TOTAL
JOINT
ORTHOPEDICS

KLASSIC HD® HIP SYSTEM

SURGICAL TECHNIQUE MANUAL

EFFICIENCY BY DESIGN®

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ACKNOWLEDGEMENTS

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The Klassic HD® Hip System

KLASSIC® DESIGN

The Klassic HD® Hip System evolved from the optimal design features of the most successful tapered stems and acetabular constructs.

The patented[1] Klassic HD® Femoral Stem is based on designs that have a history of clinical success. A tapered, double-wedge geometry offers initial fixation and rotational control, and proximally, the stem features Ti-Coat®, a rough titanium sintered porous coating for biological fixation and bony ingrowth. Mid-stem grit-blasting offers additional biological fixation, and distal polishing helps to prevent stress-shielding. Neck lengths are sized to permit retention of the bony femoral neck and are offered in both standard and lateral offset configurations.

Designed for optimum congruency, the patented[2] Klassic HD® Acetabular Cup and Insert address critical concerns about stability, wear, fixation, and maximum range of motion. The cup is thin-walled (3.5mm) with 1.5mm of graduated press-fit, and features the same high-porosity Ti-Coat® for biological fixation and bony ingrowth. Posteriorly positioned screw holes offer a 30° sweep to provide flexibility in screw placement.

E-Link® Vitamin E Stabilized Polyethylene and XLPE Poly are highly cross-linked and accommodate a variety of head sizes to increase range of motion and decrease impingement. One insert for every cup simplifies surgical flow and ensures the center of rotation remains constant. Inserts are provided with standard, low-profile, and hooded configurations to satisfy a range of surgical requirements.

The Klassic HD® Femoral Head is offered in both BIOLOX®*delta* ceramic and cobalt chrome materials. The BIOLOX®OPTION is available for use with Adapters in revision cases.

The BIOLOX CONTOURA® Head, also made from BIOLOX®*delta* ceramic, features a reduced distal profile to protect against soft tissue impingement during activities of daily living.

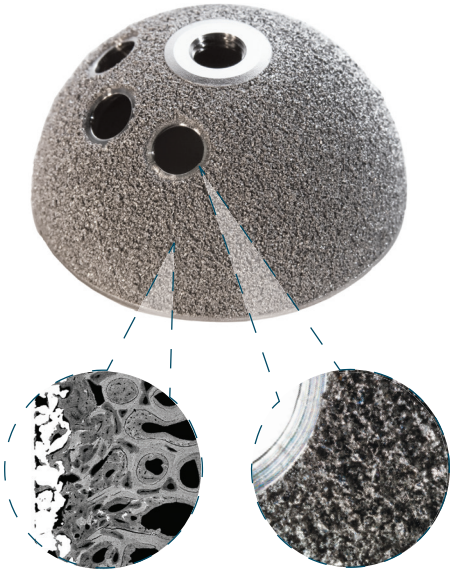
EFFICIENCY BY DESIGN®

The Klassic HD® Hip System is designed to significantly reduce the amount of inventory needed to perform a total hip replacement. The result is a streamlined system that offers a surgeon both ease and flexibility of use while reducing costs for the hospital. Our goal is to provide a state-of-the-art, efficient product that offers reproducible results.

FLEXIBILITY OF USE

The Klassic HD® Hip System allows the surgeon to begin with either femoral or acetabular preparation, from either a posterior or anterior approach. For a posterior approach, the surgeon

may wish to begin with femoral preparation in order to better gauge combined anteversion. Femur-first preparation allows the surgeon to measure the stem version, which is fixed, and then manipulate the cup to provide the correct mating and combined anteversion. For an anterior approach, the procedure may be more simple using a cup-first preparation. We recommend the surgeon use the order with which he or she is most comfortable.



Ti-Coat® porous coating

FIXATION

Both the proximal femoral stem and the acetabular cup offer Ti-Coat®, an ultraporous, three-dimensional, commercially pure titanium porous coating with a mean porosity of 60% for biological fixation and demonstrated bony ingrowth.[3]

The mid-body of the femoral stem is grit-blasted titanium alloy with a 3–5 micron surface roughness, and provides a surface for press-fit, uncemented use of the implant.

MATERIALS

BIOLOX®*delta* is a state-of-the-art aluminum oxide composite matrix consisting of 74% alumina and 25% yttrium-stabilized tetragonal zirconia particles. Alumina provides hardness and wear resistance, while Zirconia provides additional improved mechanical properties.[4]

E-Link® Poly is a Vitamin E stabilized highly cross-linked ultra high molecular weight polyethylene. Vitamin E is blended into the GUR 1020 UHMWPE in powder form, compression molded, and cross linked by Gamma radiation to 10 MRads. E-Link® utilizes Vitamin E to quench free radicals generated from the cross-linking process, yielding oxidative stability.[5]

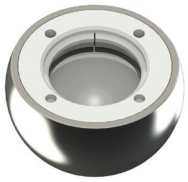
XLPE Poly is a highly cross-linked ultra high molecular weight polyethylene. XLPE is fabricated from standard GUR 1020 UHMWPE powder, which is compression molded and fabricated into bars that are gamma irradiated at 7.5 MRads to induce crosslinking. After irradiation, the material bar is heated (re-melted) with a controlled heating, dwell, and cooling cycle to eliminate free radicals. Any material portion that is potentially oxidized during fabrication is then removed from the diameter and each end of the bar to additionally ensure oxidative stability.

All of TJO's polyethylene products are ethylene oxide (EtO) sterilized.

WARNINGS AND PRECAUTIONS

Please refer to the Total Joint Orthopedics Klassic HD® Hip System Instructions For Use at tjoinc.com/ifu for warnings, precautions, adverse effects, and other essential product information.

