

Exeter[®] V40[®]

Femoral Stem using Exeter Broach

Surgical protocol pt. 1

Surgical protocol pt. 2

Instruments



Exeter® V40® Femoral Stem using Exteter Broach Surgical protocol

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This publication sets forth detailed validated procedures for using the Exeter V40 Femoral Stem. It offers instructions that you should heed, but, as with any such technical guide, each surgeon must consider the particular needs of each patient and make appropriate adjustments when and as required.

Indications, contraindications and precautions

Indications for U.S. and rest of the world:

The indications for use for total hip and hemi hip arthroplasty include:

- Noninflammatory degenerative joint disease including osteoarthritis and avascular necrosis;
- Rheumatoid arthritis;
- Correction of functional deformity;
- Revision procedures where other treatments or devices have failed; and,
- Treatment of nonunion, femoral neck and trochanteric fractures of the proximal femur with head involvement that are unmanageable using other techniques.

Indications for EU, EMEA countries requiring CE mark and Australia:

The indications for use for Exeter V40 Femoral Stems in total hip arthroplasty include:

- Noninflammatory degenerative joint disease, including osteoarthritis;
- Rheumatoid arthritis;
- Displaced intracapsular femoral neck fracture (for active patients);
- Correction of functional deformity;
- Revision procedures where other treatments or devices have failed.

The Exeter V40 Femoral Stem is intended for use in total or hemi hip replacement. It is intended for cemented use only.

The indications for use for Exeter V40 Femoral Stems and Heads in hemi hip arthroplasty include:

- Displaced intracapsular femoral neck fracture (for less active patients)

The indication for Exeter Trauma Stem (ETS) for use in hemi hip arthroplasty include:

- Displaced intracapsular femoral neck fracture (for less active patients)

It is intended for cemented use only.

Contraindications

- Active infection or suspected latent infection in or about the hip joint.
- Bone stock that is inadequate for support or fixation of the prosthesis.
- Skeletal immaturity.
- Any mental or neuromuscular disorder that would create an unacceptable risk of prosthesis instability, prosthesis fixation failure, or complications in postoperative care.

For indications for use of associated products in this protocol, please refer to the following instructions for use (IFU) numbers enclosed within product packaging, or visit ifu.stryker.com:

- Exeter IM Bone Plugs: QIN 4321
- Orthinox V40 Femoral Head (6364-2-XXX): 96E112
- Ceramic V40 Femoral Head (6570-0-XXX): QIN 4350
- Universal Taper Femoral Head (6519-1-XXX): QIN 4350
- Alumina Ceramic V40 Femoral Head (6565-0-XXX): QIN 4350

Warnings and precautions

See implant package insert for warnings, precautions, adverse effects and other essential product information.

Before using instrumentation, verify:

- Instruments have been properly disassembled prior to cleaning and sterilisation
- Instruments have been properly assembled post-sterilisation
- Instruments have maintained design integrity
- Proper size configuration is available

For instructions for Cleaning, Sterilisation, Inspection and Maintenance of Orthopaedic Medical Devices, refer to LSTPI-B, SLI0001 (ifu.stryker.com).

Step 1

Preoperative planning and X-ray evaluation

Preoperative planning is an essential part of the procedure, and templating should be performed prior to every case. When it is done using X-rays that have been suitably scaled for magnification, templating allows the surgeon to predict the size and offset of the best-suited implant. Planning the positions of the cup and stem also aids in proper component placement.

Preoperative planning can be done using acetate templates for printed X-rays or planning software for digital studies (**Figure 1**). It should start with an assessment of the magnification of the X-ray and adjustment for that if necessary. The surgeon should then take account of the preoperative leg length and any adjustment that may be required. The correct centre of rotation for the acetabular and femoral components should be established, and this will include measurement of the patient's existing femoral offset, which will need to be replicated.

The appropriate stem size for the patient can be judged from the templates using the lines marked alongside the stem profile. The set of lines closest to the stem profile indicates the minimum necessary cement mantle, and when placed on the patient's X-rays, they should lie within the femoral canal. It is important to remember that using an excessively large femoral stem may compromise the cement mantle, but an excessively small stem may be at risk of fracture.

