FURLONG EVOLUTION

THE NATURAL SELECTION

jri Orthopaedics

Innovation in Practice

Contents

"The preservation of favourable variations and the rejection of injurious variations, I call Natural Selection."

Charles Darwin
On The Origin Of Species By Means of Natural Selection

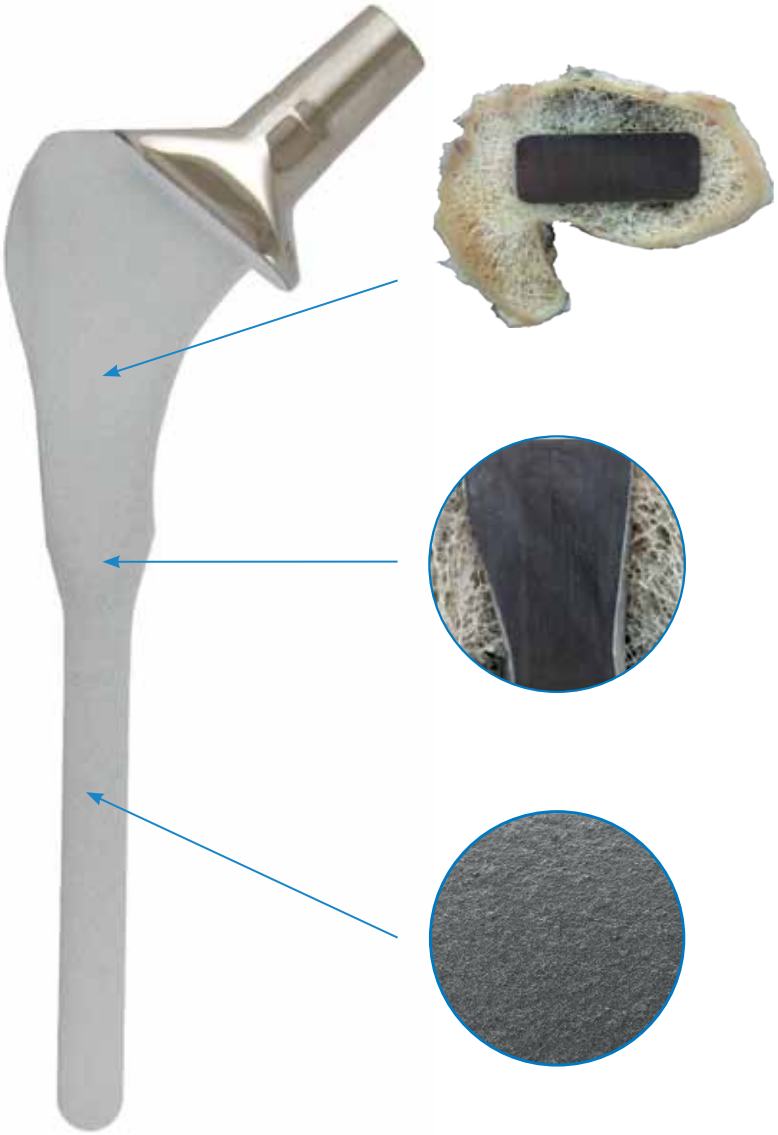
FURLONG EVOLUTION

THE NATURAL SELECTION

The Furlong® Legacy

By 1982 Mr Ronald Furlong F.R.C.S. had performed numerous revisions of cemented stems and had observed that the most common cause of implant failure was aseptic loosening. He concluded that to increase the longevity of a prosthesis, addressing this issue would be the number one priority. Collaborating with leading experts in biomechanics, engineering and biological implant fixation, he set out to develop an uncemented prosthesis with the principle objective of achieving:

- Absolute primary mechanical stability
- Rotational stability
- Long term physiological fixation



Rotational stability - rectangular cross section of the proximal body provides rotational stability under dynamic loading

Primary mechanical stability - In engineering the most efficient means of transferring load from one object to another is through the use of a cone. The cone prevents subsidence by creating 'hoop stresses' on the cortical bone

Secondary physiological fixation - Vacuum plasma sprayed Supravit® H-A.C. coating provides proven osseointegration and superior bond strength, resistance to delamination and resorption of the coating over time.

First implanted in September 1985, its long term clinical results have consistently performed and fulfilled Mr Furlongs criteria.

Aseptic loosening – a thing of the past!

100% 16 – 19 years[1]

1. Survivorship of 38 cases in under 50 year olds. N.N. Shah *et al* **J Bone Joint Surg [Br] 2009; 91-B:865-9**

100% 15 – 21 years[2]

2. Survivorship of 331 consecutive cases. J.A.N Shepperd *et al* **J Bone Joint Surg [Br] 2008; 90-B:27-30**

100% 13 – 15 years[3]

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

99.73% 19 years[4]

4. Survivorship in 2,212 cases. J.M. Buchanan, Sunderland Royal Hospital **Data presented at BOA 2007, Manchester, 26 - 28 September 2007**

Design Evolution

To be successful it was acknowledged that a new design of uncemented femoral prosthesis must build on the strengths of the Furlong® H-A.C. with adaptations which optimise ease of use without compromising on the ability to achieve secure immediate and long term fixation and excellent clinical outcomes.

The Furlong® has evolved to even more closely match the needs of;

Patient

Surgeon

Theatre staff

Theatre management

Procurement

Sterile services

Furlong Evolution® Design Criteria

- Maintain clinical results - preserve the principles set out by Mr Furlong to achieve continuing clinically successful outcomes
- Optimise surgical technique - to achieve accurate implantation with predictable and reproducible results
- Perfect the instrumentation - Simple, concise, easy to use

FURLONG EVOLUTION

Furlong® Evolution Proven Principles

12/14 macro taper - unchanged on the Furlong® since 1989, the trunnion design allows the use of large head articulation without the risk of 'trunionosis'.

Rectangular body cross section - for rotational Stability.

Cone transition between proximal body and cylindrical distal stem - proven primary mechanical stability.