KLASSIC HD® HIP SYSTEM PRODUCT OFFERINGS



Klassic® Bipolar Head
Sizes: 41-43mm OD,
22mm Head
44-60mm OD,
28mm Head

Klassic HD® Acetabular Cup
Sizes: 44-64mm in
2mm increments

Klassic HD® Acetabular Insert
Sizes: 32mm head:
48, 50mm
36mm head: 52-64mm
in 2mm increments
Available in XLPE Poly

Klassic HD® Acetabular Insert with E-link® Poly
Sizes: 32mm head:
48, 50mm
36mm head: 52-64mm
in 2mm increments
Available in E-Link® Poly

Klassic HD® Low Profile Acetabular Insert
Sizes: 28mm head:
44, 46mm
32mm head: 48, 50mm
36mm head: 52-64mm
in 2mm increments
Available in E-Link® Poly only

Klassic HD® Hooded Acetabular Insert
Sizes: 28mm head:
44, 46mm
32mm head: 48, 50mm
36mm head: 52-64mm
in 2mm increments
Available in E-Link® Poly only

Klassic® Bipolar Femoral Head, CoCr
Sizes: 22mm head:
+0, +3.5, +7mm
28mm head:
-3.5, +0, +3.5,
+7mm

Klassic HD® Femoral Head
Sizes: 32 &
36mm ONLY
-3.5, +0, +3.5,
+7mm

BIOLOX®*delta* Femoral Head
Sizes: 28mm:
-3.5, +0, +3.5
32, 36mm:
-3.5, +0, +3.5,
+7mm

BIOLOX CONTOURA® Femoral Head
Sizes: 28, 32mm
-3.5, +0, +3.5mm
36mm: -3.5, +0,
+3.5, +7mm

BIOLOX®OPTION Femoral Head
Sizes: 28, 32,
36mm

Klassic HD® Femoral Stem
Sizes: 1-9 (Standard)
Sizes: 2-9 (Offset)

Klassic® Blade Femoral Stem
Sizes: 1-12

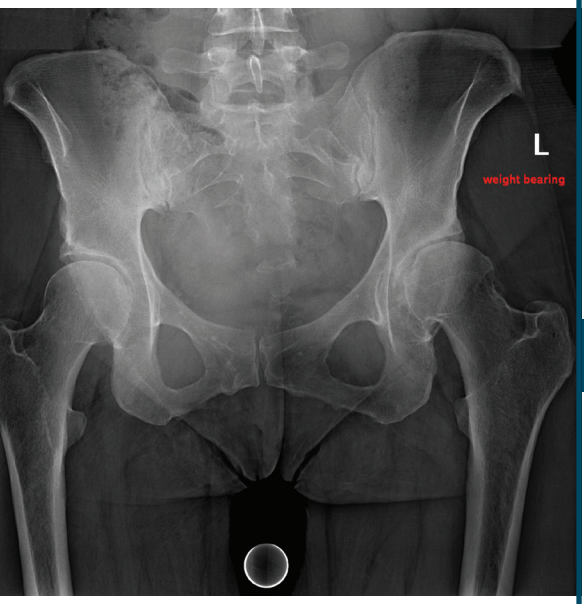
BIOLOX®OPTION Adapter
Sizes: -3.5, +0,
+3.5, +7, +10.5mm

PREOPERATIVE PLANNING

Preoperative planning is performed using the product templates and a current radiograph of the pelvis, with the inferior edge of the symphysis lying in the center of the picture. The objective of the planning is to determine the most favorable position of the implant and its approximate size, and to anticipate possible operative difficulties. A stable acetabular floor capable of bearing loads and a solid lateral bony cover are desirable. The prerequisite for the implantation of a well-fixed primary stable cup is contact by the entire bony circumference of the acetabulum. The primary objectives of preoperative planning are to:

1. Correct preoperative leg length discrepancy
2. Calculate acetabular component size and placement
3. Determine femoral component size, position, and fit
4. Assess the necessary femoral offset

In addition, preoperative planning will assist in the identification of bone abnormalities and potential problems before surgery that may require special instrumentation. The axis of the artificial joint should approximate physiological conditions as closely as possible. The opening plane of the cup should form an angle of 40° to the horizontal line of the pelvis. Most surgeons choose an anteversion of 20° ± 5° intraoperatively, although the correct cup orientation will ultimately depend on the position of the femoral implant.



A/P radiograph of the pelvis

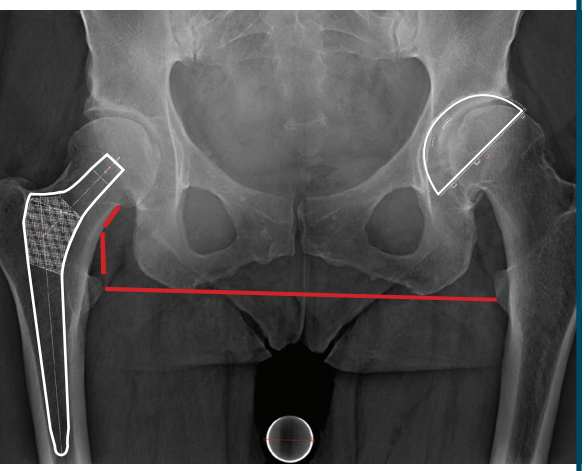
POSITIONING FOR RADIOGRAPHY

For the A/P radiograph of the pelvis, the femurs should be internally rotated 15° to show an accurate view of the femoral neck length, metaphysis, and diaphysis. A direct lateral radiograph may also be beneficial in determining implant sizing. For accuracy, a 25mm magnification marker is recommended. Klassic HD® acetate templates incorporate an 18% magnification.

TEMPLATING THE FEMUR

Use the least involved hip for femoral templating. To estimate the leg length discrepancy on the radiograph, draw a line along the distal apex of the ischial tuberocities or through both teardrops. Measure the distance from the lesser trochanter to the drawn reference line or measure distally from the base of the femoral head. The measured difference between each measured side is the radiographic leg length discrepancy.

Select the femoral template size that will best fit the proximal femur and equalize the leg length. The tapered geometry of the femoral stem should fill the canal from the medial to the lateral cortical wall. The femoral template should be in line with the long axis of the femur, in the neutral position. Draw the neck resection line at the point where the selected stem provides the desired amount of leg length.



Templating the femur and the acetabulum

TEMPLATING THE ACETABULUM

Use the involved hip for templating the acetabulum. The actual size of the acetabular component may vary depending on the morphology of the acetabulum and the magnification of the radiograph (e.g., heavier patients may be overmagnified).

Align the hemisphere of the acetabular template with the mouth of the bony acetabulum, avoiding any osteophytes. The component should rest on the cortical floor of the cotyloid notch (the lateral portion of the teardrop). A horizontal line should intersect the distal teardrop and distal extent of the cup at 40° of the lateral opening. Aim for 40° instead of 45° as there is a 5° margin of error in achieving this intraoperatively.[6]

1. EXPOSING THE ACETABULUM

After making the skin incision and dissecting the muscle, incise the capsule and the labrum and remove any fibrous, cartilaginous, or bony structures preventing dislocation of the femoral head. If using a posterior approach, dislocate the femoral head from the acetabulum now.

