G7™ ACETABULAR SYSTEM

Surgical Technique

Developed in conjunction with healthcare professionals.

BIOMET®

One Surgeon. One Patient.®

Over 1 million times per year, Biomet helps one surgeon provide personalized care to one patient.

The science and art of medical care is to provide the right solution for each individual patient. This requires clinical mastery, a human connection between the surgeon and the patient, and the right tools for each situation.

At Biomet, we strive to view our work through the eyes of one surgeon and one patient. We treat every solution we provide as if it's meant for a family member.

Our approach to innovation creates real solutions that assist each surgeon in the delivery of durable personalized care to each patient, whether that solution requires a minimally invasive surgical technique, advanced biomaterials or a patient-matched implant.

When one surgeon connects with one patient to provide personalized care, the promise of medicine is fulfilled.

G7™ Acetabular System

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OrthoSize.com

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Note: There may be slight variations in colors between components.

23. Gūžduobės instrumentų ir implantų žymėjimas spalvine koduote.

G7™ Acetabular System
Color & Letter Coding Key

Color and Liner Size	Shell Size(s)
A	42,44 mm
B	46 mm
C	48 mm
D	50 mm
E	52 mm
F	54,56 mm
G	58,60 mm
H	62,64 mm
I	66, 68, 70*, 72* mm
J*	74, 76, 78, 80 mm

*Not available in Limited Hole configuration.

Figure 2

15. Gūžduobės komponento tvirtinimas - bemechaninio tvirtinimo

Figure 1

14. Gūžduobės komponento forma - pusrutulio (hemispherical)

Device Description

The hemispherical design of the G7™ acetabular shell provides fixation and stability with proven PPS® Porous Plasma Spray Coating. Multiple bearing options are also available, including E1® Antioxidant Infused Technology and ArComXL® Polyethylene.

The G7™ Acetabular System utilizes a unique color coding system designed to offer an efficient operating experience. The provisional shells, provisional liners, labels and face plate impactors match the color anodized on the rim and letter designation of the acetabular shell implant (Figure 1).

The G7™ Acetabular System color and letter coding key is listed in Figure 2.

Note: Implant identification should be made using letter and size information. Color coding should be used only as a secondary reference. There may be slight variations in colors between components.

18. Gūžduobės įdėklo medžiaga– E1 vitaminizuotas ultraaukštos molekulinės masės polietilenas (UHMWPE)

OrthoSize.com

Preoperative Templating

Accurate preoperative planning and acetabular templating help determine the size, desired location and position of the acetabular shell and are an essential part of the surgical process. Templating is best performed with an A/P pelvis radiograph with the limb internally rotated approximately 15 degrees. This allows more accurate determination of femoral offset, radiographic leg length inequality, and referencing of contralateral hip, if required.

When examining the A/P radiograph, the shell should be positioned against, but not medial to, the radiographic teardrop at 40 degrees of inclination. Acetabular shell size is best determined on a cross-table lateral radiograph. If the patient's anatomy is obscured, it may be helpful to check the acetabular component size on the contralateral hip radiograph, as well.

Make note of the shell size that fills the acetabular space appropriately and fits the anterior to posterior diameter of the native acetabulum, keeping in mind that final decision on shell size should be made during surgery when adequate visualization of the acetabulum is achieved.

Note: Use of an X-ray magnification marker is needed to template with OrthoSize Digital Templating Software. The magnification marker can be located against the joint (ball/coin) or on the table (coin/ruler), but must be visible within the X-ray.

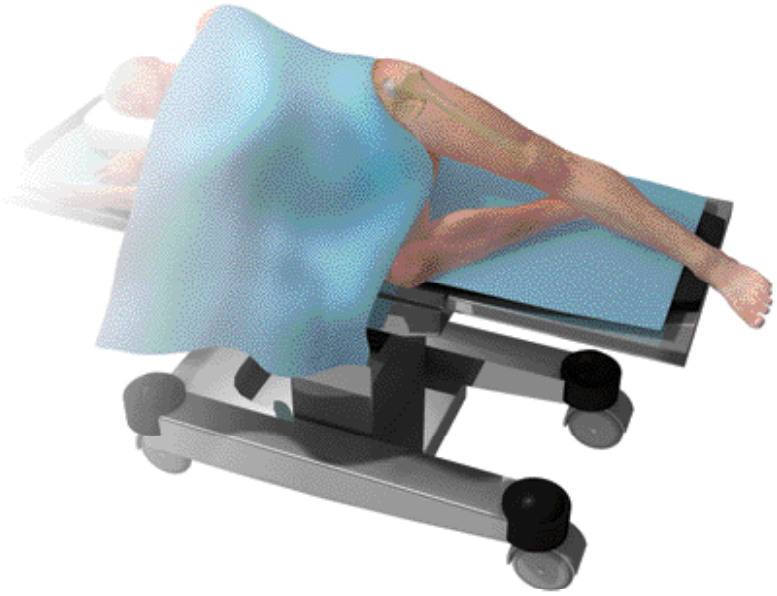


Figure 3

Patient Positioning

The G7™ Acetabular System is designed to be used with all surgical approaches (Figure 3).

Acetabular Exposure

Prior to reaming, acetabular exposure should be adequate and the anterior, posterior and superior walls should be directly visible. The medial acetabular wall, which dictates the depth of the reaming, should be uncovered of floor osteophytes or pulvinar pad. Specialized acetabular retractors are available to help facilitate exposure for whichever approach is chosen.

Figure 4

Acetabular Reaming

Determine a starting reamer size from the preoperative template and from the measured diameter of the resected femoral head. This is typically 6-8 mm smaller than the femoral head diameter. Reamer handles are provided as straight or curved (offset). Use is dictated by surgeon preference, surgical exposure and patient body composition. During the reaming process, frequently determine the amount of anterior and posterior acetabular bone remaining to avoid reaming away the wall and compromising fixation.

Beginning with a small reamer, apply constant pressure first toward the medial wall, appropriately medializing the acetabulum for optimal hip biomechanics and the normal center of hip rotation. Gradually progress to larger reamers, while maintaining concentricity within the acetabular cavity until bleeding subchondral bone is exposed (Figure 4).

The preferred acetabular orientation is 40 degrees inclination and 20 degrees of anteversion, but final acetabular position depends on patient anatomy and may vary slightly with approach. Final orientation of the acetabular implant is also dictated by the amount of version of the femoral implant (i.e., greater anteversion of the acetabular component may be required in the case of a retroverted stem). Under-reaming of the acetabulum is dependent on bone quality and should be determined by the surgeon intraoperatively as soft bone will more readily accommodate a larger press-fit than harder, sclerotic bone. The following reaming recommendation may be used as an initial guideline:

Acetabular Shell	Recommended Under ream*
G7™ PPS® Hemispherical Shell	1 mm under final implant size

*This is a general recommendation only, appropriate reaming is dependent on bone quality and should be determined by the surgeon intraoperatively.

14. Gūžduobės komponento forma - pusrutulio (hemispherical)

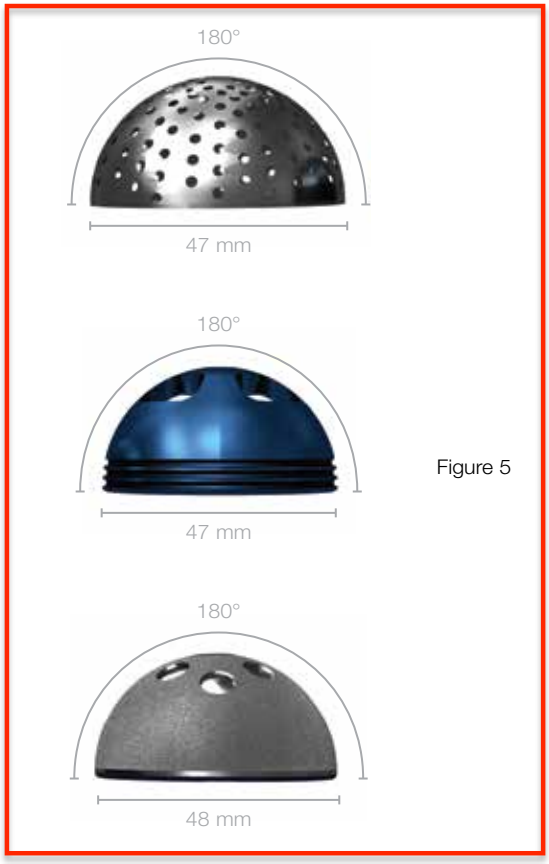


Figure 5

Figure 6

Acetabular Reaming (cont.)

Once reaming is complete, use the provisional shells to confirm the position and accuracy of the reaming. Final shaping must be achieved using the hemispherical grater reamer to ensure a congruent fit between the shell and the acetabulum.

Note: All G7™ acetabular shells are measured over porous coating. All acetabular shells, provisional shells and Biomet acetabular reamers are marked true to size. All components are a full hemisphere and measure 180 degrees (Figure 5).

Optional Shell Trialing and Alignment

Once the desired ream has been achieved, select a provisional shell that is 1 mm smaller than the final implant. The provisional shell is marked with its true size and indicates the corresponding liner size both alphabetically and by color (Figure 6).

The shell gauge handle may be threaded to the acetabular shell provisional and used to gauge the size of the reamed acetabulum (Figure 6).

Note: Do not impact on the shell gauge handle.

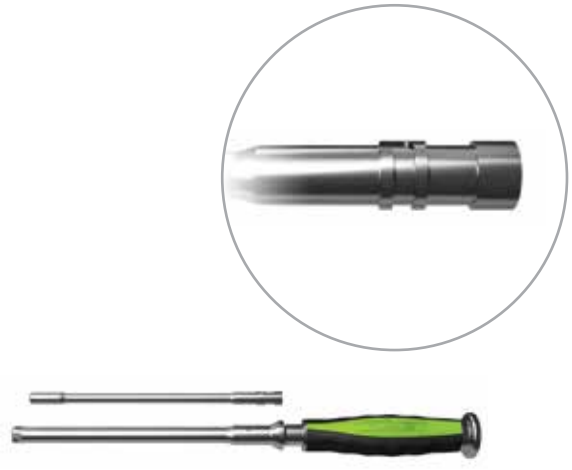


Figure 7

Figure 8

Figure 9

Optional Shell Trialing and Alignment (cont.)

Alternatively, utilize either the straight monoblock, curved or straight modular inserter handle. Place the provisional shell into the acetabulum at approximately 40 degrees of inclination and 20 degrees of anteversion.

When using the curved or straight modular handle, place the appropriate threaded shaft into the handle through the hole in the strike plate of the straight modular handle (Figures 7 and 8), or the hole at the distal tip of the curved inserter handle (Figure 9).

Figure 10

Figure 11

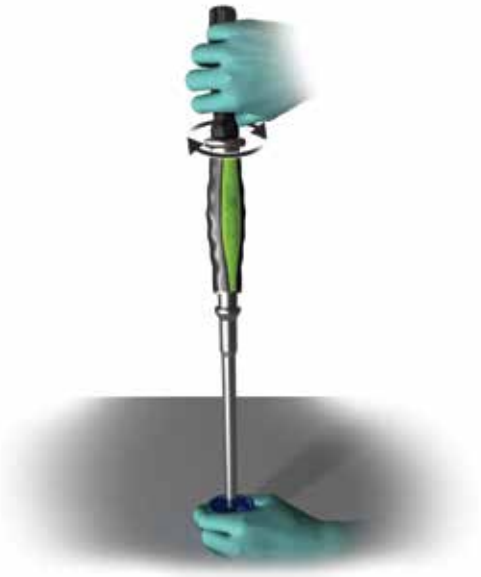


Figure 12

Optional Shell Trialing and Alignment (cont.)

Insert the ball hex driver into the hole in the strike plate of the straight handle or the hole at the distal tip of the curved handle and turn to advance the threaded shaft until the threads are exposed (Figures 10 and 11).

Line up the square tip of the insertion handle with the square at the apex of the shell trial. Turn the ball hex driver in a clockwise direction to advance the thread into the shell (Figures 10-12). Remove the ball hex driver from the handle. Ensure that the shell is securely fastened to the handle by lightly pulling on the provisional shell.

Approximate version can be obtained by using the transverse acetabular ligament or by referencing the opening of the acetabular component 90 degrees off of the sciatic notch. Alternatively, a positioning guide may be used.

Figure 13

Figure 14

Optional Shell Trialing and Alignment (cont.)

Positioning Guides

The Lateral and Anterior Supine G7™ positioning guides are designed to aid in proper insertion of the acetabular component.

Assemble the positioning guide on the back table before securing to the insertion handle. Connect the body of the positioning guide to the insertion handle by sliding the guide into the opening between the handle grip and shaft on the inserter handle. Slide the positioning guide into the flat opening on the guide body. When the guide is in place, tighten the positioning guide rod to secure the guide to the handle (Figure 14).

Lateral Guide

When positioning the acetabular shell, the **lateral** guide arms should be parallel to the table, aimed toward the patient's ipsilateral shoulder (Figure 13).

For the right hip, use the right part of the "V" shaped guide. For the left hip, use the left part of the "V" shaped guide (Figure 14).

Figure 15

Optional Shell Trialing and Alignment (cont.)

Supine Guide

When positioning the acetabular shell, the **anterior supine** positioning guide arms should be parallel to the table, aligned with the patient's spinal column (Figure 15).

For the right hip, use the left part of the "V" shaped guide. For the left hip, use the right part of the "V" shaped guide (Figure 15).

Note: The primary reference for acetabular shell position should be based on the patient's anatomy. These instruments rely significantly on patient position and are designed to be used only as a secondary verification. If at any time there is concern about acetabular position, the orientation may be verified with intraoperative fluoroscopy or with intraoperative radiographs. A true A/P pelvis without rotation is best indicated when the tip of the coccyx lines up with the pubic symphysis and is within 1-2 cm of the symphysis.

Figure 16

Figure 17

Optional Shell Trialing and Alignment (cont.)

Optional Shell Trialing

Lightly impact the provisional shell and confirm complete seating through the cutouts on the provisional shell (Figure 16). Remove any soft tissue or osteophytes from the acetabular rim that overhang the edge of the provisional component to obtain proper seating. If the provisional shell is unstable, or if there are gaps between the provisional shell and the acetabulum, it may be necessary to increase the diameter of the final grater reamer. However, in some instances it may not be possible to increase the reamed diameter. If this is the case, then supplementary screw fixation may be necessary. Disconnect the inserter handle from the provisional shell.

Liner Trialing with Provisional Shell

Following seating of the provisional shell, select the appropriate provisional liner size, as indicated alphabetically and by color, in the desired liner configuration.

Insert the provisional liner into the shell by hand. Utilize a 3.5 mm hex screwdriver to tighten the screw in the dome of the provisional liner into the apical hole of the provisional shell (Figure 17).

Note: Do not overtighten the provisional liner.

Figure 18

Figure 19

Trial Reduction and Range of Motion

Select the appropriate provisional head, head diameter and neck length to create equal leg length and needed lateralization as determined by the surgeon. These determinations can be made during preoperative templating, but final adjustments are made intraoperatively. Insert the provisional head onto the implanted stem or broach and reduce the hip (Figures 18 and 19).

Ensure the provisional head is seated fully on the trunnion. If using the G7™ self retaining provisional head in combination with a Biomet Type 1 reduced taper, two clicks are felt and/or heard when the provisional head is fully seated. Check for joint stability and range of motion, making any necessary adjustments to restore joint mechanics. Make certain that prominent impinging bone and/or osteophytes are removed from the periphery of the acetabulum to maximize range of motion and stability. Make note of all provisional components used and then remove all provisionals.

Figure 20

Figure 21

Figure 22

Acetabular Shell Insertion

Similar to provisional shell insertion, the same curved or straight handle may be used for the final implant shell insertion (Figure 20).

Note: Implants are packaged with the screw holes pre-plugged. Should screw fixation be necessary, the screw hole covers should be removed using a 3.5 mm hex driver prior to shell insertion.

When using the curved or straight handle, place the appropriate threaded shaft (Figures 21 and 22) into the handle through the hole in the strike plate of the straight handle, or the hole at the distal tip of the curved handle inserter.

Figure 23

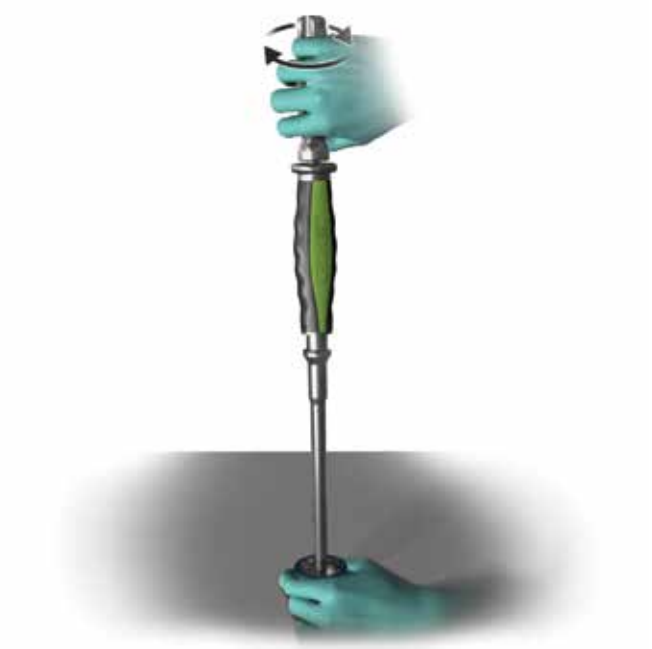


Figure 24

Acetabular Shell Insertion (cont.)

Insert the ball hex driver into the hole in the strike plate of the straight handle or the hole at the distal tip of the curved handle and turn to advance the threaded shaft until the threads are exposed. Line up the square tip of the insertion handle with the square indentation on the inside of the G7™ shell (Figure 23). Turn the ball hex driver in a clockwise direction to advance the thread into the shell (Figure 24).

Remove the ball hex driver from the handle. When the curved handle is used, **the curve of the insertion handle should line up with the screw holes on the shell**. Ensure the shell is securely fastened to the handle by lightly pulling on the shell.

Figure 25

Figure 26

Acetabular Shell Insertion (cont.)

Alternatively, each inserter handle may also be utilized to insert the shell with a face plate impactor. Select the appropriately sized impactor plate that matches alphabetically and by color to the implant. Thread the impactor plate onto the insertion handle with the word “insert” facing the user (Figure 25)

The face plate impactor will align with any of the anti-rotation tabs on the face of the shell for impaction. These plates may be used with or without the optional quick connect bolt, which threads onto the face plate impactor (Figure 26). This bolt then snaps into the apical hole of the implant to retain the shell on the face impactor. Once inserted, the face plate is disengaged from the shell by lightly pulling backwards.

Figure 27

Acetabular Shell Insertion (cont.)

Optional use of Positioning Guide

The Lateral and Anterior Supine G7™ positioning guides are designed to aid in proper insertion of the acetabular component. Utilizing the positioning guide as a reference, determine the correct position and alignment of the acetabular shell. See positioning guide section (Pages 10 and 11). In addition, approximate version can be obtained by using the transverse ligament or by referencing the opening of the acetabular component 90 degrees off of the sciatic notch. Position of the acetabular shell is crucial for optimizing wear, reducing impingement, reducing dislocation and reducing potential adverse outcomes.

Use a mallet to impact the handle on the strike plate, driving the shell into the acetabulum. While impacting, note the position of the screw holes to obtain the optimal position for screw placement, typically in the posterior/ superior quadrant of the acetabulum (Figure 27).

Gently toggle the insertion handle to make certain the shell is stable. Once the implant is fully seated, reinsert the ball hex driver and turn in a counter-clockwise direction to release the threads from the shell. If using an impactor plate, pull back gently from the shell to disengage the plate.

Check, through the apical hole, to determine whether the shell is in full contact with the floor of the acetabulum. If not, the impactor handle may be re-attached to the shell for further impaction, until the shell is fully seated. Failure to fully seat the shell into the acetabulum may compromise the quality of fixation. The force required to fully seat the implant depends on multiple factors including quality of bone, diameter of acetabulum and amount of underream.

Note: Levering on the inserter handle or impacting the handle on a location other than the strike plate to reposition the shell may damage the threads.