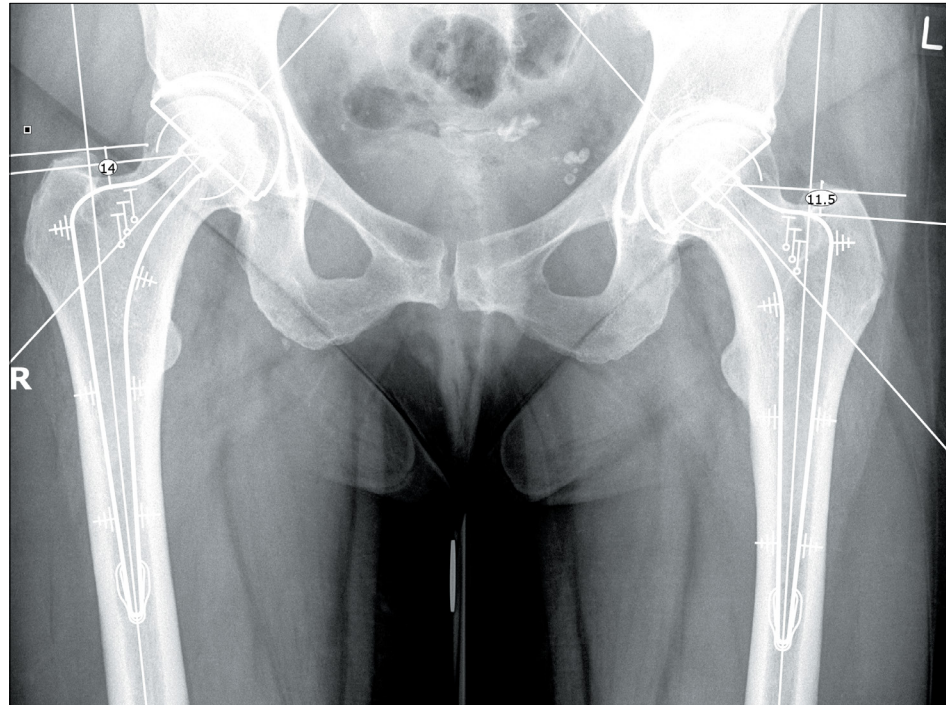
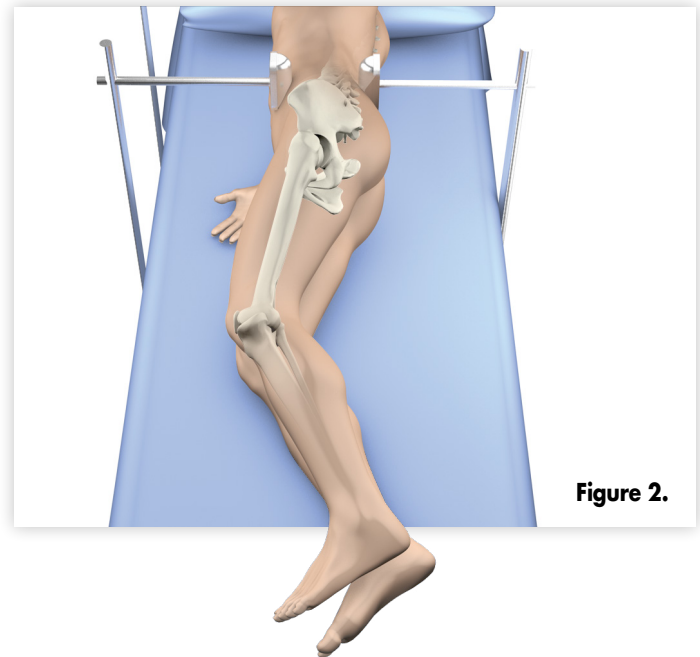


Figure 1.

Step 2

Surgical exposure

The Exeter stem can be implanted through the commonly used surgical approaches to the hip including the direct lateral approach and the posterior approach, which are featured in this technique manual. Whichever approach is used, a full exposure of both the acetabulum and the proximal femur, with appropriate soft tissue releases, is essential for effective preparation of the bony cavities, cementing and implant insertion (**Figure 2**).

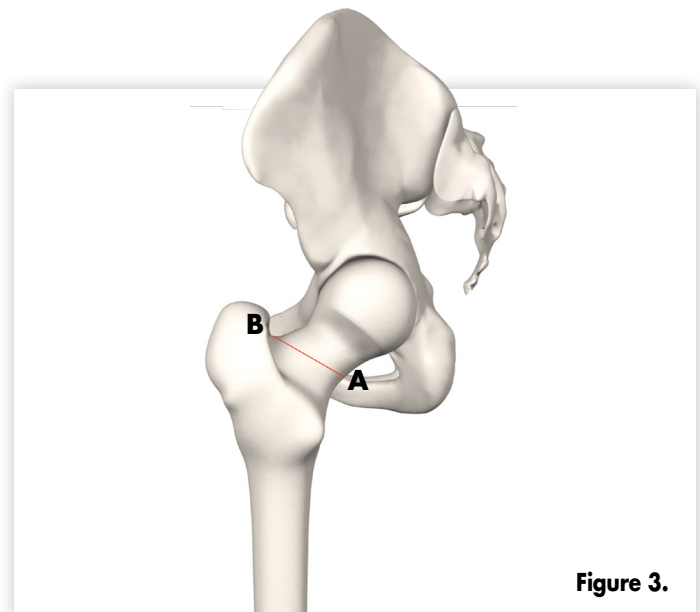


Step 3

Femoral neck resection

The level and orientation of neck resection are not critical for the Exeter Hip stem because it has no collar or other features that would affect the position of the osteotomy. However, there should be adequate proximal support for the stem, guidance for which is given by the three markings on the femoral prosthesis. It is advised that the neck osteotomy is not made so low as to leave all three markings proud of the cement mantle.

In most individuals, an appropriate level of neck resection lies along a line drawn from a point medially midway between the upper margin of the lesser trochanter and the inferior aspect of the head (**Figure 3 point A**), to a point laterally at the base of the neck (**Figure 3 point B**).



Step 4

Femoral preparation

The leg is placed in a position that enables the surgeon to achieve straight-line access down the length of the femoral shaft and sufficient soft tissue clearance for stem anteversion. Use of a gluteus medius retractor may help to expose the lateral aspect of the cut femoral neck, which is important for straight-line access to the femoral canal. The use of one or more Femoral Elevators can help deliver the femur out of the wound and provide clearance of the soft tissues, which allows the surgeon to control the degree of anteversion of the femoral component (**Figure 4**).

The medullary canal is opened using the Modular Box Osteotome, a box osteotome or a straight gouge, undercutting the lateral cortex of the neck and developing a slot into the trochanteric region (**Figure 5**). If necessary, a rongeur is used after undercutting of the neck to resect the lateral-most cortical bone of the neck.

The Axial Starter Reamer is introduced into the femoral canal in line with the long axis of the femur, which helps to ensure that the femoral stem can be inserted down the midline of the femur (**Figure 6**). To achieve this, the surgeon may rotate the handle of the Axial Starter Reamer whilst applying a moderate valgus force to the handle, which removes any remnants of the lateral neck cortex that would otherwise tend to force the stem into a varus position.