2. REMOVING THE FEMORAL HEAD

Measure the level of the osteotomy as templated using the Femoral Neck Osteotomy Ruler (Fig. 1) and osteotomize the femoral neck, at an angle parallel to the angle of the prosthesis to the neutral axis of the femur (approximately 45º), or parallel to the intertrochanteric line. Remove the femoral head and measure the diameter. This is an internal check of magnification. The final acetabular component should be roughly 5mm larger than the diameter of the femoral head.

For an anterior approach, use a napkin ring osteotomy due to the more difficult exposure. Start by making a proximal cut just below the femoral head. Make a second cut parallel to the first at the planned level of osteotomy and remove the napkin ring. Use the Corkscrew to remove the head (Fig. 2).

Surgical Pearl: For a posterior approach, preparing the femur first is recommended in order to establish femoral anteversion. A combined anteversion of 30-40° is suggested.

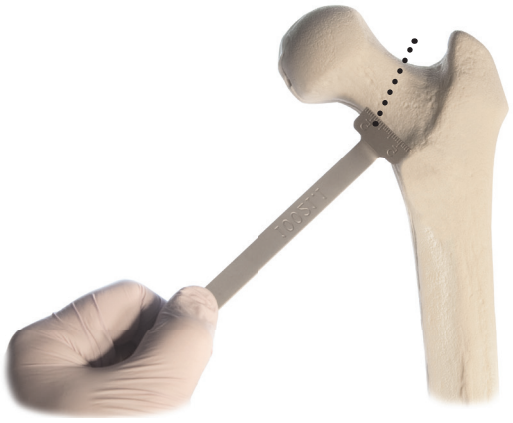


Figure 1: Measuring the femoral neck cut from a posterior approach

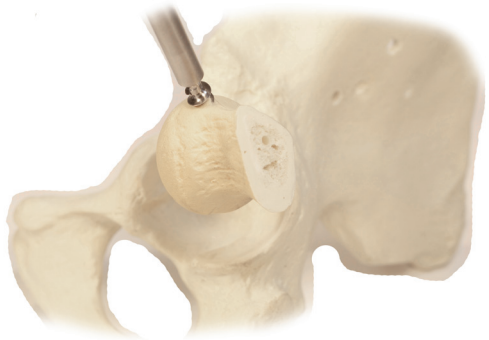


Figure 2: Using the Corkscrew to remove the femoral head

Figure 3: Using the Box Chisel to start the canal

Figure 4: Using the Canal Reamer to open the medullary canal

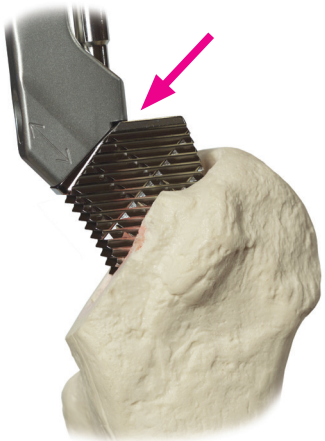


Figure 5: Broaching the femur – note the reference line at the proximal edge of the teeth

3. PREPARING THE FEMUR

Position the leg for optimal access to the femoral canal. Use the Box Chisel to cut a slot in the lateral femoral neck (Fig. 3). The box chisel should be as lateral as possible against the transition to the greater trochanter to create a slot to accommodate the prosthesis in a neutral position. The slot may be extended laterally by notching the cortex of the trochanter using a rongeur or small broach.

Use the Klassic HD® Femoral Canal Reamer to open the medullary canal by reaming the lateral femoral neck (Fig. 4).

Overreaming the femoral canal for smaller sizes could lead to poor fixation.

Prepare the femoral canal by attaching the Straight Modular Broach Holder to the size 0 Klassic HD® Modular Femoral Broach. Progress to the next larger size broach until the broach is stable and no longer advances or rotates in the canal. Ensure proper broach height by referencing the proximal face of the broach. The teeth correspond to the level of proximal porous coating on the final implant (Fig. 5). The broach will seek its own version.

Each broach should be impacted to the level of the osteotomy and the angled proximal surface of the broach using a mallet.

The final broach should be seated to the resection line and there should be no instability with forced rotation. The final implant size will directly correspond to the final broach size and the angled proximal surface of the broach corresponds to the proximal level of porous coating.

Note: The final implant will likely sit within 1mm of the modular femoral broach as the broach prepares a line-to-line fit with the final implant.

Surgical Pearl: Rinse the final Femoral Broach with saline solution or pulse lavage to remove any debris from the teeth and re-insert it to ensure final implant position.

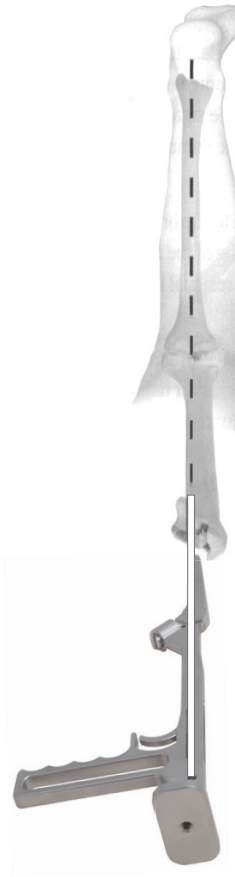


Figure 6: Using the Anteversion Rod from a posterior approach

Inserting the Anteversion Rod into the Broach Holder references 15° of anteversion when aligned parallel to the tibia with the knee flexed at 90° when using a posterior approach (Fig. 6).

Surgical Pearl: Make a judgment estimate of the anteversion of the final broach position. The cup anteversion should be adjusted according to the stem anteversion for a recommended combined anteversion of 30-40°.

The Anteversion Rod will not reference the appropriate landmarks when using an anterior approach.

Disconnect the Broach Holder from the Broach to leave the Broach in the femoral canal for trial reduction after acetabular preparation.

4. PREPARING THE ACETABULUM

Attach the Hemispherical Acetabular Reamer to either the Straight or Offset Acetabular Reamer Driver (Fig. 7). The desired objective is to create the geometrical and physiological requirements for the permanently stable implantation of a titanium cup. This is based upon the desired outcomes:

- To achieve anatomically formed implant support
- To preserve bone stock in order to assure a solid support for the implant
- To create certainty of anchoring the acetabular cup in good, vascularized bone

After circumferential exposure of the acetabulum, ream the central acetabular floor with the acetabular reamer that corresponds to the patient's femoral head diameter. Deepen according to the preoperative plan until the floor of the cotyloid notch is reached. When the necessary depth has been reached, move the reamer to an inclination of approximately 40° and ream to bleeding subchondral bone (Fig. 6). Use progressively larger reamers to increase the diameter roughly 5mm larger than the native femoral head. Maintain this cranial reamer direction until:

1. The necessary diameter has been attained
2. 50-60% of the acetabular roof has been reamed to bleeding bone
3. The acetabulum is reamed to the predicted implant size

Use extreme caution when reaming in order to prevent excessive bone removal and alteration of the morphology of the acetabulum.

