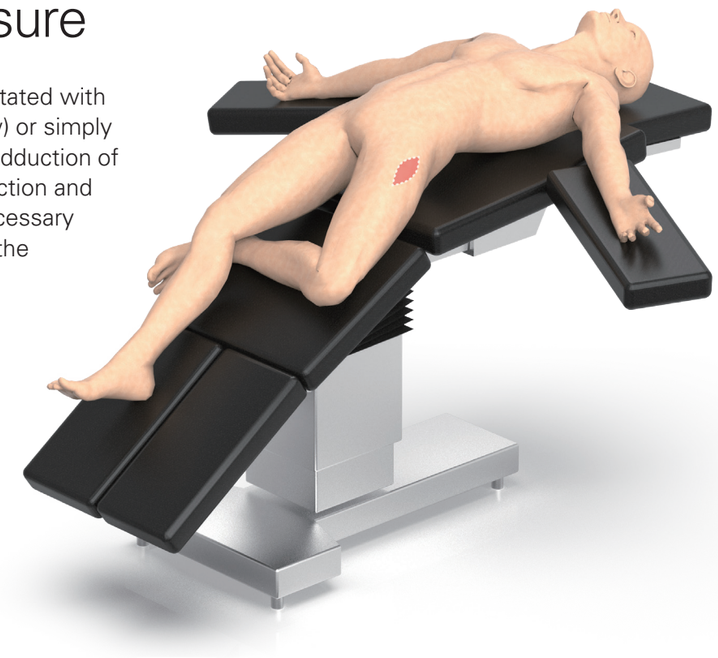
Tip:
If desired, a second osteotomy can be made at the junction of the femoral head and neck. The boney ring between the osteotomies is removed facilitating femoral head removal.



Femoral Exposure

Femoral exposure can be facilitated with a figure-of-four position (below) or simply utilizing external rotation and adduction of the operated limb. Slight adduction and 90° of external rotation are necessary but avoid excessive flexion of the knee on the operative leg.

Soft tissue releases can help mobilize the proximal femur as needed.



Instruments

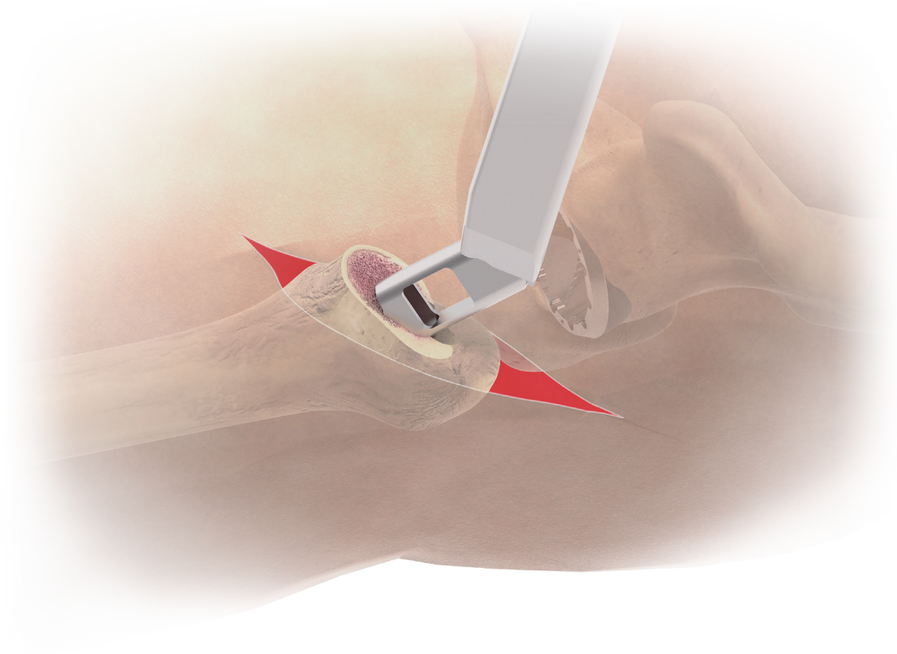
Femoral Head Extractor

Modular T-Handle

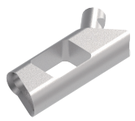
B. Femoral Canal Accessing

Utilize the modular **Femoral Cutting Chisel** with an **Offset Broach Handle** to start the initial entry into the canal. Care should be taken to ensure that the entry point is lateral in direction (posterior in appearance).