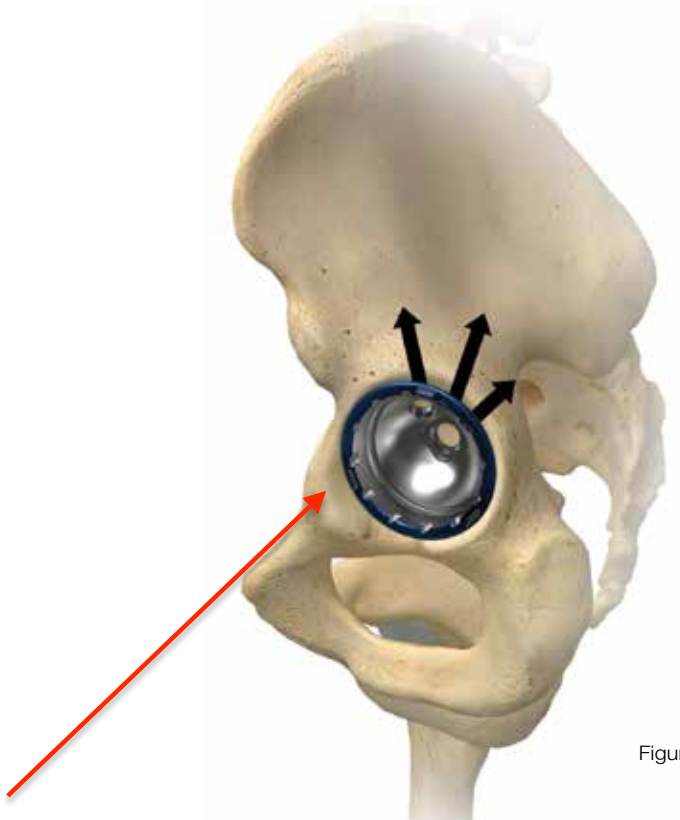


Figure 28

17. Gūžduobės komponento tvirtinimas sraigtais - komponentas uždarytomis 3 skylėmis, paruoštas esant poreikiui jas išsukti ir jų vietoje sriegti sraigtus

Supplemental Screw Fixation

For primary cases where good bone stock is present and the shell is firmly seated within the acetabulum, the use of fixation screws is generally unnecessary. However, in cases where press-fit stability is in question, where motion can be detected between the shell and the acetabulum, or where the bone quality is not optimal, supplementary screw fixation is advised.

Screw placement must be chosen carefully to avoid injury to neurovascular structures. Optimal position for screw placement is typically in the posterior/superior quadrant of the acetabulum (Figure 28). Care should also be exercised when supplementary screw fixation is required to avoid damaging or scratching the internal surfaces of the acetabular components.

Use of the gold screw alignment guide is required for accurate screw placement. Consideration should be given to placement of a screw hole near the dome of the implant first to prevent possible shifting of the implant caused when placing peripheral screws.

Note: Placement of screws outside of the “safe zone” may inadvertently injure neurovascular structures and should be utilized at the discretion of the operating surgeon. Screws should never be placed in the anterior/medial area of the acetabulum.

Vertimas

Pirminiais atvejais, kai yra geros kaulo atsargos, o apvalkalas tvirtai įsitaisęs acetabulumoje, fiksavimo varžtų naudoti paprastai nereikia. Tačiau tais atvejais, kai kyla abejonių dėl prispaudimo stabilumo, kai galima aptikti judesį tarp apvalkalo ir acetabulumo arba kai kaulo kokybė nėra optimali, rekomenduojamas papildomas varžtas.

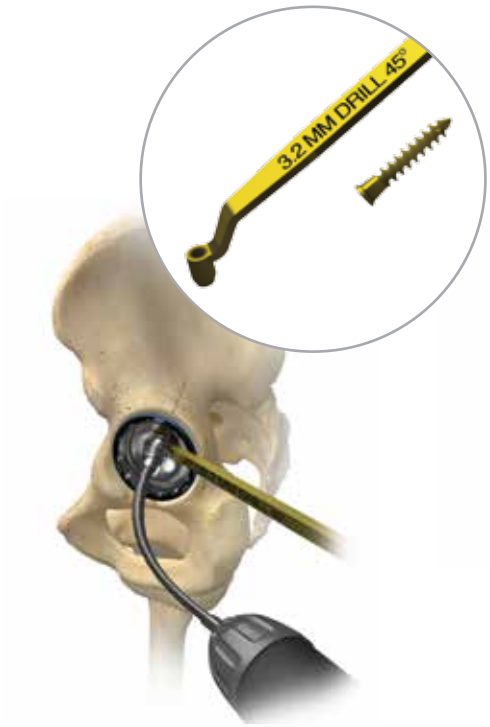


Figure 29

Figure 30

Figure 31

Supplemental Screw Fixation (cont.)

Use the gold screw alignment guide to drill a pilot hole in the desired screw hole (Figure 29). Make certain the screw alignment guide is fully seated within the screw hole so the appropriate screw direction can be achieved. The G7™ screw holes allow approximately 15 degrees of variability. Screws oriented outside this range may result in incomplete seating of the screws and prominent screw heads within the shell, which could impede insertion of the liner. When drilling into the posterior/superior quadrant, place a finger posteriorly into the sciatic notch to ensure the screw cannot penetrate too deeply.

The drill bits are available in variable lengths. However, 30 or 40 mm drill bits are most commonly utilized. The drill bit chosen should be dictated by surgeon choice and the projected length of the screws. To ensure proper seating of the G7™ acetabular screw after drilling pilot holes, it is important to remove all bone debris from the screw hole prior to placing the screw. After measuring the depth of the hole with the depth gauge (Figure 30), select the 6.5 mm gold colored screw with the corresponding length and insert it into the hole with the 3.5 mm hex screwdriver and screw forceps (Figure 31). Place additional screws as needed.

Note: Check that all screw heads are seated below the inner surface of the shell to ensure proper liner seating.

Note: Use only gold colored screws and the gold colored screw alignment guide with G7™ implants.

Figure 32

Figure 33

Optional Liner Trialing with Final Implant

Clean and dry the shell and clear all soft tissue from around its perimeter. If another trial reduction is desired, utilize the provisional liner colored to match the rim of the shell and previously selected during the earlier trial reduction. Insert the provisional liner into the shell by hand, utilizing a 3.5 mm hex screwdriver, tighten the screw in the dome of the provisional liner into the apical hole of the final implant (Figure 32).

Note: Do not overtighten the provisional liner.

Insert a provisional head onto the femoral stem and perform the trial reduction (Figure 33). When selection of the appropriate liner is complete, remove all provisional components.

When using a High Wall or 10 Degree Face Changing liner, note the position of the liner to maintain orientation during final seating or adjust rotation as necessary in order to minimize impingement and optimize stability.

Figure 34

Optional Apical Plug

If desired, the apical hole in the acetabular shell can be covered with the plug packaged with the implant. Place the apical hole plug on the 3.5 mm hex screwdriver. Align the plug with the apical hole and twist the screwdriver clockwise to tighten the plug (Figure 34). Placing a drop of blood on the end of the screwdriver prior to attaching it to the apical hole plug may aid in retention of the plug on the screwdriver tip.

G7™ Acetabular System

Neutral

High Wall

10 Degree Face Changing

Liner Options

Neutral Designed to provide maximum range of motion in a stable hip.

High Wall Designed to provide additional stability through positioning of a raised lip in the position where additional stability is required.

10 Degree Face Changing Designed for occasions when a vertically placed shell is present. May correct the abducted position slightly and provide a small degree of additional offset to restore joint mechanics.

Polyethylene liner and corresponding head sizing can be found in Figure 35.

G7™ Polyethylene Articulation					
Shell	Head Size				
	28	32	36	40	44
42 - A	A - 28				
44 - A					
46 - B	B - 28	B - 32			
48 - C	C - 28	C - 32			
50 - D	D - 28	D - 32	D - 36		
52 - E	E - 28	E - 32	E - 36		
54 - F	F - 28	F - 32	F - 36	F - 40	
56 - F					
58 - G	G - 28	G - 32	G - 36	G - 40	
60 - G					
62 - H		H - 32	H - 36	H - 40	H - 44
64 - H					
66 - I			I - 36	I - 40	I - 44
68 - I					
70 - I*					
72 - I*					
74 - J*			J - 36	J - 40	J - 44
76 - J*					
78 - J*					
80 - J*					

*Not available in limited hole configuration

Figure 35

10 Degree Leg Length Chart		
Size	Leg Length (mm)	Lateralization (mm)
A	1.9	2.3
B	2.2	2.5
C	2.3	2.7
D	2.4	2.8
E	2.7	3.2
F	2.6	3.1
G	2.7	3.2
H	2.9	3.4
I	3.1	3.7
J	3.4	4.1

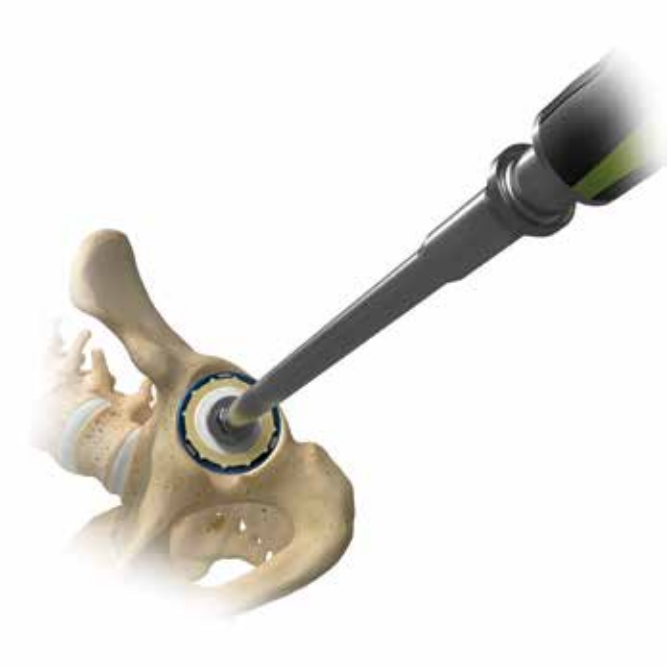


Figure 36

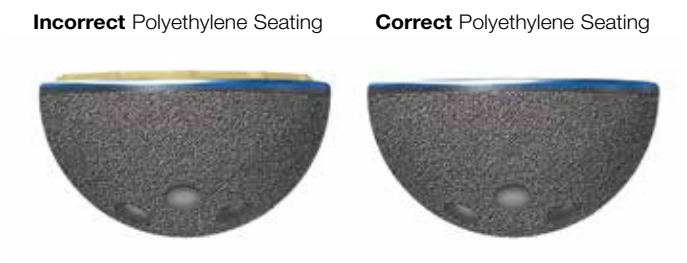


Figure 37

Polyethylene Liner Insertion and Removal

Polyethylene Liner Insertion

The definitive polyethylene liner may now be introduced. The color on the liner label should match the color anodized on the rim of the acetabular shell. Ensure the interior of the shell is dry and free of debris and overhanging soft tissue is removed. Manually place the liner into the shell, ensuring the scallops are correctly aligned with the recessed areas on the shell. Apply gentle manual pressure to the dome region to provisionally secure the liner in place by lightly engaging the scallops. Utilizing the appropriately sized liner impactor, place the tip of the impactor on the dome of the liner and strike the impactor with the mallet to ensure proper seating of the liner (Figure 36).

Check to ensure the liner is fully seated by running your finger around the face of the shell. When properly seated, the polyethylene liner and tabs will sit flush with, or slightly below, the face of the shell (Figure 37).

If incomplete seating occurs, continue to impact the liner in the center, do not impact the sides of the liner.

Note: The liner impactor is slightly undersized to prevent excessive forces at the rim that may cause polyethylene deformation and prevent full seating.

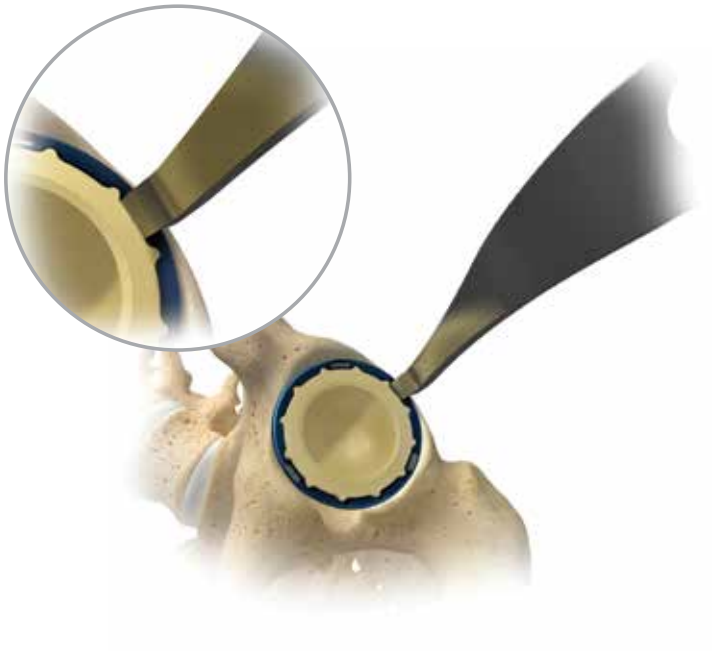


Figure 38

Figure 39

Polyethylene Liner Insertion and Removal (cont.)

Polyethylene Liner Removal

Should it be necessary to remove the liner from the shell, the polyethylene liner removal tool can be used to disassociate the liner. To remove the liner, insert the pointed tip of the liner removal tool between the liner and the shell with the tip positioned between the liner scallops. Tap the strike plate with a mallet several times, driving the wedge between the shell and liner (Figure 38).

Apply a lever force to the liner by pressing against the shaft of the liner removal tool.

It may be necessary to do this in several locations around the face of the shell to disengage the locking mechanism. The polyethylene liner should lever out of the shell once the locking mechanism has been disrupted.

Note: Avoid driving the metal tip along the tapered region of the shell to prevent damage to the taper during liner extraction.

Modular Head Selection and Impaction

With the definitive acetabular bearing in place, and upon completion of femoral implantation and trial reduction, the corresponding modular head can now be selected. Impact the selected modular head onto the stem to engage the morse taper with several moderate mallet strikes using the head impactor only.

Note: Ensure all taper surfaces are clean and dry before seating the modular head on the stem taper. It is important that the stem and head taper are new, as a used taper can reduce the fatigue strength of ceramic components without a titanium sleeve insert.

Final Reduction

Once all final implants have been placed, perform the final reduction of the hip. Check for joint stability and range of motion, making any necessary adjustments to restore joint mechanics (Figure 39).

Polyethylene Liner Thickness

20. Gūžduobės įdėklo galvos variacija - didelio diametro 36 mm gava tinkama naudoti nuo 50 mm dydžio gūžduobės komponento

≈ Minimum Poly Liner Thickness at 45° (mm)					
Shell Size	Head Size				
	28	32	36	40	44
42 - A	4.3				
44 - A					
46 - B	6.3	4.3			
48 - C	7.3	5.3			
50 - D	8.3	6.3	4.3		
52 - E	9.3	7.3	5.3		
54 - F	10.3	8.3	6.3	4.3	
56 - F					
58 - G	11.3	9.3	7.3	5.3	
60 - G					
62 - H		11.3	9.3	7.3	5.3
64 - H					
66 - I			11.3	9.3	7.3
68 - I					
*70 - I					
*72 - I					
*74 - J			14.3	12.3	10.3
*76 - J					
*78 - J					
*80 - J					

≈ Minimum Poly Liner Thickness at Apex (mm)					
Shell Size	Head Size				
	28	32	36	40	44
42 - A	4.7				
44 - A					
46 - B	6.7	4.7			
48 - C	7.7	5.7			
50 - D	8.7	6.7	4.7		
52 - E	9.7	7.7	5.7		
54 - F	10.7	8.7	6.7	4.7	
56 - F					
58 - G	11.7	9.7	7.7	5.7	
60 - G					
62 - H		11.7	9.7	7.7	5.7
64 - H					
66 - I			11.7	9.7	7.7
68 - I					
*70 - I					
*72 - I					
*74 - J			14.7	12.7	10.7
*76 - J					
*78 - J					
*80 - J					

Apex

*Not available in limited hole configuration

Inserter Handle Assembly/Disassembly

Figure 40

Figure 41

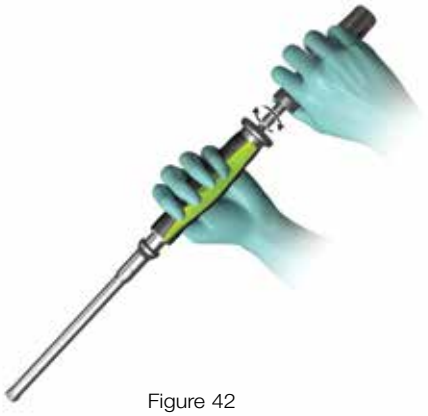


Figure 42

Figure 43

Straight Inserter Handle Assembly/Disassembly

Insertion handles are available in both curved and straight designs for ease of use, to limit modularity and to allow appropriate and thorough cleaning of instrumentation.

Step 1: Obtain the straight inserter handle body and threaded shaft (Figure 40).

Step 2: Insert the threaded shaft into the hole in the strike plate of the straight inserter handle body (Figure 41).

Step 3: Insert the ball hex driver into the hole in the strike plate of the straight inserter handle body. Turn clockwise to advance the threads of the internal shaft through the tip of the impaction handle (Figure 42).

Step 4: To disassemble for cleaning, place a 3.5 mm hex screwdriver in the tip of the threaded shaft. Turn the screwdriver clockwise while pushing lightly to disengage the threaded shaft from the handle (Figure 43).

Figure 44

Figure 45

Figure 46

Figure 47

Curved Inserter Handle Assembly/Disassembly

Step 1: Obtain the curved inserter handle body and the threaded insert (Figure 44).

Step 2: Place the threaded insert into the tip of the handle body (Figure 45).

Step 3: Insert the ball hex driver into the hole in the tip of the curved handle as shown. The handle is designed to allow the user to angle the ball hex driver away from the inserter handle grip. Turn clockwise to advance the threads of the internal shaft through the tip of the impaction handle (Figure 46).

Step 4: To disassemble for cleaning, place a 3.5 mm hex screwdriver in the tip of the threaded insert. Turn the screwdriver clockwise while pushing lightly to disengage the insert (Figure 47).

G7™ Acetabular System

22. Gūžduobių dydžių variacija – 14 dydžių

Implants

Product	Part Number	Description	Diameter	Size/Offset
	010000658	PPS® Limited Hole Acetabular Shell	42 mm	A
	010000659		44 mm	A
	010000660		46 mm	B
	010000661		48 mm	C
	010000662		50 mm	C
	010000663		52 mm	E
	010000664		54 mm	F
	010000665		56 mm	F
	010000666		58 mm	G
	010000667		60 mm	G
	010000668		62 mm	H
	010000669		64 mm	H
	010000670		66 mm	I
	010000671		68 mm	I

17. Gūžduobės komponento tvirtinimas sraigtais - komponentas uždarytomis 3 skylėmis, paruoštas esant poreikiui jas išsukti ir jų vietoje sriegti sraigtus.