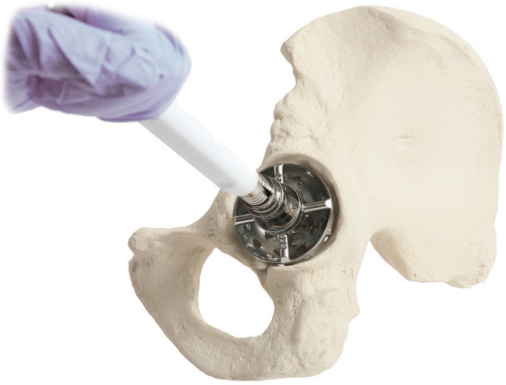


Figure 7: Reaming the acetabulum

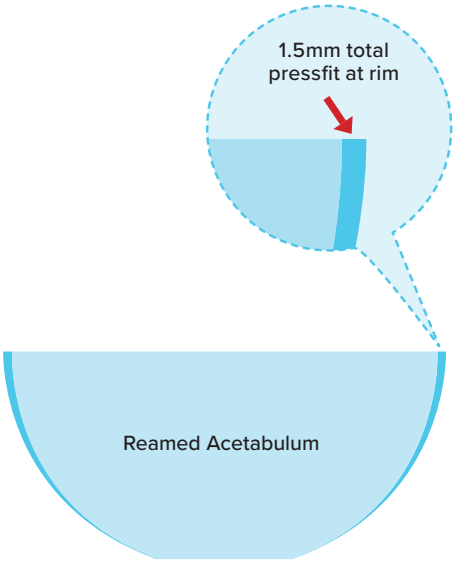


Figure 8: The dimensions of the Acetabular Cup versus the Acetabular Reamer size

Ti-Coat® offers a Velcro-like surface with a graduated fit. The cups are 1.5mm larger than the stated size. The preferred method is to ream 1mm larger than the stated cup size for .5mm of pressfit or line-to-line for 1.5mm of total pressfit. For example, when using a 52mm cup, ream to 53mm and expect .5mm of pressfit; for 1.5mm of total pressfit, ream to 52mm (Fig. 8).

The anterior and posterior acetabular roof must remain stable and solid. The reaming process has ended when these conditions have been achieved.

Surgical Pearl: Alternatively, anatomic landmarks may be used for acetabular anteversion. Palpate the sciatic notch and align the acetabular component to the notch. Or, if the transverse acetabular ligament is visible, transect it at a 90° angle. Use both of these checkpoints to determine the best acetabular placement for each individual patient's pelvic anatomy.

5. SIZING THE PREPARED ACETABULUM

Acetabular Cup Sizers test whether a cup of a given diameter is stable in the prepared acetabulum. After attaching the Cup Sizer to the Straight Shaft Cup Inserter or Curved Acetabular Cup Impactor, drive the Cup Sizer into the prepared acetabular floor at the desired abduction and anteversion (Fig. 9). It should have stable seating under pulling, rotating, and careful tilting loads. The contact between the acetabular floor and the Cup Sizer may be tested with any surgical clamp through the large windows of the Cup Sizer. The Cup Sizer is then removed by tipping out.

The Cup Sizer also may be used for trialing in reduction. Leave the Sizer in place and unthread the impactor. Place the Acetabular Insert Trial in the cup sizer to create the Acetabular Trial construct.

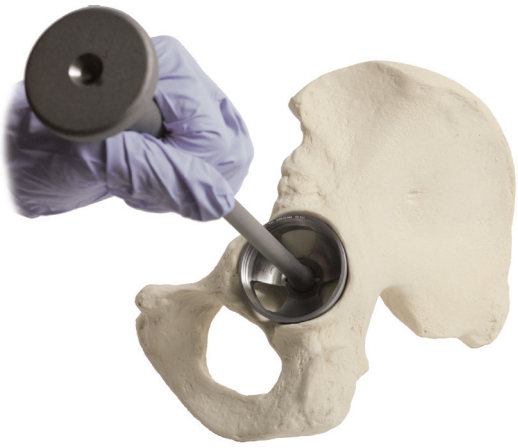


Figure 9: Using the Straight Shaft Cup Inserter to place the Acetabular Cup Sizer

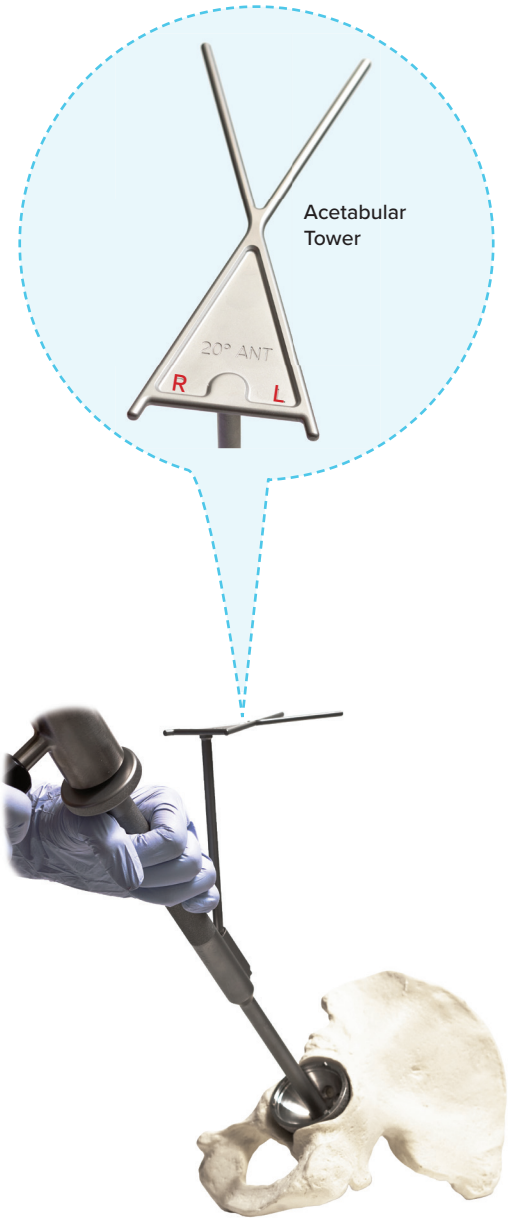


Figure 10: Using the Acetabular Cup Positioner and Acetabular Cup Positioner Tower to place the Acetabular Cup

6. IMPLANTING THE ACETABULAR CUP

Remove the Acetabular Cup from the sterile packaging and attach it to the assembled Acetabular Cup Positioner with the screw holes in the postero-superior position. For a posterior approach, attach the Acetabular Cup Positioner Tower to the Acetabular Cup Positioner, noting the right or left orientation (Fig. 10). The vertical portion of the tower, when perpendicular to the table, references 40° of abduction. The correct Right or Left portion of the tower, in line with the back of the shoulder, references 20° of anteversion.

