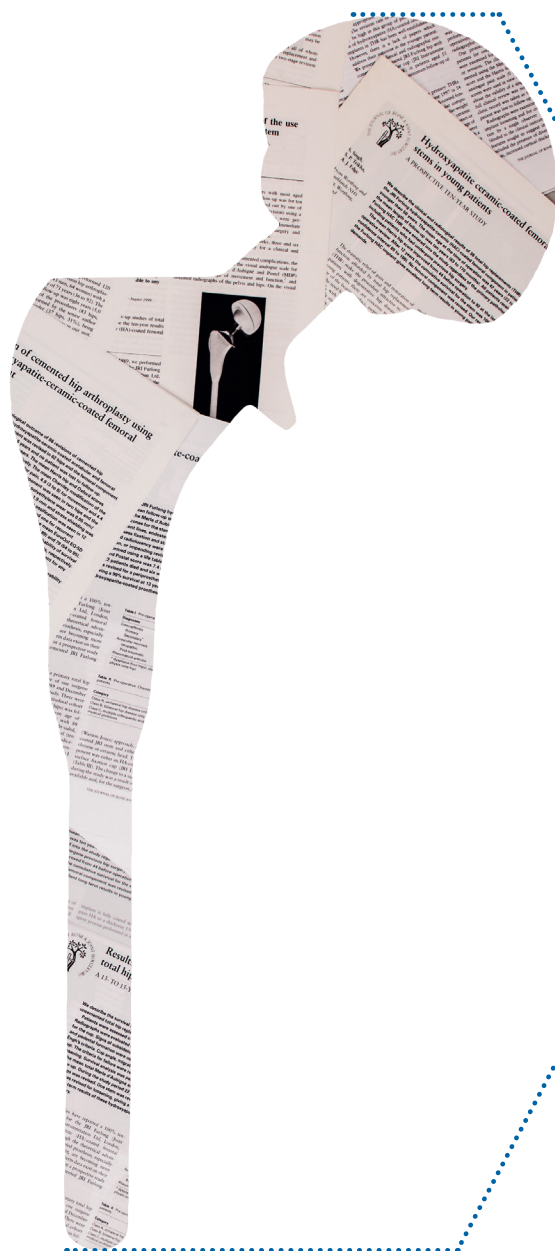


Furlong H-A.C. Primary Total Hip Replacement

Operative Technique

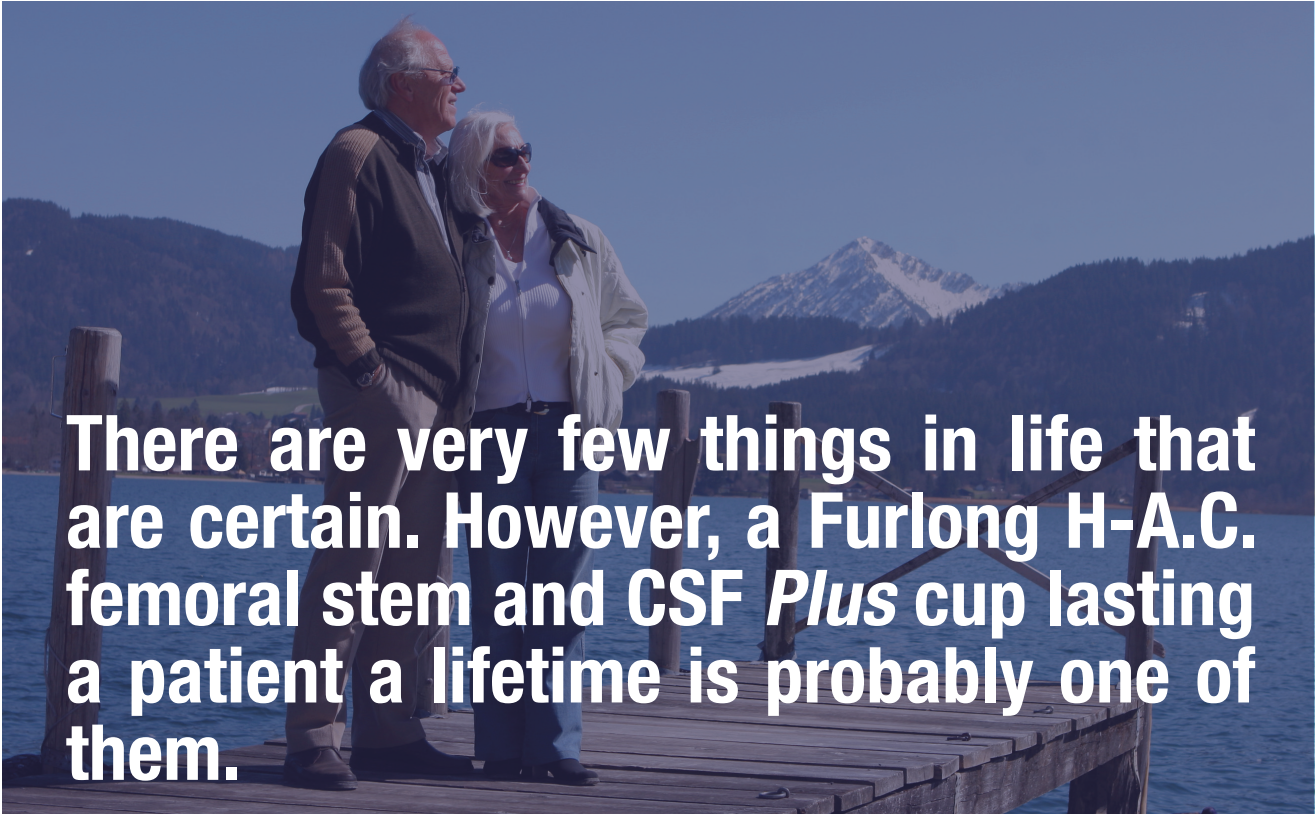


Your Trusted Companion

Incorporating the Operative Technique
for the CSF *Plus acetabular cup*



A Trusted Companion



There are very few things in life that are certain. However, a Furlong H-A.C. femoral stem and CSF *Plus* cup lasting a patient a lifetime is probably one of them.

Data Sources:



20 - 25 years

1. Survivorship of 72 primary total hip replacements (THRs).
J.A.N. Shepperd et al Bone Joint J 2013;95-B:467-71
[http://](#)



20 years

2. Survivorship of 38 total hip arthroplasties (THAs).
N. Shah et al Bone Joint J 2015;97-B:749-54
[http://](#)



13 - 15 years

3. Survivorship of 134 consecutive cases.
A.A. Shetty et al J Bone Joint Surg [Br] 2005; 87-B:1050-4
[http://](#)



19 years

4. Survivorship in 2,212 cases.
J.M. Buchanan, Sunderland Royal Hospital Data presented
at BOA 2007, Manchester, 26 - 28 September 2007
[http://](#)



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Design Rationale

The Furlong® Total Hip Replacement was the first to utilise hydroxyapatite ceramic (H-A.C.) coating to promote biological fixation, introduced in 1985; the geometry of the primary femoral stem has remained unchanged.



This geometry achieves initial primary mechanical fixation, with the hydroxyapatite ceramic as an intermediary to achieve secondary physiological fixation, which has resulted in its well-documented clinical success. ^{1,2,3,4,5,6,7,8,9}

The proximal body of the stem is designed to fit the metaphysis of the femur, providing direct contact with the cancellous bone so that the load is transferred to and transmitted by the interface between the prosthesis and the spongiosa.

The rectangular cross section of the proximal body provides rotational stability under dynamic loading.

The transition between the proximal body and the cylindrical distal stem is a cone. Subsidence of the prosthesis is prevented by the cone, which creates, “hoop stressing,” of the cortical bone and provides early stable mechanical fixation. The femoral canal is over reamed by 2mm so that the distal stem is not in contact with the endosteum. This space contains osteoblastic cells, and these cells, under the influence of osteotropism, form bridging trabeculae vectorially arranged to convey forces between the loaded stem and recipient bone. These, “cradling” trabeculae are elastic and absorb the inevitable micromovement between the host bone and the stiffer titanium alloy implant.

With hydroxyapatite ceramic, new bone grows primarily on and directly into the ceramic surface. Bonding osteogenesis on the hydroxyapatite ceramic surface and reparative osteogenesis on the endosteal bone surface occur simultaneously. This bilateral ossification significantly shortens the time required for osseous bridging between the prosthesis and host bone. A fully coated prosthesis ensures even distribution of forces transmitted through the prosthesis.

While the geometry of the femoral prosthesis has remained unchanged since its inception, the range of stems has been expanded to accommodate a wide spectrum of patients' anatomical requirements.

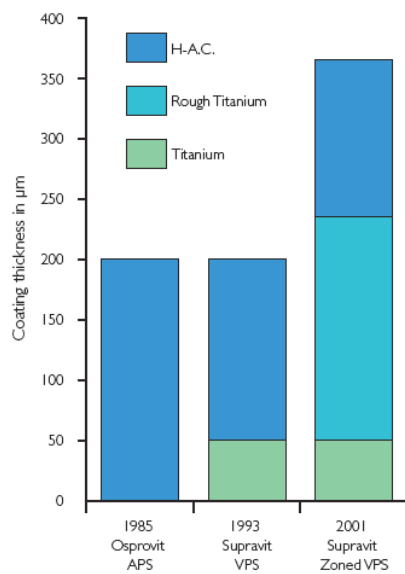
Femoral stems are now available in sizes from 8mm to 14mm in 1mm increments, and in sizes 16mm. All femoral stems are available in 133° and 140° neck shaft angle and in standard and high offset.