Implants

Product	Part Number	Description	Diameter	Size/Offset
	010000718	Neutral ArComXL® Liner	28 mm	A
	010000719			B
	010000720			C
	010000721			D
	010000722			E
	010000723			F
	010000724			G
	010000729	Neutral ArComXL® Liner	32 mm	B
	010000730			C
	010000731			D
	010000732			E
	010000733			F
	010000734			G
	010000735			H
	010000739	Neutral ArComXL® Liner	36 mm	D
	010000740			E
	010000741			F
	010000742			G
	010000743			H
	010000744			I
	010000747	Neutral ArComXL® Liner	40 mm	F
	010000748			G
	010000749			H
	010000750			I
	010000753	Neutral ArComXL® Liner	44 mm	H
	010000754			I

G7™ Acetabular System

Implants

Product	Part Number	Description	Diameter	Size/Offset
	010000835	Neutral E1® Liner	28 mm	A
	010000836			B
	010000837			C
	010000838			D
	010000839			E
	010000840			F
	010000841			G
	010000846	Neutral E1® Liner	32 mm	B
	010000847			C
	010000848			D
	010000849			E
	010000850			F
	010000851			G
	010000852			H
	010000856	Neutral E1® Liner	36 mm	D
	010000857			E
	010000858			F
	010000859			G
	010000860			H
	010000861			I
	010000864	Neutral E1® Liner	40 mm	F
	010000865			G
	010000866			H
	010000867			I
	010000870	Neutral E1® Liner	44 mm	H
	010000871			I

18. Gūžduobės įdėklo medžiaga– E1 vitaminizuotas ultraaukštos molekulinės masės polietilenas (UHMWPE)

Implants

Product	Part Number	Description	Diameter	Size/Offset
	010000796	High Wall ArComXL® Liner	28 mm	A
	010000797			B
	010000798			C
	010000799			D
	010000800			E
	010000801			F
	010000802			G
	010000807	High Wall ArComXL® Liner	32 mm	B
	010000808			C
	010000809			D
	010000810			E
	010000811			F
	010000812			G
	010000813			H
	010000817	High Wall ArComXL® Liner	36 mm	D
	010000818			E
	010000819			F
	010000820			G
	010000821			H
	010000822			I
	010000825	High Wall ArComXL® Liner	40 mm	F
	010000826			G
	010000827			H
	010000828			I
	010000831	High Wall ArComXL® Liner	44 mm	H
	010000832			I

G7™ Acetabular System

Implants

Product	Part Number	Description	Diameter	Size/Offset
	010000913	High Wall E1® Liner	28 mm	A
	010000914			B
	010000915			C
	010000916			D
	010000917			E
	010000918			F
	010000919			G
	010000924	High Wall E1® Liner	32 mm	B
	010000925			C
	010000926			D
	010000927			E
	010000928			F
	010000929			G
	010000930			H
	010000934	High Wall E1® Liner	36 mm	D
	010000935			E
	010000936			F
	010000937			G
	010000938			H
	010000939			I
	010000942	High Wall E1® Liner	40 mm	F
	010000943			G
	010000944			H
	010000945			I
	010000948	High Wall E1® Liner	44 mm	H
	010000949			I

Implants

Product	Part Number	Description	Diameter	Size/Offset
	010000757	10 Degree Face Changing ArComXL® Liner	28 mm	A
	010000758			B
	010000759			C
	010000760			D
	010000761			E
	010000762			F
	010000763			G
	010000768	10 Degree Face Changing ArComXL® Liner	32 mm	B
	010000769			C
	010000770			D
	010000771			E
	010000772			F
	010000773			G
	010000774			H
	010000778	10 Degree Face Changing ArComXL® Liner	36 mm	D
	010000779			E
	010000780			F
	010000781			G
	010000782			H
	010000783			I
	010000786	10 Degree Face Changing ArComXL® Liner	40 mm	F
	010000787			G
	010000788			H
	010000789			I
	010000792	10 Degree Face Changing ArComXL® Liner	44 mm	H
	010000793			I

G7™ Acetabular System

Implants

Product	Part Number	Description	Diameter	Size/Offset
	010000874	10 Degree Face Changing E1® Liner	28 mm	A
	010000875			B
	010000876			C
	010000877			D
	010000878			E
	010000879			F
	010000880			G
	010000885	10 Degree Face Changing E1® Liner	32 mm	B
	010000886			C
	010000887			D
	010000888			E
	010000889			F
	010000890			G
	010000891			H
	010000895	10 Degree Face Changing E1® Liner	36 mm	D
	010000896			E
	010000897			F
	010000898			G
	010000899			H
	010000900			I
	010000903	10 Degree Face Changing E1® Liner	40 mm	F
	010000904			G
	010000905			H
	010000906			I
	010000909	10 Degree Face Changing E1® Liner	44 mm	H
	010000910			I
	010000982	Freedom® Constrained E1® Liner	36 mm	D
	010000983			E
	010000984			F
	010000985			G
	010000986			H
	010000987			I

Implants

Product	Part Number	Description	Diameter	Size/Offset
	**010000994**	Apical Hole Plug		
	**010000995**	Screw Hole Plug		
	**010000996**	G7™ Low Profile Dome Screw		6.5 mm x 15 mm
	010000997			6.5 mm x 20 mm
	010000998			6.5 mm x 25 mm
	010000999			6.5 mm x 30 mm
	010001000			6.5 mm x 35 mm
	010001001			6.5 mm x 40 mm
	010001002			6.5 mm x 45 mm
	010001003			6.5 mm x 50 mm
	010001004			6.5 mm x 60 mm
	010001005			6.5 mm x 70 mm

21. Gūžduobės sraigtai gūžduobės fiksavimui - 6 ilgių

G7™ Acetabular System

Implants

Product	Part Number	Description	Diameter	Size/Offset
	163666	Type 1 CoCr Femoral Head	28 mm	+12 mm*
	163665			+9 mm*
	163638			+6 mm
	163663			+3 mm
	163662			Std (0 mm)
	163661			-3 mm
	163660			-6 mm
	163673	Type 1 CoCr Femoral Head	32 mm	+12 mm*
	163672			+9 mm*
	163674			+6 mm
	163670			+3 mm
	163669			Std (0 mm)
	163668			-3 mm
	163667			-6 mm
	11-363666	Type 1 CoCr Femoral Head	36 mm	+12 mm*
	11-363665			+9 mm
	11-363664			+6 mm
	11-363663			+3 mm
	11-363662			Std (0 mm)
	11-363661			-3 mm
	11-363660			-6 mm
	010001031	Type 1 CoCr Femoral Head	40 mm	+12 mm*
	010001032			+9 mm
	010001033			+6 mm
	010001034			+3 mm
	010001035			Std (0 mm)
	010001036			-3 mm
	010001037			-6 mm
	010001038	Type 1 CoCr Femoral Head	44 mm	+12 mm
	010001039			+9 mm
	010001040			+6 mm
	010001041			+3 mm
	010001042			Std (0 mm)
	010001043			-3 mm
	010001044			-6 mm

* Skirted

Implants

Std (0 mm)	Part Number	Description	Diameter	Size/Offset
	14-107021	Type 12/14 Freedom® CoCr Modular Head	36 mm	+9 mm
	14-107020			+6 mm
	14-107019			+3 mm
	14-107018			Std (0 mm)
	14-107017			-3 mm
	14-107016			-6 mm
	11-107021	Type 1 Freedom® CoCr Modular Head	36 mm	+9 mm
	11-107020			+6 mm
	11-107019			+3 mm
	11-107018			Std (0 mm)
	11-107017			-3 mm
	11-107016			-6 mm

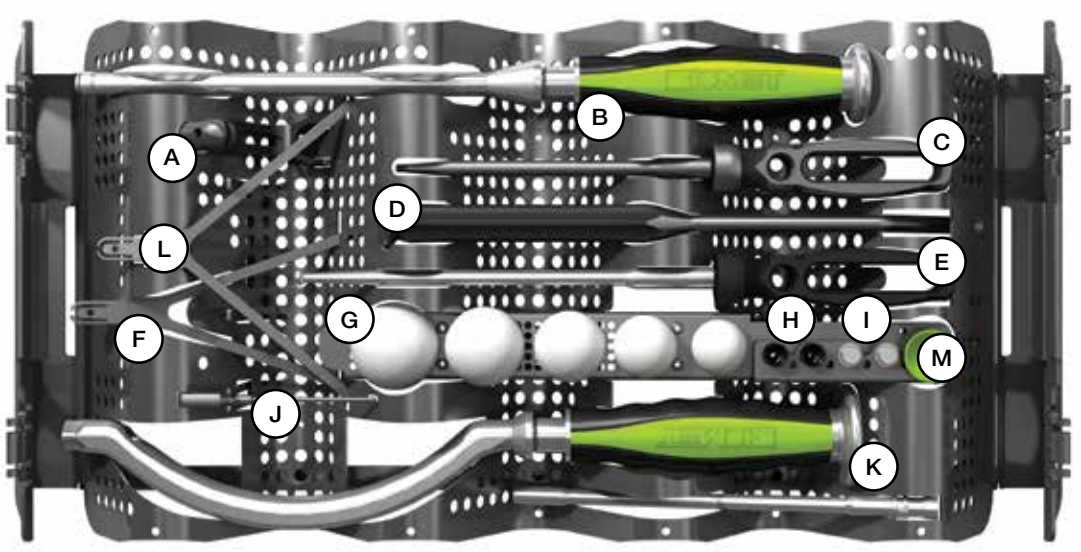
Implants

Product	Part Number	Description	Diameter	Size/Offset
	650-1055	Biolox® *delta* Option Head	28 mm	
	650-1056		32 mm	
	650-1057		36 mm	
	650-1058		40 mm	
	650-1059		44 mm	
	650-1068	Type 1 Taper Sleeve for Biolox® *delta* Option		+6 mm
	650-1067			+3 mm
	650-1066			0 mm
	650-1065			-3 mm
	650-1064			-6 mm
	650-1063	Type 12/14 Taper Sleeve for Biolox® *delta* Option		+7 mm
	650-1062			+4 mm
	650-1061			0 mm
	650-1060			-3 mm
	650-1157	Type 1 Biolox® *delta* Ceramic Modular Heads	28 mm	+3 mm
	650-1158			0 mm
	650-1159			-3 mm
	650-1160	Type 1 Biolox® *delta* Ceramic Modular Heads	32 mm	+6 mm
	650-1161			+3 mm
	650-1162			0 mm
	650-1163			-3 mm
	650-0663	Type 1 Biolox® *delta* Ceramic Modular Heads	36 mm	+6 mm
	650-0662			+3 mm
	650-0661			0 mm
	650-0660			-3 mm

11. Šlaunikaulio galvos diametras – 28 mm, 32 mm ir 36 mm.
12. Šlaunikaulio galvos medžiaga – Delta keramika
13. Šlaunikaulio galvutės kaklo ilgio variacija – 3

G7™ Acetabular System

G7™ instrument cases will be shipped with all instruments included under one kit number, unless noted as optional.



110005146 G7™ Impaction Instrument Kit (Instruments Included)

Product	Label	Part Number	Description	Quantity
	A	**110003500**	Positioning Guide Post	1
	B	**110003450**	Straight Monoblock Acetabular Shell Inserter	1
	C	**110003330**	Monoblock Hex Screwdriver 3.5 mm	1
	D	**010002745**	Bent Shell Gauge / Suction Cup Handle	1
	E	**010002736**	Ball Hex Driver for Inserter Handles	1
	F	**110003456**	Lateral Positioning Guide	1
	G	**010002724**	Ball Impactor for 28 mm ID Liners	1
		010002725	Ball Impactor for 32 mm ID Liners	1
		010002726	Ball Impactor for 36 mm ID Liners	1
		010002727	Ball Impactor for 40 mm ID Liners	1
		010002728	Ball Impactor for 44 mm ID Liners	1
	H	**110003454**	Curved Inserter Threaded Shaft	2
	I	**010002723**	Face Plate Quick Connect	2
	J	**110003458**	Positioning Guide Rod	1

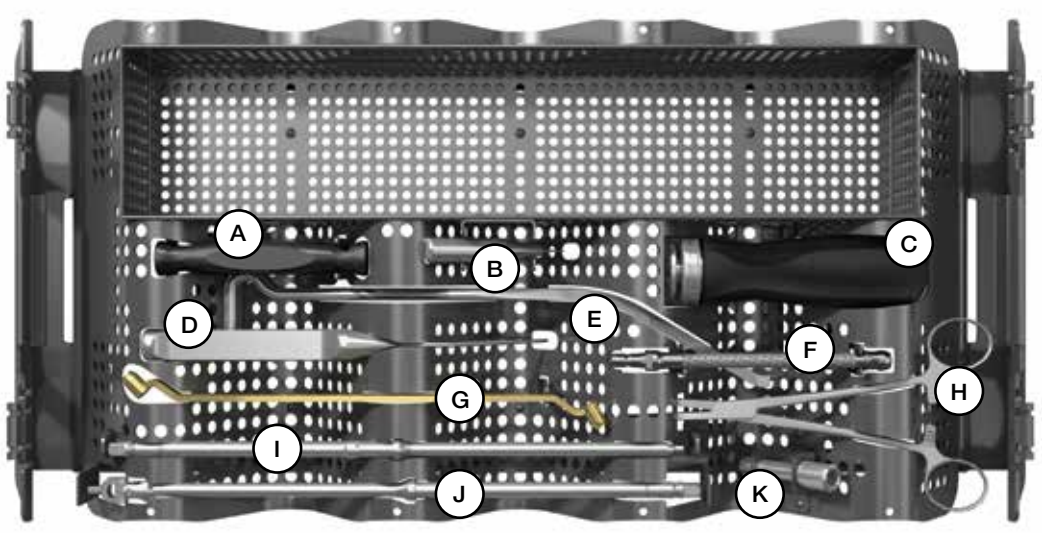
110005146 G7™ Impaction Instrument Kit (Instruments Included cont.)

Product	Label	Part Number	Description	Quantity
	K	**110003453**	Curved Acetabular Shell Inserter	1
		110002772	G7™ Impaction Instrument Tray (Empty)	1

Optional G7™ Impaction Instruments

Product	Label	Part Number	Description	Quantity
		**110003451**	Straight Modular Inserter Handle (must be ordered with 110003452)	1
		**110003452**	Straight Inserter Handle Threaded Shaft (must be ordered with 110003451)	1
	L	**110003455**	Anterior Supine Positioning Guide	1
	M	**010002744**	Suction Cup	1

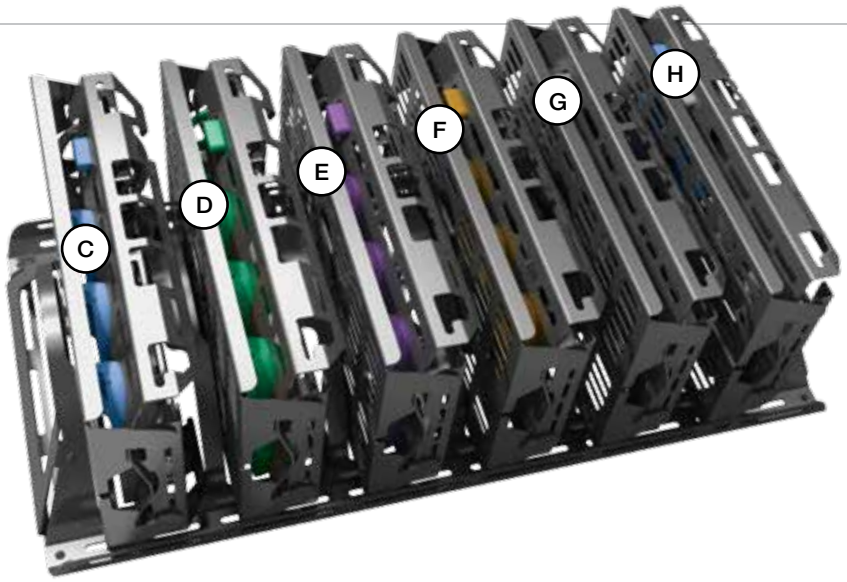
G7™ Acetabular System



110010207 G7™ Screw Instrument Kit (Instruments Included)

Product	Label	Part Number	Description
	A	**010002750**	Screwdriver Sleeve
	B	**31-478350**	Thread Extractor
	C	**110003457**	Ratcheting Screwdriver Handle
	D	**110010717**	Depth Gauge
	E	**110003501**	Polyethylene Liner Removal Tool
	F	**31-424204**	Flexible Drill Shaft
	G	**110010721**	Dual Angle Drill Guide
	H	**424417**	Screw Forceps
	I	**010002749**	Straight Modular Screwdriver 3.5 mm
	J	**010002748**	U-Joint Modular Screwdriver 3.5 mm
	K	**31-302003**	3/8 Shell Extractor
		110002771	G7™ Screw Instrument Tray (Empty)

Note: The following items were sterile validated in the Miscellaneous Bin on the Screw Instrument Tray:
Head Provisionals, Liner Provisionals, Liner Provisional Screws

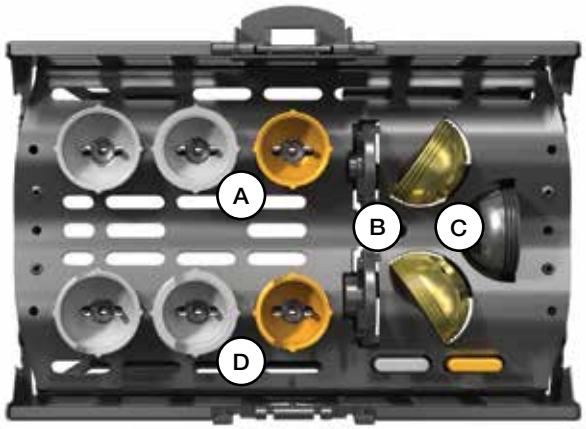


110010224 Patient-Specific Mini Tray Provisional Kit (Instruments Included)

Label	Part Number/Color	Description
C	**Blue**	Patient-Specific Mini Tray Size C
D	**Green**	Patient-Specific Mini Tray Size D
E	**Purple**	Patient-Specific Mini Tray Size E
F	**Yellow**	Patient-Specific Mini Tray Size F
G	**Grey**	Patient-Specific Mini Tray Size G
H	**Blue**	Patient-Specific Mini Tray Size H
	110002770	Patient-Specific Mini Tray Rack (empty)

Detail of contents included on following pages.

G7™ Acetabular System

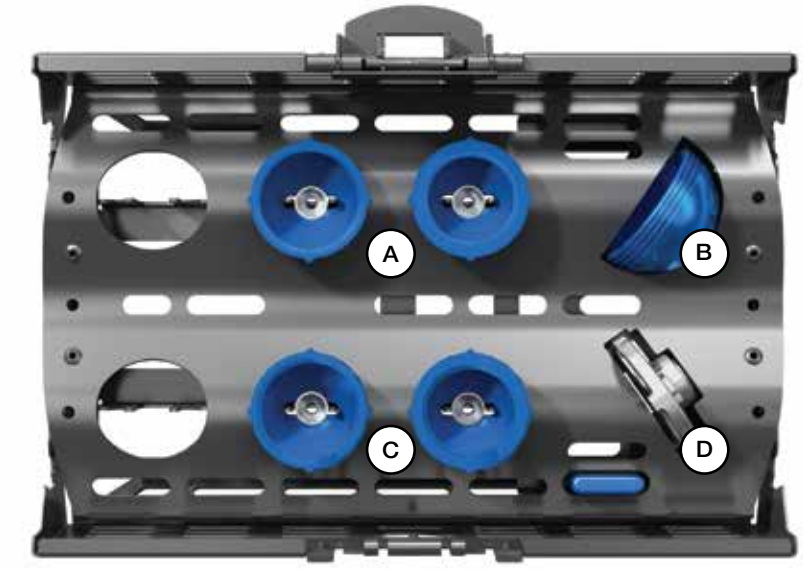


110010212 Micro Size A/B Patient-Specific Mini Tray

Product	Label	Part Number	Description
		110004130	G7™ Size A/B Provisional Caddy (Empty)
	A	**010002611**	Provisional Neutral Liner 28 mm A
		**010002612**	Provisional Neutral Liner 28 mm B
		010002621	Provisional Neutral Liner 32 mm B
	B	**010002713**	Face Plate Impactor Size A
		**010002714**	Face Plate Impactor Size B
	C	**010002442**	Provisional Shell 41 mm A
		010002444	Provisional Shell 43 mm B
		**010002446**	Provisional Shell 45 mm
	D	**010002645**	Provisional High Wall Liner 28 mm A
		**010002646**	Provisional High Wall Liner 28 mm B
		010002655	Provisional High Wall Liner 32 mm B

Micro Size A/B Patient-Specific Mini Tray - Optional Instruments

Product	Part Number	Description
	**010002679**	Provisional 10 Degree Liner 28 mm A
	**010002680**	Provisional 10 Degree Liner 28 mm B
	010002689	Provisional 10 Degree Liner 32 mm B



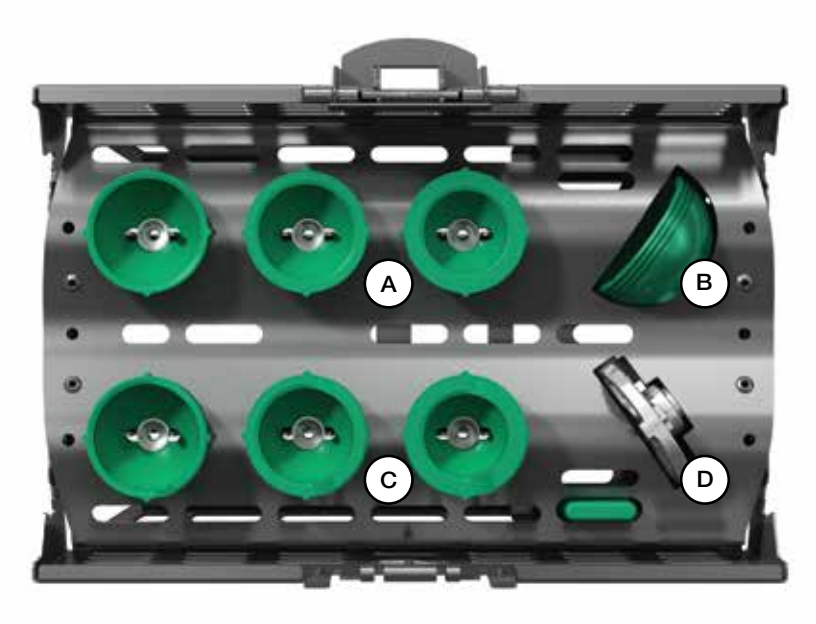
Size C Patient-Specific Mini Tray

Product	Label	Part Number	Description
	A	**010002613**	Provisional Neutral Liner 28 mm C
		010002622	Provisional Neutral Liner 32 mm C
	B	**010002448**	Provisional Shell 47 mm C
	C	**010002647**	Provisional High Wall Liner 28 mm C
		010002656	Provisional High Wall Liner 32 mm C
	D	**010002715**	Face Plate Impactor Size C
		110002763	G7™ Size C Patient-Specific Mini Tray (Empty)

Size C Patient-Specific Mini Tray - Optional Instruments

Product	Part Number	Description
	**010002681**	Provisional 10 Degree Liner 28 mm C
	010002690	Provisional 10 Degree Liner 32 mm C