Tip:
A curved rasp or angled curette may be helpful to sound the canal initially.



Instruments



Femoral Cutting Chisel

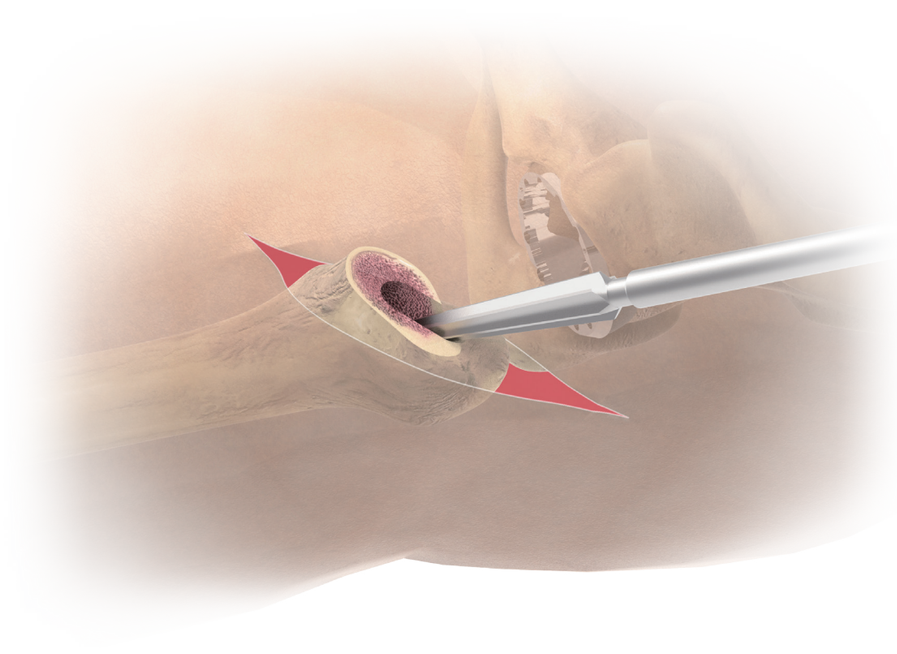
Straight Broach Handle

Offset Broach Handle

Dual Offset Broach Handle

C. Canal Reaming

The **Starter Reamer** is used with the **Modular T-Handle** to open the femoral canal and to help ensure the correct reamer alignment within the femoral anatomical axis.