CSF *Plus* Acetabular Cup System



SUPRAVIT® COATING EVOLUTION



SUPRAVIT® ZONED COATING

Push-out tests have shown increased shear strength at the hydroxyapatite-to-bone interface as a function of surface roughness. The greater surface area and increased surface roughness provide for enhanced interdigitation of bone trabeculae and improved bonding between implant and bone.

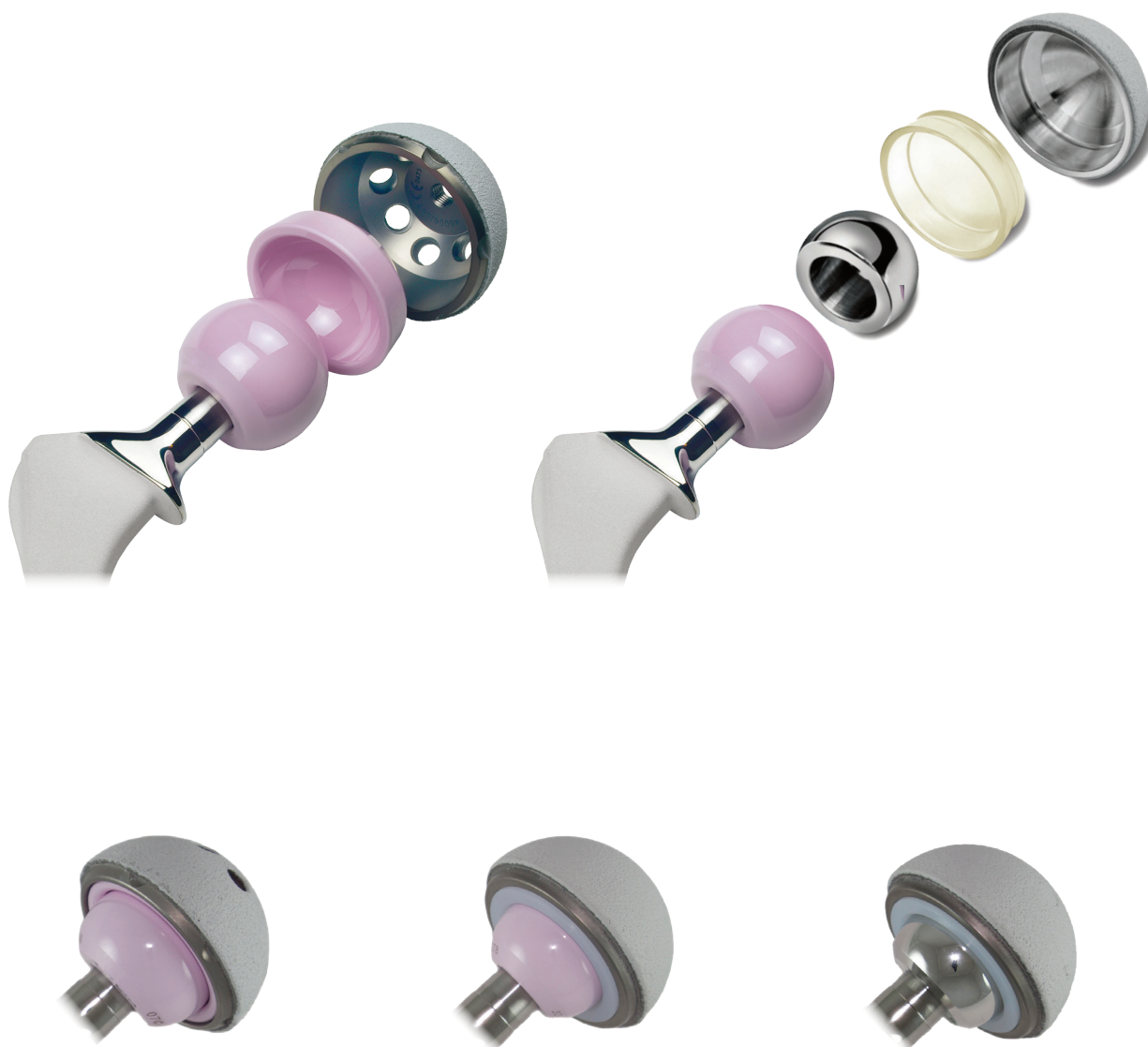
Based on the clinically proven design of the Furlong® H-A.C. CSF Acetabular Cup,⁷ the CSF plus system offers all the same benefits but with some key improvements.

The system has two acetabular shell types: one optimised for ceramic liners and one optimised for polyethylene (UHMWPE) and highly cross-linked polyethylene (CLP 75®) liners. The two shell types have different internal taper angles, 18° for ceramic and 5° for polyethylene, to allow for the most secure and stable seating of the chosen liner without compromise.

The application of Supravit® Zoned coating to the CSF *Plus* acetabular cup shell provides excellent initial fixation and stability. The screw-hole cluster enables anatomically optimal screw placement should additional stability be required.

BioloX® delta ceramic liners are offered for use with the CSF *Plus* ceramic bearing shells for maximum implant strength.

⁷Long-term results of 586 cementless primary total hip arthroplasties using H-A.C. coated endoprosthesis
R Raman, D David, V Eswaramoorthy, M Tiru, P Angus
Data presented at BOA 2007, Manchester, 26 - 28 September 2007



The Furlong CSF plus cup can be used with **standard polyethylene**, **highly cross-linked polyethylene**, **ceramic**, and **PCU (Tribofit)** inserts.



CSF *Plus* for Ceramic Liners



The Furlong® H-A.C. CSF *Plus* cup is designed to allow for the largest internal diameter bearing size to be used with the smallest outside diameter cup size; without any compromise to the strength of the implants. This currently allows up to a 36mm delta Ceramic head to be used in a 50mm acetabular shell and up to a 40mm BioloX® delta ceramic head to be used in a 54mm acetabular shell.



Femoral Neck Osteotomy



After dislocation, resect the femoral neck. The femoral neck resection guide can be used to aid alignment and inclination of the cut. The level of the femoral neck cut should be performed in conjunction with the pre-operative planning. The line of the femoral resection represents 40° from the long axis of the femur.

Two neck shaft angles stems are available, 140° and 133° . Align the resection guide with the femoral axis and determine which neck shaft angle matches the patient's anatomy.



Acetabular Preparation

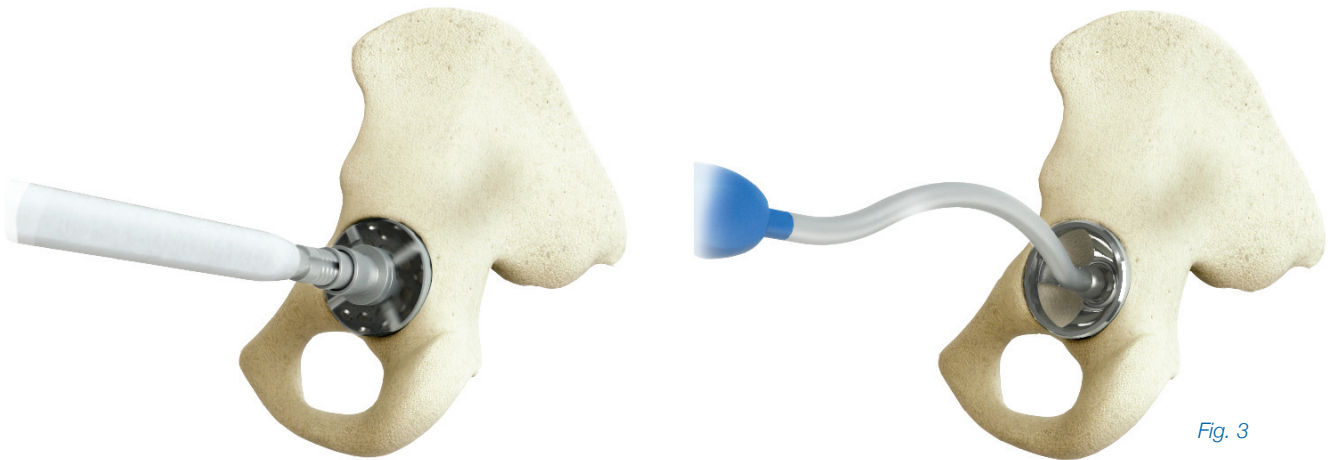


Fig. 3

The acetabulum is exposed and reamed, starting with the smallest reamer (44mm) and increasing in 2mm increments until a bed of circumferential bleeding subchondral bone is achieved. The final reamer size determines the size of the definitive acetabular implant, but this should be confirmed with the use of a trial cup.

The trial cup, corresponding to the final reamer, is screwed onto the introducer handle. The trial cup is introduced into the acetabulum to check for diameter and depth. The height of the trial cup is the same as the definitive implant, whereas the diameter of the trial mimics the reamer and NOT the definitive implant (Figure 3).

Note: The CSF Plus is a hemispherical cup and is designed to be a mean average of 4% larger than the reamer size. This gives equatorial interference fit when impacted into the acetabulum. Maintain concentricity within the acetabular cavity during reaming and aim for a line-to-line sizing but adjust the sizing dependent on the bone quality, if unsure, over ream by 1mm or 2mm.

50mm + 4% = 52mm OD definitive implant

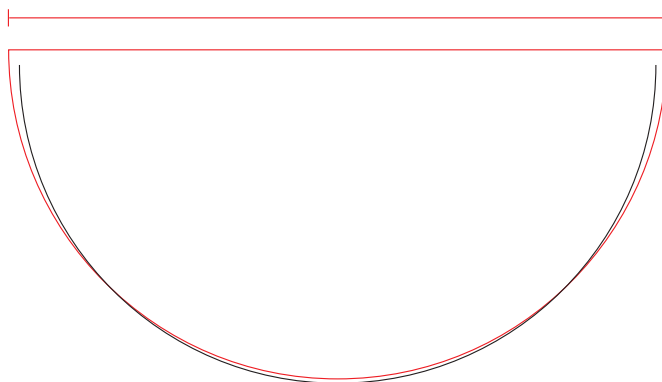


Illustration purposes only.