G7™ Acetabular System



Size D Patient-Specific Mini Tray

Product	Label	Part Number	Description
	A	**010002614**	Provisional Neutral Liner 28 mm D
		010002623	Provisional Neutral Liner 32 mm D
		010002630	Provisional Neutral Liner 36 mm D
	B	**010002450**	Provisional Shell 49 mm D
	C	**010002648**	Provisional High Wall Liner 28 mm D
		010002657	Provisional High Wall Liner 32 mm D
		010002664	Provisional High Wall Liner 36 mm D
	D	**010002716**	Face Plate Impactor Size D
		110002764	G7™ Size D Patient-Specific Mini Tray (Empty)

Size D Patient-Specific Mini Tray - Optional Instruments

Product	Part Number	Description
	**010002682**	Provisional 10 Degree Liner 28 mm D
	010002691	Provisional 10 Degree Liner 32 mm D
	010002698	Provisional 10 Degree Liner 36 mm D
	**010002604**	Provisional Freedom® Constrained Liner 36 mm D

Size E Patient-Specific Mini Tray

Product	Label	Part Number	Description
	A	**010002615**	Provisional Neutral Liner 28 mm E
		010002624	Provisional Neutral Liner 32 mm E
		010002631	Provisional Neutral Liner 36 mm E
	B	**010002452**	Provisional Shell 51 mm E
	C	**010002649**	Provisional High Wall Liner 28 mm E
		010002658	Provisional High Wall Liner 32 mm E
		010002665	Provisional High Wall Liner 36 mm E
	D	**010002717**	Face Plate Impactor Size E
		110002765	G7™ Size E Patient-Specific Mini Tray (Empty)

Size E Patient-Specific Mini Tray - Optional Instruments

Product	Part Number	Description
	**010002683**	Provisional 10 Degree Liner 28 mm E
	010002692	Provisional 10 Degree Liner 32 mm E
	010002699	Provisional 10 Degree Liner 36 mm E
	**010002605**	Provisional Freedom® Constrained Liner 36 mm E

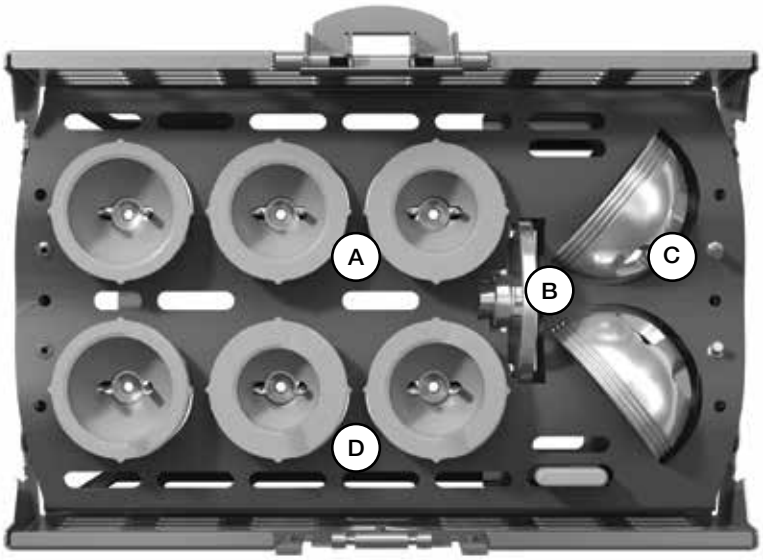
G7™ Acetabular System

Size F Patient-Specific Mini Tray

Product	Label	Part Number	Description
	A	**010002616**	Provisional Neutral Liner 28 mm F
		010002625	Provisional Neutral Liner 32 mm F
		010002632	Provisional Neutral Liner 36 mm F
	B	**010002718**	Face Plate Impactor Size F
	C	**010002454**	Provisional Shell 53 mm F
		010002456	Provisional Shell 55 mm F
	D	**010002650**	Provisional High Wall Liner 28 mm F
		010002659	Provisional High Wall Liner 32 mm F
		010002666	Provisional High Wall Liner 36 mm F
		110002766	G7™ Size F Provisional Patient-Specific Mini Tray (Empty)

Size F Patient-Specific Mini Tray - Optional Instruments

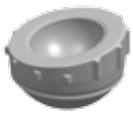
Product	Part Number	Description
	**010002684**	Provisional 10 Degree Liner 28 mm F
	010002693	Provisional 10 Degree Liner 32 mm F
	010002700	Provisional 10 Degree Liner 36 mm F
	**010002606**	Provisional Freedom® Constrained Liner 36 mm F



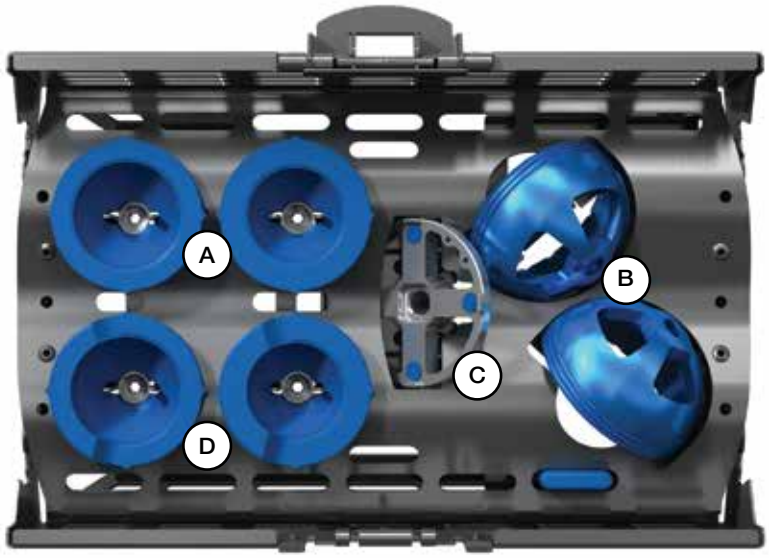
Size G Patient-Specific Mini Tray

Product	Label	Part Number	Description
	A	**010002617**	Provisional Neutral Liner 28 mm G
		010002626	Provisional Neutral Liner 32 mm G
		010002633	Provisional Neutral Liner 36 mm G
	B	**010002719**	Face Plate Impactor Size G
	C	**010002458**	Provisional Shell 57 mm G
		010002460	Provisional Shell 59 mm G
	D	**010002651**	Provisional High Wall Liner 28 mm G
		010002660	Provisional High Wall Liner 32 mm G
		010002667	Provisional High Wall Liner 36 mm G
		110002767	G7™ Size G Patient-Specific Mini Tray (Empty)

Size G Patient-Specific Mini Tray - Optional Instruments

Product	Part Number	Description
	**010002685**	Provisional 10 Degree Liner 28 mm G
	010002694	Provisional 10 Degree Liner 32 mm G
	010002701	Provisional 10 Degree Liner 36 mm G
	**010002607**	Provisional Freedom® Constrained Liner 36 mm G

G7™ Acetabular System

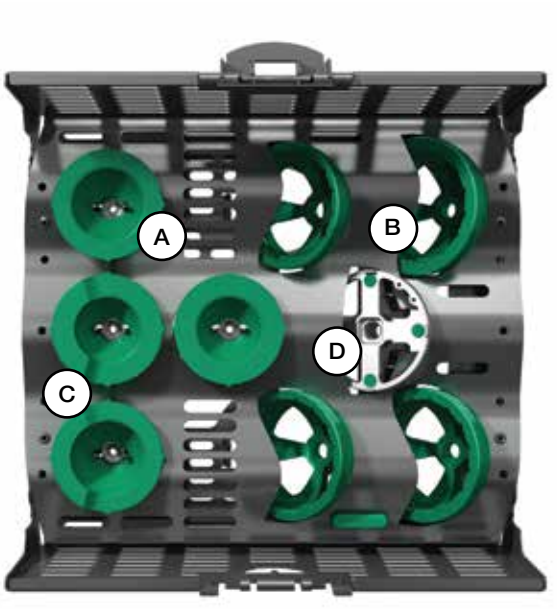


Size H Patient-Specific Mini Tray

Product	Label	Part Number	Description
	A	**010002627**	Provisional Neutral Liner 32 mm H
		010002634	Provisional Neutral Liner 36 mm H
	B	**010002462**	Provisional Shell 61 mm H
		010002464	Provisional Shell 63 mm H
	C	**010002720**	Face Plate Impactor Size H
	D	**010002661**	Provisional High Wall Liner 32 mm H
		010002668	Provisional High Wall Liner 36 mm H
		110004131	G7™ Size H Patient-Specific Mini Tray (Empty)

Size H Patient-Specific Mini Tray - Optional Instruments

Product	Part Number	Description
	**010002695**	Provisional 10 Degree Liner 32 mm H
	010002702	Provisional 10 Degree Liner 36 mm H
	**010002608**	Provisional Freedom® Constrained Liner 36 mm H



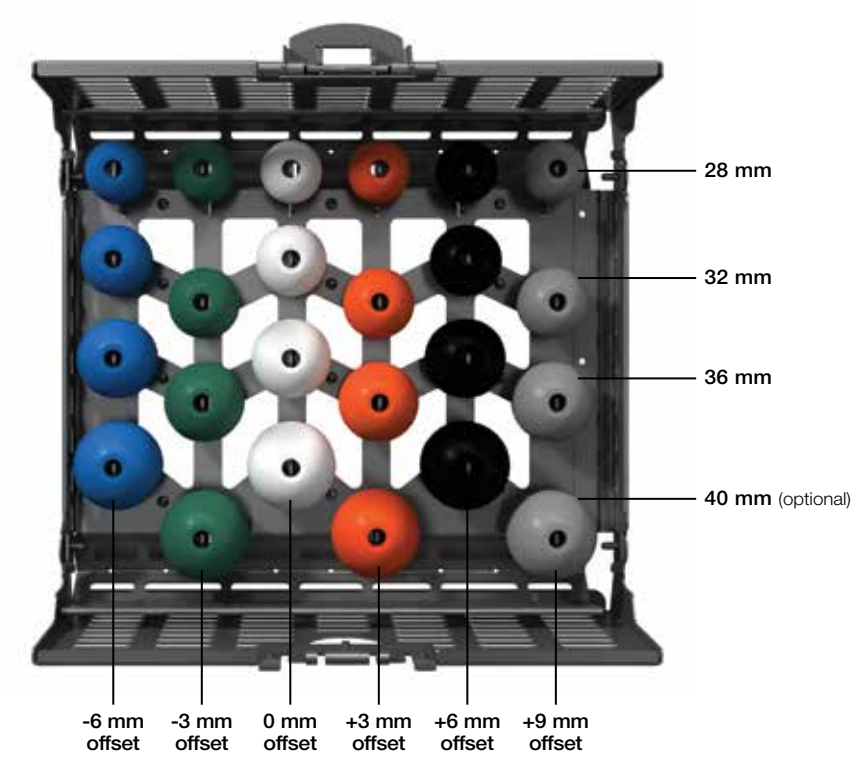
Macro Size I Patient-Specific Mini Tray

Product	Label	Part Number	Description
	B	**010002466**	Provisional Shell 65 mm I
		010002468	Provisional Shell 67 mm I
		010002470	Provisional Shell 69 mm I
		010002472	Provisional Shell 71 mm I
	D	**010002721**	Face Plate Impactor Size I
	A	**010002628**	Provisional Neutral Liner 32 mm I
		010002635	Provisional Neutral Liner 36 mm I
	C	**010002662**	Provisional High Wall Liner 32 mm I
		010002669	Provisional High Wall Liner 36 mm I
		110004132	G7™ Size I Patient-Specific Mini Tray (Empty)

Macro Size I Patient-Specific Mini Tray - Optional Instruments

Product	Part Number	Description
	**010002696**	Provisional 10 Degree Liner 32 mm I
	010002703	Provisional 10 Degree Liner 36 mm I
	**010002609**	Provisional Freedom® Constrained Liner 36 mm I

G7™ Acetabular System



110010211 28/32/36 mm Head Provisional Type 1 Half Tray Kit (Instruments Included)

Part Number	Description	Offset
110002768	Head Provisional Type 1 Half Tray (Empty)	
010002486	28 mm Type 1 Provisional Head	+9 mm
010002487		+6 mm
010002488		+3 mm
010002489		Std (0 mm)
010002490		-3 mm
010002491		-6 mm
010002493	32 mm Type 1 Provisional Head	+9 mm
010002494		+6 mm
010002495		+3 mm
010002496		Std (0 mm)
010002497		-3 mm
010002498		-6 mm
010002500	36 mm Type 1 Provisional Head	+9 mm
010002501		+6 mm
010002502		+3 mm
010002503		Std (0 mm)
010002504		-3 mm
010002505		-6 mm

Optional Instruments

Part Number	Description	Offset
010002485	28 mm Type 1 Provisional Head	+12 mm
010002492	32 mm Type 1 Provisional Head	+12 mm
010002499	36 mm Type 1 Provisional Head	+12 mm
010002506	40 mm Type 1 Provisional Head	+12 mm
010002507		+9 mm
010002508		+6 mm
010002509		+3 mm
010002510		Std (0 mm)
010002511		-3 mm
010002512		-6 mm
010002513	44 mm Type 1 Provisional Head	+12 mm
010002514		+9 mm
010002515		+6 mm
010002516		+3 mm
010002517		Std (0 mm)
010002518		-3 mm
010002519		-6 mm

G7™ Acetabular System Instrument Appendix

G7™ instrumentation will be shipped with all instruments included under one kit part number, unless otherwise noted as optional.

To simplify the ordering process, G7™ instrumentation not shipped in an instrumentation case may arrive grouped together in a provisional pack. The following tables provide reference for pack contents.

110010215 G7™ Freedom® Provisional Liner Pack D-I 36 mm

Description
Provisional Freedom® Constrained Liner 36 mm D
Provisional Freedom® Constrained Liner 36 mm E
Provisional Freedom® Constrained Liner 36 mm F
Provisional Freedom® Constrained Liner 36 mm G
Provisional Freedom® Constrained Liner 36 mm H
Provisional Freedom® Constrained Liner 36 mm I

110010942 G7™ 10 Degree Macro Provisional Liner Pack I 32/36 mm

Description
Provisional 10 Degree Liner 32 mm I
Provisional 10 Degree Liner 36 mm I

110010945 G7™ Neutral/High Wall Provisional Liner Pack H-I 44 mm

Description
Provisional Neutral Liner 44 mm H
Provisional Neutral Liner 44 mm I
Provisional High Wall Liner 44 mm H
Provisional High Wall Liner 44 mm I

G7™ Acetabular System Instrument Appendix

110010940 G7™ 10 Degree Provisional Liner Pack C-H 28/32/36 mm

Description
Provisional 10 Degree Liner 28 mm C
Provisional 10 Degree Liner 28 mm D
Provisional 10 Degree Liner 28 mm E
Provisional 10 Degree Liner 28 mm F
Provisional 10 Degree Liner 28 mm G
Provisional 10 Degree Liner 32 mm C
Provisional 10 Degree Liner 32 mm D
Provisional 10 Degree Liner 32 mm E
Provisional 10 Degree Liner 32 mm F
Provisional 10 Degree Liner 32 mm G
Provisional 10 Degree Liner 32 mm H
Provisional 10 Degree Liner 36 mm D
Provisional 10 Degree Liner 36 mm E
Provisional 10 Degree Liner 36 mm F
Provisional 10 Degree Liner 36 mm G
Provisional 10 Degree Liner 36 mm H

110010941 G7™ 10 Degree Micro Provisional Liner Pack A-B 28/32 mm

Description
Provisional 10 Degree Liner 28 mm A
Provisional 10 Degree Liner 28 mm B
Provisional 10 Degree Liner 32 mm B

110010943 G7™ Neutral/High Wall Provisional Liner Pack F-I 40 mm

Description
Provisional Neutral Liner 40 mm F
Provisional Neutral Liner 40 mm G
Provisional Neutral Liner 40 mm H
Provisional Neutral Liner 40 mm I
Provisional High Wall Liner 40 mm F
Provisional High Wall Liner 40 mm G
Provisional High Wall Liner 40 mm H
Provisional High Wall Liner 40 mm I

110010944 G7™ 10 Degree Provisional Liner Pack F-I 40 mm

Description
Provisional 10 Degree Liner 40 mm F
Provisional 10 Degree Liner 40 mm G
Provisional 10 Degree Liner 40 mm H
Provisional 10 Degree Liner 40 mm I

110010948 G7™ 10 Degree Provisional Liner Pack H-I 44 mm

Description
Provisional 10 Degree Liner 44 mm H
Provisional 10 Degree Liner 44 mm I

INDICATIONS

1. Noninflammatory degenerative joint disease including osteoarthritis and avascular necrosis.
2. 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 by other techniques.
5. Revision procedures where other treatment or devices have failed.

Acetabular shells and femoral stems with porous coatings are indicated for uncemented biological fixation. Non-coated or polyethylene components may be used with mating components that are indicated for either cemented or uncemented use.

Indications for Biomet® G7™ Freedom® Constrained Liners:
The Biomet® G7™ Freedom® Constrained Liner is indicated for use as a component of a total hip prosthesis in primary and revision patients at high risk of dislocation due to a history of prior dislocation, bone loss, joint or soft tissue laxity, neuromuscular disease, or intraoperative instability, and for whom all other options to constrained Acetabular components have been considered.

CONTRAINDICATIONS
Absolute contraindications include: infection, sepsis, and osteomyelitis.

Relative contraindications include: 1) uncooperative patient or patient with neurologic disorders who are incapable of following directions, 2) osteoporosis, 3) metabolic disorders which may impair bone formation, 4) osteomalacia, 5) distant foci of infections which may spread to the implant site, 6) rapid joint destruction, marked bone loss or bone resorption apparent on roentgenogram, and 7) vascular insufficiency, muscular atrophy, or neuromuscular disease.

Contraindications when shell is used with Biomet® G7™ Freedom® Constrained Liner:
Bone or musculature compromised by disease, infection, or prior implantation that cannot provide adequate support or fixation for the prosthesis.

For full prescribing information, including Indications for Use, Contraindications, Warnings, Precautions and Possible Adverse Effects, see the Patient Risk Information and IFU at biomet.com.

Legal Manufacturer
Biomet Orthopedics
P.O. Box 587
56 E. Bell Drive
Warsaw, Indiana 46581-0587
USA

Biomet UK Ltd.
Waterton Industrial Estate
Bridgend, South Wales
CF31 3XA
UK

Note: For Ceramic components contained within this Surgical Technique Biomet UK, Ltd is the Legal Manufacturer.

www.biomet.com

BIOMET® ORTHOPEDICS

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Moving You Forward.™

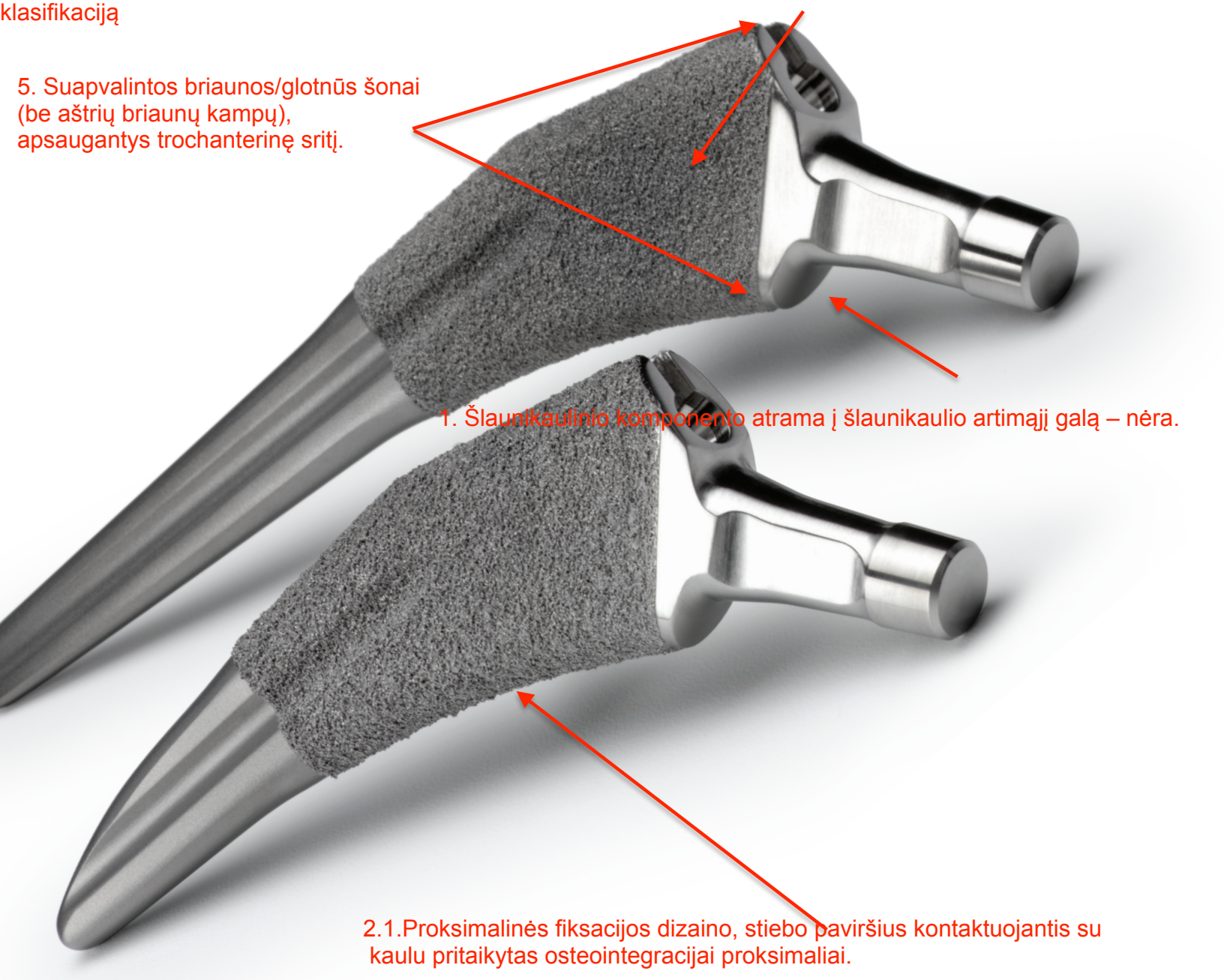
Taperloc® Complete

Hip System

Surgical Technique

2. Šlaunikaulio komponentas tiesus – pagamintas pagal tiesaus stiebo koncepciją: tiesus I tipo pagal Khanuja klasifikaciją

5. Suapvalintos briaunos/glotnūs šonai (be aštrių briaunų kampų), apsaugantys trochanterinę sritį.



1. Šlaunikaulinio komponento atrama į šlaunikaulio artimąjį galą – nėra.