The surgeon then uses the Exeter broaches to prepare the cancellous bone for cementing. The aim is to preserve 2-3mm of strong cancellous bone circumferentially around the stem cavity, into which the cement will be pressurised. Each broach is slightly larger than the corresponding stem and is designed to create a cavity that will hold the stem with a complete cement mantle around it.

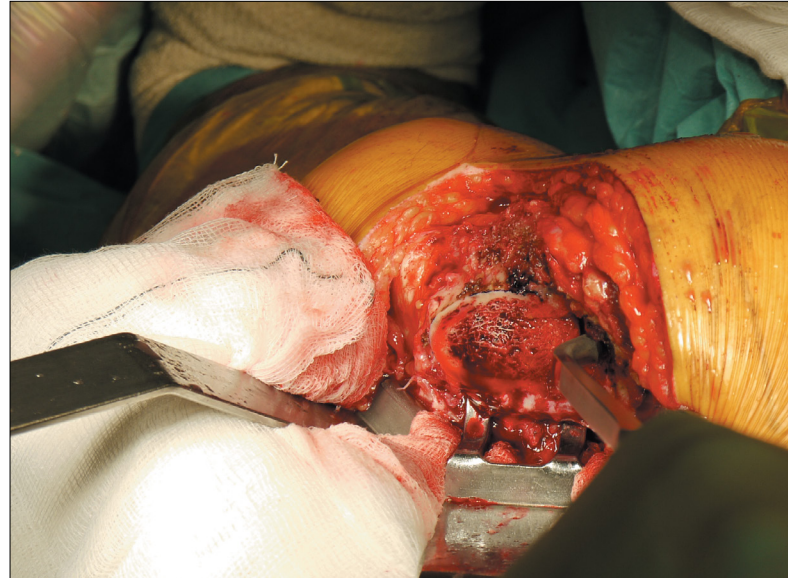


Figure 4.

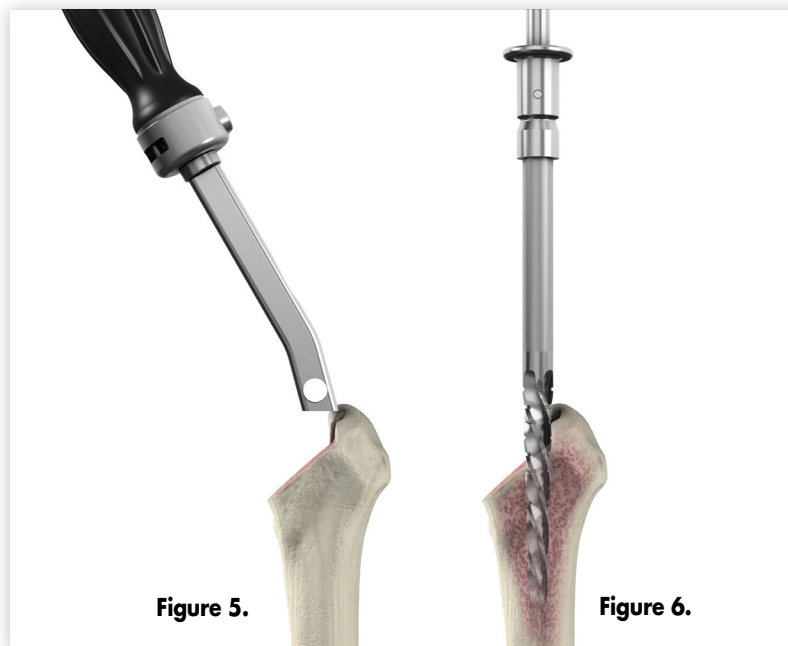


Figure 5.

Figure 6.

Instruments



Modular Box Osteotome
1601-1210



Axial Starter Reamer
1020-1200



Orthonomic Modular Handle
1020-2900



Orthonomic T-Handle
1101-2200

Step 5

Femoral broaching

The Exeter V40 System features modular broaches and a broach handle. There is one broach for each stem, and each broach has a marking for offset, number and length where applicable based on stem size (**Figure 7**). For example, The broach for a 37.5 No. 1 L.125 stem is marked "37.5 No. 1 125mm". Note: for 30 and 33 offset stems, only offset is marked on the broach.

Broaching usually begins with a smaller broach than that anticipated for final size. The last broach USUALLY corresponds to the size templated as appropriate for the femur. Broaching is intended to create a cavity which will hold the stem with a complete cement mantle around it.

Care should be taken when broaching the canal to avoid removal of too much cancellous bone. This cancellous bone is important for proximal support of the stem because it forms the bed into which the cement is pressurised.

The broach is inserted along the long axis of the femur to the level at which templating has shown the leg length will be restored.

The broach bears three circular marks in the neck region that are designed to correspond to the three marks on the neck of the prosthesis (**Figure 7**), with the exception of the 30mm and 33mm offset broaches that have two circular marks that are designed to correspond to the two circular marks on these prostheses. The surgeon should ensure that these circular marks are not all left proud of the femur, because this would risk leaving a stem with inadequate proximal support.

Having started with a small broach, the surgeon sequentially introduces larger broaches until a firm fit is achieved with a broach at the correct insertion depth. Care should be taken not to over-broach the canal or remove too much cancellous bone.

If excess force is required to introduce a broach to the correct level, then the surgeon should either drop down a broach size or, if this is not possible, the canal may be enlarged with the Axial Starter Reamer, taking care not to compromise the layer of trabecular bone. Ensure the lateral opening is opened adequately or an undersized stem in a varus position may result.