Acetabular Alignment



Fig. 4

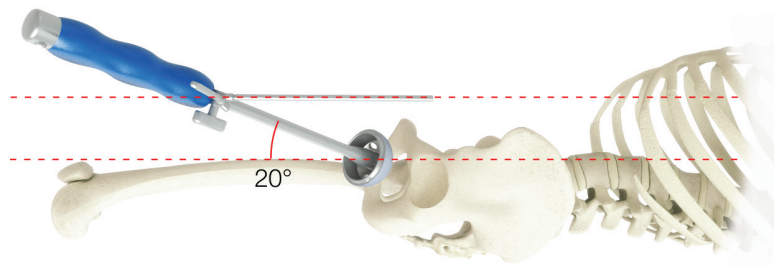


Fig. 5

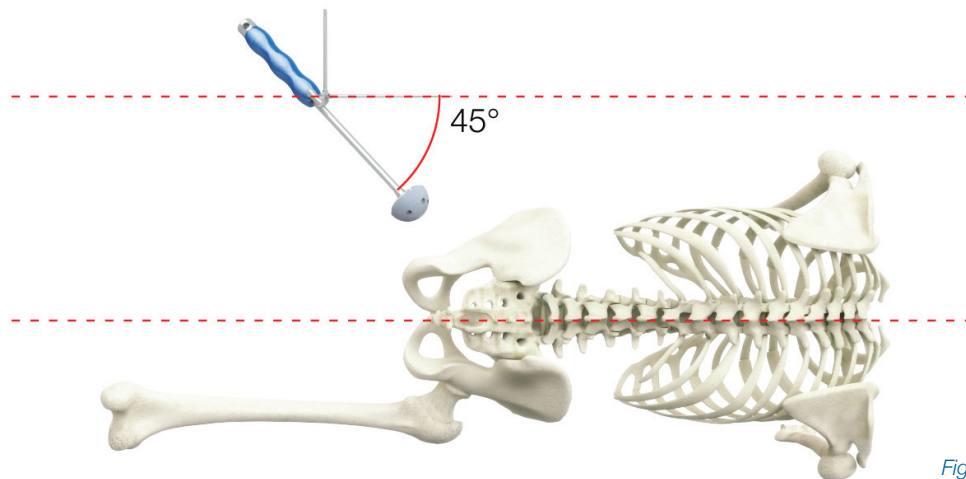


Fig. 6

The definitive acetabular implant is firmly screwed onto the impactor shaft.

Note: CSF Plus acetabular cups for polyethylene liners come with screw hole plugs already in situ. Unscrew the apical hole plug from the definitive implant so that the cup shell can be screwed onto the impactor shaft.

Align the cluster of tree holes in the acetabular cup to the superior aspect of the prepared acetabulum (Figure 4). The isolated holes should now line up with the ischium and the pubis.

The cup positioning guide is clamped onto the impactor shaft and secured.

The horizontal guide rod is screwed into the guide in the corresponding left or right hole depending on which side is being operated on. The offset holes represent 20° of anteversion when aligned with the long axis of the body (Figure 5). The vertical and horizontal rods, when perpendicular and parallel to the floor, respectively, indicate an abduction angle of 45° (Figure 6).



Cup Impaction

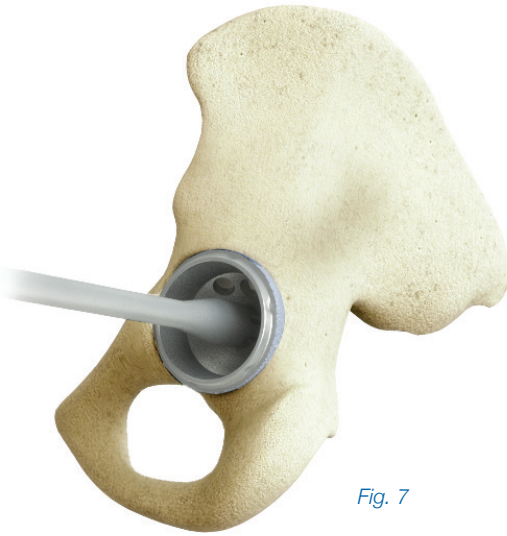


Fig. 7



Fig. 8

The cup is presented to the acetabulum, ensuring the three clustered screw holes align with the ilium (Figure 7). Impact the cup firmly ensuring the orientation of the cup is maintained. An audible change of tone and tactile feedback will indicate when the cup is correctly seated. The impactor handle can be removed and the seating of the cup can be checked through the apical hole and/or through the screw holes (Figure 8).

Should the cup be difficult to seat or the bone be sclerotic, it may be necessary to open the acetabulum further. Lightly reaming the acetabular rim only with the next-larger reamer and releasing the transverse acetabular ligament will help to introduce and seat the implant.

In the case of using a CSF *Plus* poly bearing cup, once fully seated, the apical hole may be filled by introducing the supplied screw hole cover.



Screw Insertion

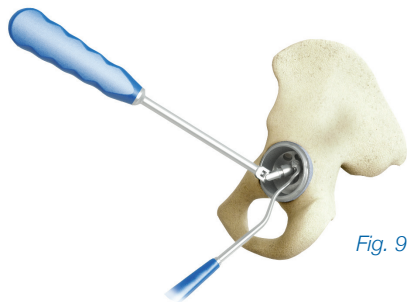


Fig. 9



Fig. 10



Fig. 11



Fig. 12

In the majority of primary cases, stable primary mechanical fixation will be achieved without the need for adjunctive screws.

If required, additional fixation can be achieved with the use of cancellous bone screws. In the case of the CSF *Plus* poly bearing cup, remove one or more screw hole plugs.

A drill guide is placed in the chosen screw hole, ensuring that it is fully seated. A pilot hole is made using the disposable drill bit, which can be used with power or manually (Figure 9).

The length of the screw is determined using the depth gauge (Figure 10). Once selected, the self tapping screws, which are available in 5mm increments from 15mm to 50mm, are held with the screw-holding forceps and screwed into position with a 3.5mm hex screwdriver (Figure 11). It is imperative that the head of the screw does not protrude from the screw hole, as failure to ensure this could result in the screw head preventing the liner from seating fully (Figure 12).

Screws can be angled through 30° to achieve optimum fixation.

The trial insert with the desired internal diameter is fitted to prevent any damage to the internal taper.



Femoral Preparation



The box chisel is placed as laterally as possible on the medial wall of the greater trochanter. An initial wedge of cancellous bone is resected using the box chisel while keeping it in line with the femur.

The 4mm - 8mm intramedullary reamer is used to determine the line of the medullary canal.



Broaching the Femur



The femoral canal is alternatively reamed and rasped, moving up through the available sizes until the desired implant size is reached. To reduce the risk of damage to the calcar, care should be taken to cautiously hammer the rasp in and out. To facilitate proper implant sizing, it is important to keep the rasp handle in as laterally as possible within the greater trochanter.

The handle of the rasp can be used as a 'torque wrench' to ensure rasp stability at the final size. Move the handle anteriorly and posteriorly to check anterior/posterior stability. When movement only occurs between the handle and the rasp, not between the rasp and bone, the rasp is correctly sized.

The proximal etched line indicates the 'stop' point of the rasp. This line should be visible above the resection line medially. NB. if pre-operative planning indicates an acute neck resection angle, it is possible the entire line might not be visible.



Calcar Reaming and Lateral Fin Cutting



When the fit of the rasp/trial is considered satisfactory, the handle is removed leaving the rasp/trial in the femur, as illustrated.

The calcar cutter is fitted to the T-handle and used to trim the calcar at the femoral neck osteotomy.

The fin cutter is orientated with the teeth facing the greater trochanter and is tapped home into the slot on the supero-lateral aspect of the rasp/trial.



Femoral Head Trialling



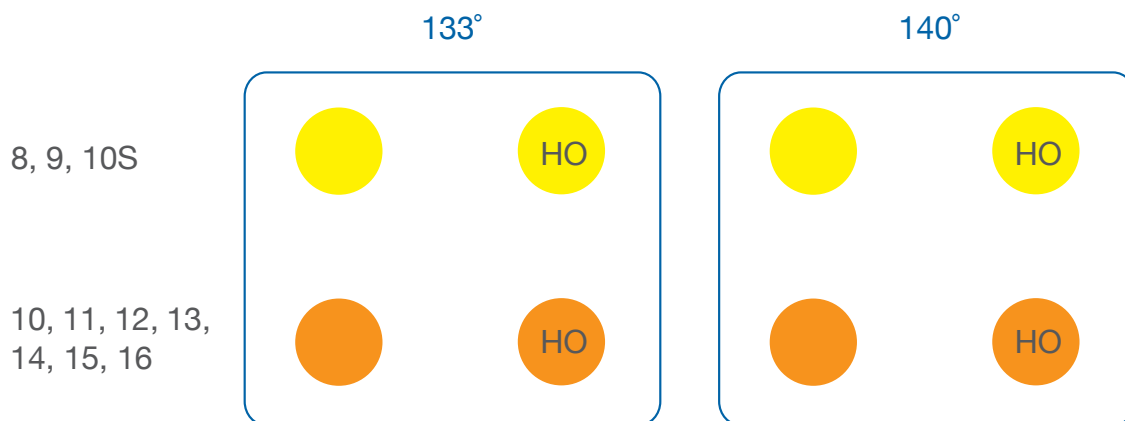
Important: The size 8 and 9 stems have a shorter spigot than the size 10 and above stems (4mm less), therefore there are two sets of trial neck adaptors.

Orange adaptors are for short spigot stems, sizes 8 and 9. Yellow adaptors are for the long spigot stems, size 10 and above.