Vacuum plasma sprayed Supravit® Hydroxyapatite ceramic coating - proven long term fixation.

Furlong Evolution® Enhancements

Optimised neck geometry - increasing the range of motion.

Reduced lateral shoulder - allows for easier insertion and optimum 'anatomical' fit.

Anatomic neck shaft angles - all stem sizes available in two neck shaft angles 126° and 133° and two offsets, provides maximum versatility to restore joint biomechanics and soft tissue tension.

Shorter stem design - preserves bone stock, facilitates contemporary surgical approaches and reduces soft tissue disruption.

Constant neck length and location on all stem sizes - giving more predictable offsets

Collared and non-collared - all stem sizes are available with or without a collar

Extensive range of stem sizes - 10 sizes from 8-17mm in 1mm increments, consistently increasing in both the anterio-posterior and medio-lateral plane by 1mm per size, to provide optimum metaphyseal fit.

Constant radius of the medial curve in all sizes - conforms to the medial calcar curve enabling smooth insertion with predictable positioning'.

Supravit®Zoned coated - push-out tests have shown an increased shear strength at the H-A.C. to bone interface a function of surface roughness. Furlong Evolution® combines roughened coating proximally for improved 'scratch fit', while retaining the smoother Supravit® on the distal stem for easier insertion.

CSF *Plus* - High Performance Bearings

Biolox Delta Ceramic

The Furlong® H-A.C. CSF *Plus* cup shell features Supravit® Zoned coating for secure initial fixation. The acetabular shell is designed with an 18° internal taper providing excellent fixation of the liner in the shell, as well as allowing easy removal should revision of the components ever be required. 36 mm internal diameter liners can be used from the 50mm outside diameter shell size upwards.

CLP75® X-Link polyethylene

The liner options for the Furlong® H-A.C. CSF *Plus* polyethylene bearing cups are available in CLP75®, JRI's proprietary highly crosslinked polyethylene. To maximise polyethylene thickness each liner fits one shell size only. The 5° internal taper of the shell avoids the use of a potentially destructive locking mechanism yet allows for secure seating of the liner ensuring that the coupling is free of micro-movement, greatly reducing the risk of backside wear*. 10° hooded liners are available for use with all shell sizes should additional stability be required. Where adjunctive screw fixation is not used, screw-hole plugs are provided to seal the cup against polyethylene debris migration.

*Data presented at Efort 2003 (Helsinki) -The 6 to 10 year results of the CSF hydroxyapatite coated acetabular cup : Andrew F.M. McKee, M.D.George, R. Hussein, J.A.N. Shepperd : Conquest Hospital, Hastings, England

TriboFit™ Polycarbonate Urethane (PCU)

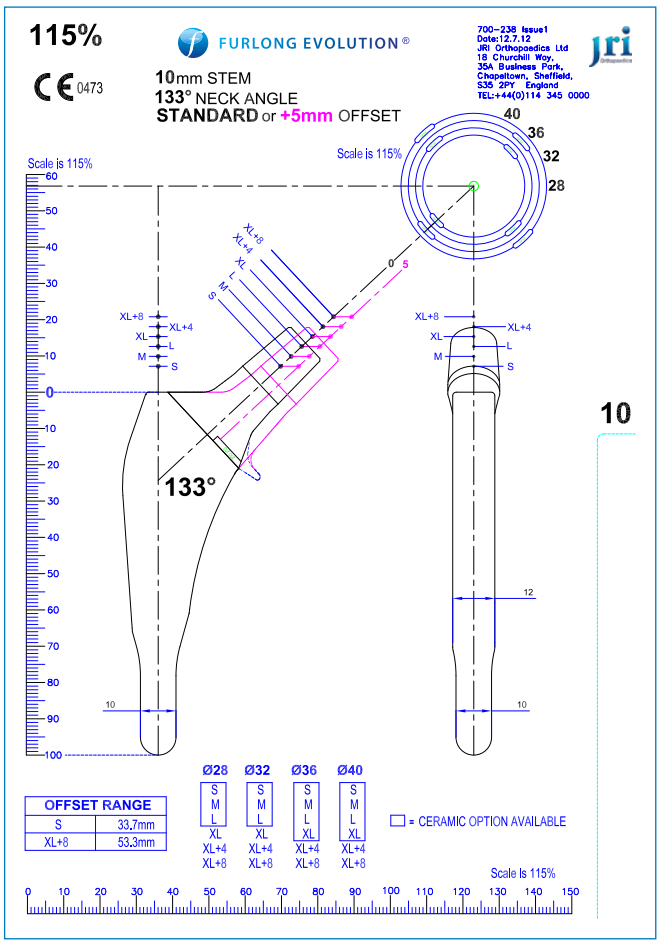
The TriboFit™ Acetabular Buffer is manufactured from a hydrophilic material which helps to maintain a full fluid film layer between the buffer and the femoral head providing microelastohydrodynamic lubrication. In this situation, as in the natural joint there is no physical contact between the bearing surfaces and essentially no wear occurs.

- Low wear
- Cartilage-like material
- Resilient, soft, pliable bearing surface
- Shock absorbing
- Enhanced lubrication
- Decreased friction
- Increased stability
- Improved range of motion

'The PCU liner showed excellent wear characteristics in terms of its low and steady volumetric wear rate (5.8-7.7 mm(3)/Mc) and low particle generation rate (2-3 × 10(6) particles/Mc). The latter is 5-6 orders of magnitude lower than that of highly cross-linked polyethylene and 6-8 orders of magnitude lower than that of metal-on-metal bearings.'

Long-term evaluation of a compliant cushion form acetabular bearing for hip joint replacement: a 20 million cycles wear simulation. Elsner JJ et al. Orthop Res. 2011 Dec;29(12):1859-66. doi: 10.1002/jor.21471. Epub 2011 May 31

Pre-operative Planning



Pre-operative planning, including X-ray templating, is strongly recommended for leg length and offset assessment and to provide guidance for accurate bone preparation and appropriate implant selection. A bi-lateral AP X-ray of the proximal femur and pelvis will aid in leg length and offset assessment and management.