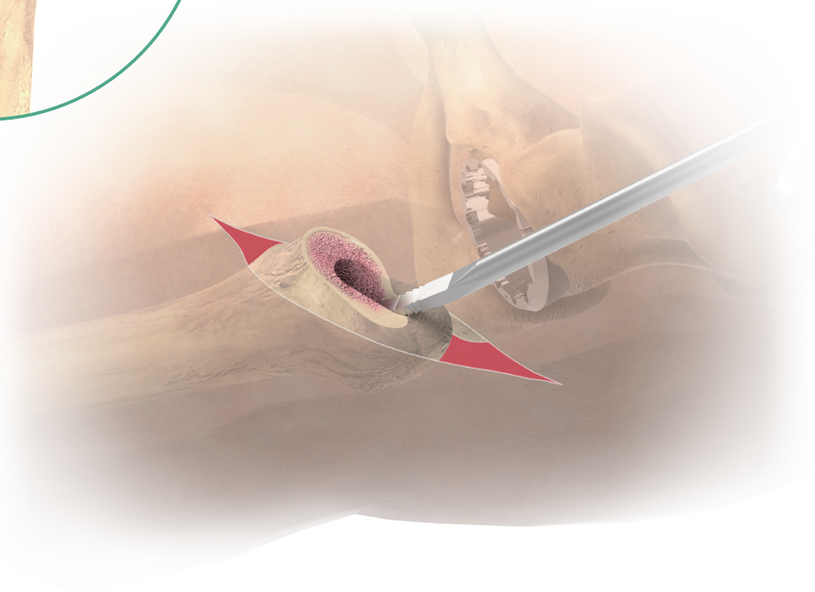
Instruments

Starter Reamer

Modular T-Handle

D.Lateralization

Proper lateralization of the canal entry is paramount to avoid femoral perforation of the stem during insertion. Utilize the **Canal Finder Rasp** manually to enlarge the canal laterally beneath the greater trochanter. This step helps to guide the axis of the femur for subsequent broaching and stem implantation.



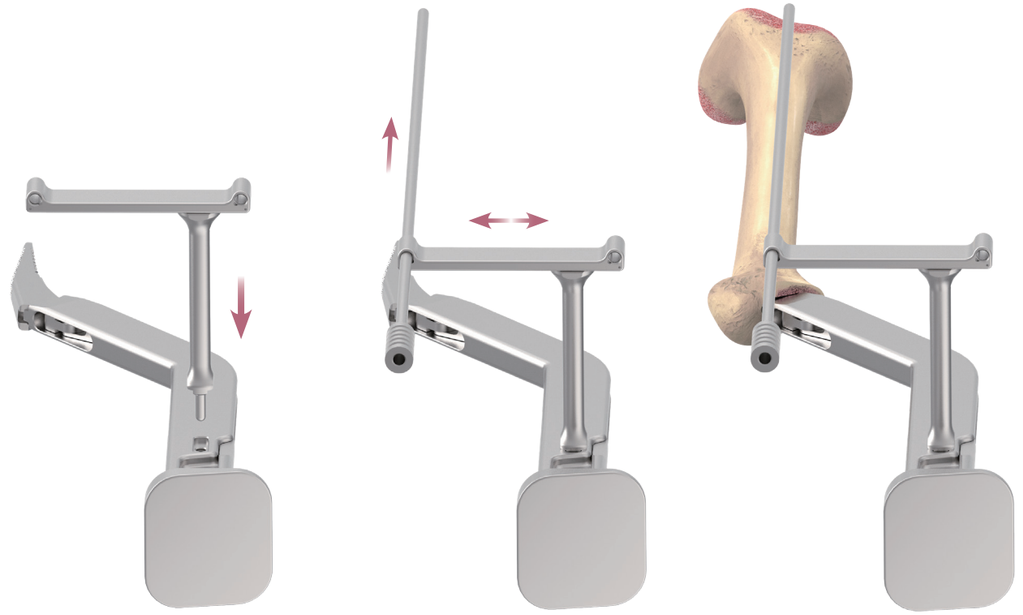
Instruments

Canal Finder Rasp

E.Alignment Check

Multiple broach handles options are provided to accommodate different surgical approaches for hip replacement.

Attach the first **UTS Starter Broach** to the **Broach Handle**. UTS Stem provides an external system, consisting of an **EM Alignment Guide** which can be quickly attached to the **Broach Handle**. Accurate alignment is achieved when the axis of the **Alignment Rod** is parallel to the femoral axis.