Note: Acetabular Cup sizes 44 and 46mm are only available for use with Klassic HD® Hooded Acetabular Inserts with E-Link® Poly.

Using a mallet, seat the Acetabular Cup with the abduction and anteversion defined by the tower. Avoid any exposed anterior cup to prevent soft tissue irritation.

The Acetabular Cup Positioner Tower is for use in a posterior approach only, and does not reference the correct landmarks for an anterior approach.

The system alternately offers the Curved Acetabular Cup Impactor. Attach the Acetabular Cup to the Impactor using the Curved Acetabular Cup Impactor Ball Hex Driver. The vertical portion of the tower, when perpendicular to the table, references 40° of abduction. The Anteversion Rod, when fit into the appropriate RIGHT or LEFT hole at the top of the tower and aligned with the back of the shoulder, references 20° of anteversion when using a posterior approach. The Anteversion Rod should not be used for an anterior approach.

Using a mallet, seat the Acetabular Cup. Avoid any exposed anterior cup to prevent psoas irritation.

Surgical Pearl: The anteversion of the Cup should be adjusted according to the anteversion of the stem so that the combined anteversion is 30-40°; which is often lower in men and higher in women.

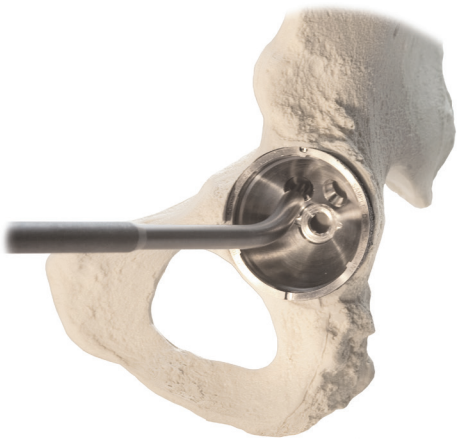


Figure 11: Starting the screw hole with the Bone Awl

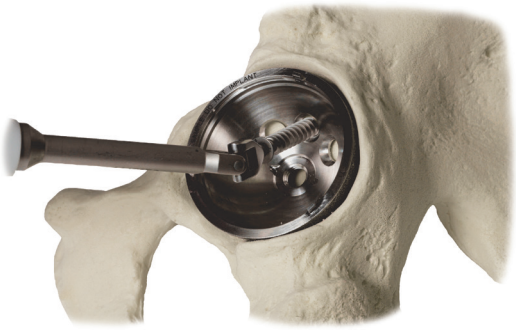


Figure 12: Using a Cancellous Bone Screw for additional fixation

Figure 13: Locking the Insert into the Cup

7. INSERTING THE CANCELLOUS BONE SCREW(S)

The Klassic HD® Cancellous Bone Screws feature a 6.5mm thread diameter and are available in 5mm increments (15-45mm). Acetabular Cups offer two holes in sizes 44-52mm, and three holes in sizes 54-64mm.

To simplify the initial insertion of the screws, use the Bone Awl to make a starter hole through the subchondral bone (Fig. 11). Use of the Awl helps prevent penetration of the inner pelvic cortex to reduce the risk of vessel injury. No pre-drilling is necessary.

Use the Acetabular U-Joint Screwdriver to insert the screw(s) (Fig. 12). Ensure screws are completely seated.

Bone Screws are intended for one-time use only, and cannot be reused once inserted.

Ensure all screws are completely seated before impacting the insert to allow the locking mechanism on the insert to engage.

8. IMPLANTING THE ACETABULAR INSERT

Interposed tissues in the Acetabular Cup or at the cup edge must be avoided as they prevent the insert from fully seating. Remove all surrounding osteophytes before placing the Insert in the Cup, aligning the notches on the Insert rim with the anti-rotation pegs on the rim of the Cup.

Surgical Pearl: The insert must be placed concentrically within the cup. Ensure there is no soft tissue interference and use a tonsil clamp to check that the insert is seated before impacting.

Ensure the Insert is fully seated and straight, and use the appropriate Acetabular Insert Impactor and a mallet to impact the insert and engage the locking mechanism (Fig. 13). If the Insert was not properly aligned, deformation of the guiding nipple might occur – the Insert cannot be impacted and a new Insert must be used. Hooded and Low Profile Inserts do not have a guiding nipple.

If using a Hooded Insert, rotate to desired orientation. Hooded Inserts may be clocked in 60 degree increments.

Note: Use the appropriate Straight or Modular Liner Impactor for the Acetabular Insert size and head diameter.

This cup features a rim-locking mechanism; tipping the cup into place may prevent the locking mechanism from fully engaging, requiring a new Insert to be used.

Figure 14: Trialing with the Femoral Head Trial and Neck Trial on the Femoral Broach

9. TRIALING WITH REDUCTION

Trial reduction is accomplished with the broach in place. Klassic HD® Neck Trials are provided in standard (silver) and offset (gold) configurations and are shared between stem sizes. Refer to the individual neck trial to select the appropriate size.

Note: Neck Trials are grouped in standard neck angles for stem sizes 1-3, 4-6, 7-8 and size 9. Neck trials are grouped in offset neck angles for stem sizes 2-3, 4-6, 7-8, and 9.

Select the templated HD Neck Trial and place it on the post of the broach. Next, select the templated size and head length of the Klassic® Femoral Head Trial and fully seat it by hand onto the Neck Trial Taper (Fig. 14).

Surgical Pearl: The grooves in the femoral head trial may be used as a reference point while putting the hip through a range of motion.