Acetate radiographic templates for the Furlong Evolution® and CSF *Plus* are available in 115% magnification.

Digital templates are available in OrthoView™, mediCAD®, SECTRA® and TraumaCad® for use with PACS. If PACS digital templating is to be used, ensure the X-rays have been calibrated to the correct magnification using a reliable marker.

Caution: Pre-operative templating is intended for estimating purposes only. Final component size is determined intraoperatively.

Femoral Neck Osteotomy

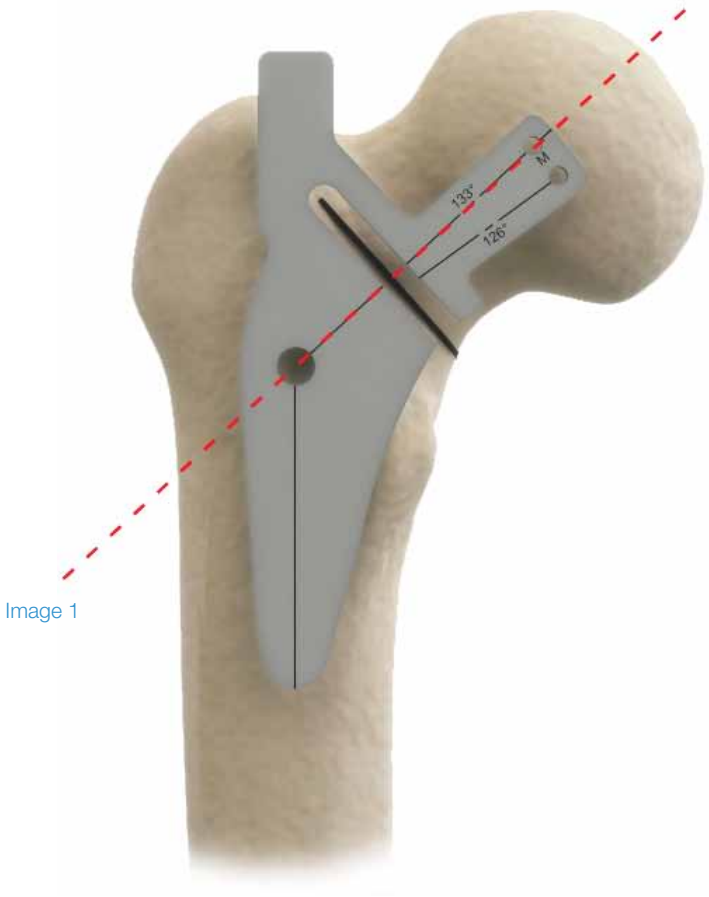


Image 1

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 47° from the long axis of the femur.

Stems are available in two neck shaft angles, 126° And 133°. Align the resection guide with the femoral axis and determine which neck shaft angle matches the patients anatomy.

Acetabular Preparation

Image 2

Image 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 (Image 2).

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 (Image 3).

Note: The CSF Plus cups are hemispherical and are 2.5% larger in diameter at the equator than their corresponding reamers and test cups, plus the thickness of the H-A.C. coating (350µm). This facilitates a secure press fit when reamed line to line.

In hard sclerotic bone it may be necessary to over ream the acetabular rim 1 or 2mm to aid insertion. Do not fully over-ream the socket.

Acetabular Alignment

Image 4

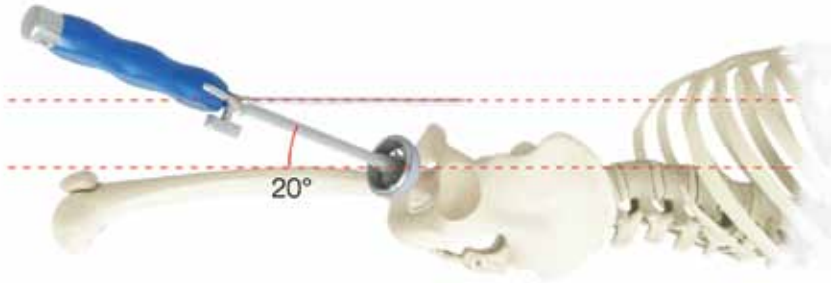


Image 5

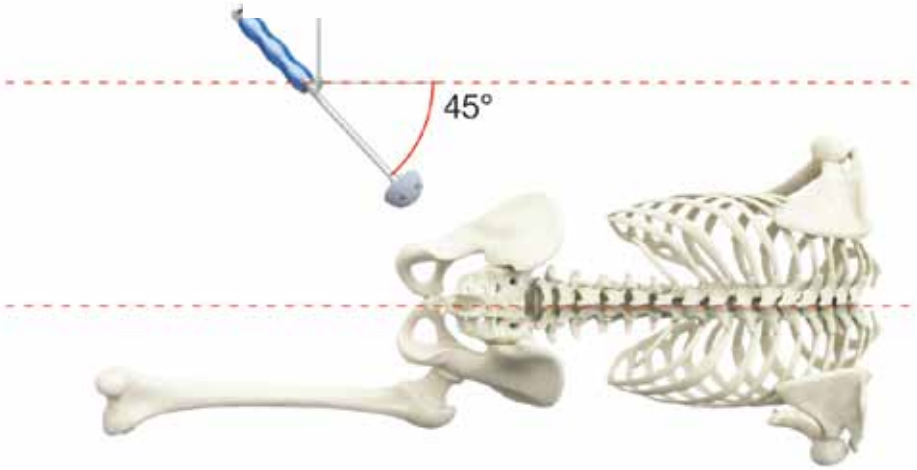


Image 6

The definitive acetabular implant is firmly screwed onto the impactor shaft. Align the cluster of 3 holes in the acetabular cup to the superior aspect of the prepared acetabulum (Image 4). The isolated holes should now line up with the ischium and the pubis.