2.1.Proksimalinės fiksacijos dizaino, stiebo paviršius kontaktuojantis su kaulu pritaikytas osteointegracijai proksimaliai.

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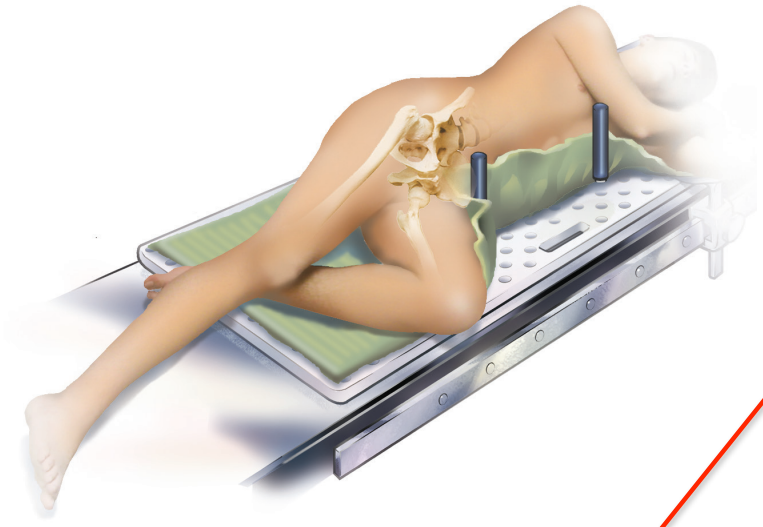

Figure 1

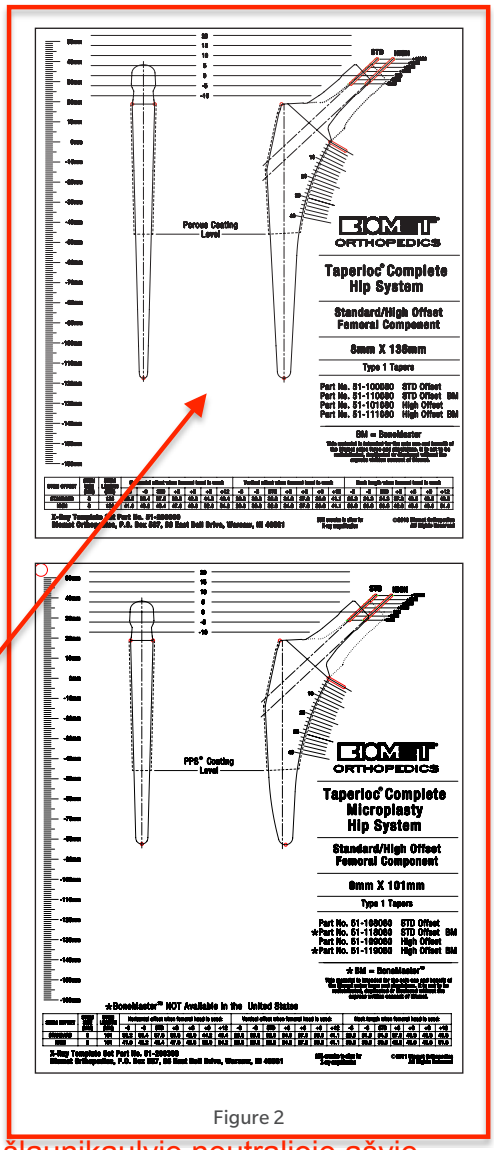

Figure 2

3. Tiesi, kūgiškai smailėjanti stiebo forma leidžianti įstatyti implantą šlaunikaulyje neutralioje ašyje.

Patient Positioning and Surgical Approach

The goal of the surgical approach is to establish adequate visualization of the anatomy to evaluate stability and leg length. A number of surgical approaches to the hip can be utilized based on the degree of surgical experience and preference such as the anterolateral approach shown (Figure 1).

Preoperative templates are provided to help determine component size, femoral neck resection level and appropriate neck length (Figure 2). Radiographs should include a full A/P (anterior/posterior) view of the pelvis, including the proximal one-half of both femurs and a lateral view of the proximal half of the affected femur.

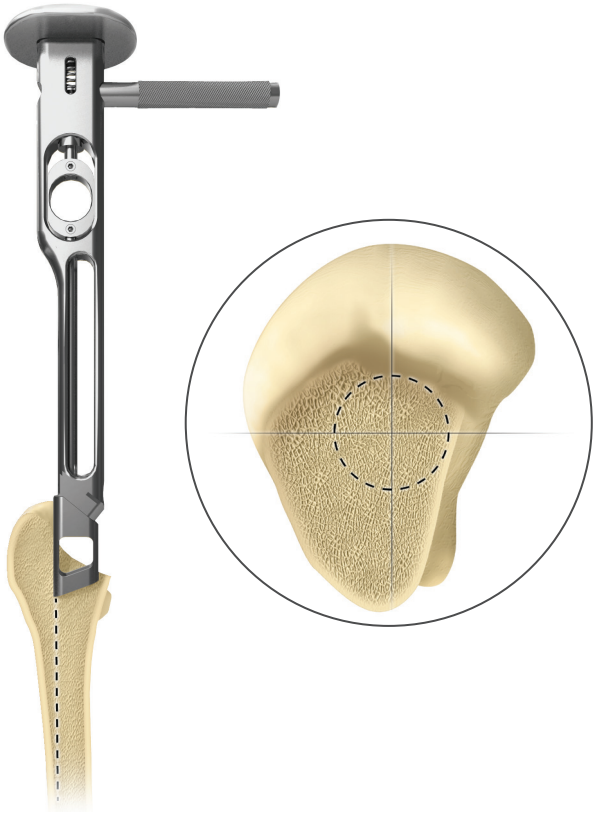

Figure 3

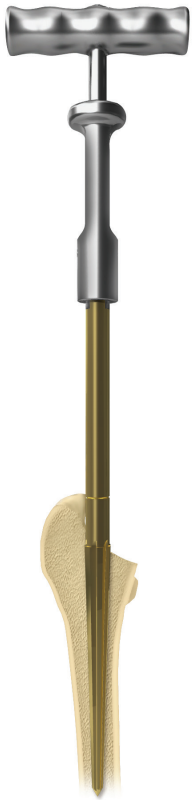

Figure 4

Accessing the Femoral Canal

Using the surgeon's preferred technique, resect the femoral head. Access the femoral canal with the straight or offset boxed chisel to determine the orientation of the femoral canal and access the lateral section of the proximal femur. This helps clearing the femoral canal postero-laterally to accept the starter reamer without interference from the dense bone surrounding the trochanter. The straight or offset boxed chisels were designed to allow enough lateralization of the femoral canal to help reduce the risk of varus positioning of the component (Figure 3).

A single starter reamer on a T-handle may be used to initiate the opening into the distal femoral canal (Figure 4).

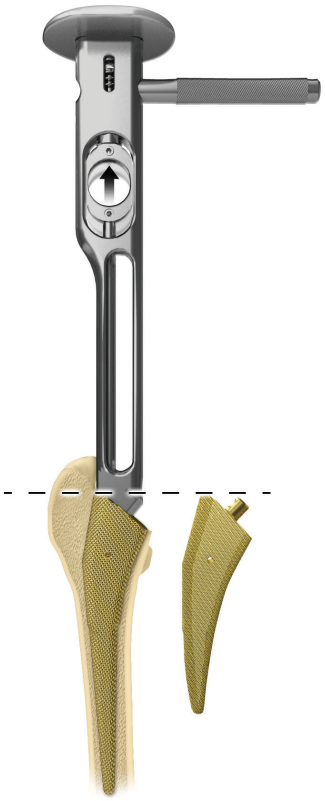

Figure 5

Femoral Canal Preparation

When preparing the proximal femur, use care with the insertion and removal of each broach to avoid rotation and to preserve the version of the femoral canal.

Select the smallest sized Taperloc Complete broach and attach it to the broach handle by pulling back on the trigger to engage the broach (Figure 5). Orientation of the broach should take into account the medial/lateral and anterior/posterior position of the medullary canal. Progressively increase the broach size to enlarge the canal until the broach engages the medial and lateral cortex and cannot be advanced deeper.

- **Note:** When impacting the broach handle, ensure that impaction occurs on the strike plate, as opposed to the threaded handle adaptor.
- **Note:** When preparing for the Taperloc Complete Microplasty® stem placement, be sure to use the appropriate broach as shown above (Figure 5). Insertion technique is the same for both Taperloc Complete broaches and stems.
- **Note:** If the final broach size is less than the templated size, carefully determine that the broach is achieving a tight proximal fit and is not in varus position.

Standard Offset

High Offset

XR 123°

Figure 6

Figure 7i

Trial Reduction

To perform a trial reduction with the fully seated broach, attach the appropriate Taperloc Complete magnetic neck trunnion onto the broach post. The magnetic trunnions are sized to correspond to the final broach, and the stem size is clearly marked on the top of the trunnion (Figure 6).

Note: The Taperloc Complete full length and Microplasty stem options use the same neck trunnions.

Once the appropriate trunnion is in place, select the trial femoral head of desired diameter and neck length. Reduce the hip and evaluate the joint for soft tissue tension, anterior and posterior stability. If necessary, any additional adjustments to neck length and/or offset can be completed at this stage (Figure 7).

Figure 8

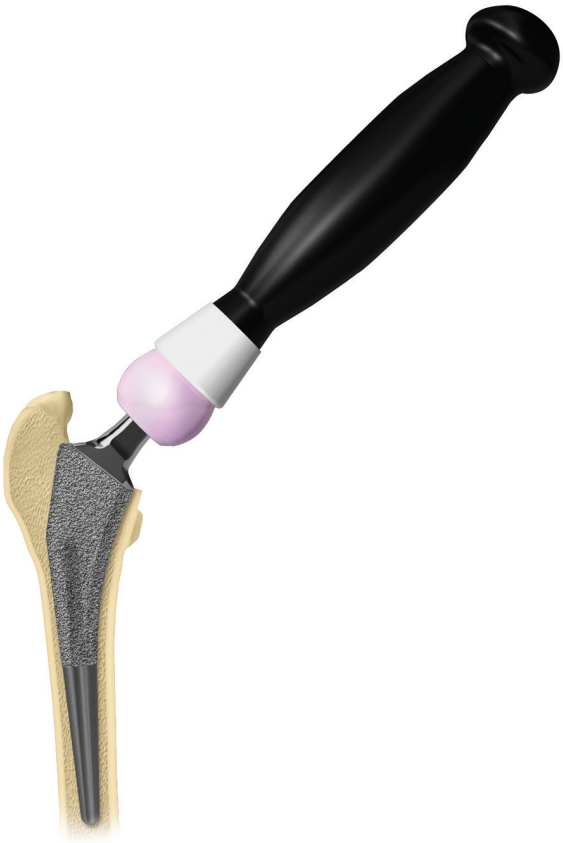

Figure 9

Stem Insertion

Once the trial reduction is considered stable, remove the broach from the femoral canal and attach the implant to the blunt-tip femoral inserter, aligning the tab on the tip of the inserter to the indentation on the implant (Figure 8). The femoral inserter handle assists in controlling rotation of the implant and enables the implant to be inserted into the femoral canal with the proper amount of anteversion.

Make sure to orient the implant parallel to the prepared envelope, matching the appropriate amount of anteversion determined during broaching. The stem should slide distally into the canal without excessive resistance until the implant engages the lateral and medial walls.

Gently tap the stem inserter to seat the prosthesis until there is an audible change in pitch to verify that the implant is fully seated.

Note: The Taperloc Complete stem is designed to achieve a tight press-fit in the femoral canal and thus should sit flush or slightly proud relative to the broach.

Final Reduction

If desired, another trial reduction can be accomplished prior to selecting the final head size and impacting the modular head onto the femoral implant. Provisional heads in seven neck lengths allow an additional trial reduction using the actual implant to ensure proper leg length and stability. After fully seating the femoral component, impact the appropriate modular head onto the clean, dry taper (Figure 9).

Note: All Biomet Type I modular heads are compatible with Taperloc Compete hip stems except the Zirconia ceramic modular heads.

*12/14 Taperloc Complete stems are not available in the United States

7. Šlaunikaulio-kaklo-galvos kampo (CCD) pasirinkimo variacija – 133 ir 123 laipsniai

Offsets and Neck Lengths

8. Šlaunikaulinio komponento kaklo ilgio koregavimo variacija (Offset) – Standartinė ir lateralizuota.

Taperloc Complete Hip Stem Standard Offset

Size	Taperloc Complete Stem Length (mm)	Taperloc Complete Microplasty Stem Length (mm)	Neck Angle	Horizontal Offset (mm)							Vertical Offset (mm)							Neck Length (mm)						
				-6	-3	STD	+3	+6	+9	+12	-6	-3	STD	+3	+6	+9	+12	-6	-3	STD	+3	+6	+9	+12
4	128	93	133°	31.2	33.4	35.6	37.8	40.0	42.2	44.4	28.8	30.8	32.9	34.9	37.0	39.0	41.1	28.3	31.3	34.3	37.3	40.3	43.3	46.3
5	130	95	133°	31.7	33.9	36.1	38.3	40.5	42.7	44.9	28.8	30.8	32.9	34.9	37.0	39.0	41.1	28.3	31.3	34.3	37.3	40.3	43.3	46.3
6	132	97.5	133°	32.2	34.4	36.6	38.8	41.0	43.2	45.4	28.8	30.8	32.9	34.9	37.0	39.0	41.1	28.3	31.3	34.3	37.3	40.3	43.3	46.3
7	134	99	133°	32.7	34.9	37.1	39.3	41.5	43.7	45.9	28.8	30.8	32.9	34.9	37.0	39.0	41.1	28.3	31.3	34.3	37.3	40.3	43.3	46.3
8	136	101	133°	33.2	35.4	37.6	39.8	42.0	44.2	46.4	28.8	30.8	32.9	34.9	37.0	39.0	41.1	28.3	31.3	34.3	37.3	40.3	43.3	46.3
9	137	102.5	133°	33.7	35.9	38.1	40.3	42.5	44.7	46.8	28.8	30.8	32.9	34.9	37.0	39.0	41.1	28.3	31.3	34.3	37.3	40.3	43.3	46.3
10	140	105	133°	34.2	36.4	38.6	40.8	43.0	45.2	47.4	28.8	30.8	32.9	34.9	37.0	39.0	41.1	28.3	31.3	34.3	37.3	40.3	43.3	46.3
11	142	107.5	133°	34.7	36.9	39.1	41.3	43.5	45.7	47.9	28.8	30.8	32.9	34.9	37.0	39.0	41.1	28.3	31.3	34.3	37.3	40.3	43.3	46.3
12	144	109	133°	35.2	37.4	39.6	41.8	44.0	46.2	48.3	28.8	30.8	32.9	34.9	37.0	39.0	41.1	28.3	31.3	34.3	37.3	40.3	43.3	46.3
13	146	111	133°	35.7	37.9	40.1	42.3	44.5	46.7	48.9	28.8	30.8	32.9	34.9	37.0	39.0	41.1	28.3	31.3	34.3	37.3	40.3	43.3	46.3
14	148	113	133°	36.2	38.4	40.6	42.8	45.0	47.2	49.4	28.8	30.8	32.9	34.9	37.0	39.0	41.1	28.3	31.3	34.3	37.3	40.3	43.3	46.3
15	150	115	133°	36.7	38.9	41.1	43.3	45.5	47.7	49.9	28.8	30.8	32.9	34.9	37.0	39.0	41.1	28.3	31.3	34.3	37.3	40.3	43.3	46.3
16	152	117	133°	37.2	39.4	41.6	43.8	46.0	48.2	50.4	28.8	30.8	32.9	34.9	37.0	39.0	41.1	28.3	31.3	34.3	37.3	40.3	43.3	46.3
17	154	119	133°	37.7	39.9	42.1	44.3	46.5	48.7	50.9	28.8	30.8	32.9	34.9	37.0	39.0	41.1	28.3	31.3	34.3	37.3	40.3	43.3	46.3
18	156	121	133°	40.4	42.6	44.8	47.0	49.2	51.4	53.6	30.8	32.9	34.9	37.0	39.0	41.1	43.1	31.3	34.3	37.3	40.3	43.3	46.3	49.3
20	160	125	133°	41.4	43.6	45.8	48.0	50.2	52.4	54.5	30.8	32.9	34.9	37.0	39.0	41.1	43.1	31.3	34.3	37.3	40.3	43.3	46.3	49.3
22	164	129	133°	42.4	44.6	46.8	49.0	51.1	53.3	55.5	30.8	32.9	34.9	37.0	39.0	41.1	43.1	31.3	34.3	37.3	40.3	43.3	46.3	49.3
24	167	132	133°	43.4	45.6	47.8	50.0	52.2	54.4	56.6	30.8	32.9	34.9	37.0	39.0	41.1	43.1	31.3	34.3	37.3	40.3	43.3	46.3	49.3

10. Šlaunikaulinio komponento dydžių variacija – 18 ir standartinio ir trumpo ilgio.