Instruments

UTS Starter Broach

Straight Broach Handle

Offset Broach Handle

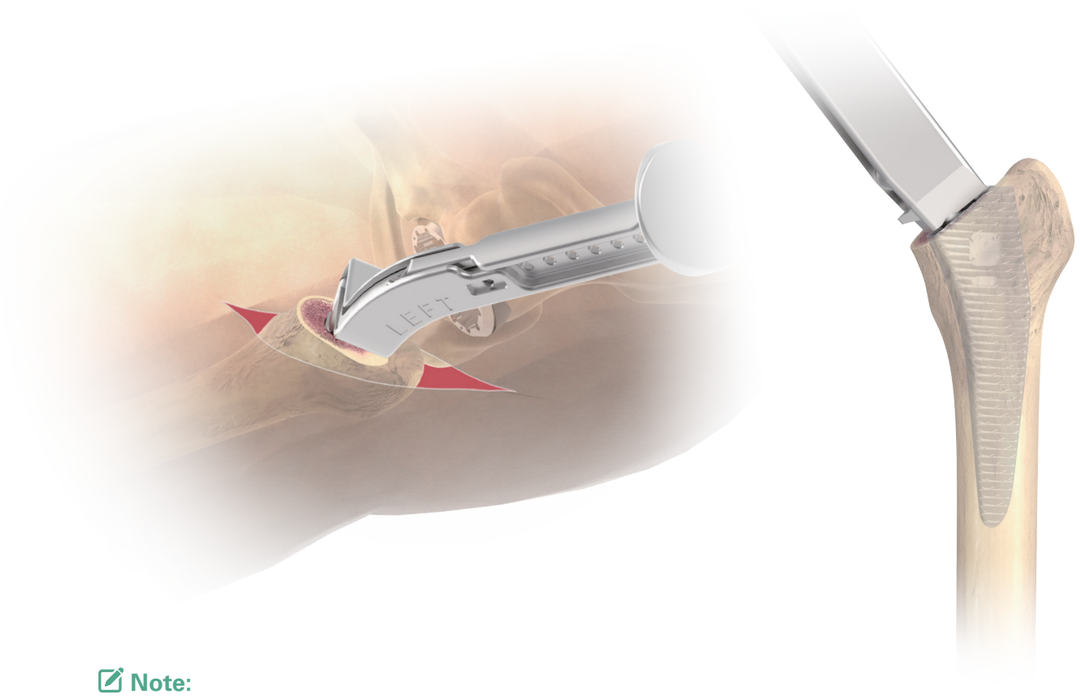
Dual Offset Broach Handle

EM alignment guide

Alignment rod

F. Canal Broaching

Ensure the broach is in line with the femoral shaft. The broach handle should be against the body and held in a posterior and medial (towards body) direction. Sequentially enlarge the canal with the **UTS Broach** until the ideal size is achieved. The ML dimensions of the **UTS Broach** are identical to that of the implant. There is a 0.75 mm difference on each side of the broach between sizes.



Note:
It is suggested that the broach be fully advanced in the canal before broaching is begun, which may minimize the risk of creating a new path.

Instruments


Straight Broach Handle

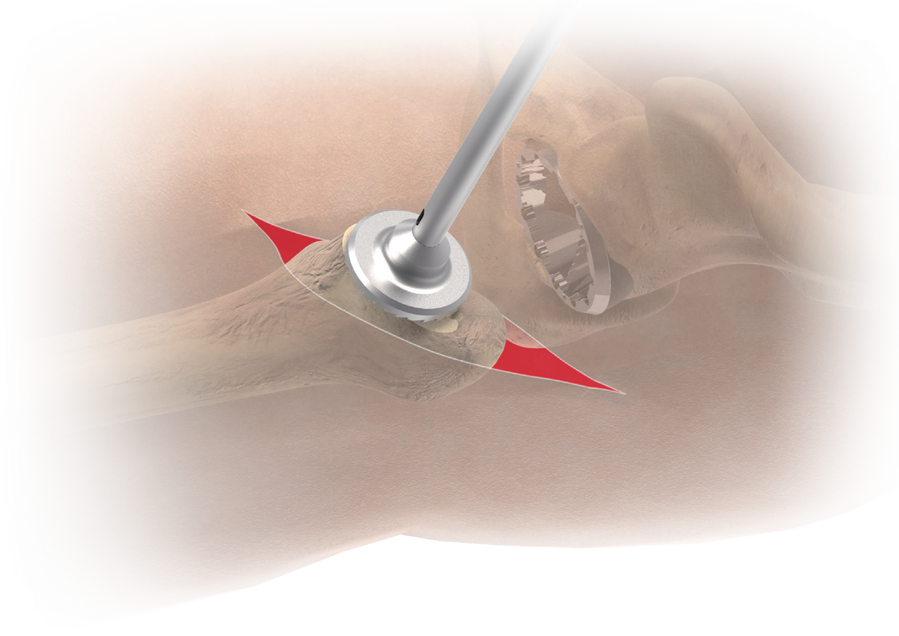

Offset Broach Handle


Dual Offset Broach Handle


UTS Broach

G. Calcar Preparation

When the final broach is seated, choose the corresponding **UTS Calcar Reamer** and guide the reamer over the **UTS Broach** trunnion ensuring that the **UTS Calcar Reamer** is axially aligned with the trunnion and is stable.