Trial necks are available in clearly labelled options (Image 19):

- 133deg standard offset
- 133deg high offset
- 140deg standard offset
- 140deg high offset

Attach a trial neck to the broach and the appropriate trial head as templated during preoperative planning. A choice of four neck lengths are available: short (-4mm), medium (0mm), long (+4mm) and X-long (+8mm). It is vital to select the head diameter size that matches the chosen acetabular cup/liner I.D. size (Image 18). Reduce the hip and check for stability and range of motion.



 8, 9, 10S (Short spigot stems)

 10, 11, 12, 13, 14, 15, 16 (Standard spigot stems +4mm)

HO = High offset (lateral offset +5mm)

Furlong® H-A.C 8, 9, and 10S stems have a short spigot

Furlong® H-A.C 10 to 16 stems have a spigot +4mm longer



Ceramic Liner Insertion

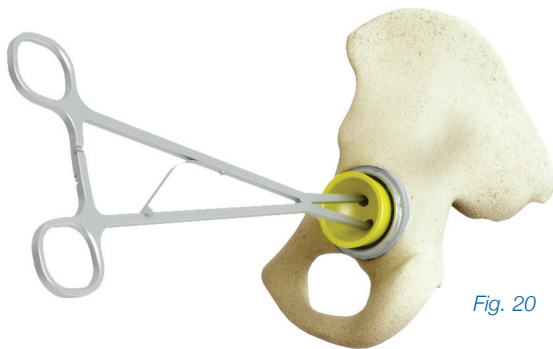


Fig. 20



Fig. 21



Fig. 22

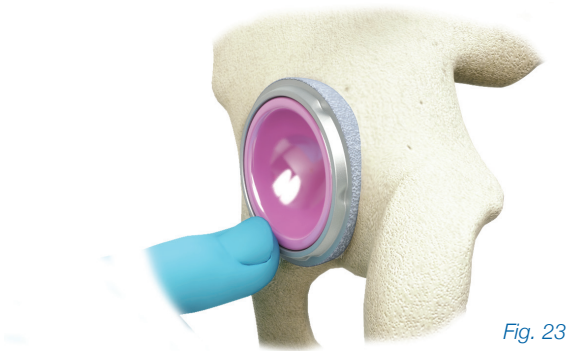


Fig. 23



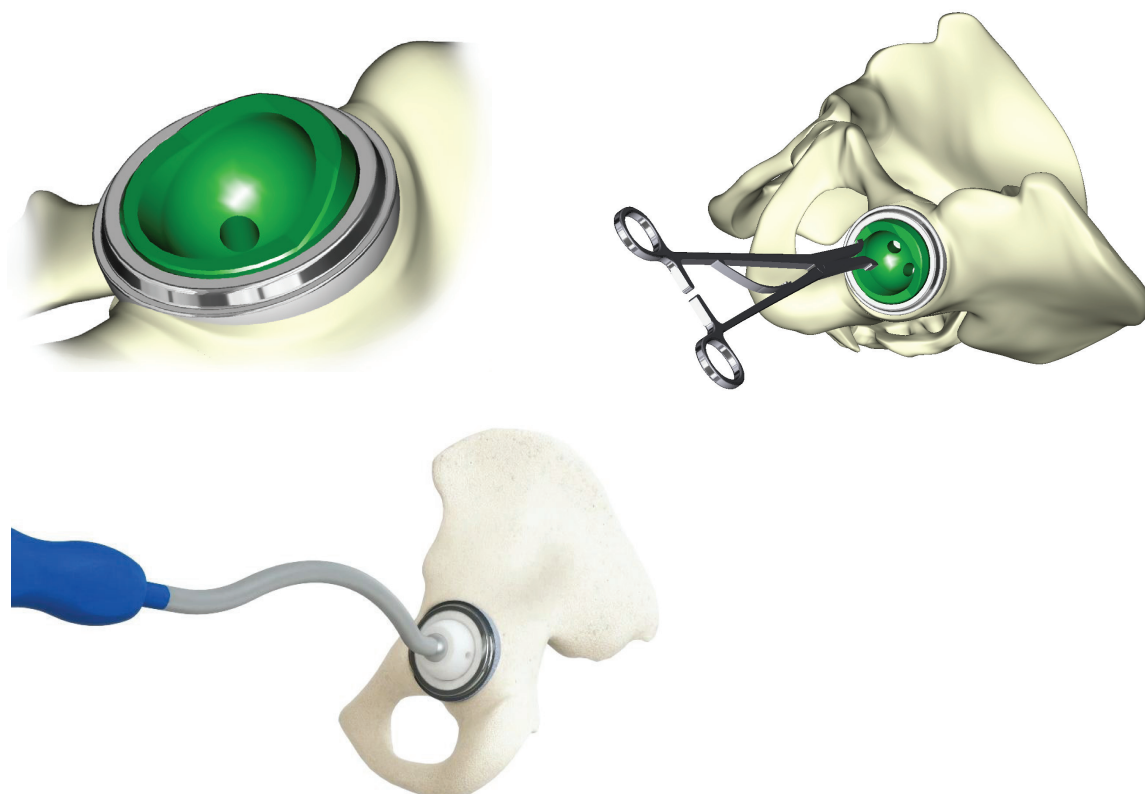
Remove the trial head, neck adaptor, rasp, and trial liner; removal forceps are available to assist in removing the trial liner (Figure 20).

The inner surface of the acetabular cup must be clean, dry, and free from debris. The definitive acetabular liner is inserted into the cup by gently sliding the liner down the internal taper of the cup (Figures 21 and 22). Ensure that the liner is uniformly flush against the whole rim by gliding a finger around the edge of the cup (Figure 23).

The liner is tapped home using the trial cup introducer handle with the size of plastic cap that matches the internal diameter of the acetabular liner. After impaction, re-check to ensure correct seating of the liner.



Poly Liner Insertion



CSF *Plus* cross-linked polyethylene liners are available in standard (blue trial liners) and 10° hooded (green trial liners) variants. The hood of the liner can be aligned anywhere around the periphery of the cup through 360°. However, to prevent the trial liner from rotating when performing a trial reduction, a hexagonal peg is located on the rear of the trial liner; this engages within the hex of the cup impaction hole.

Perform a trial reduction, checking for stability, impingement, and range of motion.

Before implanting the definitive liner, reinsert the screw hole plug into the apical hole.

The inner surface of the acetabular cup must be clean, dry, and free from debris. The definitive acetabular liner (standard or hooded) is firmly tapped home using the trial cup introducer handle with the size of the size of plastic cap that matches the internal diameter of the acetabular liner.

If a hooded liner is used, ensure that the hood of the liner is at the same location as trialled.

Check that the acetabular liner is fully seated and stable.



Femoral Stem Insertion



The trial implants are removed, and the femoral canal is reamed 1mm or 2mm larger than the definitive stem. This is to create circumferential clearance around the distal stem. The femoral canal is cleared of any loose debris. The definitive femoral stem is implanted using the stem impactor, which locates into the hexagonal slot on the prosthesis allowing control over the rotation of the stem during implantation. As the stem is impacted, a change of tone can be used as a guide to determine the final position of the stem. The collar might not rest flush on the calcar when the note changes to a harder tone. In this case, further impaction to attempt to seat the collar on the calcar is not necessary.



Once the stem is fully impacted, the spigot protector is removed. A final trial reduction is performed to confirm joint stability and range of motion.

The definitive femoral head with the desired neck length is placed carefully onto the clean spigot of the femoral stem using a twisting motion. Using a light tap, impact the definitive femoral head using the head impactor, ensuring the surface of the head is not scratched or damaged in any way.

The hip is reduced (Figure 31).



Revision Length Stems



Revision hip surgery presents the surgeon with a plethora of potential problems, therefore, thorough pre-operative planning is essential for ensuring a successful outcome. Identifying the type and sizes of the primary components from patient records facilitates the provision of matched replacement sizes, if leaving one of the components in situ is required. Scrutiny of x-rays will be required by the surgeon to complement this, and we provide templates of primary and revision implants to gauge head sizes, femoral stem widths, and acetabular component diameters. Templating can then indicate the various sizes of revision implants that can be used.

During revision surgery or complex primary procedures, it may be necessary to use a longer stemmed prosthesis to bypass deficient bone.

Furlong Femoral Revision stems and Furlong® Revision Plus stems retain the furlong shape in the proximal portion but the distal stem is available in 200mm and 250mm lengths.

IMPORTANT: Adjunctive proximal fixation/support is required. Where there is loss of proximal bone stock, or poor proximal bone quality, bone grafting or other adjunctive proximal fixation/support is advised for implant stability. It is important that the prosthesis is not distally fixed without proximal support.

The Revision Plus range of implants adds greater versatility to the original revision range. They specifically address the problems occurring when encountering the 'arum lily' type of femoral canal, which has a disproportionately larger metaphysis compared to the diaphysis. The Furlong® Revision Plus range has a larger body section for the corresponding stem size in order to occupy the space of this larger metaphysis. (Note: Only available in the 140° CCD range of implants.)



Care should be taken to ensure all remnants of previous implants and bone cement are removed from the femoral canal. The preoperative planning should indicate the necessary length of femoral prosthesis to be used, 200mm or 250mm.

The intramedullary reamers and the corresponding rasp/trials are used to prepare the femoral canal. Longer reamers are used to ream the femoral canal down past the depth of the femoral stem, either 200mm or 250mm. This measure is taken from the anticipated final position of the shoulder of the proximal body.

Using the straight femoral reamers, ream the femoral canal to a depth of approximately 5cm past the most distal femoral defect. Increase the diameter of the femoral reamers until cortical contact is achieved. Take a measure from the greater trochanter to determine whether the 200mm or 250mm length stem should be used.