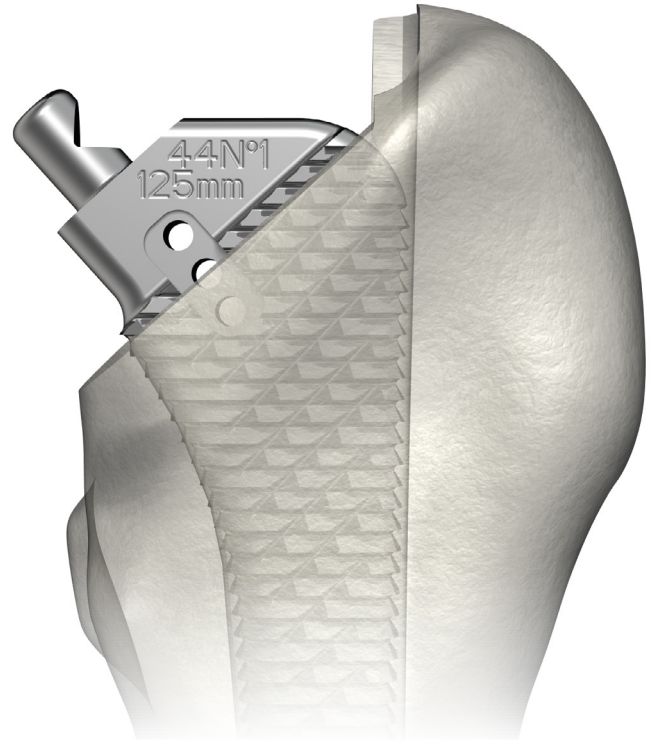
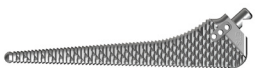


Figure 7.

Instruments



Exeter Broach
0585-X-XXX



Offset Broach Handle
1020-1460



Straight Broach Handle
1440-1460

Step 6

Trial reduction

There is one Neck Trial in the Exeter Broach instruments, which is designed to be compatible with all the Exeter Broaches. Place the Neck Trial on to the Exeter Broach (**Figure 8a**) and the Trial Head over the Neck Trial spigot (**Figure 8c**). The hip is then reduced. Head trials are colour-coded; blue is for a minus (-) neck length, black for neutral and green for a plus (+) neck length. Correct restoration of leg length may be assessed using the surgeon's usual method for intraoperative measurement of leg length.

The maximum head offset possible is referenced on the stem packaging label.

The Exeter is a collarless stem, which allows for correction of leg length by adjusting the depth of stem insertion. If trial reduction shows that the leg has been excessively lengthened, the broach can be carefully seated further down the femur. This is usually possible with the same broach, but if the femur is very tight, the next size down may be required.

If the leg has been shortened, the broach may be left a little more proud in the femur and the trial reduction repeated. This may mean that a larger broach size is needed to achieve a firm seating in the femoral canal.

Minor adjustments to the leg length may also be made using the different V40 head trial neck lengths. However, because the Exeter stem has a neck shaft angle of 125°, changing the neck length has a relatively larger effect on the stem offset compared to its effect on leg length (**Figure 8b**). This can be to the surgeon's advantage, because it allows the offset to be adjusted to match the patient's needs, and further allows any additional adjustment to the leg length by adjusting the depth of stem insertion.

When the desired leg length and offset have been achieved, the position of the stem is marked in line with the first visible circular mark on the broach (**Figure 8c**), and then the broach is removed. During stem insertion, the corresponding mark on the stem is placed in the same position as the broach, thus recreating the desired leg length and offset.



Figure 8a.

Neck	Offset	Length
4mm	-3.27	-2.29
0mm	0	0
+4mm	+3.27	+2.29

Figure 8b.

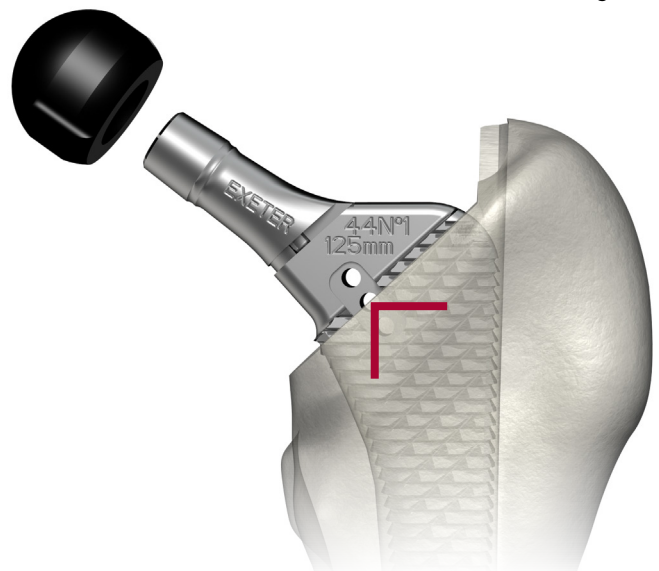


Figure 8c.

Instruments

V40 Trial Heads - o +
6264-X-XXXX
6365-9-022



Exeter Neck Trial
0585-9-001



Step 7

Further femoral preparation

The femoral canal should be occluded distally with an Exeter cement restrictor, and the restrictor size is measured using the Exeter Plug Trials (**Figure 9a**).

Starting with the smallest size, the surgeon introduces sequentially larger sounds until reaching the first one that jams in the femoral canal when its landmark (corresponding to the stem length chosen) is at or just below the tip of the greater trochanter. This sound indicates the size of distal cement restrictor that should be used.