Taperloc Complete Hip Stem High Offset

Size	Taperloc Complete Stem Length (mm)	Taperloc Complete Microplasty Stem Length (mm)	Neck Angle	Horizontal Offset (mm)							Vertical Offset (mm)							Neck Length (mm)						
				-6	-3	STD	+3	+6	+9	+12	-6	-3	STD	+3	+6	+9	+12	-6	-3	STD	+3	+6	+9	+12
5	130	95	133°	39.5	41.7	43.9	46.1	48.3	50.5	52.7	28.8	30.8	32.9	34.9	37.0	39.0	41.1	33.6	36.6	39.6	42.6	45.6	48.6	51.6
6	132	97.5	133°	40.0	42.2	44.4	46.6	48.8	51.0	53.2	28.8	30.8	32.9	34.9	37.0	39.0	41.1	33.6	36.6	39.6	42.6	45.6	48.6	51.6
7	134	99	133°	40.5	42.7	44.9	47.1	49.3	51.5	53.7	28.8	30.8	32.9	34.9	37.0	39.0	41.1	33.6	36.6	39.6	42.6	45.6	48.6	51.6
8	136	101	133°	41.0	43.2	45.4	47.6	49.8	52.0	54.2	28.8	30.8	32.9	34.9	37.0	39.0	41.1	33.6	36.6	39.6	42.6	45.6	48.6	51.6
9	137	102.5	133°	41.5	43.7	45.9	48.1	50.3	52.5	54.7	28.8	30.8	32.9	34.9	37.0	39.0	41.1	33.6	36.6	39.6	42.6	45.6	48.6	51.6
10	140	105	133°	42.0	44.2	46.4	48.6	50.8	53.0	55.2	28.8	30.8	32.9	34.9	37.0	39.0	41.1	33.6	36.6	39.6	42.6	45.6	48.6	51.6
11	142	107.5	133°	42.5	44.7	46.9	49.1	51.3	53.5	55.7	28.8	30.8	32.9	34.9	37.0	39.0	41.1	33.6	36.6	39.6	42.6	45.6	48.6	51.6
12	144	109	133°	43.0	45.2	47.4	49.6	51.8	54.0	56.2	28.8	30.8	32.9	34.9	37.0	39.0	41.1	33.6	36.6	39.6	42.6	45.6	48.6	51.6
13	146	111	133°	43.5	45.7	47.9	50.1	52.3	54.5	56.7	28.8	30.8	32.9	34.9	37.0	39.0	41.1	33.6	36.6	39.6	42.6	45.6	48.6	51.6
14	148	113	133°	44.0	46.2	48.4	50.6	52.8	55.0	57.2	28.8	30.8	32.9	34.9	37.0	39.0	41.1	33.6	36.6	39.6	42.6	45.6	48.6	51.6
15	150	115	133°	44.5	46.7	48.9	51.1	53.3	55.5	57.7	28.8	30.8	32.9	34.9	37.0	39.0	41.1	33.6	36.6	39.6	42.6	45.6	48.6	51.6
16	152	117	133°	45.0	47.2	49.4	51.6	53.8	56.0	58.2	28.8	30.8	32.9	34.9	37.0	39.0	41.1	33.6	36.6	39.6	42.6	45.6	48.6	51.6
17	154	119	133°	45.5	47.7	49.9	52.1	54.3	56.5	58.7	28.8	30.8	32.9	34.9	37.0	39.0	41.1	33.6	36.6	39.6	42.6	45.6	48.6	51.6
18	156	121	133°	48.2	50.4	52.6	54.8	57.0	59.2	61.4	30.8	32.9	34.9	37.0	39.0	41.1	43.1	36.6	39.6	42.6	45.6	48.6	51.6	54.6
20	160	125	133°	49.2	51.4	53.6	55.8	58.0	60.2	62.4	30.8	32.9	34.9	37.0	39.0	41.1	43.1	36.6	39.6	42.6	45.6	48.6	51.6	54.6
22	164	129	133°	50.2	52.4	54.6	56.8	59.0	61.2	63.4	30.8	32.9	34.9	37.0	39.0	41.1	43.1	36.6	39.6	42.6	45.6	48.6	51.6	54.6
24	167	132	133°	51.2	53.4	55.6	57.8	60.0	62.2	64.4	30.8	32.9	34.9	37.0	39.0	41.1	43.1	36.6	39.6	42.6	45.6	48.6	51.6	54.6

7. Šlaunikaulio-kaklo-galvos kampo (CCD) pasirinkimo variacija – 133 ir 123 laipsniai

Offsets and Neck Lengths (cont.)

8. Šlaunikaulinio komponento kaklo ilgio koregavimo variacija (Offset) – Standartinė ir lateralizuota.

Taperloc Complete XR 123° Stem

Size	Taperloc Complete Stem Length (mm)	Taperloc Complete Microplasty Stem Length (mm)	Neck Angle	Neck Length (mm)	Horizontal Offset (mm)							Vertical Offset (mm)							Neck Length (mm)						
					-6	-3	STD	+3	+6	+9	+12	-6	-3	STD	+3	+6	+9	+12	-6	-3	STD	+3	+6	+9	+12
4	128	93	123°	32.3	32.8	35.3	37.8	40.3	42.8	45.3	47.9	23.6	25.3	26.9	28.5	30.2	31.8	33.4	26.3	29.3	32.3	35.3	38.3	41.3	44.3
5	130	95	123°	32.3	33.3	35.8	38.3	40.8	43.3	45.8	48.4	23.6	25.3	26.9	28.5	30.2	31.8	33.4	26.3	29.3	32.3	35.3	38.3	41.3	44.3
6	132	97.5	123°	32.3	33.8	36.3	38.8	41.3	43.8	46.3	48.9	23.6	25.3	26.9	28.5	30.2	31.8	33.4	26.3	29.3	32.3	35.3	38.3	41.3	44.3
7	134	99	123°	32.3	34.3	36.8	39.3	41.8	44.3	46.8	49.4	23.6	25.3	26.9	28.5	30.2	31.8	33.4	26.3	29.3	32.3	35.3	38.3	41.3	44.3
8	136	101	123°	32.3	34.8	37.3	39.8	42.3	44.8	47.3	49.9	23.6	25.3	26.9	28.5	30.2	31.8	33.4	26.3	29.3	32.3	35.3	38.3	41.3	44.3
9	137	102.5	123°	32.3	35.3	37.8	40.3	42.8	45.3	47.8	50.4	23.6	25.3	26.9	28.5	30.2	31.8	33.4	26.3	29.3	32.3	35.3	38.3	41.3	44.3
10	140	105	123°	32.3	35.8	38.3	40.8	43.3	45.8	48.3	50.9	23.6	25.3	26.9	28.5	30.2	31.8	33.4	26.3	29.3	32.3	35.3	38.3	41.3	44.3
11	142	107.5	123°	32.3	36.3	38.8	41.3	43.8	46.3	48.8	51.4	23.6	25.3	26.9	28.5	30.2	31.8	33.4	26.3	29.3	32.3	35.3	38.3	41.3	44.3
12	144	109	123°	32.3	36.8	39.3	41.8	44.3	46.8	49.3	51.9	23.6	25.3	26.9	28.5	30.2	31.8	33.4	26.3	29.3	32.3	35.3	38.3	41.3	44.3
13	146	111	123°	32.3	37.3	39.8	42.3	44.8	47.3	49.8	52.4	23.6	25.3	26.9	28.5	30.2	31.8	33.4	26.3	29.3	32.3	35.3	38.3	41.3	44.3
14	148	113	123°	32.3	37.8	40.3	42.8	45.3	47.8	50.3	52.9	23.6	25.3	26.9	28.5	30.2	31.8	33.4	26.3	29.3	32.3	35.3	38.3	41.3	44.3
15	150	115	123°	32.3	38.3	40.8	43.3	45.8	48.3	50.8	53.4	23.6	25.3	26.9	28.5	30.2	31.8	33.4	26.3	29.3	32.3	35.3	38.3	41.3	44.3
16	152	117	123°	32.3	38.8	41.3	43.8	46.3	48.8	51.3	53.9	23.6	25.3	26.9	28.5	30.2	31.8	33.4	26.3	29.3	32.3	35.3	38.3	41.3	44.3
17	154	119	123°	32.3	39.3	41.8	44.3	46.8	49.3	51.8	54.4	23.6	25.3	26.9	28.5	30.2	31.8	33.4	26.3	29.3	32.3	35.3	38.3	41.3	44.3
18	156	121	123°	32.3	39.8	42.3	44.8	47.3	49.8	52.3	54.9	23.6	25.3	26.9	28.5	30.2	31.8	33.4	26.3	29.3	32.3	35.3	38.3	41.3	44.3

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CE 2797

CE mark on a surgical technique is not valid unless there is a CE mark on the product label.

Taperloc Complete Hip System

Product Overview

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Table of Content

- Difference between Taperloc and Taperloc Complete Systems
- System offering
- Instrumentation

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Terminology

Taperloc Stem

Taperloc Complete Stem

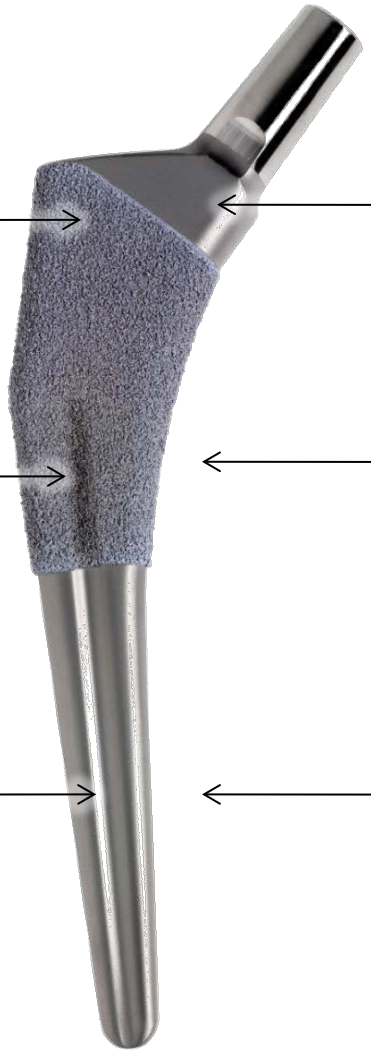
Preserve the brand equity

Taperloc “Heritage”

- Position Statement

Combining excellent clinical success and durability over the last 26 years, the Taperloc hip system continues to deliver consistent, reproducible results. The Taperloc hip has evolved to incorporate cementless and cemented stems in standard profile and Microplasty options to better address patient anatomies and facilitate multiple surgical techniques.

Taperloc Stem “Heritage”



Advanced Coating Technologies
PPS (Porous Plasma Spray)Coating & BoneMaster

Flat Tapered Wedge Geometry
Enhances proximal offloading and bone preservation and provides for rotational stability

Titanium Alloy
Improved fatigue strength and modulus of elasticity nearer to bone

Standard and High Offsets
Reproduce various patient anatomies. Provides improved abductor mechanics and prevent s leg lengthening discrepancies

Proximally Loaded Metaphysis
Reduces proximal stress shielding which when combined with flat tapered wedge design may reduce thigh pain

Universal Instrumentation Platform
Single platform for cementless, cemented & Microplasty applications

Taperloc Stem“Heritage”

Satin smooth surface finish
Prevents abradement of the cement envelope that is created by the omission of advanced coating

High tensile strength
Cast CoCrMo alloy for improved strength and high modulus of elasticity to withstand bending

Reduced Length
35mm shorter. Bone conserving design is conducive to minimally invasive techniques, including the ASI approach

5.1. Šlaunikaulio komponento forma - dviejų ilgių: standartinis ir trumpas (micro) 35 mm trumpesnis už to paties dydžio standartinį stiebą.

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Taperloc Stem“Heritage”

Clinically proven design

Sources	Author	Reference	Survivorship
Orthopedics Today	McLaughlin *et al.*	2010; 30(1): 1	99% @ 24.5 yrs
JBJS (Am)	McLaughlin *et al.*	2008;90:1290-1296	87% @ 22 yrs
JBJS (Br)	Hallan *et al.*	2007;89-B:1574-80	98.2%@10yrs
JBJS (Br)	McLaughlin *et al.*	2006;88-B:1286-92	94% @ 18yrs
Journal of Arthroplasty	Parvizi *et al.*	2004;19; No. 2:151-156	99.1% @ 11yrs
JBJS (Am)	Keisu *et al.*	2001;83-A:359-363	100% @ 11yrs
NJR		2012	97.8% @ 5 yrs
Australian Registry		2011	96.8% @ 5 yrs

Taperloc Stem“Heritage”

Objections

- The 138^{o} neck angle is high compared to competitor stems

  - Perception issue

  - lower resection level

- The Sizing rationale (based on the Muller sizing) is not consistent

5.0	6.0	7.5	9.0	10.0	11.0	12.5	13.5	15.0	17.5	20.0	22.5	25.0

Taperloc Complete System

Product Update

- Over the past 26 years, the Taperloc Hip stem has become the industry standard in cementless hip arthroplasty

- Combining this unmatched clinical success with Biomet's commitment to product innovation, the Taperloc Complete hip System has been introduced with design enhancements

- These enhancements, along with the key clinical aspects of the original Taperloc stem, are designed to help surgeons restore leg length, stability, offset and range of motion accurately and consistently.

Taperloc Complete System

Enhancements

Optimised Type 1 Taper

Version Control Insertion Hole

Polished Reduced Profile Neck

Optimal 133°and 123°CCD Angle

Full and Reduced Distal Profile

Simple Sizing

Unchanged Features

Lateralization of the High Offset Neck

Intramedullary Flat Tapered Wedge Geometry

Primary and Secondary Fixation Methods

Titanium Alloy Ti 6AL 4V

16. Gūžduobės komponento medžiaga - titano-aliuminio-vanadžio lydinys

Taperloc Complete - Enhancements

Optimised Type 1 Taper

- 4° angle with smooth machined finish
- Clinically proven since 2003 - Gen 4, Echo Bi-Metric and Arcos
- Improved ROM

Traditional Taper Optimised taper

Description		Total
Stem	Echo Bi-Metric (**Optimised Taper**)	166°
Cup	54mm Ranawat/Burstein Ringloc shell	
Head	28mm CoCr std Head	
Stem	Bi-Metric (**Traditional taper**)	154°
Cup	54mm Ranawat/Burstein Ringloc shell	
Head	28mm CoCr Std Head	

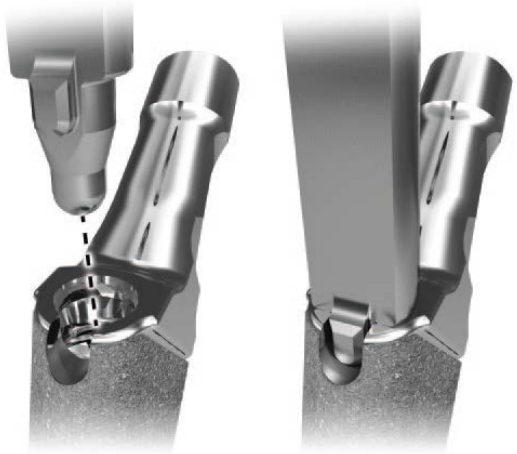
9. Šlaunikaulinio komponento kaklo konusas – T1 ir 12/14.

- Thoroughly tested design
- Also available in traditional 12/14 Taper (5°42’30”)
- Biomet stems cannot be used with competitor’s heads

Taperloc Complete - Enhancements

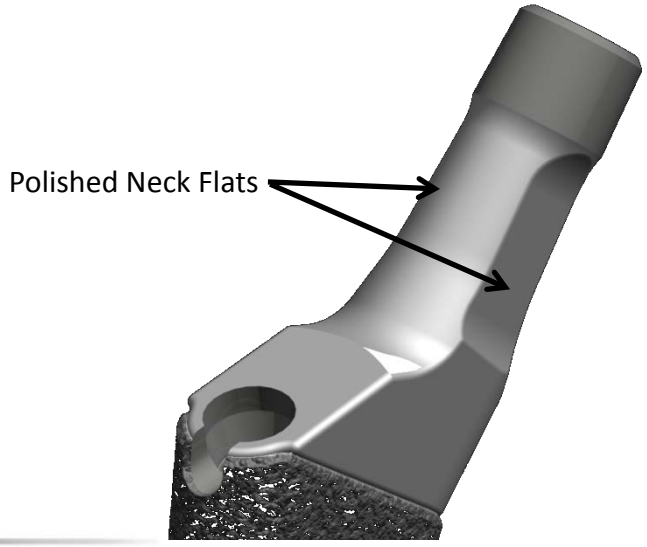
Version Control Insertion Hole

- Slotted hole
- Rotational control
- Secure feel upon insertion



Polished Reduced Profile Neck

- Polished extended anterior-posterior neck flats
- Reduces the potential for Impingement[1]
- Increased material strength for added fatigue strength[2]
- Polished surface for use with double mobility bearings

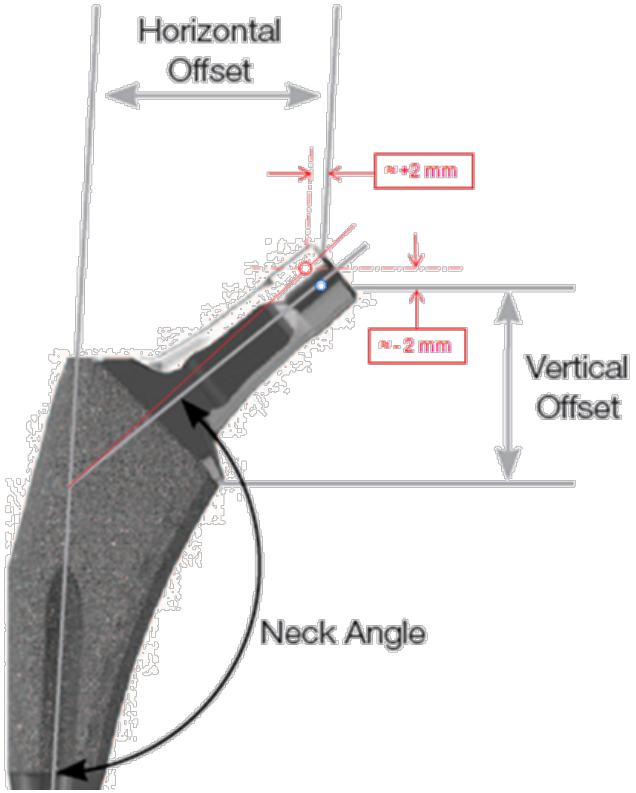


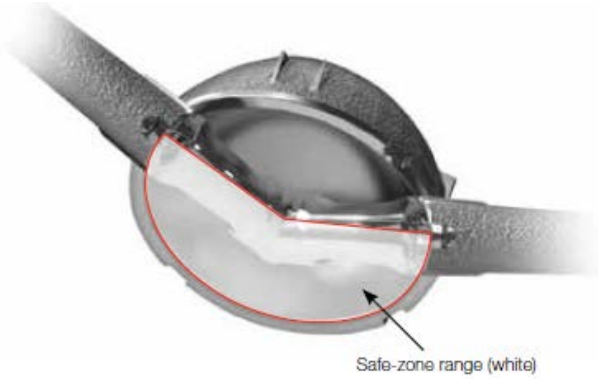
1. Widmer *et al.* impact of CCD on Rom and cup positioning. *Clinical Biomechanics.* 2005.
2. Grivas *et al.* fracture of a cementless forged Ti Alloy stem following THA. *Journal of Medical Case Reports*. 2007.

Taperloc Complete - Enhancements

New Neck Angles

- 133° standard stem instead of traditional 138 °
- Increased horizontal offset ≈ +2mm
- Decreased leg length: -2/3mm
- Reduces the use of minus neck length heads
- Avoids low neck cut
- XR 123° Stem Option: 123° CCD angle
- Better anatomic reconstruction and biomechanics
- Lower neck angle = increased safe zone for cup placement; CCD angle > 135° have a reduced safe zone





7. Šlaunikaulio-kaklo-galvos kampo (CCD) pasirinkimo variacija – 133 ir 123 laipsniai.

.

Taperloc Complete - Enhancements

New Neck Angles

- Increased ROM

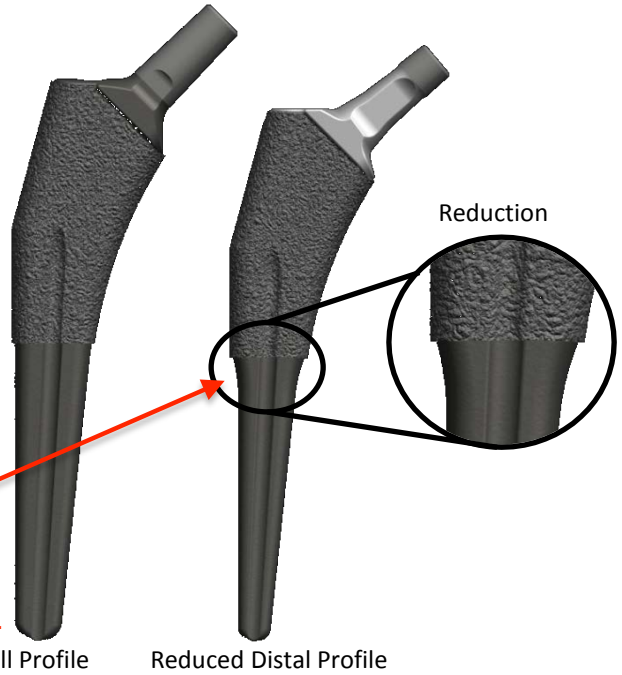
Description		Flexion	Extension	Total
Stem:	10 mm Taperloc Complete stem (123° neck angle)	158°	116°	274°
Acetabular Option:	54 mm shell			
Head Size:	48 mm head			
Taper Insert:	Standard			
Stem:	10 mm Taperloc Complete stem (133° neck angle) standard offset	136°	93°	229°
Acetabular Option:	54 mm shell			
Head Size:	48 mm head			
Taper Insert:	Standard			
Stem:	10 mm Taperloc stem (138° neck angle) standard offset	131°	90°	221°
Acetabular Option:	54 mm shell			
Head Size:	48 mm head			
Taper Insert:	Standard			

Taperloc Complete - Enhancements

Reduced Distal Profile

- Smooth, reduced distal transition below PPS coating
- Helps achieve a better fit in large femurs due to the reduced distal geometry
- Better addressing Dorr A femurs
- Clinically proven: 16 year follow-up, 123 hips, 99% survivorship in British JBJS
- Reduced distal starts at 9mm only

Stem Size	Distal Reduction
9 mm	1 mm
10–13 mm	2 mm
14–16 mm	3 mm
17–24 mm	4 mm



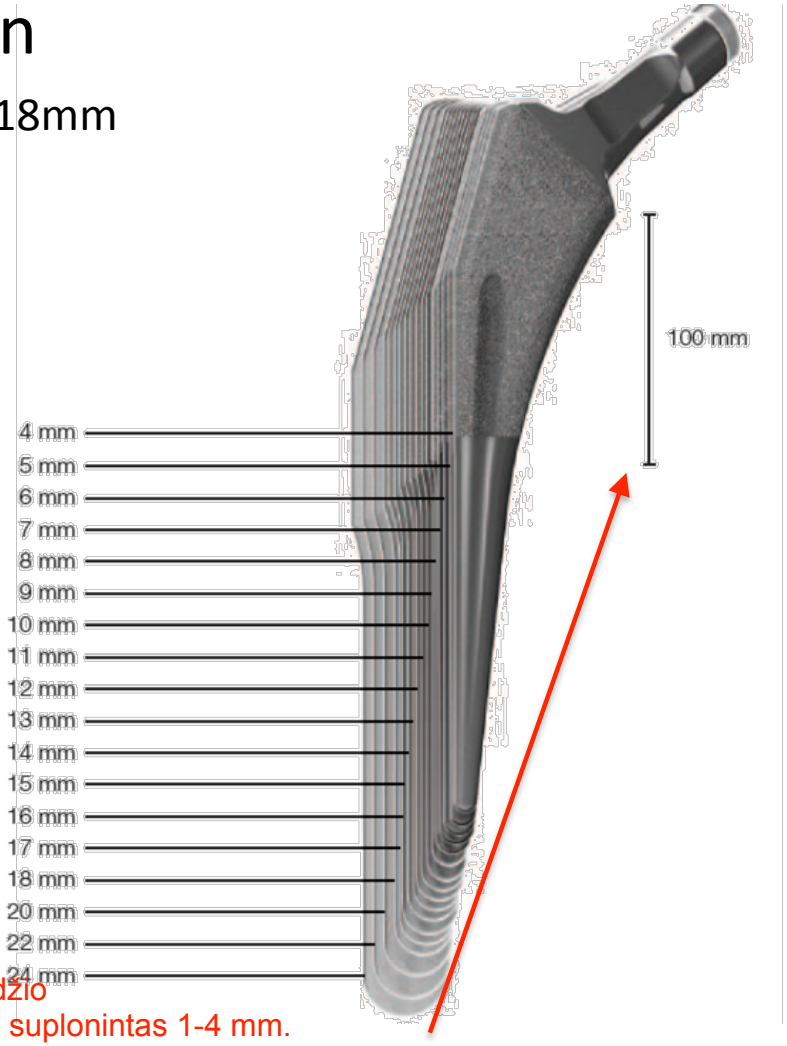
6. Standartinis stiebas turi ir distaliai suplonintą versiją, kai to paties dydžio implantas 100 mm nuo medialinės rezekcijos lygio distalinėje dalyje yra suplonintas 1-4 mm.