To reduce the risk of damage to the calcar, care should be taken to cautiously hammer the rasp in and out. To facilitate proper implant sizing, it is important to keep the rasp handle in a laterally position as possible within the greater trochanter.

When sizing the metaphysis, it is important to achieve proximal stability so as not to rely on distal loading. If the metaphyseal cavity requires a larger prosthesis than the corresponding distal stem, this indicates the use of the Revision Plus stems (i.e., size 10 revision plus stem will have a 10mm distal diameter stem and the equivalent of a size 12 proximal body). Separate Revision Plus rasps are required, which represent the same diameter distal stem with the proximal body 2mm larger.

Continue rasping and reaming until secure proximal stability is achieved.



Select the appropriate size trial stem and impact it into position.

The trial stem has the same dimensions as the definitive implant without the H-A.C. coating.

The trial stems have a parallel-sided spigot and therefore require parallel-sided trial heads. A choice of six neck lengths are available: S , M, L, XL, XL+4, and XL+8.

Perform a trial reduction and check for stability, range of movement, and leg length.

High offset options are available. If the offset needs to be increased, then the standard trial stem needs to be removed and replaced with the high offset trial stem.

Removal of the trial stem is facilitated by an extraction hole in the parallel-sided spigot.



The definitive femoral stem is implanted using the stem impactor, which locates into the hexagonal slot on the prosthesis allowing control over the rotation of the stem during implantation. Once the stem is fully impacted, the spigot protector is removed.

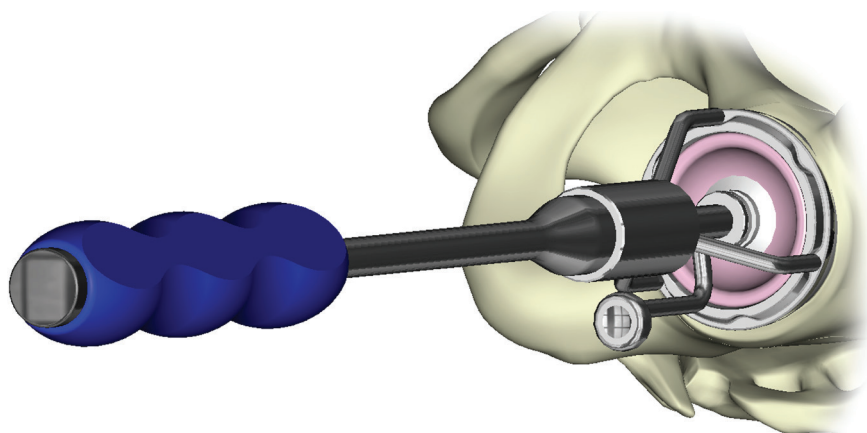
A further trial reduction is carried out using the brown implant trial head. The diameter of the implant trial head must be the same as the internal diameter of the acetabular liner. A choice of six neck lengths are available.

The definitive femoral head with the desired neck length is placed carefully onto the clean spigot of the femoral stem. The head is tapped gently onto the spigot, ensuring the surface of the head is not scratched or damaged in any way.

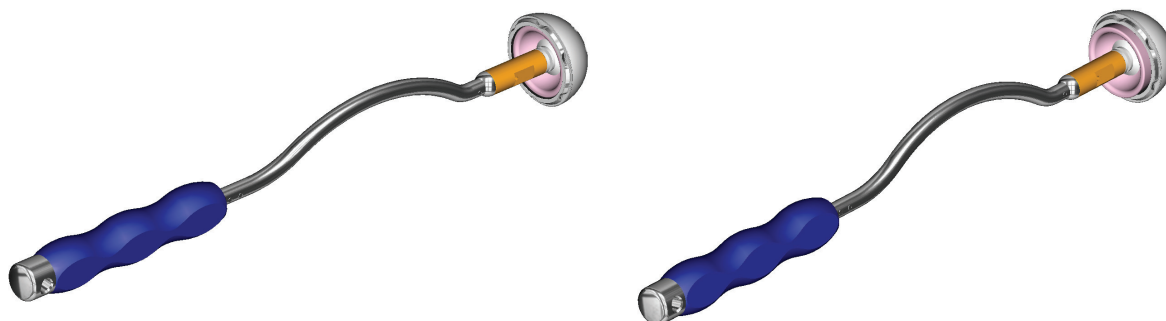
The hip is reduced. Drainage is established.



Ceramic Liner Removal Tool



A ceramic liner removal device is available for intraoperative and revision use. Align the prongs of the removal device to the corresponding slots on the periphery of the acetabular cup. The plunger can be engaged with the liner, allowing for simple removal.



An alternative ceramic liner removal device without peripheral attachments is available, which can be directly engaged with the liner.



Primary Furlong® H-A.C. Dimension Chart

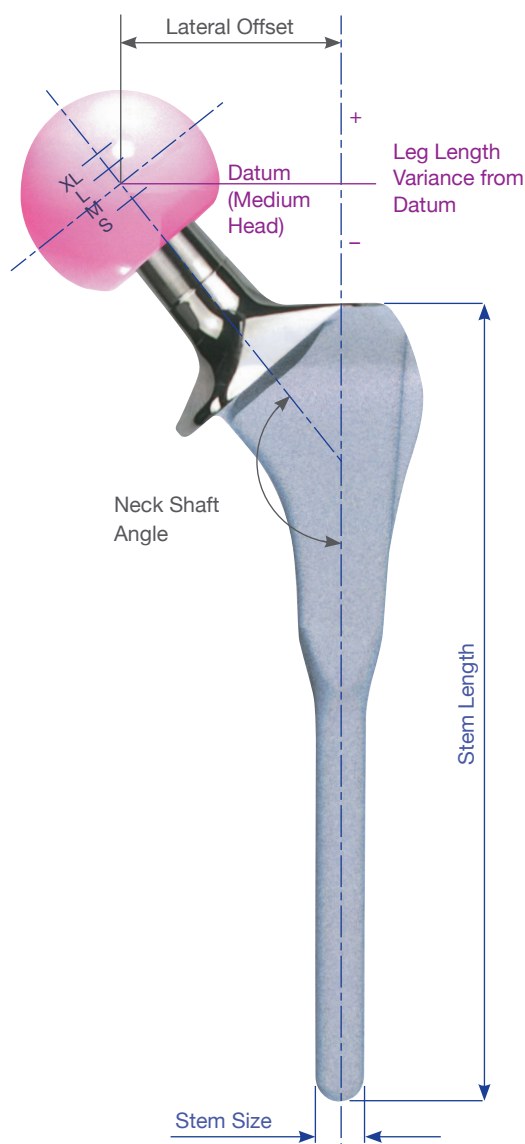
133° Neck Shaft Angle Standard Offset		Lateral Offset			
Stem Size	Stem Length	S	M	L	XL
8	98	32	35	38	41
9	140	34	37	40	43
10, 11, 12	152	38	41	44	47
13	159				
14	165				
16	166				

Neck Shaft Angle	Variance from Medium Head			
	Neck Length (in mm)		Leg Length (in mm)	
	Short -4	Medium 0	Long +4	Extra Long +8
133°	-2.8	0	2.8	5.6
140°	-3.1	0	3.1	6.2

133° Neck Shaft Angle High Offset Neck (+5mm)		Lateral Offset			
Stem Size	Stem Length	S	M	L	XL
8	98	37	40	43	46
9	140	39	42	45	48
10, 11, 12	152	43	46	50	52
13	159				
14	165				
16	166				

140° Neck Shaft Angle Standard Offset		Lateral Offset			
Stem Size	Stem Length	S	M	L	XL
8	98	28	31	33	36
9	140	30	32	35	37
10 Short Spigot	152	31	33	36	39
10, 11, 12	152	33	36	39	41
13	159				
14	165				
16	166				

140° Neck Shaft Angle High Offset Neck (+5mm)		Lateral Offset			
Stem Size	Stem Length	S	M	L	XL
8	98	33	36	38	41
9	140	35	37	40	42
10 Short Spigot	152	36	38	41	44
10, 11, 12	152	38	41	44	46
13	159				
14	165				
16	166				



All dimensions are in mm



Primary Furlong® H-A.C. Stem Component Range

**Furlong® H-A.C. Supravit®
Coated 133° Neck Angle
Femoral Stem**



DESCRIPTION	PRODUCT NO.
133° NECK ANGLE STANDARD STEM Titanium Alloy with Supravit® Coating	
08mm	81-08-30
09mm	81-09-30
10mm	81-10-30
11mm	81-11-30
12mm	81-12-30
13mm	81-13-30
14mm	81-14-30
16mm	81-16-30
133° NECK ANGLE STANDARD STEM, High Offset (+5mm) Titanium Alloy with Supravit® Coating	
08mm	81-08-35
09mm	81-09-35
10mm	81-10-35
11mm	81-11-35
12mm	81-12-35
13mm	81-13-35
14mm	81-14-35
16mm	81-16-35

DESCRIPTION	PRODUCT NO.
140° NECK ANGLE STANDARD STEM Titanium Alloy with Supravit® Coating	
08mm	81-08-08
09mm	81-09-08
10mm (Short Spigot)	81-10-08
10mm	81-10-12
11mm	81-11-12
12mm	81-12-12
13mm	81-13-12
14mm	81-14-12
16mm	81-16-12
140° NECK ANGLE STANDARD STEM, High Offset (+5mm) Titanium Alloy with Supravit® Coating	
08mm	81-08-05
09mm	81-09-05
10mm (Short Spigot)	81-10-05
10mm	81-10-15
11mm	81-11-15
12mm	81-12-15
13mm	81-13-15
14mm	81-14-15
16mm	81-16-15