The appropriate intramedullary plug is mounted onto the introducer (**Figure 9b**), which bears the same circular markings proximally as the broach and femoral stem.

The Plug Introducer comes with two alternative distal attachments, onto which the plug is mounted. The fluted attachment should be used for size 10-20mm plugs, whereas the straight-sided attachment is used for 6 and 8mm plugs. If using a 10mm plug, it is worth checking that prior to insertion of the plug, the fluted introducer passes easily to the required depth. If not, the straight-sided attachment should be used.

Once seated on the introducer, the cement restrictor is driven down the femoral canal until the correct circle on the introducer lies adjacent to the marks made on the femoral surface during trial reduction (**Figure 9c**). If the introducer is inserted to the same point as the broach, the restrictor will lie 10mm below the final position of the stem with its centraliser.

The theatre nursing staff can now start to prepare the cement, while the surgeon washes the femoral canal thoroughly using pressurised lavage. The aim is to remove the blood from the strong cancellous bone in preparation for cementing. Immediately before application of the cement and after thorough lavage of the canal, a suction catheter is placed in the distal end of the canal and a dry ribbon gauze is packed into the femur to dry the canal. Using the suction catheter and packed gauze, the aim is for the cleaned trabecular bone to be as dry as possible at the start of cementation.

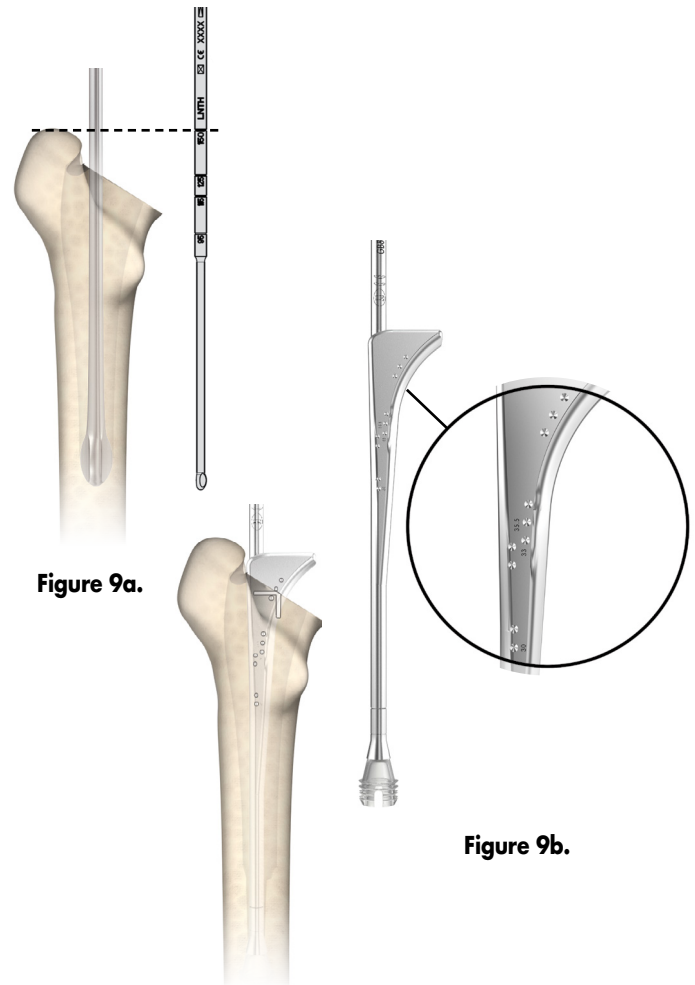


Figure 9a.

Figure 9b.

Figure 9c.

Note

Exeter V40 Long Stems

In some cases, after appropriate templating, the surgeon may choose to use a longer femoral component. Proximal femoral preparation should be done using the same offset and size L.150 Exeter Broach as the Exeter Long Stem to be implanted. The component to be implanted, or an identical trial stem, if available, should be introduced into the canal to the appropriate depth to check whether further reaming with intramedullary reamers is required. A cement plug should then be inserted to a distance 1cm beyond the position of the stem tip and may be held in position transfixed with a percutaneous K-wire. After further canal preparation, bone cement should be introduced in retrograde fashion on top of a suction catheter which will help deliver cement down to the plug. Refer to Step 8 for details of the femoral cementing technique.