Instruments


UTS Broach

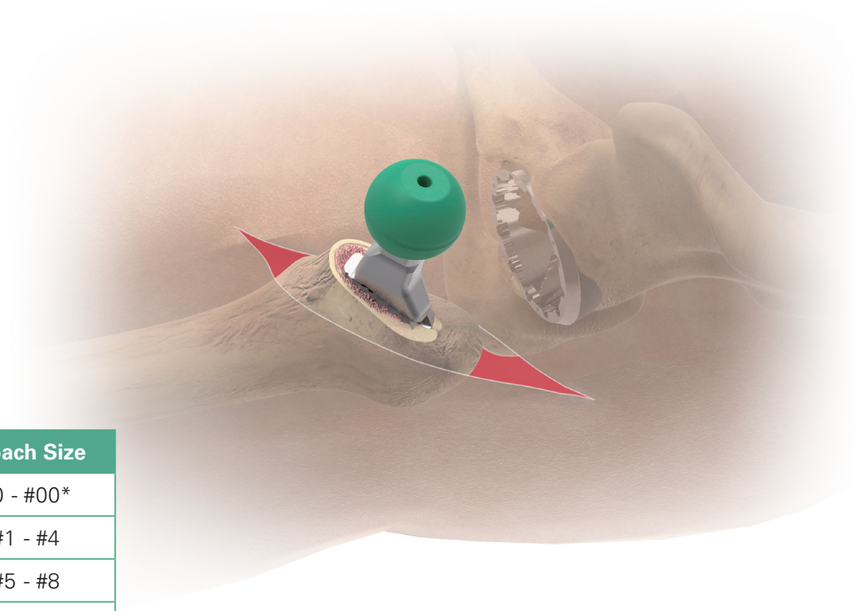

UTS Calcar Reamer

H. Trial Reduction

Assemble the appropriate size of standard or high offset **UTS Neck Trial** onto the broach. Perform the trial reduction using the **Femoral Head Trial** with the desired diameter and neck length.

Tip:
A loop suture can be tied to the trial femoral head to assist with the head retrieval should the head come off during this process.

Note:
Any correction of the selected implant size can be made during the reassessment of leg length and joint biomechanics (if required).