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

The horizontal guide rod is screwed into the body of 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 (Image 5). The vertical and horizontal rods, when perpendicular and parallel to the floor respectively, indicate an abduction angle of 45° (Image 6).

Cup Impaction

Image 7

Image 8

The cup is presented to the prepared acetabulum ensuring the three clustered screw holes align with the illium (Image 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 checked through the apical hole and/or through the screw holes (Image 8).

Should the cup be difficult to seat or the bone be sclerotic, it may be necessary to open the aperture of the acetabular rim. Lightly reaming the acetabular rim with the next size reamer up will help to introduce and seat the implant.

Screw Insertion

Image 9

Image 10

Image 11

Image 12

Additional adjunctive fixation can be achieved with the use of cancellous bone screws to supplement primary mechanical fixation.

A drill guide is placed carefully 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 (Image 9).

The length of the screw is determined using the depth gauge (Image 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 (Image 11). It is imperative that the head of the screw does not protrude from the screw hole, failure to do so could result in the screw head preventing the ceramic liner from seating fully (Image 12).

Screws can be angled through 30° to achieve optimum fixation with the cancellous bone.

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

Femoral Preparation

Image 13

Image 14

The box chisel attaches to the broach handle and is placed just medial to the resected cortcical bone, within the boundary of the cancellous region of the medial calcar. An initial wedge of cancellous bone is resected using the box chisel whilst keeping it in line with the femur. If excessive version is required later in the procedure it is advisable to consider this when making the cut with the box chisel (Image 13).

The small tapered t-handled intramedullary reamer is used to open up the medullary canal. A larger reamer is available should the femoral canal be wide. Both reamers have a laser mark to indicate the minimum depth. The reamer is introduced until the line is at minimum, level with where the proximal shoulder of the prosthesis is intended to be as indicated in the pre-operative planning (Image 14).

Broaching the Femur

Image 15

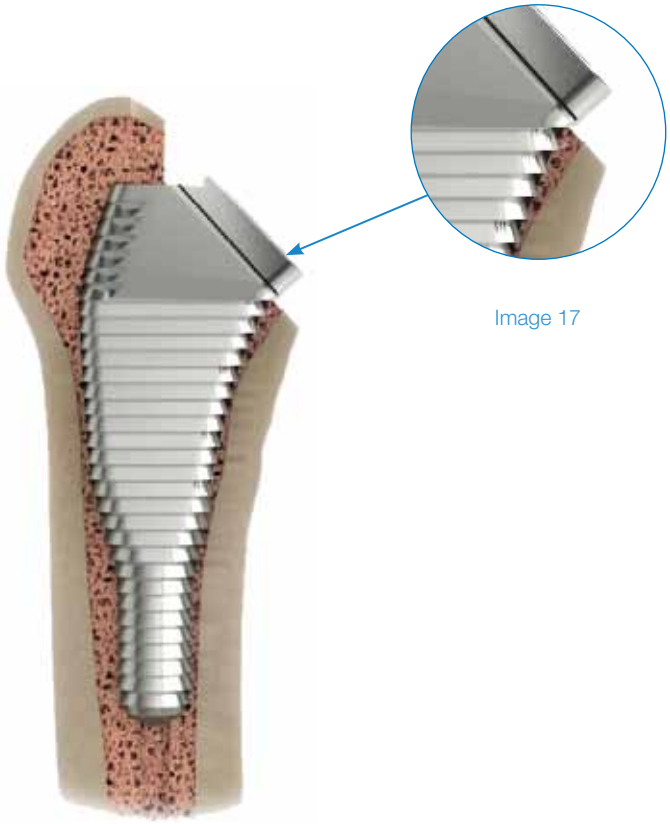


Image 16

Image 17

Attach the broach to the broach handle and prepare the femoral canal. Beginning at size 8mm, progress 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 gently and repeatedly hammer the broach in and out (Image 15). The proximal etched line indicates the 'stop' point of the broach. This line should be visible above the resection line medially (Image 17).

Trial Reduction

Image 18

Image 19

Upon reaching the desired implant size detach the broach handle from the broach in order to facilitate use of plastic, colour coded trial necks.

Trial necks are available in 4 clearly labelled options (Image 19):

- 133deg standard offset (yellow)
- 133deg high offset (yellow)
- 126deg standard offset (orange)
- 126deg high offset (orange)

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

Note: The black laser line on the trial neck indicates that correct orientation when visible from above.

Liner Insertion

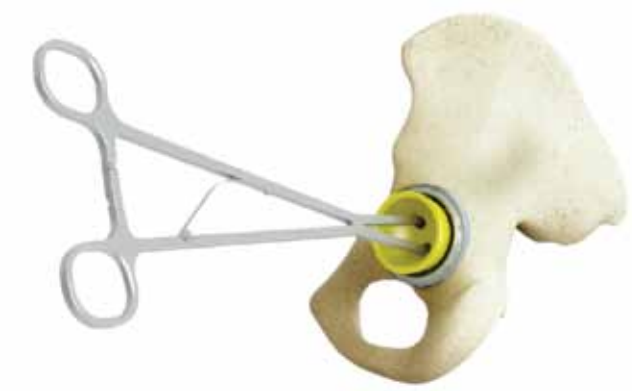


Image 20

Image 21

Image 22

Image 23

Image 24

Remove the trial head, neck, broach and trial liner, removal forceps are available to assist in removing the trial liner (Image 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 (Images 21 and 22). Ensure that the liner is uniformly flush against the whole rim by gliding your finger around the edge of the cup confirming the edge of the liner is even with the rim of the shell around the whole circumference (Image 23).

The liner is firmly 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.