**Furlong® H-A.C. Supravit®
Coated 140° Neck Angle
Femoral Stem**





CSF *Plus* Polyethylene CLP75® Bearing Cup Range

Standard CLP75 Polyethylene Liners

Cup Shell size O.D. / Liner I.D. (mm)	28	32	36
44mm 175-44-07	150-44-28		
46mm 175-46-07	150-46-28		
48mm 175-48-07	150-48-28	150-48-32	
50mm 175-50-07	150-50-28	150-50-32	
52mm 175-52-07	150-52-28	150-52-32	
54mm 175-54-07	150-54-28	150-54-32	
56mm 175-56-07	150-56-28	150-56-32	150-56-36
58mm 175-58-07	150-58-28	150-58-32	150-58-36
60mm 175-60-07	150-60-28	150-60-32	150-60-36
62mm 175-62-07	150-62-28	150-62-32	150-62-36

CSF *Plus* Cup Shell/
Standard CLP75
liner combinations



Cobalt Chrome Femoral Heads

Head-neck length / Head size (mm)	28	32	36
Short	47-28-10	47-32-10	47-36-10
Medium	47-28-20	47-32-20	47-36-20
Long	47-28-30	47-32-30	47-36-30
X Long	47-28-40	47-32-40	47-36-40



Hooded CLP75 Polyethylene Liners

Cup Shell size O.D. / Liner I.D. (mm)	28	32	36
44mm 175-44-07	151-44-28		
46mm 175-46-07	151-46-28		
48mm 175-48-07	151-48-28	151-48-32	
50mm 175-50-07	151-50-28	151-50-32	
52mm 175-52-07	151-52-28	151-52-32	
54mm 175-54-07	151-54-28	151-54-32	
56mm 175-56-07	151-56-28	151-56-32	151-56-36
58mm 175-58-07	151-58-28	151-58-32	151-58-36
60mm 175-60-07	151-60-28	151-60-32	151-60-36
62mm 175-62-07	151-62-28	151-62-32	151-62-36

CSF *Plus* Cup Shell/
Hooded CLP75
liner combinations



Bilox Delta Ceramic Femoral Heads

Head-neck length / Head size (mm)	28	32	36	40
Short	192-28-10c	192-32-10c	192-36-10c	192-40-10c
Medium	192-28-20c	192-32-20c	192-36-20c	192-40-20c
Long	192-28-30c	192-32-30c	192-36-30c	192-40-30c
X Long			192-36-40c	192-40-40c





CSF *Plus* Ceramic Bearing Cup Range

H-A.C. CSF *Plus* - Liner/head size combination chart

Cup Shell size O.D. / Liner I.D. (mm)	28	32	36	40
44mm 170-44-07	140-44-28			
46mm 170-46-07		140-46-32		
48mm 170-48-07				
50mm 170-50-07		140-50-32	140-50-36	
52mm 170-52-07				
54mm 170-54-07		140-54-32	140-54-36	140-54-40
56mm 170-56-07				
58mm 170-58-07				
60mm 170-60-07				
62mm 170-62-07				



Biolog Delta Ceramic Femoral Heads

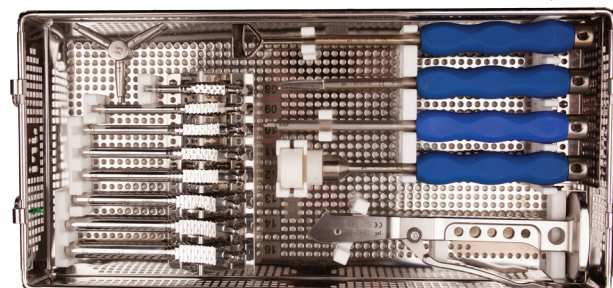
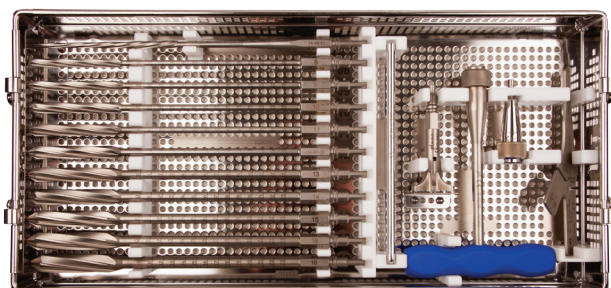
Head-neck length / Head size (mm)	28	32	36	40
Short	192-28-10c	192-32-10c	192-36-10c	192-40-10c
Medium	192-28-20c	192-32-20c	192-36-20c	192-40-20c
Long	192-28-30c	192-32-30c	192-36-30c	192-40-30c
X Long			192-36-40c	192-40-40c

Biolog[®] *delta* Ceramic





Instrumentation for Furlong® H-A.C. Femoral Stem & Long Revision Stem



Instrumentation for Furlong® H-A.C. Femoral Stem Tray One

Part Number	Description
700-00-16	Furlong® H-A.C. Femoral Stem Tray One
10-00-51	T-Handle - 12mm A/F Hex
10-00-64	Jacobs Adaptor - Cannulated
10-08-28	Tommy Bar - 8mm Dia X 200mm Long
14-48-61	Helical Femoral Reamer 12mm A/F Hex - 4-8mm
14-61-08	IM Femoral Reamer - 08mm Dia 60°
14-61-09	IM Femoral Reamer - 09mm Dia 60°
14-61-10	IM Femoral Reamer - 10mm Dia 60°
14-61-11	IM Femoral Reamer - 11mm Dia 60°
14-61-12	IM Femoral Reamer - 12mm Dia 60°
14-61-013	IM Femoral Reamer - 13mm Dia 60°
14-61-14	IM Femoral Reamer - 14mm Dia 60°
14-61-15	IM Femoral Reamer - 15mm Dia 60°
14-61-16	IM Femoral Reamer - 16mm Dia 60°
14-61-18	IM Femoral Reamer - 18mm Dia 60°
64-00-21	Head Resection Guide - Furlong HAC Stems, Short, 140°
81-00-46	H.A.C. Instrumentation Femoral Tray 1
90-00-23	Calcar Cutter - Bi-Directional

Instrumentation for Furlong® H-A.C. Femoral Stem Tray Two

Part Number	Description
700-00-17	Furlong® H-A.C. Femoral Stem Tray Two
10-00-46	Head Impactor Cushion
10-99-38	Spare Impactor Heads
10-99-47	Femoral Head Impactor
200-02-88	Rasp Handle - Inline
50-04-08	Allen Multi-key - (Large) 3.5mm, 4mm & 6mm A/F Hex
50-99-34	Stem Impactor - 6mm A/F Hex
50-99-45	Box Chisel - Straight
70-11-08	Furlong HAC Rasp - 8mm
70-11-09	Furlong HAC Rasp - 9mm
70-11-10	Furlong HAC Rasp - 10mm
70-11-11	Furlong HAC Rasp - 11mm
70-11-12	Furlong HAC Rasp - 12mm
70-11-13	Furlong HAC Rasp - 13mm
70-11-14	Furlong HAC Rasp - 14mm
70-11-16	Furlong HAC Rasp - 16mm
81-00-47	H.A.C. Instrumentation Femoral Tray 2
90-99-02	Fin Cutter



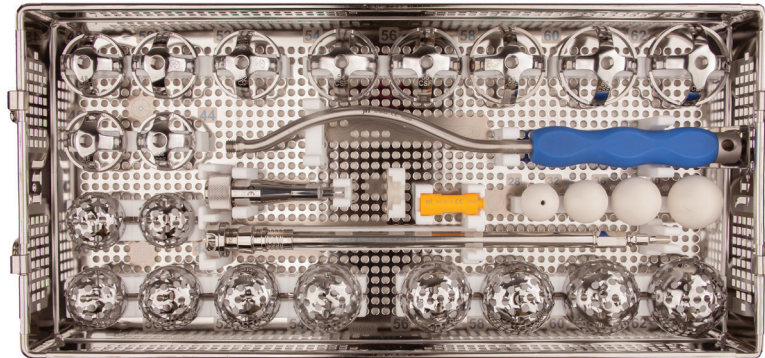
Long Revision Stem Range

Furlong® H-A.C.