.

Taperloc Complete - Enhancements

Accurate Anatomic Restoration

- Simpler sizing: 1mm sizing increments 4 – 18mm
- More sizes: 15 sizes
- Optional Macro sizes 20,22,24mm
- More adequate metaphyseal fit
- Ability to adjust leg length



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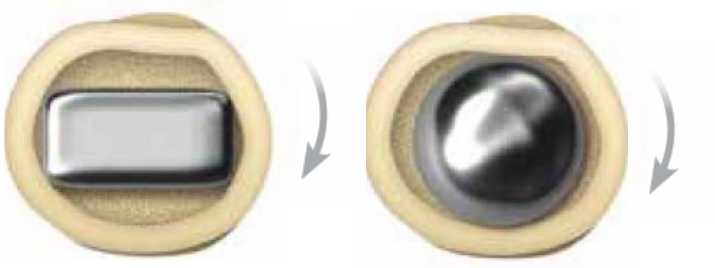
.

Taperloc Complete - Unchanged Features

Longitudinal and Rotational Stability

- Flat tapered wedge philosophy
- 3º bi-planar taper enhancing proximal loading and bone preservation [3,4]
- Provides better rotational stability than a round implant[5]
- Proven lower incidence of thigh pain[3]



[3.] Rothman *et al.* Primary THR with uncemented componenet. *JOA*. 2004

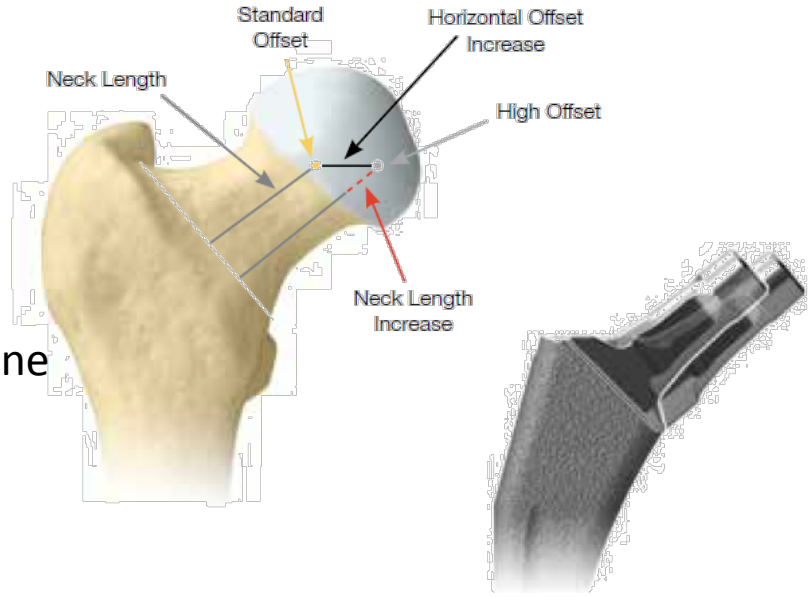
[4.] Romagnoli. Press-fit hip Arthroplasty. *JOA.* 2002

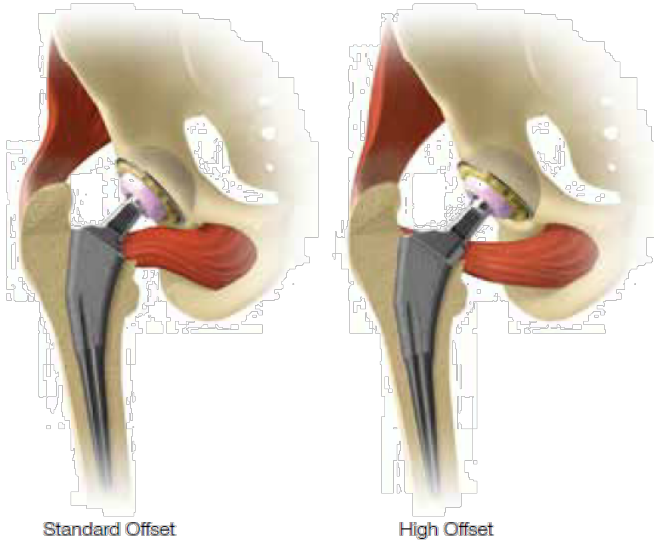
[5.] Burkart *et al.* Thigh pain in cementless THA. 1993

Taperloc Complete - Unchanged Features

Accurate Anatomic Reconstruction

- Standard and high offsets allow optimal soft tissue tension to achieve joint stability
- Neck lateralisation through a constant 7.8mm medial shift of the neck
- Neck height and leg length unchanged
- Changes from standard to high offset can be done without reassessing the leg length





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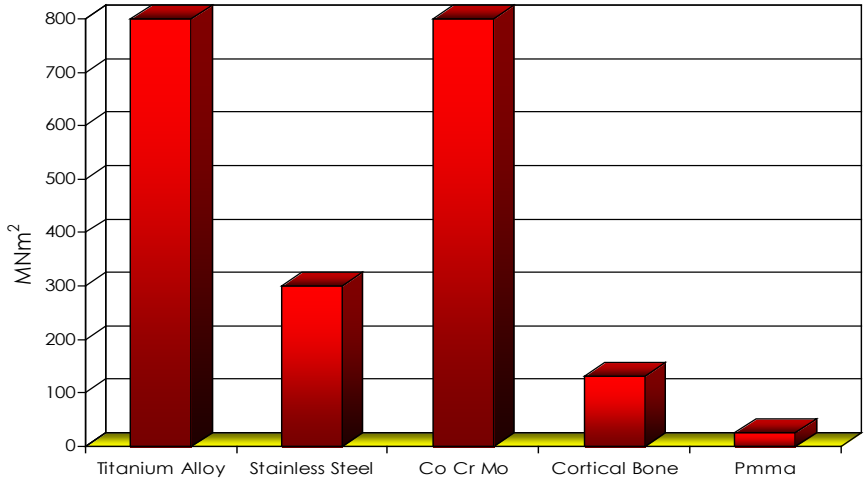
Taperloc Complete - Unchanged Features

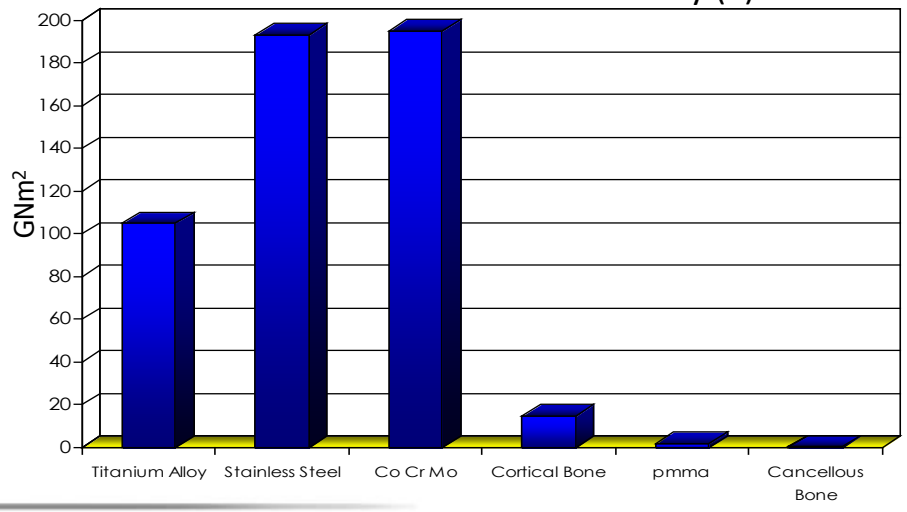
Forged Titanium Alloy Ti 6AL 4V

- Forgings are stronger than wrought materials
- Improved fatigue strength
- More flexible than stainless steel and CoCrMo
- Modulus of elasticity nearer to bone to allow stress transfer to preserve cortical density
- Biocompatible

Yield / Tensile Strength



Modulus of Elasticity (E)



Taperloc Complete - Unchanged Features

PPS (Porous Plasma Spray) Coating

- Interface between implant and bone
- Circumferential coating
- Non interconnecting pores
- Rough irregular surface into which bone can interdigitate
- Micro and macro fixation
- Allows immediate and long term fixation[6-8]

6. Keisu *et al.* Primary cemented THA in ortogenarians. *JBJS* .2001

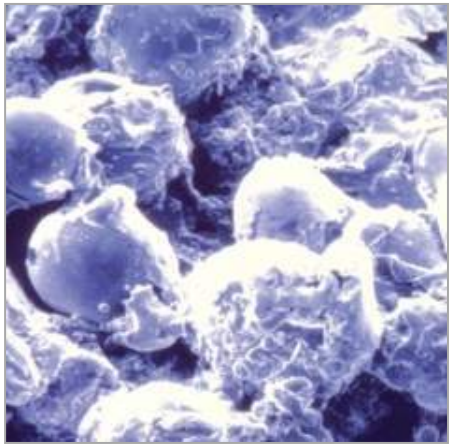
7. Parvizi *et al.* rospective matched-pair analysis of HA and uncoated stems. *JBJS*. 2004

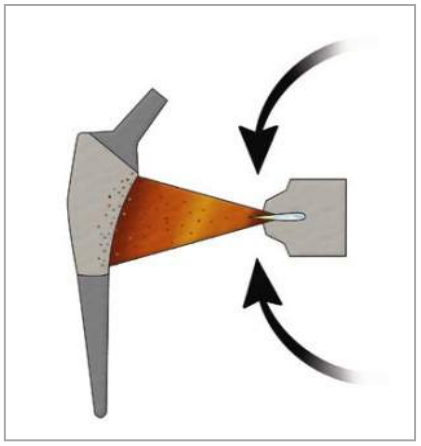
8. Bobyn *et al.* Optimal pore size for the fixation of porous meal implants. 1980

Taperloc Complete - Unchanged Features

PPS (Porous Plasma Spray) Coating

- Titanium-aluminium-vanadium [Ti 6AL 4V]
- The powder is heated and spread
- The heating effect is transient and does not have any effect on the substrate fatigue properties
- Porous coat thickness .5 to .75mm
- Roughness 12 - 30 microns (Ra)

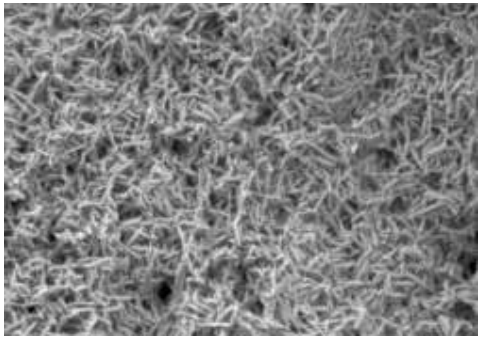




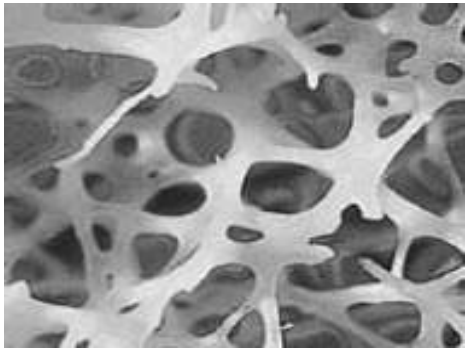
Taperloc Complete - Unchanged Features

Enhanced Implant Stability - BoneMaster

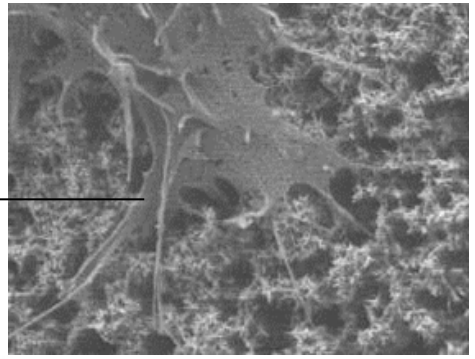
- Hydroxyapatite (HA) with the nano-texture of bone like crystallites
- HA = Calcium Phosphate mineral, constituent of bone
- Electrochemical deposition
- Creates a favourable environment for osteoblast adhesion, producing fast bone intergration[9]
- Only 5µ thick - 1/10 of normal HA
- Preserves the roughness and porosity of PPS



BoneMaster



Bone



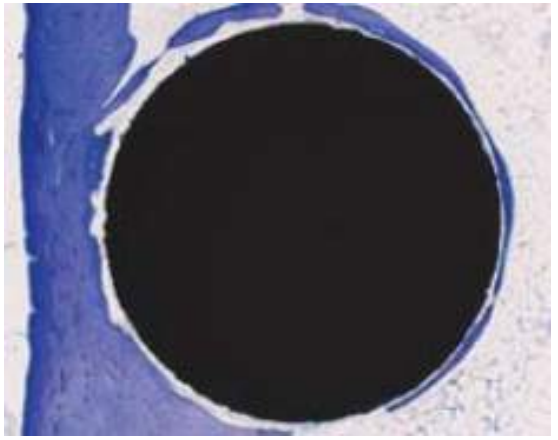
Osteoblast Cell Attachment

[9] S. Roessler *et al*. Materials in Medecine. *Journal of Material Science*. 12 :871,2001.

Taperloc Complete - Unchanged Features

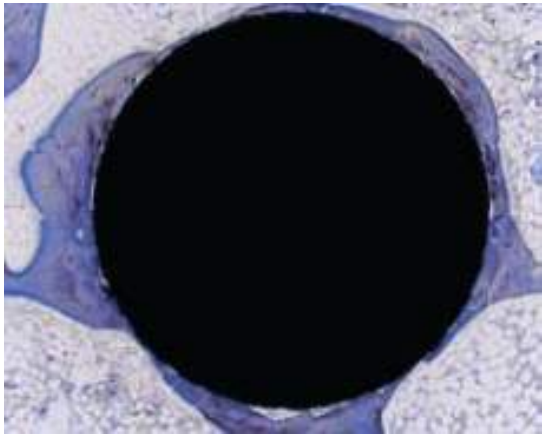
Reduced Fibrous In-growth

- The Nano-crystalline structure promotes fast bone in-growth and bone apposition, therefore reducing fibrous ingrowth[10]



Bone /Implant interface: 26%

Without BM



Bone /Implant interface: 68%

WithBM

[10.] Schmidmaier, et al. A new electrochemically graded hydroxyapatite coating for osteosynthetic implants promotes implant osteointegration in a rat model. *Journal of Biomedical Materetial Research*. 2002.

Taperloc Complete - Unchanged Features

Increased Bone density

- Prof. Lars Nordsletten's study
- Significantly greater bone density post-op compared to identical HA stems @ 2 yrs especially in the coated area Gruen zone 1[11]

[11.] Bøe B, Heier T, Snorrason F, Nordsletten L (2006) Change in bone density and implantation AV Taperloc cementless hip prosthetic with two different hydroxyapatite coatings. Nordic Orthopaedic Federation 53rd Congress, Oslo, Norway.

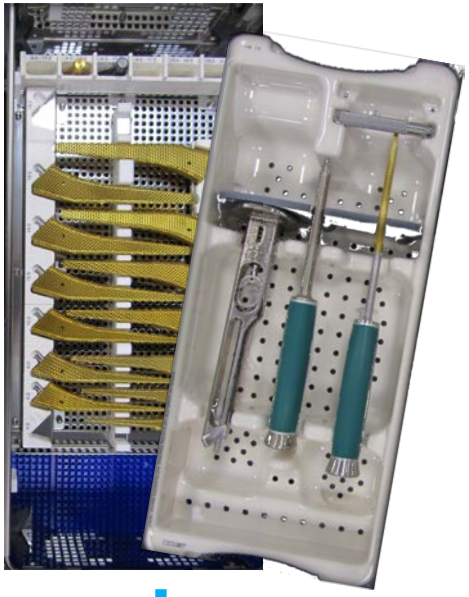
Taperloc Complete - Offering

- STD from 5to 18mm
- HO from 5 to 18mm
- Reduced distal from size 9mm only
- T1 Macro: 20,22, 24mm optional
- No 12/14 macro stems

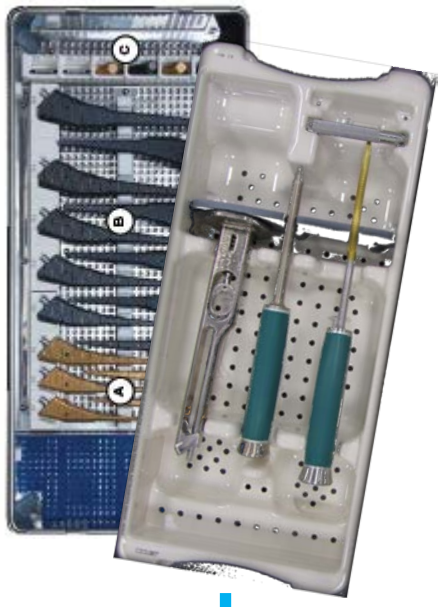
Type 1	PPS	Full Length	Full Profile	
			Reduced Distal	XR 123
		Micro	Reduced Distal	XR 123
	BM	Full Length	Full Profile	
			Reduced Distal	
		Micro	Reduced Distal	
12/14	PPS	Full Length	Full Profile	
	BM	Full Length	Full Profile	
		Micro	Reduced Distal	

Taperloc Complete - Instrumentation

Full Length Rasp Instrument Kit



Full length R/D Rasp Instrument Kit



Microplasty Rasp Instrument Kit

\+ Macro size rasp kit

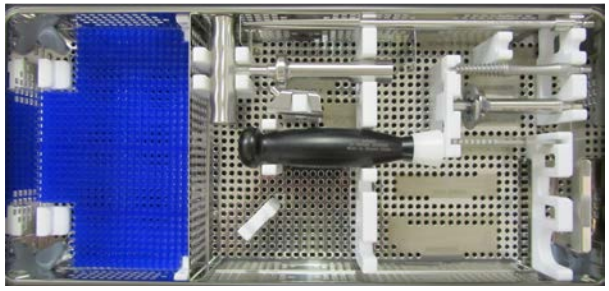
Optional (made to order)

General Instrument Tray

24. Tinka pagal CPO EN22 Taperloc cemented

Trial Head Tray

\+



All instruments are ordered individually!

Any Questions?