Stem Impaction

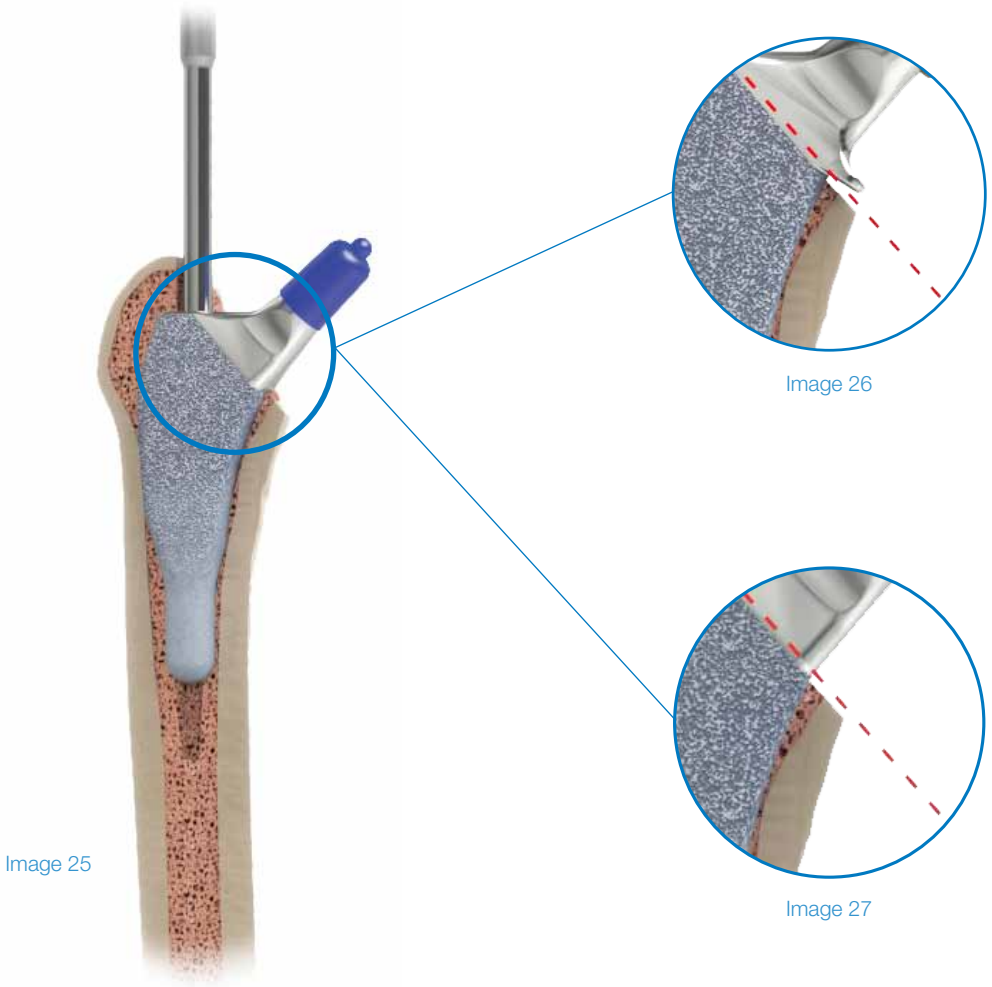


Image 25

Image 26

Image 27

The definitive femoral stem is implanted using the stem introducer. Two introducer options are available: threaded and hexagon ended. Both styles of stem introducer locate into the threaded/hexagon hole lateral to the shoulder of the definitive implant. It is advisable to insert the stem as far as possible by hand (within 10mm of the final position). Final impaction can be achieved with the aid of light tapping using a mallet. A change of tone can be used as a guide to determine the final position of the stem (Image 25).

- If using a collared stem option, the collar is designed to sit 1mm off the calcar. A change in tone will indicate when the stem is seated. Further impaction to attempt to seat the collar on the calcar is not necessary (Image 26).
- If using a non-collared stem final seating is achieved when the H-A.C. coating is in line with the neck resection line. Again the note may change to a harder tone before the desired position is achieved and no further impaction is necessary (Image 27).

Final Reduction

Image 28

Image 29

Image 30

Image 31

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 (Image 28).

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 (Image 29), ensuring the surface of the head is not scratched or damaged in any way.

The hip is reduced (Image 31).

Femoral Stem Removal

Image 32

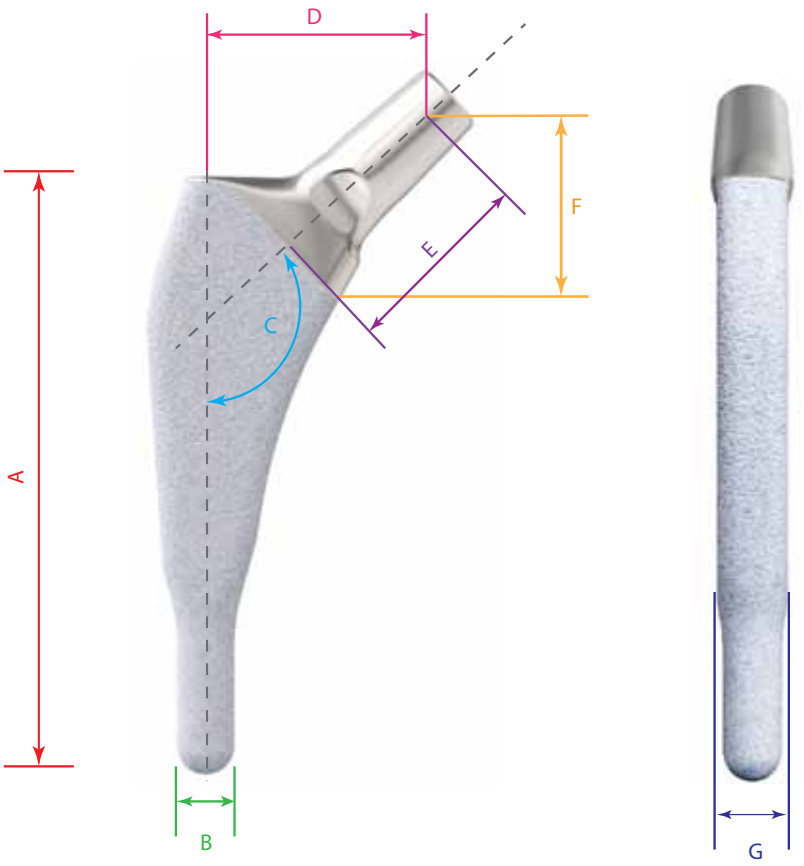
Image 33

Image 34

Should the stem require removal, slide the slaphammer weight onto the thinner section of the introducer handle closest to the thread. This must be done before the handle is screwed onto the stem (image 32).