Neck Trial	Broach Size
	#0 - #00*
	#1 - #4
	#5 - #8
	#9 - #11
	#12 - #14

*#0-00 only for UTS Standard Neck Trial

Instruments

UTS Broach

UTS Neck Trial

Femoral Head Trial

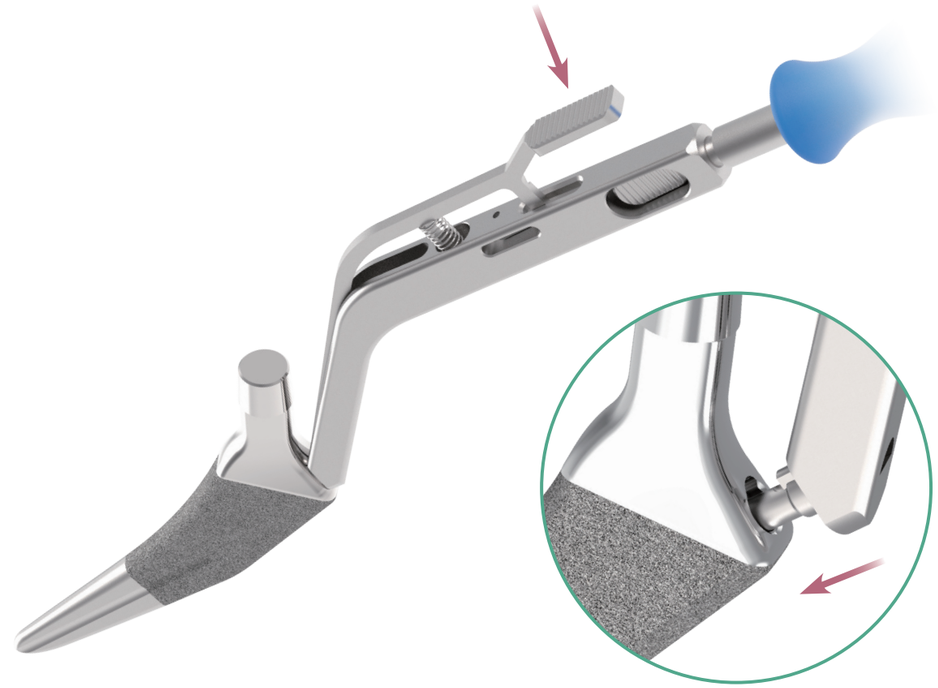
I. Stem Insertion

After trial reduction, remove the broach and introduce the stem by using the **Quick Connect Holder**. Use the holder to firmly attach the stem via the insertion hole on the stem shoulder.

Gently tap the holder to achieve initial stem implantation into the medullary canal.

Note:
Proper care should be taken to orient the stem with proper alignment and version during implant impaction.

Caution:
The **Quick Connect Holder** is designed to position the implant, not for final impaction. Please **impact gently** to avoid instrument breakage.



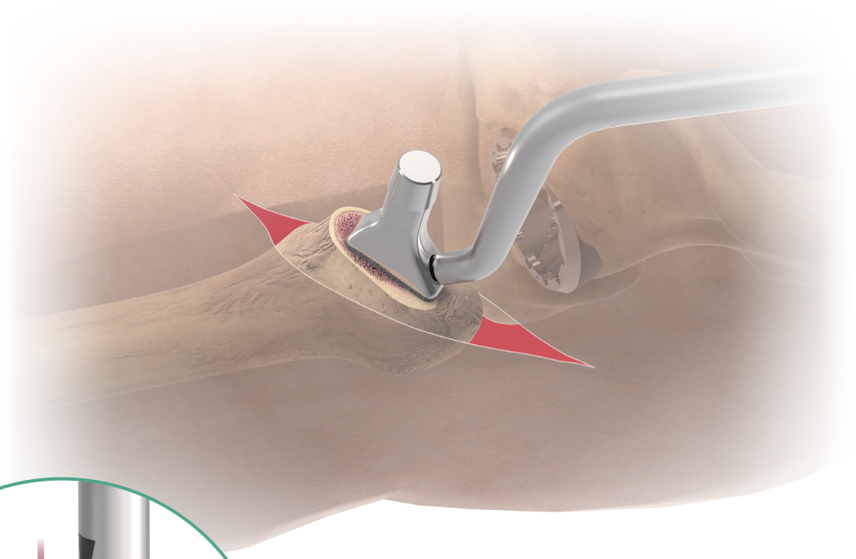
Instruments

Quick Connect Holder

Quick Connect Holder, Offset

J.Stem Impaction

Use **Straight** or **Curved Stem Impactors** to further advance the stem into the endosteal canal. The prosthesis should be seated until the most proximal portion of the coating surface is in line with the neck resection level.