Instruments



Exeter IM Plug
0939-0-1XX



Exeter IM Plug Introducer
0939-0-002M



Exeter Plug Trial
0939-1-1XXM

Step 8

Femoral cementing

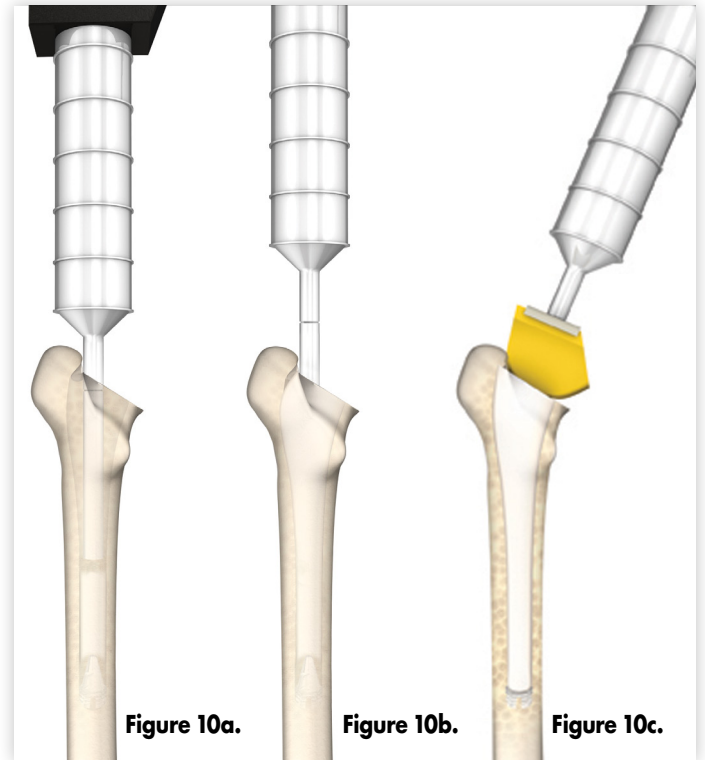
The correct cementing technique involves retrograde injection of cement using a cement gun, followed by vigorous pressurisation using a proximal seal fitted to the nozzle of the cement gun. Bone cement such as Simplex should be mixed in a bowl for approximately one minute and then poured into the cement gun barrel, after which it is left to stand for approximately 30 seconds. Either two or three mixes of cement will be required depending on the size of the femoral canal, which can be judged from the sizes of broach and intramedullary plug that were used.

The correct time to begin cement injection varies according to operating theatre conditions but typically, using bone cement such as Simplex with a theatre temperature of 21°C, cement delivery should start at 2.5 to three minutes after the commencement of mixing.

Prior to cement insertion, the Exeter Half Moon Seal Backing Plate and Half Moon Seal are applied to the nozzle, which is then cut flush with the proximal seal. The Half Moon Seal and Backing Plate are then removed and the cement trigger squeezed to fill the cement nozzle to its tip. With the suction catheter still within the femoral canal, the nozzle is fully inserted into the femoral canal and cement insertion begun (**Figure 10a**). As soon as the suction catheter blocks, it is removed.

Cement injection is initially rapid, filling the canal from distal to proximal (i.e., in retrograde fashion) with the barrel tip being withdrawn ahead of the cement column. As soon as the canal is full (**Figure 10b**), the Exeter Half Moon Seal Backing Plate and Half Moon Seal are applied over the nozzle and cement pressurisation commenced (**Figure 10c**).

Cement injection and pressurisation is continued until the viscosity of the cement starts rising. Typically, using bone cement such as Simplex with a theatre temperature of 21°C, this is seldom less than five minutes from the start of mixing, judged by a small sample held in the hand. The femoral stem is then inserted. The aim should be to delay stem insertion, for as long as possible, remembering that during stem insertion interface pressures in the canal are directly related to the viscosity of the cement.



Instruments

Exeter Half Moon Seal Backing Plate
0937-8-101



Half Moon Seal
0937-8-205



Step 9

Stem insertion

The hollow centraliser must be used with the Exeter stem because it is designed to provide a space below the stem tip, which prevents 'end-bearing' of the stem and helps to ensure that the proximal, expanded taper of the stem will engage properly in the cement mantle. Each Exeter V40 stem is supplied with a winged and a straight-sided centraliser (Figure 11a).

If an intramedullary plug of 10mm or less has been used, the straight-sided centraliser should be fitted to the stem, but when a plug size of 12mm or more has been inserted, the winged centraliser is applied. The stem centraliser is not retentive, and when placed on the tip of the stem it may need to be held in place as the stem is transferred to the femur ready for insertion. The centraliser should not be forced excessively onto the stem tip.

The Stem Introducer can be used with one hand and has a smooth trigger action that releases the introducer pin from the dimple in the lateral shoulder of the stem implant after the stem has been seated.

Note

The dimple on the shoulder of the stem should not be used for impaction.

The stem is introduced through the proximal femoral opening closer to the posterior femoral cortex than the anterior, and aiming at the middle of the popliteal fossa if the posterior approach is used, or the patella if the direct lateral approach is used.

Placing a thumb over the antero-medial aspect of the femoral canal (Figure 11b) helps to force the stem into the correct posterior entry point (Figure 11c) and also occludes the top of the canal, thereby boosting the cement pressure during stem insertion. There will often be further extrusion of fat from the walls of the femur as a result of this pressure rise.

Exeter V40 Stem Introducer contains the following spare parts:

0930-5-050	Trigger for Introducer
0930-5-060	End Cap for Introducer
0930-5-070	Spring for Introducer



Figure 11a.

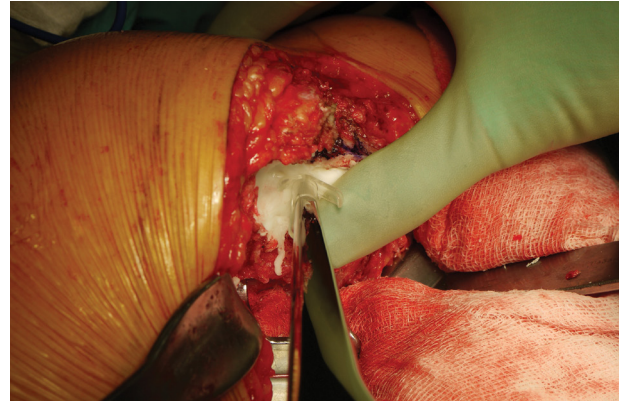


Figure 11b.