The introducer handle is screwed firmly into the stem (image 33), the stem should be removed with caution in a curved manner as not to damage the greater trochanter (image 34).

Technical Data



A = 100mm (All stem sizes)

B = Stem size (Distal stem diameter)

G = Proximal body lateromedial width (Stem size (B) + 2mm)

	Offset (D)	Neck Length (E)	Neck Height (F)
133°	36.9	32	31
133° HO	41.9	35.7	31
126°	40.9	31.6	26.4
126° HO	45.9	35.3	26.4

	Offset value with varying neck lengths					
	S (-4)	M (0)	L (+4)	L (+8)	XL +4 (+12)	XL +8 (+16)
133°	34	36.9	39.9	42.8	45.7	48.6
133° HO (+5mm)	39	41.9	44.9	47.8	50.7	53.6
126°	37.7	40.9	44.2	47.4	50.6	53.9
126° HO (+5mm)	42.7	45.9	49.2	52.4	55.6	58.9

All measurements in mm unless otherwise stated

Furlong Evolution Implant Range

Collared, 126° CCD Angle, Standard Offset	
426.01.08	Size 8
426.01.09	Size 9
426.01.10	Size 10
426.01.11	Size 11
426.01.12	Size 12
426.01.13	Size 13
426.01.14	Size 14
426.01.15	Size 15
426.01.16	Size 16
426.01.17	Size 17

Collared, 126° CCD Angle, High Offset	
426.51.08	Size 8
426.51.09	Size 9
426.51.10	Size 10
426.51.11	Size 11
426.51.12	Size 12
426.51.13	Size 13
426.51.14	Size 14
426.51.15	Size 15
426.51.16	Size 16
426.51.17	Size 17

Collared, 133° CCD Angle, Standard Offset	
433.01.08	Size 8
433.01.09	Size 9
433.01.10	Size 10
433.01.11	Size 11
433.01.12	Size 12
433.01.13	Size 13
433.01.14	Size 14
433.01.15	Size 15
433.01.16	Size 16
433.01.17	Size 17

Collared, 133° CCD Angle, High Offset	
433.51.08	Size 8
433.51.09	Size 9
433.51.10	Size 10
433.51.11	Size 11
433.51.12	Size 12
433.51.13	Size 13
433.51.14	Size 14
433.51.15	Size 15
433.51.16	Size 16
433.51.17	Size 17

Collarless, 126° CCD Angle, Standard Offset	
426.02.08	Size 8
426.02.09	Size 9
426.02.10	Size 10
426.02.11	Size 11
426.02.12	Size 12
426.02.13	Size 13
426.02.14	Size 14
426.02.15	Size 15
426.02.16	Size 16
426.02.17	Size 17

Collarless, 126° CCD Angle, High Offset	
426.52.08	Size 8
426.52.09	Size 9
426.52.10	Size 10
426.52.11	Size 11
426.52.12	Size 12
426.52.13	Size 13
426.52.14	Size 14
426.52.15	Size 15
426.52.16	Size 16
426.52.17	Size 17

Collarless, 133° CCD Angle, Standard Offset	
433.02.08	Size 8
433.02.09	Size 9
433.02.10	Size 10
433.02.11	Size 11
433.02.12	Size 12
433.02.13	Size 13
433.02.14	Size 14
433.02.15	Size 15
433.02.16	Size 16
433.02.17	Size 17

Collarless, 133° CCD Angle, High Offset	
433.52.08	Size 8
433.52.09	Size 9
433.52.10	Size 10
433.52.11	Size 11
433.52.12	Size 12
433.52.13	Size 13
433.52.14	Size 14
433.52.15	Size 15
433.52.16	Size 16
433.52.17	Size 17

Polyethylene CLP75® Bearing Cup Range

H-A.C. CSF *Plus* - Liner/head size combination chart
CLP75® Polyethylene

Standard Liners (I/D)

Cup/Reamer size (O/D	28mm	32mm	36mm
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

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 Liners (I/D)

28mm	32mm	36mm
151.44.28		
151.46.28		
151.48.28	151.48.32	
151.50.28	151.50.32	
151.52.28	151.52.32	
151.54.28	151.54.32	
151.56.28	151.56.32	151.56.36
151.58.28	151.58.32	151.58.36
151.60.28	151.60.32	151.60.36
151.62.28	151.62.32	151.62.36

Short	192.28.10	192.32.10	192.36.10
Medium	192.28.20	192.32.20	192.36.20
Long	192.28.30	192.32.30	192.36.30
X Long			192.36.40

CSF *Plus* Ceramic Bearing Cup Range

Cup/Reamer size (O/D	28mm	32mm	36mm	40mm
44mm 170.44.07	150.44.28			
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				

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

Biolox® *delta* Ceramic

TriboFit™ Implant Range

Acetabular shell, Supravit® Zoned coated Cobalt Chrome	
1007 3046	46mm O/D
1007 3048	48mm O/D
1007 3050	50mm O/D
1007 3052	52mm O/D
1007 3054	54mm O/D
1007 3056	56mm O/D
1007 3058	58mm O/D
1007 3060	60mm O/D
1007 3062	62mm O/D