Long Revision Range

Part Number	Description
83-10-20	H-A.C. Femoral Stem - 140° CCD Angle - Revision, 10mm x 200mm
83-10-21	H-A.C. Femoral Stem - 140° CCD Angle - Revision Offset, 10mm x 200mm
83-10-22	H-A.C. Femoral Stem - 133° CCD Angle - Revision, 10mm x 200mm
83-10-23	H-A.C. Femoral Stem - 133° CCD Angle - Revision Offset, 10mm x 200mm
83-10-25	H-A.C. Femoral Stem - 140° CCD Angle - Revision, 10mm x 250mm
83-10-26	H-A.C. Femoral Stem - 140° CCD Angle - Revision Offset, 10mm x 250mm
83-11-20	H-A.C. Femoral Stem - 140° CCD Angle - Revision, 11mm x 200mm
83-11-21	H-A.C. Femoral Stem - 140° CCD Angle - Revision Offset, 11mm x 200mm
83-11-22	H-A.C. Femoral Stem - 133° CCD Angle - Revision, 11mm x 200mm
83-11-23	H-A.C. Femoral Stem - 133° CCD Angle - Revision Offset, 11mm x 200mm
83-11-25	H-A.C. Femoral Stem - 140° CCD Angle - Revision, 11mm x 250mm
83-11-26	H-A.C. Femoral Stem - 140° CCD Angle - Revision Offset, 11mm x 250mm
83-12-20	H-A.C. Femoral Stem - 140° CCD Angle - Revision, 12mm x 200mm
83-12-21	H-A.C. Femoral Stem - 140° CCD Angle - Revision Offset, 12mm x 200mm
83-12-22	H-A.C. Femoral Stem - 133° CCD Angle - Revision, 12mm x 200mm
83-12-23	H-A.C. Femoral Stem - 133° CCD Angle - Revision Offset, 12mm x 200mm
83-12-25	H-A.C. Femoral Stem - 140° CCD Angle - Revision, 12mm x 250mm
83-12-26	H-A.C. Femoral Stem - 140° CCD Angle - Revision Offset, 12mm x 250mm
83-13-20	H-A.C. Femoral Stem - 140° CCD Angle - Revision, 13mm x 200mm
83-13-21	H-A.C. Femoral Stem - 140° CCD Angle - Revision Offset, 13mm x 200mm
83-13-22	H-A.C. Femoral Stem - 133° CCD Angle - Revision, 13mm x 200mm
83-13-23	H-A.C. Femoral Stem - 133° CCD Angle - Revision Offset, 13mm x 200mm
83-14-20	H-A.C. Femoral Stem - 140° CCD Angle - Revision, 14mm x 200mm
83-14-21	H-A.C. Femoral Stem - 140° CCD Angle - Revision Offset, 14mm x 200mm
83-14-22	H-A.C. Femoral Stem - 133° CCD Angle - Revision, 14mm x 200mm
83-14-23	H-A.C. Femoral Stem - 133° CCD Angle - Revision Offset, 14mm x 200mm
83-14-25	H-A.C. Femoral Stem - 140° CCD Angle - Revision, 14mm x 250mm
83-14-26	H-A.C. Femoral Stem - 140° CCD Angle - Revision Offset, 14mm x 250mm
83-15-22	H-A.C. Femoral Stem - 133° CCD Angle - Revision, 15mm x 200mm
83-15-23	H-A.C. Femoral Stem - 133° CCD Angle - Revision Offset, 15mm x 200mm
83-16-20	H-A.C. Femoral Stem - 140° CCD Angle - Revision, 16mm x 200mm
83-16-21	H-A.C. Femoral Stem - 140° CCD Angle - Revision Offset, 16mm x 200mm
83-16-22	H-A.C. Femoral Stem - 133° CCD Angle - Revision, 16mm x 200mm
83-16-23	H-A.C. Femoral Stem - 133° CCD Angle - Revision Offset, 16mm x 200mm
83-16-25	H-A.C. Femoral Stem - 140° CCD Angle - Revision, 16mm x 250mm
83-16-26	H-A.C. Femoral Stem - 140° CCD Angle - Revision Offset, 16mm x 250mm
83-18-20	H-A.C. Femoral Stem - 140° CCD Angle - Revision, 18mm x 200mm
83-18-21	H-A.C. Femoral Stem - 140° CCD Angle - Revision Offset, 18mm x 200mm
83-18-25	H-A.C. Femoral Stem - 140° CCD Angle - Revision, 18mm x 250mm
83-18-26	H-A.C. Femoral Stem - 140° CCD Angle - Revision Offset, 18mm x 250mm

CSF *Plus* Instrumentation

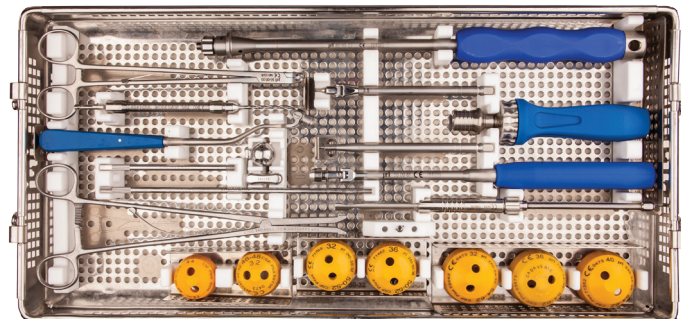


Instrumentation for Furlong® H-A.C. CSF *Plus* Acetabular Cup Tray One

Part Number	Description
700-00-18	Furlong® CSF <i>Plus</i> Cup Instrumentation Tray One
10-00-63	Hudson Adaptor - Cannulated
10-02-00	Universal Reamer Shaft -for use with Precimed reamers
10-04-44	Acetabular Reamer, Classic - 44mm
10-04-46	Acetabular Reamer, Classic - 46mm
10-04-48	Acetabular Reamer, Classic - 48mm
10-04-50	Acetabular Reamer, Classic - 50mm
10-04-52	Acetabular Reamer, Classic - 52mm
10-04-54	Acetabular Reamer, Classic - 54mm
10-04-56	Acetabular Reamer, Classic - 56mm
10-04-58	Acetabular Reamer, Classic - 58mm
10-04-60	Acetabular Reamer, Classic - 60mm
10-04-62	Acetabular Reamer, Classic - 62mm
10-28-53	Liner Introducer Cap - 28mm screw fit
10-32-53	Liner Introducer Cap - 32mm screw fit
10-36-53	Liner Introducer Cap - 36mm screw fit
10-40-53	Liner Introducer Cap - 40mm screw fit
10-99-62	Cup Introducer

Instrumentation for Furlong® H-A.C. CSF *Plus* Acetabular Cup Tray One

Part Number	Description
11-10-44	CSF Acetabular Test Cup - 44mm, M10 thread
11-10-46	CSF Acetabular Test Cup - 46mm, M10 thread
11-10-48	CSF Acetabular Test Cup - 48mm, M10 thread
11-10-50	CSF Acetabular Test Cup - 50mm, M10 thread
11-10-52	CSF Acetabular Test Cup - 52mm, M10 thread
11-10-54	CSF Acetabular Test Cup - 54mm, M10 thread
11-10-56	CSF Acetabular Test Cup - 56mm, M10 thread
10-10-58	CSF Acetabular Test Cup - 58mm, M10 thread
10-10-60	CSF Acetabular Test Cup - 60mm, M10 thread
10-10-62	CSF Acetabular Test Cup - 62mm, M10 thread
240-00-02	Ceramic Insert Fitting tool - sucker and shaft
81-00-44	H.A.C. Instrumentation Acetabular Tray 1



Instrumentation for Furlong® H-A.C. CSF Plus Acetabular Cup Tray Two

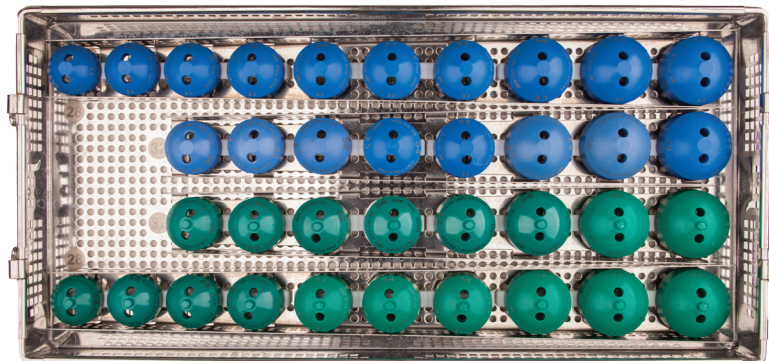
Part Number	Description
700-00-19	Furlong® CSF Plus Cup Instrumentation Tray Two
240-44-28	Trial Liner for Ceramic Bearing CSF plus Cup - 44mm OD / 28mm ID
240-46-32	Trial Liner for Ceramic Bearing CSF plus Cup - 46/48mm OD / 32mm ID
240-50-32	Trial Liner for Ceramic Bearing CSF plus Cup - 50/52mm OD / 32mm ID
240-50-36	Trial Liner for Ceramic Bearing CSF plus Cup - 50/52mm OD / 36mm ID
240-54-32	Trial Liner for Ceramic Bearing CSF plus Cup - 54-62mm OD / 32mm ID
240-54-36	Trial Liner for Ceramic Bearing CSF plus Cup - 54-62mm OD / 36mm ID
240-54-40	Trial Liner for Ceramic Bearing CSF plus Cup - 54-62mm OD / 40mm ID
50-00-30	Screw-Holding Forceps - Cancellous Screw
50-00-37	Flat Forceps for Trial Insert
50-00-61	Joint Awl
50-91-00	Ratchet Handle
50-91-35	Screwdriver Shaft - for Flexible Screwdriver 3.5 A/F
50-92-35	Screwdriver Shaft - for Straight Screwdriver 3.5 A/F
55-00-01	Flexible Depth Gauge
81-00-45	H.A-C Instrumentation Acetabular Tray 2
86-00-02	Flexible Drill Holder - Bayonet Chuck
86-00-07	Flexible Drill Guide
86-11-09	Cup Positioning Guide
86-99-03	CSF Cup Impactor

Instrumentation for Furlong® CSF Plus Cup UHMWPE Bearing Cup	
Part Number	Description
700-00-20	Furlong® CSF Plus UHMWPE Bearing Cup Instrumentation
250-44-28	Trial Liner for Polyethylene Bearing CSF plus Cup - 28mm ID, 44mm OD Standard
250-46-28	Trial Liner for Polyethylene Bearing CSF plus Cup - 28mm ID, 46mm OD Standard
250-48-28	Trial Liner for Polyethylene Bearing CSF plus Cup - 28mm ID, 48mm OD Standard
250-48-32	Trial Liner for Polyethylene Bearing CSF plus Cup - 32mm ID, 48mm OD Standard
250-50-28	Trial Liner for Polyethylene Bearing CSF plus Cup - 28mm ID, 50mm OD Standard
250-50-32	Trial Liner for Polyethylene Bearing CSF plus Cup - 32mm ID, 50mm OD Standard
250-52-28	Trial Liner for Polyethylene Bearing CSF plus Cup - 28mm ID, 52mm OD Standard
250-52-32	Trial Liner for Polyethylene Bearing CSF plus Cup - 32mm ID, 52mm OD Standard
250-54-28	Trial Liner for Polyethylene Bearing CSF plus Cup - 28mm ID, 54mm OD Standard
250-54-32	Trial Liner for Polyethylene Bearing CSF plus Cup - 32mm ID, 54mm OD Standard
250-56-28	Trial Liner for Polyethylene Bearing CSF plus Cup - 28mm ID, 56mm OD Standard
250-56-32	Trial Liner for Polyethylene Bearing CSF plus Cup - 32mm ID, 56mm OD Standard
250-58-28	Trial Liner for Polyethylene Bearing CSF plus Cup - 28mm ID, 58mm OD Standard
250-58-32	Trial Liner for Polyethylene Bearing CSF plus Cup - 32mm ID, 58mm OD Standard
250-60-28	Trial Liner for Polyethylene Bearing CSF plus Cup - 28mm ID, 60mm OD Standard
250-60-32	Trial Liner for Polyethylene Bearing CSF plus Cup - 32mm ID, 60mm OD Standard
250-62-28	Trial Liner for Polyethylene Bearing CSF plus Cup - 28mm ID, 62mm OD Standard
250-62-32	Trial Liner for Polyethylene Bearing CSF plus Cup - 32mm ID, 62mm OD Standard