Note: The grooves in the modular femoral head trial correspond to the head length for easy visualization (i.e., 1 groove = -3.5mm, 2 grooves = +0mm, 3 grooves = +3.5mm, 4 grooves = +7mm, 5 grooves = +10.5mm).

Reduce the hip. Check leg length and offset. Repeat trialing procedure as necessary with alternate trial implants until the optimal offset and leg length are established. Check range of motion to avoid bony impingement and instability. An A/P radiograph of the pelvis may be taken at this time to confirm position.

If using the BIOLOX CONTOURA® Femoral Head: Extreme positioning (small cup inclination angle and high rotation of the hip) may result in portions of the BIOLOX CONTOURA® Femoral Head not being in contact with the Acetabular Cup which could affect wear and joint laxity.

Note: The Head Trials contain a metal ring for radiographic identification.

Once the correct head length and neck option have been established, dislocate the hip. Twist the Head Trial to remove from the Neck Trial. Remove the Neck Trial from the broach.

Remove the broach by attaching the Broach Holder to the broach and malletting out. Thread the Slap Hammer into the proximal end of the Broach Holder and extract the broach if it is hard to remove.

FEMORAL HEAD AND OFFSET FEMORAL STEM COMPATIBILITY

Using a size 2 offset femoral stem with 36mm femoral head lengths may compromise range of motion. All 28mm and 32mm femoral head lengths are compatible with all offset femoral stems. Please see the below tables for compatibility.

SIZE 2 OFFSET FEMORAL STEMS, 28MM FEMORAL HEAD

Acetabular Shell Size (mm)	Head Length (mm)			
	-3.5	0	+3.5	+7
44	✓	✓	✓	
46	✓	✓	✓	

SIZE 2 OFFSET FEMORAL STEMS, 32MM FEMORAL HEAD

Acetabular Shell Size (mm)	Head Length (mm)			
	-3.5	0	+3.5	+7
48	✓	✓	✓	✓
50	✓	✓	✓	✓

SIZE 2 OFFSET FEMORAL STEMS, 36MM FEMORAL HEAD

Acetabular Shell Size (mm)	Head Length (mm)			
	-3.5	0	+3.5	+7
52		✓	✓	✓
54		✓	✓	✓
56		✓	✓	✓
58			✓	✓
60			✓	✓
62			✓	✓
64			✓	✓

✓ *Indicates TJO recommended combination*
*Indicates combination is **not** recommended by TJO*
*Indicates size is **not** available*

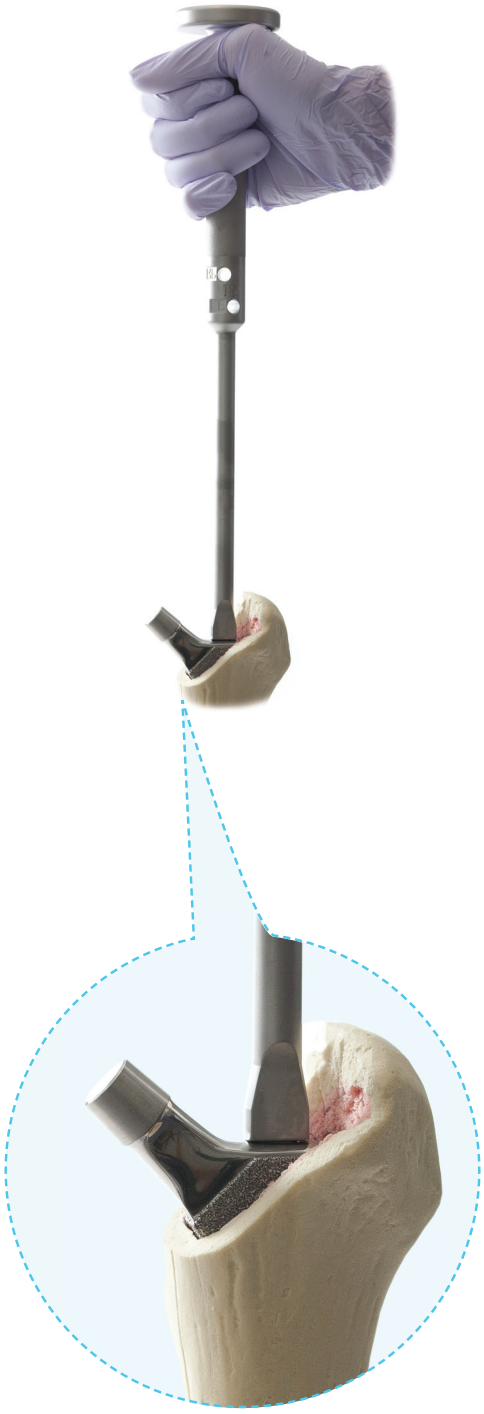


Figure 15: Implanting the Femoral Stem with the Femoral Stem Impactor

10. IMPLANTING THE STEM

Once the correct femoral stem is chosen, manually place it into the canal except for the final 1-2cm of insertion. Place the Klassic HD® Femoral Stem Impactor in contact with the top lateral surface of the prosthesis. If using a posterior approach, the Anteversion Rod will confirm the previously determined anteversion of the femoral broach. The femoral stem should be impacted to the same relative depth of the femoral broach (Fig. 15).

Do not drive the implant deeper than the prepared femoral envelope, as this may lead to fracture. In very hard bone, the stem may not completely seat. Remove the stem with the Femoral Stem Extractor Hoop and rebroach slightly deeper if necessary.

Figure 16: Seating the Femoral Head on the stem with the Femoral Head Impactor

11. IMPLANTING THE FEMORAL HEAD

The final head must be impacted in line with the neck using the Femoral Head Impactor and a mallet (Fig. 16). Carefully clean and dry the taper of the stem so that it is dry and free of debris prior to impaction. Place the head on the taper and impact the head using a mallet and the Femoral Head Impactor.

If using the BIOLOX CONTOURA® Femoral Head: Extreme positioning (small cup inclination angle and high rotation of the hip) may result in portions of the BIOLOX CONTOURA® Femoral Head not being in contact with the Acetabular Cup which could affect wear and joint laxity.

Reduce the hip. Close per surgeon preference.

Ensure both the inner head taper and the stem taper are clean and dry before impacting the head onto the stem.

Figure 17: Inserting the Adapter Sleeve into the BIOLOX®OPTION Femoral Head

12. REVISING THE CERAMIC HEAD

If using a ceramic head on a previously impacted stem taper, or if replacing a ceramic head, use the BIOLOX®OPTION femoral head and appropriate length of adapter.