Acetabular Buffer Polycarbonate Urethane	
1001 0040	40mm O/D, 34mm I/D
1001 0042	42mm O/D, 36mm I/D
1001 0044	44mm O/D, 38mm I/D
1001 0046	46mm O/D, 40mm I/D
1001 0048	48mm O/D, 42mm I/D
1001 0050	50mm O/D, 44mm I/D
1001 0052	52mm O/D, 46mm I/D
1001 0054	54mm O/D, 48mm I/D
1001 0056	56mm O/D, 50mm I/D

Femoral Heads Cobalt Chrome	
1002 034S	34mm O/D Short Neck
1002 034M	34mm O/D Medium Neck
1002 034L	34mm O/D Long Neck
1002 036S	36mm O/D Short Neck
1002 036M	36mm O/D Medium Neck
1002 036L	36mm O/D Long Neck

TriboFit™ Implant Range

Modular Femoral Heads Cobalt Chrome	
1002 0038	38mm O/D
1002 0040	40mm O/D
1002 0042	42mm O/D
1002 0044	44mm O/D
1002 0046	46mm O/D
1002 0048	48mm O/D
1002 0050	50mm O/D

Femoral Neck Adaptors Titanium For 38-44mm O/D Femoral Heads	
1003 001S	Short Neck
1003 001M	Medium Neck
1003 001L	Long Neck

Femoral Neck Adaptors Titanium For 46-50mm O/D Femoral Heads	
1003 002S	Short Neck
1003 002M	Medium Neck
1003 002L	Long Neck

Furlong Evolution Instrumentation

Part Number	Description
10-99-47	Head Impactor handle
10-99-38	Head Impactor
10-00-46	Cushion, impactor
70-28-10	Trial Heads - 28S
70-28-20	Trial Heads - 28M
70-28-30	Trial Heads - 28L
70-28-40	Trial Heads - 28XL
70-32-10	Trial Heads - 32S
70-32-20	Trial Heads - 32M
70-32-30	Trial Heads - 32L
70-32-40	Trial Heads - 32XL
70-36-10	Trial Heads - 36S
70-36-20	Trial Heads - 36M
70-36-30	Trial Heads - 36L
70-36-40	Trial Heads - 36XL
70-40-10	Trial Heads - 40S
70-40-20	Trial Heads - 40M
70-40-30	Trial Heads - 40L
70-40-40	Trial Heads - 40XL
86-99-14	Curved stem Introducer
450-99-01	Instrument tray
450-04-00	Offset Broach Handle OPTION
450-04-01	Straight Broach Handle OPTION
450-04-08	Tommy Bar
450-14-00	'Namba' hip slide
450-06-08	8mm broach
450-06-09	9mm broach
450-06-10	10mm broach
450-06-11	11mm broach
450-06-12	12mm broach
450-06-13	13mm broach
450-06-14	14mm broach
450-06-15	15mm broach
450-06-16	16mm broach
450-05-17	17mm broach
450-99-1	Instrument tray
450-03-00	Tapered Reamer Small
450-03-01	Tapered Reamer Large
450-02-01	Box Chisel (7.5mm)
450-07-00	Stem Inserter/Extractor
450-01-00	Femoral Resection guide
450-10-00	Slap Hammer
452-00-26	Trial Neck - 126° (orange)
452-00-33	Trial Neck - 133° (yellow)
452-05-26	Trial Neck - High Offset 126° (orange)
452-05-33	Trial Neck - High Offset 133° (yellow)

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

Part Number	Description
10.00.26	Hudson adaptor
10.02.00	Acetabular Reamer Shaft
10.04.44	Acetabular Reamers 44mm O/D
10.04.46	Acetabular Reamers 46mm O/D
10.04.47	Acetabular Reamers 47mm O/D
10.04.48	Acetabular Reamers 48mm O/D
10.04.50	Acetabular Reamers 50mm O/D
10.04.52	Acetabular Reamers 52mm O/D
10.04.54	Acetabular Reamers 54mm O/D
10.04.56	Acetabular Reamers 56mm O/D
10.04.58	Acetabular Reamers 58mm O/D
10.04.60	Acetabular Reamers 60mm O/D
10.04.62	Acetabular Reamers 62mm O/D
11.10.44	Test Cups 44mm
11.10.46	Test Cups 46mm
11.10.48	Test Cups 48mm
11.10.50	Test Cups 50mm
11.10.52	Test Cups 52mm
11.10.54	Test Cups 54mm
11.10.56	Test Cups 56mm
11.10.58	Test Cups 58mm
11.10.60	Test Cups 60mm
11.10.62	Test Cups 62mm
10.99.26	Cup introducer
10.28.53	Plastic Caps for Liner Impactor 28mm
10.32.53	Plastic Caps for Liner Impactor 32mm
10.36.53	Plastic Caps for Liner Impactor 36mm
10.40.53	Plastic Caps for Liner Impactor 40mm
50.00.30	Screw holding forceps
50.00.37	Flat forceps for removing trial liners
50.00.60	Flexible aw
50.91.35	3.5mm flexible screwdriver
50.92.35	3.5mm hexagon screwdriver
50.91.00	Ratchet handle
55.00.00	Screw depth gauge
81.00.44	Instrument tray
86.11.03	Cup introducer
86.00.02	Flexible drill shaft
86.00.07	Flexible drill guide
86.11.09	Cup positioning guide

Trial Polyethylene Liners for CSF *Plus*

Trial Liners for CSF *Plus* Ceramic Liners Only

Part Number	Description
240.44.28	Trial Liners 28mm I/D, fits 44mm O/D
240.46.32	Trial Liners 32mm I/D, fits 46 & 48mm O/D
240.50.36	Trial Liners 36mm I/D, fits 50 & 52mm O/D
240.54.40	Trial Liners 40mm I/D, fits 54, 56, 58, 60 & 62mm O/D
81.00.45	Instrument Tray