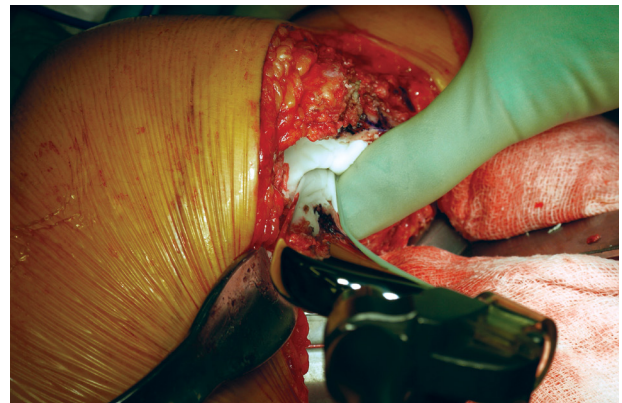


Figure 11c.

Exeter V40 Femoral Stem sizing chart



Offset	Length	Sizes (No.)
30	95	
33	115	
35.5	125	
37.5	125	1
	150	0, 1, 2, 3, 4
44	125	1
	150	0, 1, 2, 3, 4
50	125	1
	150	1, 2, 3, 4
56	150	1, 2

Instruments

Exeter V40 Stem Introducer
0930-5-000



Exeter Winged Centraliser
0920-2-920



Exeter Spigot Protector
0930-3-005

Step 10

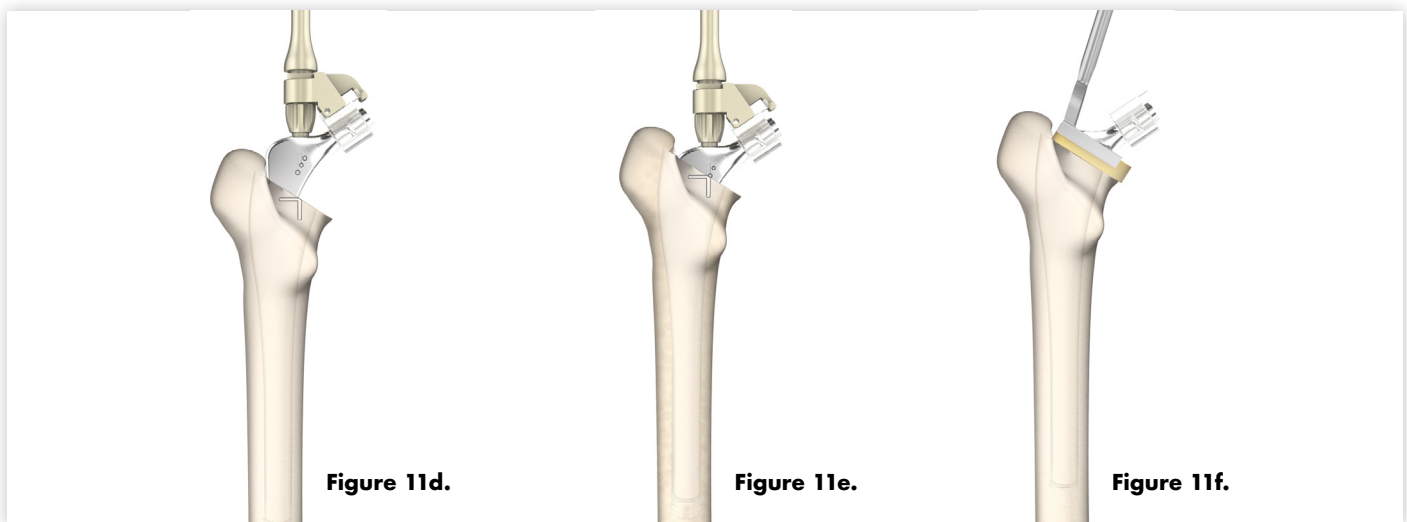
Stem insertion (continued)

The insertion should be brisk until the stem reaches a position approximately 1cm above its final position (**Figure 11d**).

Stem alignment and anteversion are then checked and thereafter slower insertion, gradually bringing the stem to its final predetermined position as judged by the marks placed on the femur that were made after trial reduction with the broach (**Figure 11e**).

When the final position has been reached and the introducer has been carefully removed so as not to rotate the stem in the doughy cement, the stem seal and backing plate are then placed around the stem and firm pressure maintained on the top of the cement until it has polymerised (**Figure 11f**).

The surgeon should ensure that the stem does not back out during cement polymerisation, and when it has fully set, any excess cement should be removed from the cut surface of the femur.



Instruments

Exeter Femoral Stem Seal Pusher
0937-3-301



Exeter Horse Collar Femoral Seal
Small = 0937-3-215
Large = 0937-3-225



Step 11

Reduction

The Spigot Protector is removed and a further trial reduction is carried out using the appropriate trial head (**Figure 12a**) to confirm that the leg length and offset have been restored and the hip is stable through a full range of movement. Minor modifications to further improve stability or change leg length or offset are possible using the plus or minus neck lengths.

Exeter V40 stems can be used with Stryker V40 Heads including Orthinox, CoCr, LFIT CoCr, Alumina, BIOLOX *delta* and Universal Taper BIOLOX *delta*. For maximum head offset, refer to stem package label.

The appropriate size of femoral head is removed from its packaging and placed over the clean, dry stem spigot. It is secured in place by a single firm blow with a mallet on the Modular Head Impactor taking care not to damage the surface of the head (**Figure 12b**). The surgeon should avoid the use of excess impaction force and hard instruments as they may damage the fine polished surface (**Figure 12b**). The hip is then reduced and a thorough lavage carried out. The soft tissues and skin are closed according to the surgeon's usual practice.