Instruments

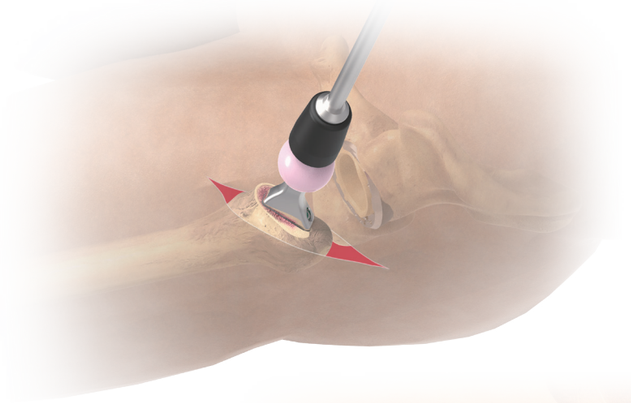
Straight Stem Impactor

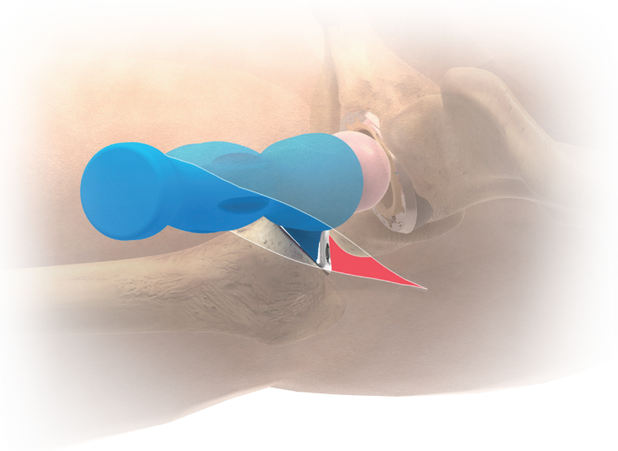
Curved Stem Impactor

K.Femoral Head Impaction

Perform a final trial reduction to confirm stability and leg length by using the **Femoral Head Trials**. After the appropriate femoral head size has been determined, place it onto the cleaned and dried taper by twisting it on by hand..

Connect the **Femoral Head Impactor** and **Universal Handle** and moderately impact the femoral head until it is firmly seated. Clean the bearing surface then reduce the hip with **Pusher**.





Instruments

Femoral Head Trial

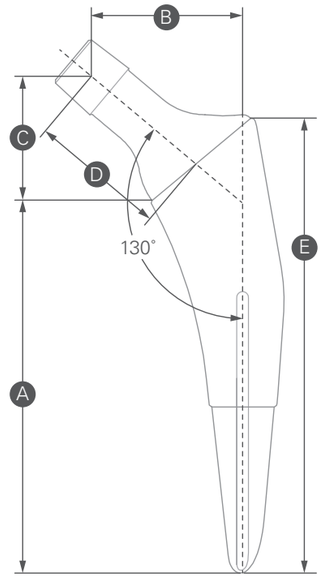
Femoral Head Impactor

Universal Handle

Pusher

Order Information

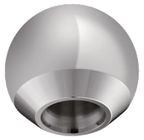
	Catalog Number		Description
UTS Stem Standard	**Standard**	**High Offset**	
	1106 - 5099	–	# 00
	1106 - 5000	–	# 0
	1106 - 5001	1106 - 5201	# 1
	1106 - 5002	1106 - 5202	# 2
	1106 - 5003	1106 - 5203	# 3
	1106 - 5004	1106 - 5204	# 4
	1106 - 5005	1106 - 5205	# 5
	1106 - 5006	1106 - 5206	# 6
	1106 - 5007	1106 - 5207	# 7
	1106 - 5008	1106 - 5208	# 8
	1106 - 5009	1106 - 5209	# 9
	1106 - 5010	1106 - 5210	# 10
	1106 - 5011	1106 - 5211	# 11
	1106 - 5012	1106 - 5212	# 12
	1106 - 5013	1106 - 5213	# 13
	1106 - 5014	1106 - 5214	# 14
High Offset			
			