Instrumentation for Furlong® H-A.C. CSF *Plus* UHMWPE Bearing Cup

Part Number	Description
250.46.28	Standard Trial Liners 28mm I/D, fits 46mm O/D
250.48.28	Standard Trial Liners 28mm I/D, fits 48mm O/D
250.50.28	Standard Trial Liners 28mm I/D, fits 50mm O/D
250.52.28	Standard Trial Liners 28mm I/D, fits 52mm O/D
250.54.28	Standard Trial Liners 28mm I/D, fits 54mm O/D
250.56.28	Standard Trial Liners 28mm I/D, fits 56mm O/D
250.58.28	Standard Trial Liners 28mm I/D, fits 58mm O/D
250.60.28	Standard Trial Liners 28mm I/D, fits 60mm O/D
250.62.28	Standard Trial Liners 28mm I/D, fits 62mm O/D
250.48.32	Standard Trial Liners 32mm I/D, fits 48mm O/D
250.50.32	Standard Trial Liners 32mm I/D, fits 50mm O/D
250.52.32	Standard Trial Liners 32mm I/D, fits 52mm O/D
250.54.32	Standard Trial Liners 32mm I/D, fits 54mm O/D
250.56.32	Standard Trial Liners 32mm I/D, fits 56mm O/D
250.58.32	Standard Trial Liners 32mm I/D, fits 58mm O/D
250.60.32	Standard Trial Liners 32mm I/D, fits 60mm O/D
250.62.32	Standard Trial Liners 32mm I/D, fits 62mm O/D

Instrumentation for Furlong® H-A.C. CSF *Plus* UHMWPE Bearing Cup

Part Number	Description
250.48.32	Standard Trial Liners 32mm I/D, fits 48mm O/D
250.50.32	Standard Trial Liners 32mm I/D, fits 50mm O/D
250.52.32	Standard Trial Liners 32mm I/D, fits 52mm O/D
250.54.32	Standard Trial Liners 32mm I/D, fits 54mm O/D
250.56.32	Standard Trial Liners 32mm I/D, fits 56mm O/D
250.58.32	Standard Trial Liners 32mm I/D, fits 58mm O/D
250.60.32	Standard Trial Liners 32mm I/D, fits 60mm O/D
250.62.32	Standard Trial Liners 32mm I/D, fits 62mm O/D
250.56.36	Standard Trial Liners 36mm I/D, fits 56mm O/D
250.58.36	Standard Trial Liners 36mm I/D, fits 58mm O/D
250.60.36	Standard Trial Liners 36mm I/D, fits 60mm O/D
250.62.36	Standard Trial Liners 36mm I/D, fits 62mm O/D
250.60.40	Standard Trial Liners 40mm I/D, fits 60mm O/D
250.62.40	Standard Trial Liners 40mm I/D, fits 62mm O/D

TriboFit™ Instrumentation

Part Number	Description
1101 0001	TriboFit General Instruments Base
1101 9999	TriboFit General Instruments Case Lid
1151 034S	34mm Modular Trial Head - Short
1151 034M	34mm Modular Trial Head - Med
1151 034L	34mm Modular Trial Head - Long
1151 036S	36mm Modular Trial Head - Short
1151 036M	36mm Modular Trial Head - Med
1151 036L	36mm Modular Trial Head - Long
1151 0038	38mm Modular Trial Head
1151 0040	40mm Modular Trial Head
1151 0042	42mm Modular Trial Head
1151 0044	44mm Modular Trial Head
1151 0046	46mm Modular Trial Head
1151 0048	48mm Modular Trial Head
1151 0050	50mm Modular Trial Head
1151 0099	Femoral Head Impactor
1151 0199	Taper Insert Removal Tool
1154 0000	Spin Test Twister Handle
1152 0015	Threaded Neck Adapter Trial - Short (-4mm)
1152 0016	Threaded Neck Adapter Trial - Med (0mm)
1152 0017	Threaded Neck Adapter Trial - Long (+4mm)
1154 0001	Twister for Small Adaptor Heads (38-44mm)
1154 0002	Twister for Medium Adaptor Heads (46-50mm)
1154 0003	Twister for Large Adaptor Heads (52-58mm)
1154 0003	Twister for Large Adaptor Heads (52-58mm)
1101 0002	TriboFit® General Instruments Tray
1153 0040	40mm Buffer Placer
1153 0042	42mm Buffer Placer
1153 0044	44mm Buffer Placer
1153 0046	46mm Buffer Placer
1153 0048	48mm Buffer Placer
1153 0050	50mm Buffer Placer
1153 0052	52mm Buffer Placer
1153 0054	54mm Buffer Placer
1153 0056	56mm Buffer Placer
1101 0000**	TriboFit® General Instruments Case

TriboFit™ Instrumentation

TriboFit® Trial Head Set

Part Number	Description
91.16.34	Tribofit Trial Head 34mm
91.16.36	Tribofit Trial Head 36mm
91.16.38	Tribofit Trial Head 38mm
91.16.40	Tribofit Trial Head 40mm
91.16.42	Tribofit Trial Head 42mm
91.16.44	Tribofit Trial Head 44mm
91.16.46	Tribofit Trial Head 46mm
91.16.48	Tribofit Trial Head 48mm
91.16.50	Tribofit Trial Head 50mm
91.15.10	Tribofit Head Neck Adaptor -4
91.15.20	Tribofit Head Neck Adaptor 0
91.15.30	Tribofit Head Neck Adaptor +4

TriboFit® Shell Impactor Set

Part Number	Description
1156-4046	46mm Acetabular Shell Impactor Collar
1156-4048	48mm Acetabular Shell Impactor Collar
1156-4050	50mm Acetabular Shell Impactor Collar
1156-4052	52mm Acetabular Shell Impactor Collar
1156-4054	54mm Acetabular Shell Impactor Collar
1156-4056	56mm Acetabular Shell Impactor Collar
1156-4058	58mm Acetabular Shell Impactor Collar
1156-4060	60mm Acetabular Shell Impactor Collar
1156-4062	62mm Acetabular Shell Impactor Collar
1156-1099	Acetabular Shell Impactor Handle
50.04.08	Multi Size Allen Key

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CE for instrumentation

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