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G7®
Acetabular System

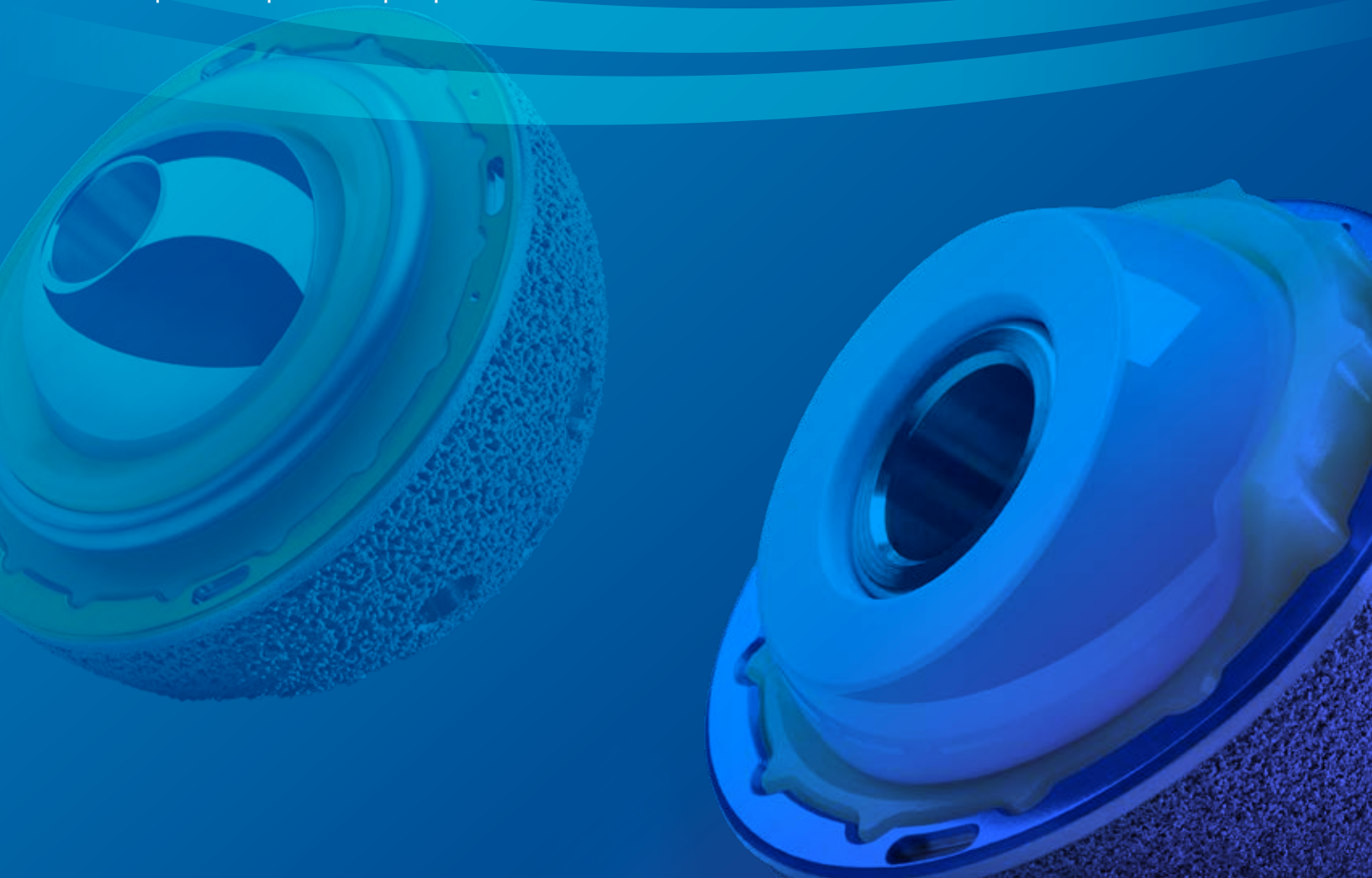
ZIMMER BIOMET
Moving You Forward.™

SIMPLICITY. EFFICIENCY. PERFORMANCE.

The G7 acetabular system is specifically designed to simplify implant and instrument delivery for optimized operative efficiency and maximized clinical performance.

The interchangeability of the system enables you to use any liner with any shell, with consistent sizes throughout the system while providing offerings that cover the full continuum of constraint.

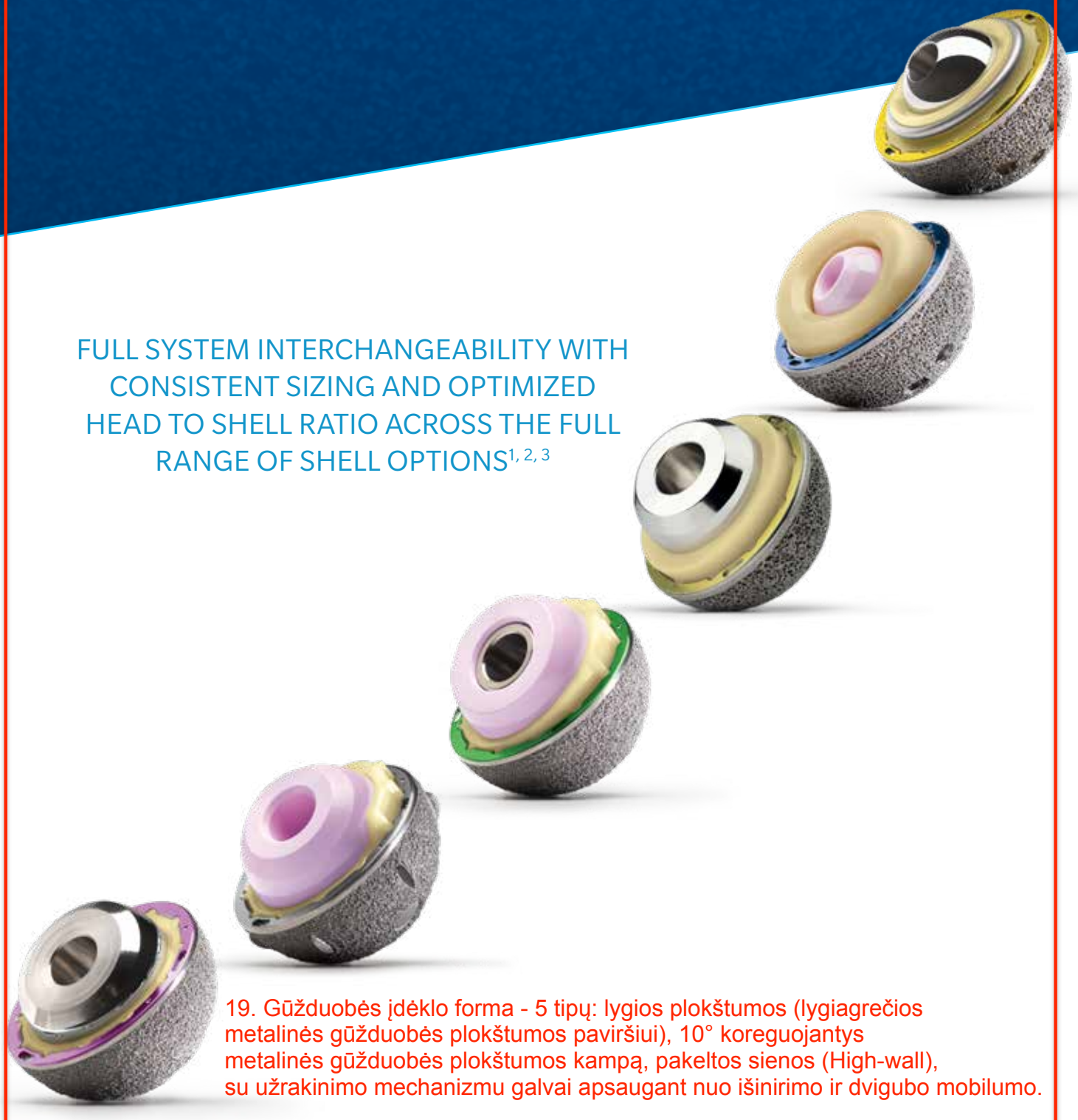
With a comprehensive implant offering and full system interchangeability, G7 maximizes treatment options through a highly flexible, system-based approach to patient specific hip replacement.



COMPREHENSIVELY SIMPLE

THE G7 ACETABULAR SYSTEM OFFERS THE LARGEST RANGE OF SIZING COMBINATIONS

FULL SYSTEM INTERCHANGEABILITY WITH CONSISTENT SIZING AND OPTIMIZED HEAD TO SHELL RATIO ACROSS THE FULL RANGE OF SHELL OPTIONS[1, 2, 3]



19. Gūžduobės įdėklo forma - 5 tipų: lygios plokštumos (lygiagrečios metalinės gūžduobės plokštumos paviršiui), 10° koreguojantys metalinės gūžduobės plokštumos kampą, pakeltos sienos (High-wall), su užrakinimo mechanizmu galvai apsaugant nuo išinirimo ir dvigubo mobilumo.

DUAL MOBILITY

PROVIDING STABILITY AND HIGH RANGE OF MOTION WITHOUT THE NEED TO CONSTRAIN THE HEAD

Reduced Wear
Smaller diameter heads, like the inner head in this construct, have been clinically proven to lead to lower rates of wear[11]

Seating and Alignment
Hard bearing inserter ring helps ensure the CoCr liner is aligned properly during implantation to help limit micro-motion

Dislocation Resistance
Large diameter heads, like the polyethylene bearing in this construct, have been clinically shown to increase jump height which makes it more difficult for the head to dislocate[4, 14, 15]

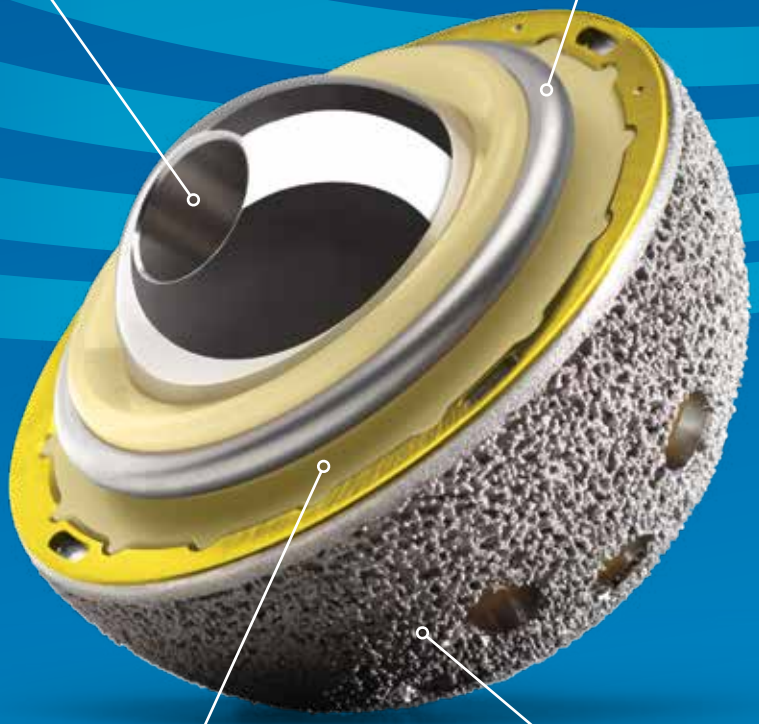
Stability
Optimized 40mm bearing to 50mm shell ratio with option to convert to a constrained liner if needed

FREEDOM CONSTRAINED

DESIGNED TO COUNTER THE DISTRACTIVE FORCES THAT CAN LEAD TO RECURRENT HIP DISLOCATION

Simplified Reduction
Circumferential flats on Freedom heads allow for in-vivo reduction and pre-assembled Freedom® liners and rings

Enhanced Constraint
Preassembled constraining ring increases resistance to lever-out forces without need to assemble in-vivo



Reduced Risk of Impingement and Instability
Increased ranges of motion, as found in the Freedom constrained liner at 114 degrees, have been clinically shown to reduce the risk of impingement and instability[12]

Stability
Interchangeability between all G7 components allows surgeons to customize stability to the patient's needs

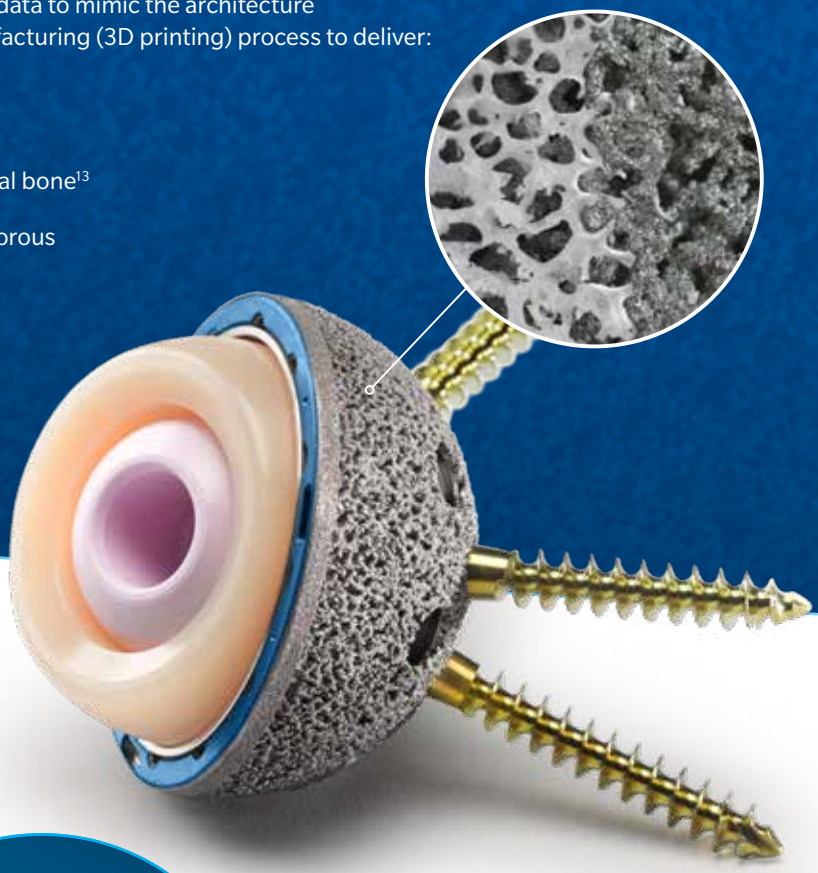
HIGH PERFORMANCE TECHNOLOGY

OSSEOTI - A PROPRIETARY ADDITIVE MANUFACTURING TECHNOLOGY

OsseoTi Porous Metal technology uses digitized human CT data to mimic the architecture of human cancellous bone and a proprietary additive manufacturing (3D printing) process to deliver:

- Average pore size of 475 microns[13]
- Approximately 70% porosity[13]
- Material strength between that of cancellous and cortical bone[13]

OsseoTi enables surgeons to realize the benefits of highly porous technology without compromising head to shell ratio.



VIVACIT-E® - TESTED FOR A LIFETIME OF WEAR RESISTANCE

Vivacit-E HXLPE is specifically designed to maximize performance through a proprietary process providing: [5-9]

Ultra-low Wear[6, 7]

Vivacit-E HXLPE is irradiated to an equivalent of 10 MRad with warm electron beam (e-beam) irradiation, resulting in an ultra-low wear HXLPE that has been tested out to 100 million cycles (Mc) in a 40 mm hip wear simulator test.[16]

Exceptional Oxidative Stability[6, 9]

The vitamin E in Vivacit-E HXLPE is a powerful antioxidant that continuously quenches harmful free radicals to prevent oxidative degradation.[1]

Improved Mechanical Strength[5, 8, 9]

Long term, Vivacit-E HXLPE's material strength has been shown to be stable even after extreme lengths of accelerated aging.

Vivacit-E HXLPE has been laboratory tested to 100 million cycles to mimic the number of walking steps a patient will typically take during a lifetime following a total joint replacement.[16]

DESIGNED FOR PERFORMANCE

DUAL MOBILITY: DESIGN FEATURES THAT MATTER

The Hard Bearing Inserter Ring is designed to correctly align the CoCr liner within the G7 shell to help avoid the micromotion & disassociation that can result from malalignment or incomplete seating in modular dual mobility constructs.

Internal in-vitro testing demonstrates the fretting and corrosion resistance of the taper interface between the G7 acetabular shell and the G7 Dual Mobility CoCr liner.[10]

10M

10 million cycle fatigue test[10]

No signs of fretting corrosion[10]

No deformations[10]

Debris analysis showed rates **lower** than those clinically reported in patients **three years post THA**[10]

INTUITIVELY EFFICIENT INSTRUMENTS

THE EFFICIENT TRAY FACILITATES COST AND TIME SAVINGS, HOLDING ALL GENERAL G7 INSTRUMENTS IN ONE CASE

All Stainless Steel Construction
Designed for fast sterilization and dry times

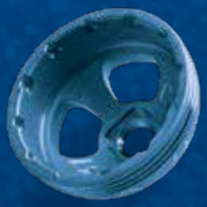
Perforated Tray
Designed to promote sterilizing steam flow and maximum drainage

Unique Wave Construction
Securely holds instruments while reducing overall case weight

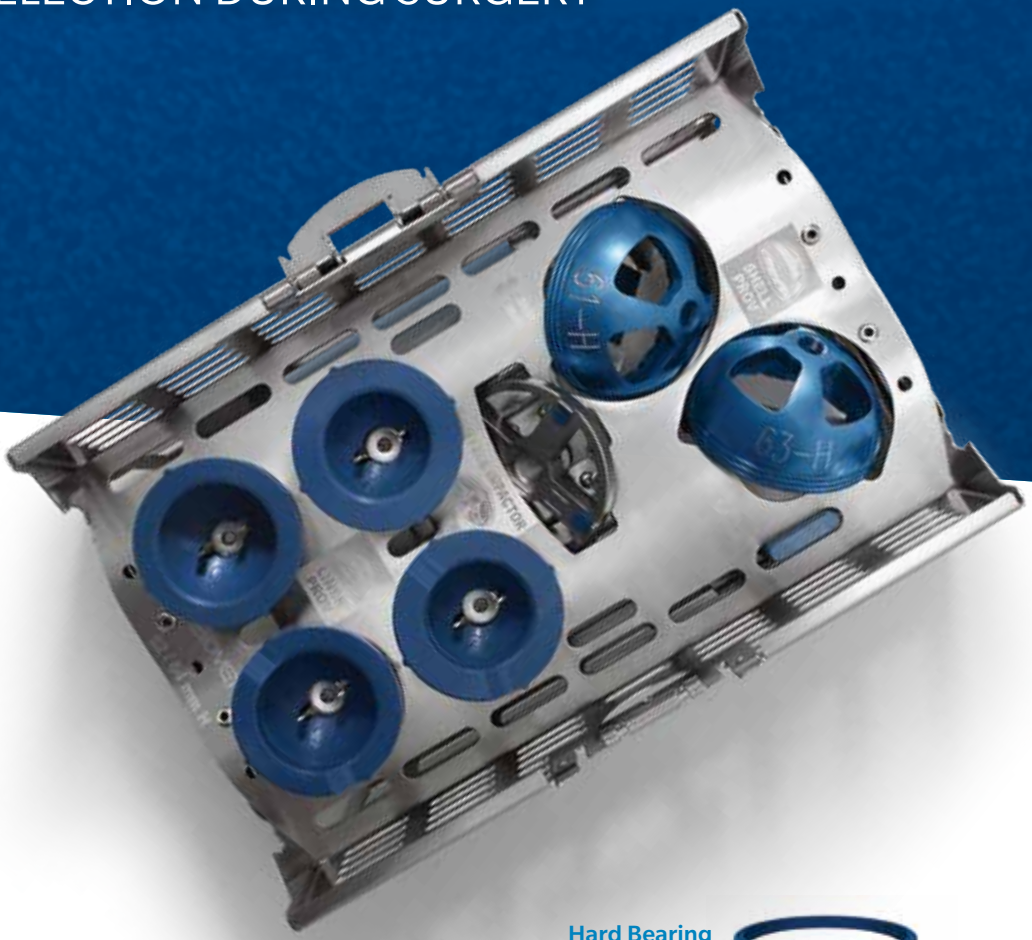
ALLOWS FOR EASE IN LOCATING INSTRUMENTS AND REDUCED CLUTTER IN THE OPERATING ROOM

PATIENT-SPECIFIC MINI TRAYS

PATENTED COLOR-CODED SYSTEM OPTIMIZES IMPLANT AND INSTRUMENT SELECTION DURING SURGERY



Shell Provisional



Shell Packaging

Shell Implant

Face Plate Impactor

Hard Bearing Inserter Ring

Liner Provisional

Liner Packaging

Dual Mobility Provisional

Dual Mobility Bearing Provisional

PERSONALIZED:

TRANSFORMING THE PRIMARY EPISODE OF CARE, ONE PATIENT AT A TIME

From implants to instruments, surgical systems and support services, each piece of the Zimmer Biomet portfolio has been designed to address the distinct needs of individual patients, while simplifying the surgical work-flow.

Arcos® Stem with G7 Dual Mobility

Taperloc® Complete Stem with G7

Avenir® Complete Stem with G7

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* Laboratory testing is not necessarily indicative of clinical performance.

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