Size	A Stem Length	B Offset	C Vertical Height	D Neck Length	E Lateral Length
Standard					
#00	73.5	30	23.9	25.9	91
#0	76.3	31	24.9	27.1	94
#1	77.8	32	25.9	28.3	96
#2	81.4	33	26.9	29.5	100
#3	83.7	34	27.9	30.6	103
#4	85.8	35	28.9	31.8	106
#5	88.0	36	29.9	32.9	109
#6	90.9	37	30.9	34.0	112
#7	93.3	38	31.9	35.1	115
#8	95.6	39	32.9	36.2	118
#9	98.2	40.5	34.2	37.8	121.3
#10	100.7	42	35.4	39.4	124.5
#11	103.3	43.5	36.7	41.0	127.8
#12	105.9	45	37.9	42.6	131
#13	108.3	46.5	39.2	44.2	134.3
#14	110.7	48	40.4	45.8	137.5
High Offset					
#1	77.8	39	25.9	32.9	96
#2	81.4	40	26.9	34.0	100
#3	83.7	41	27.9	35.2	103
#4	85.8	42	28.9	36.3	106
#5	88.0	43	29.9	37.5	109
#6	90.9	44	30.9	38.6	112
#7	93.3	45	31.9	39.7	115
#8	95.6	46	32.9	40.8	118
#9	98.2	47.5	34.2	42.4	121.3
#10	100.7	49	35.4	44.0	124.5
#11	103.3	50.5	36.7	45.6	127.8
#12	105.9	52	37.9	47.2	131
#13	108.3	53.5	39.2	48.8	134.3
#14	110.7	55	40.4	50.3	137.5

Unit : mm

Femoral Head

	Catalog Number	Description (mm)	
U2 Femoral Head	1206 - 1122	* Ø 22	+ 0
	1206 - 1322	* Ø 22	+ 3
	1206 - 1522	* Ø 22	+ 6
	1206 - 1722	* Ø 22	+ 9
	1206 - 1026	Ø 26	- 2
	1206 - 1126	Ø 26	+ 0
	1206 - 1326	Ø 26	+ 3
	1206 - 1526	Ø 26	+ 6
	1206 - 1726	Ø 26	+ 9
	1206 - 1028	Ø 28	- 3
	1206 - 1128	Ø 28	+ 0
	1206 - 1228	Ø 28	+ 2.5
	1206 - 1428	Ø 28	+ 5
	1206 - 1628	Ø 28	+ 7.5
	1206 - 1828	Ø 28	+ 10
	1206 - 1032	Ø 32	- 3
	1206 - 1132	Ø 32	+ 0
	1206 - 1232	Ø 32	+ 2.5
	1206 - 1432	Ø 32	+ 5
	1206 - 1632	Ø 32	+ 7.5
	1206 - 1832	Ø 32	+ 10
	1206 - 1036	Ø 36	- 3
	1206 - 1136	Ø 36	+ 0
	1206 - 1236	Ø 36	+ 2.5
	1206 - 1436	Ø 36	+ 5
	1206 - 1636	Ø 36	+ 7.5
	1206 - 1836	Ø 36	+ 10

* The actual spherical diameter of a 22 mm head is 22.2 mm.

Femoral Head

	Catalog Number	Description (mm)		
BIOLOX® *delta* Ceramic Head	1203 - 5022	* Ø 22	S	+ 1
	1203 - 5222	* Ø 22	M	+ 3
	1203 - 5422	* Ø 22	L	+ 5
	1203 - 5028	Ø 28	S	- 2.5
	1203 - 5228	Ø 28	M	+ 1
	1203 - 5428	Ø 28	L	+ 4
	1203 - 5032	Ø 32	S	- 3
	1203 - 5232	Ø 32	M	+ 1
	1203 - 5432	Ø 32	L	+ 5
	1203 - 5632	Ø 32	XL	+ 8
	1203 - 5036	Ø 36	S	- 3
	1203 - 5236	Ø 36	M	+ 1
	1203 - 5436	Ø 36	L	+ 5
	1203 - 5636	Ø 36	XL	+ 9
	1203 - 5040	Ø 40	S	- 3
	1203 - 5240	Ø 40	M	+ 1
	1203 - 5440	Ø 40	L	+ 5
	1203 - 5640	Ø 40	XL	+ 9

* The actual spherical diameter of a 22 mm head is 22.2 mm.

BIOLOX® is a registered trademark of the CeramTec Group, Germany

UNITED ORTHOPEDIC®

Each Step
We Care

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The CE mark is valid only if it is also printed on the product label.

CE 2797

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