After trial reduction, insert the Adapter Sleeve corresponding to the desired head length into the head (Fig. 17). Impact the head and adapter assembly onto the stem using the Femoral Head Impactor and a mallet.

Note: The +10.5mm Adapter Sleeve is for use with the 36mm and 32mm BIOLOX®OPTION Heads.

Ensure all internal and external taper surfaces of the adapter, head, and stem are clean and dry.

REFERENCES

[1] US Patent D757,269

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[3] Data on file

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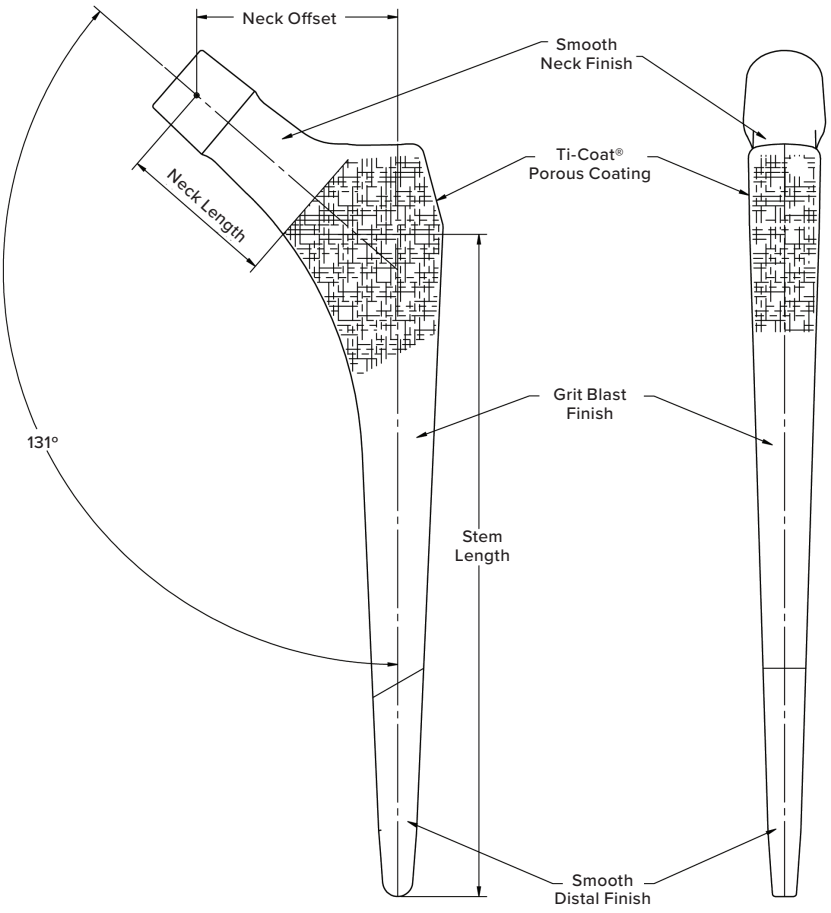
[5] Crowninshield, RD, Muratoglu, OK. How have new sterilization techniques and new forms of polyethylene influenced wear in total joint replacement? J Am Acad Orthop Surg. July 2008; 16: S80-S85.

[6] Dorr LD, Malik A, Wan Z, Long WT, Harris M. Precision and bias of imageless computer navigation and surgeon estimates for acetabular component position. Clin Orthop Relat Res. 2007 Dec;465:92-9

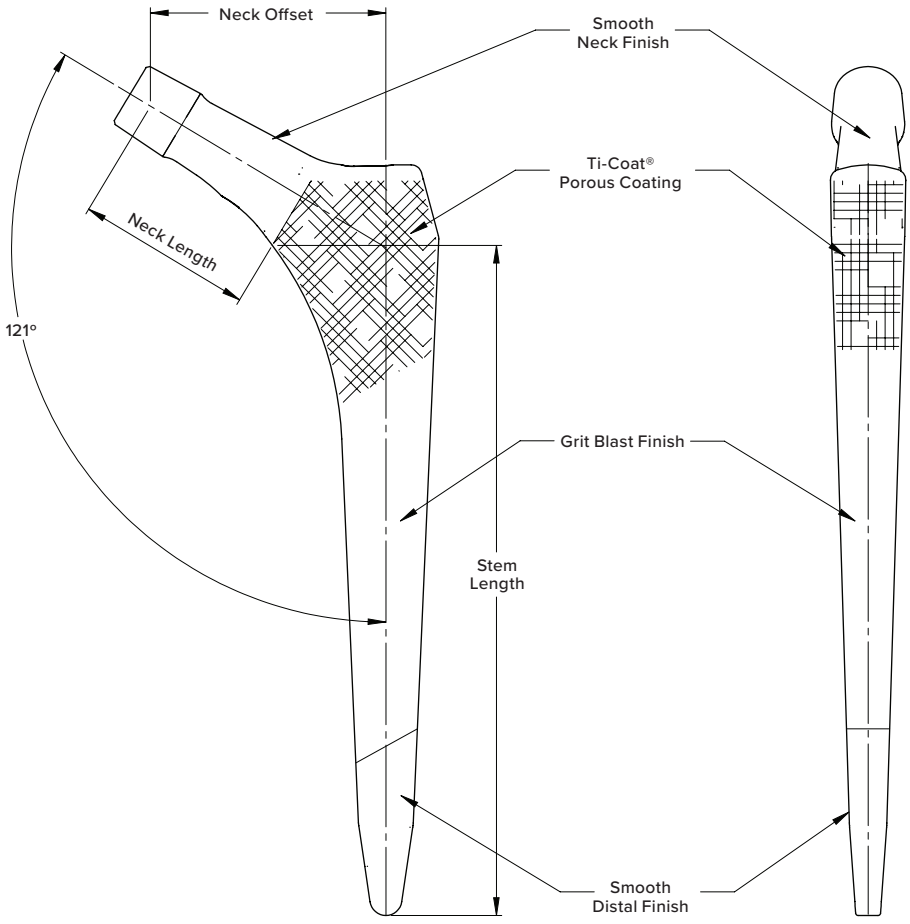
KLASSIC HD® FEMORAL STEM



KLASSIC HD® FEMORAL STEM DIMENSIONS

Size	Stem Length (mm)	Neck Length (mm)	Neck Offset (mm)	Neck Angle (°)	Proximal Width (mm)		Distal Width (mm)	
					A/P	M/L	A/P	M/L
1	110	26	33.4	131	9.5	26.5	5.5	6.3
2	115	26	34.1	131	10	28	6	7.6
3	120	26	34.8	131	10.5	29.5	6.5	8.9
4	125	30	38.6	131	11	31	7	10.2
5	130	30	39.3	131	11.5	32.5	7.5	11.5
6	135	30	40	131	12	34	8	12.8
7	140	34	43.8	131	12.5	35.5	8.5	14.1
8	145	34	44.5	131	13	37	9	15.4
9	150	38	48.2	131	13.5	38.5	9.5	16.7