Instrumentation for Furlong® CSF Plus Cup UHMWPE Bearing Cup	
Part Number	Description
251-44-28	Hooded Trial Liner for Poly Bearing CSF plus Cup - 28mm ID, 44mm OD 10° offset
251-46-28	Hooded Trial Liner for Poly Bearing CSF plus Cup - 28mm ID, 46mm OD 10° offset
251-48-28	Hooded Trial Liner for Poly Bearing CSF plus Cup - 28mm ID, 48mm OD 10° offset
251-48-32	Hooded Trial Liner for Poly Bearing CSF plus Cup - 32mm ID, 48mm OD 10° offset
251-50-28	Hooded Trial Liner for Poly Bearing CSF plus Cup - 28mm ID, 50mm OD 10° offset
251-50-32	Hooded Trial Liner for Poly Bearing CSF plus Cup - 32mm ID, 50mm OD 10° offset
251-52-28	Hooded Trial Liner for Poly Bearing CSF plus Cup - 28mm ID, 52mm OD 10° offset
251-52-32	Hooded Trial Liner for Poly Bearing CSF plus Cup - 32mm ID, 52mm OD 10° offset
251-54-28	Hooded Trial Liner for Poly Bearing CSF plus Cup - 28mm ID, 54mm OD 10° offset
251-54-32	Hooded Trial Liner for Poly Bearing CSF plus Cup - 32mm ID, 54mm OD 10° offset
251-56-28	Hooded Trial Liner for Poly Bearing CSF plus Cup - 28mm ID, 56mm OD 10° offset
251-56-32	Hooded Trial Liner for Poly Bearing CSF plus Cup - 32mm ID, 56mm OD 10° offset
251-58-28	Hooded Trial Liner for Poly Bearing CSF plus Cup - 28mm ID, 58mm OD 10° offset
251-58-32	Hooded Trial Liner for Poly Bearing CSF plus Cup - 32mm ID, 58mm OD 10° offset
251-60-28	Hooded Trial Liner for Poly Bearing CSF plus Cup - 28mm ID, 60mm OD 10° offset
251-60-32	Hooded Trial Liner for Poly Bearing CSF plus Cup - 32mm ID, 60mm OD 10° offset
251-62-28	Hooded Trial Liner for Poly Bearing CSF plus Cup - 28mm ID, 62mm OD 10° offset
251-62-32	Hooded Trial Liner for Poly Bearing CSF plus Cup - 32mm ID, 62mm OD 10° offset
81-00-53	CSF Plus Poly Liner Tray 28-32



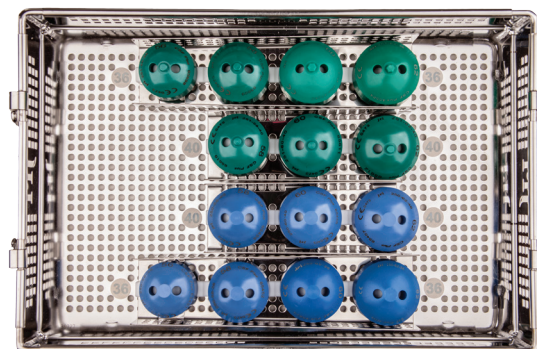
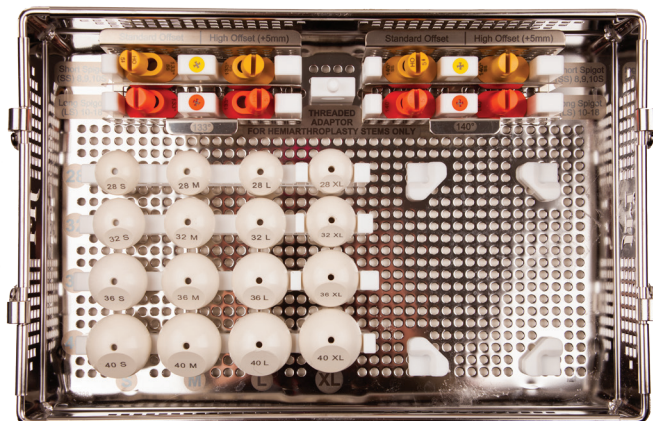
CSF Plus Cup UHMWPE Bearing Cup Tray



Instrumentation for Furlong® CSF Plus Cup UHMWPE Bearing Cup

Part Number	Description
250-56-36	Trial Liner for Polyethylene Bearing CSF plus Cup - 36mm ID, 56mm OD Standard
250-58-36	Trial Liner for Polyethylene Bearing CSF plus Cup - 36mm ID, 58mm OD Standard
250-60-36	Trial Liner for Polyethylene Bearing CSF plus Cup - 36mm ID, 60mm OD Standard
250-62-36	Trial Liner for Polyethylene Bearing CSF plus Cup - 36mm ID, 62mm OD Standard
251-56-36	Trial Liner for Polyethylene Bearing CSF plus Cup - 36mm ID, 56mm OD Hooded
251-58-36	Trial Liner for Polyethylene Bearing CSF plus Cup - 36mm ID, 58mm OD Hooded
251-60-36	Trial Liner for Polyethylene Bearing CSF plus Cup - 36mm ID, 60mm OD Hooded
251-62-36	Trial Liner for Polyethylene Bearing CSF plus Cup - 36mm ID, 62mm OD Hooded
250-58-40	Trial Liner for Polyethylene Bearing CSF plus Cup - 40mm ID, 58mm OD Standard
250-60-40	Trial Liner for Polyethylene Bearing CSF plus Cup - 40mm ID, 60mm OD Standard
250-62-40	Trial Liner for Polyethylene Bearing CSF plus Cup - 40mm ID, 62mm OD Standard
251-58-40	Trial Liner for Polyethylene Bearing CSF plus Cup - 40mm ID, 58mm OD Hooded
251-60-40	Trial Liner for Polyethylene Bearing CSF plus Cup - 40mm ID, 60mm OD Hooded
251-62-40	Trial Liner for Polyethylene Bearing CSF plus Cup - 40mm ID, 62mm OD Hooded

Trial Head Instrument Tray



Instrumentation for Furlong® H-A.C. Trial Head

Part Number	Description
700-00-21	Furlong® Trial Head Tray Contents
70-00-00	Tray for Trial Head Instruments
70-10-01	Rasp Adaptor - Short Spigot 133° Std offset
70-10-02	Rasp Adaptor - Short Spigot 133° 5mm offset
70-10-03	Rasp Adaptor - Std Spigot 133° Std offset
70-10-04	Rasp Adaptor - Std Spigot 133° 5mm offset
70-10-05	Rasp Adaptor - Short Spigot 140° Std offset
70-10-06	Rasp Adaptor - Short Spigot 140° 5mm offset
70-10-07	Rasp Adaptor - Std Spigot 140° Std offset
70-10-08	Rasp Adaptor - Std Spigot 140° 5mm offset
70-28-10	Trial Head - 28mm Short Neck
70-28-20	Trial Head - 28mm Medium Neck
70-28-30	Trial Head - 28mm Long Neck
70-28-40	Trial Head - 28mm Extra Long Neck
70-32-10	Trial Head - 32mm Short Neck
70-32-20	Trial Head - 32mm Medium Neck
70-32-30	Trial Head - 32mm Long Neck
70-32-40	Trial Head - 32mm Extra Long Neck

Instrumentation for Furlong® H-A.C. Trial Head

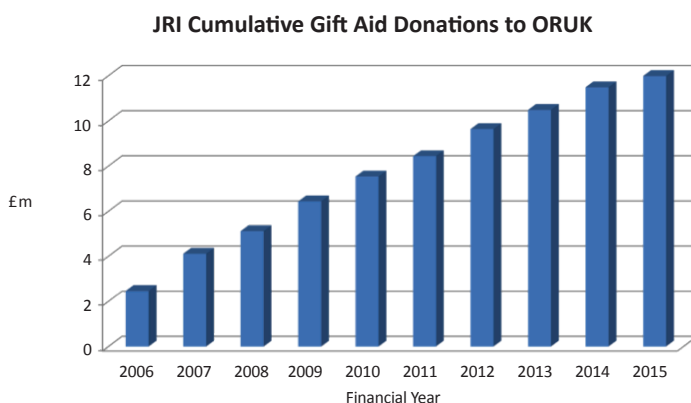
Part Number	Description
70-36-10	Trial Head - 36mm Short Neck
70-36-20	Trial Head - 36mm Medium Neck
70-36-30	Trial Head - 36mm Long Neck
70-36-40	Trial Head - 36mm Extra Long Neck
70-40-10	Trial Head - 40mm Short Neck
70-40-20	Trial Head - 40mm Medium Neck
70-40-30	Trial Head - 40mm Long Neck
70-40-40	Trial Head - 40mm Extra Long Neck





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