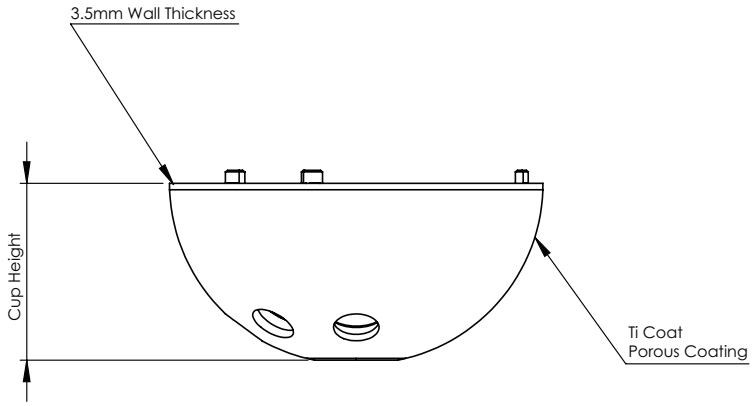
KLASSIC HD®
OFFSET FEMORAL STEM



KLASSIC HD® OFFSET FEMORAL STEM DIMENSIONS

Size	Stem Length (mm)	Neck Length (mm)	Neck Offset (mm)	Neck Angle (°)	Proximal Width (mm)		Distal Width (mm)	
					A/P	M/L	A/P	M/L
2	115	29	38.4	121	10	28	6	7.6
3	120	29	40.1	121	10.5	29.5	6.5	8.9
4	125	33	43.9	121	11	31	7	10.2
5	130	33	44.7	121	11.5	32.5	7.5	11.5
6	135	33	45.3	121	12	34	8	12.8
7	140	37	49.1	121	12.5	35.5	8.5	14.1
8	145	37	49.8	121	13	37	9	15.4
9	150	41	53.6	121	13.5	38.5	9.5	16.7

KLASSIC HD® ACETABULAR CUP

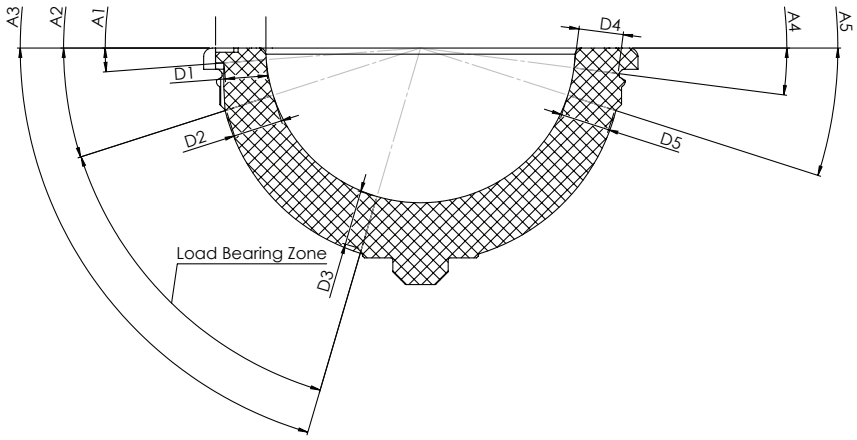


KLASSIC HD® ACETABULAR CUP DIMENSIONS

Size (mm)	Cup Height (mm)	Cup Diameter at Rim (mm)	Reamer Diameter for .5mm press (mm)	Reamer Diameter for 1.5mm press (mm)	Screw Holes
44	21.25	45.5	45	44	2
46	22.25	47.5	47	46	2
48	23.25	49.5	49	48	2
50	24.25	51.5	51	50	2
52	25.25	53.5	53	52	2
54	26.25	55.5	55	54	3
56	27.25	57.5	57	56	3
58	28.25	59.5	59	58	3
60	29.25	61.5	61	60	3
62	30.25	63.5	63	62	3
64	31.25	65.5	65	64	3

If more press-fit is desired, use the same size reamer as the nominal implant size to achieve 1.5mm of press.

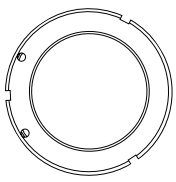
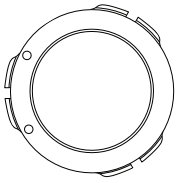
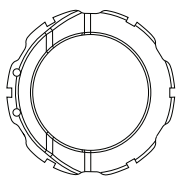
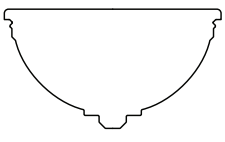
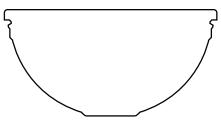
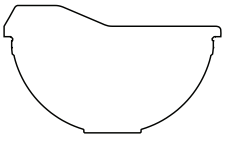
KLASSIC HD®
ACETABULAR INSERTS



KLASSIC HD® ACETABULAR INSERT DIMENSIONS

Size (mm)	Head (mm)	Angle (°)					Thickness (mm)				
		A1	A2	A3	A4	A5	D1	D2	D3	D4	D5
44	28	5	23	70	9	23	5	5.7	5.7	5.5	5.7
46	28	5	22	71	8	22	6	6.7	6.7	6.5	6.7
48	32	5	20	72	8	20	5	5.9	6.4	5.3	5.9
50	32	5	19	73	8	19	6	6.8	7.4	6.3	6.8
52	36	4	18	74	7	18	5	5.8	6.5	5.3	5.8
54	36	4	17	74	7	17	5.6	6.5	7.5	5.9	6.5
56	36	4	16	75	7	16	6.6	7.5	8.6	6.9	7.5
58	36	4	15	76	7	15	7.6	8.5	9.6	7.8	8.5
60	36	4	15	76	6	15	8.6	9.5	10.6	8.8	9.5
62	36	4	14	77	6	14	9.6	10.5	11.6	9.8	10.5
64	36	3	14	77	6	14	10.6	11.4	12.6	10.8	11.4

KLASSIC HD® ACETABULAR INSERT SHAPES

Standard	Low Profile	Hooded
		
		

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