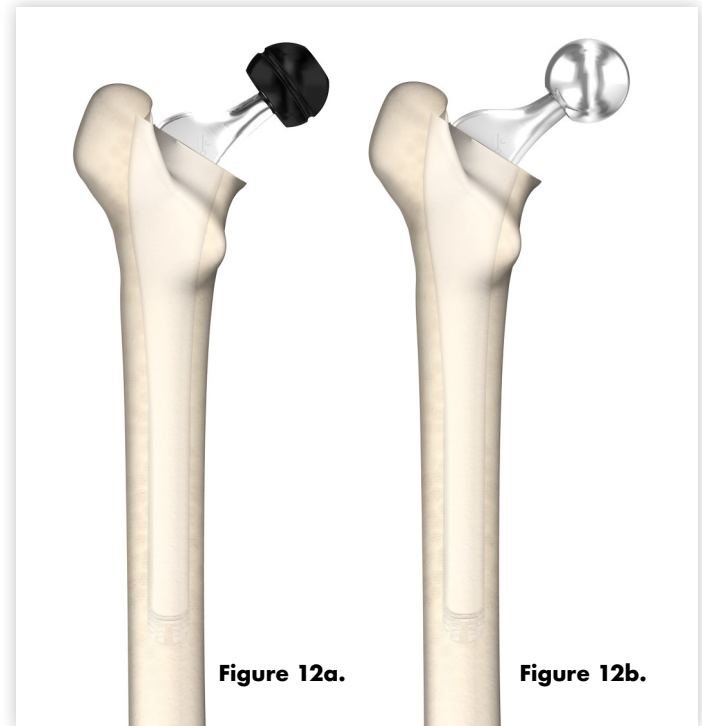


Figure 12a.

Figure 12b.

Step 12

Postoperative management

The general postoperative management of the patient should follow the normal protocols of the operating surgeon and the hospital in which the procedure is carried out. A check X-ray is taken to confirm satisfactory appearances of the arthroplasty. When inserted using the technique outlined above, the Exeter stem is ready for full weight-bearing immediately after the operation. Most patients prefer to use crutches for a short period after the surgery, but these can be discarded as soon as the patient feels confident to do without them.

Step 13

Follow-up

The follow-up arrangements should follow the normal protocols of the operating surgeon and the institution in which the surgery was performed. The Exeter Hip Unit surgeons repeat X-rays at five yearly intervals after the operation, unless a clinical presentation suggests that an earlier review is required.

Instruments



Exeter V40 Stem
0580-X-XXX



V40 Trial Head
6264-X-XXXR
6365-9-022



V40 Stainless Steel Head
6364-2-XXX



Modular Head Impactor
1601-1700

Cement-in-cement

Introduction

The Exeter V40 37.5mm No.1 L.125, 44mm No.00 & 1 L.125 and 50mm No.1 L.125 stems can be used for cement-in-cement revision.

The Cement Reamer has been designed to allow the safe reaming of the distal cement mantle to help ensure that the stem with a straight-sided centraliser will fit into the existing mantle. Use of the reamer also facilitates cleaning and roughening of the distal mantle prior to insertion of the new stem. The cavity should be clean and dry prior to re-cementing.

The hollow centraliser should be used with the Exeter stem because it is designed to provide a space below the stem tip, which prevents 'end-bearing' of the stem and helps to ensure that the proximal, expanded taper of the stem will engage properly in the cement mantle. The stem centraliser is not retentive and when placed on the tip of the stem it may need to be held in place as the stem is transferred to the femur ready for insertion. The centraliser should not be forced excessively onto the stem.

Early (two minutes when using Simplex Bone Cement at 21°C) insertion of the new bone cement should be performed using a revision cement gun nozzle, followed by proximal pressurisation until stem insertion.

This operative guide should be read in conjunction with the Exeter V40 primary operative technique.



Step 1

Stem removal

Superolateral cement above the shoulder of the prosthesis must be removed using a burr or chisel prior to attempting stem removal (**Figure 1**). A stout instrument, such as a tommy bar or Bristow's, should be placed under the neck of the prosthesis to prevent the tendency to rotate as it is being knocked out. Failure to do so risks creating high torsional stresses and a spiral fracture of the femur.

Note

Templating: the bone-cement interface must remain excellent in the distal and mid-portions of the cement mantle.

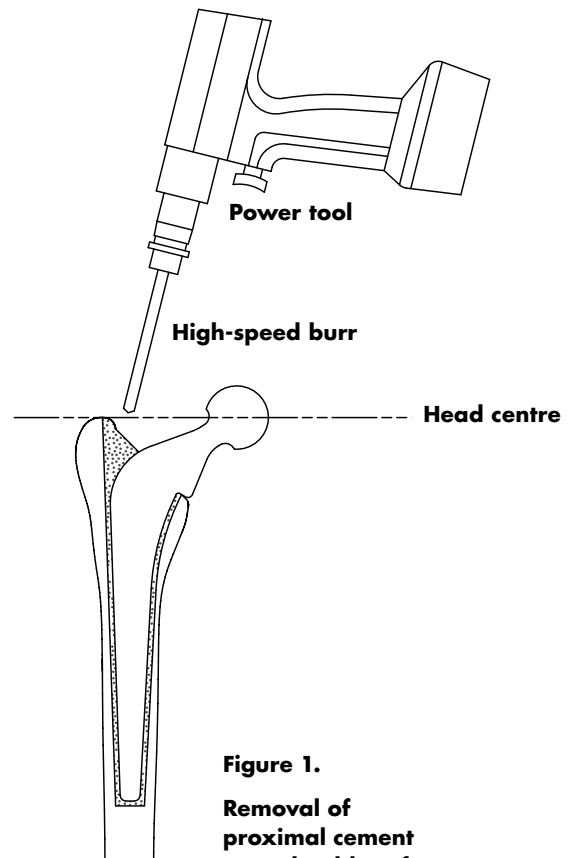
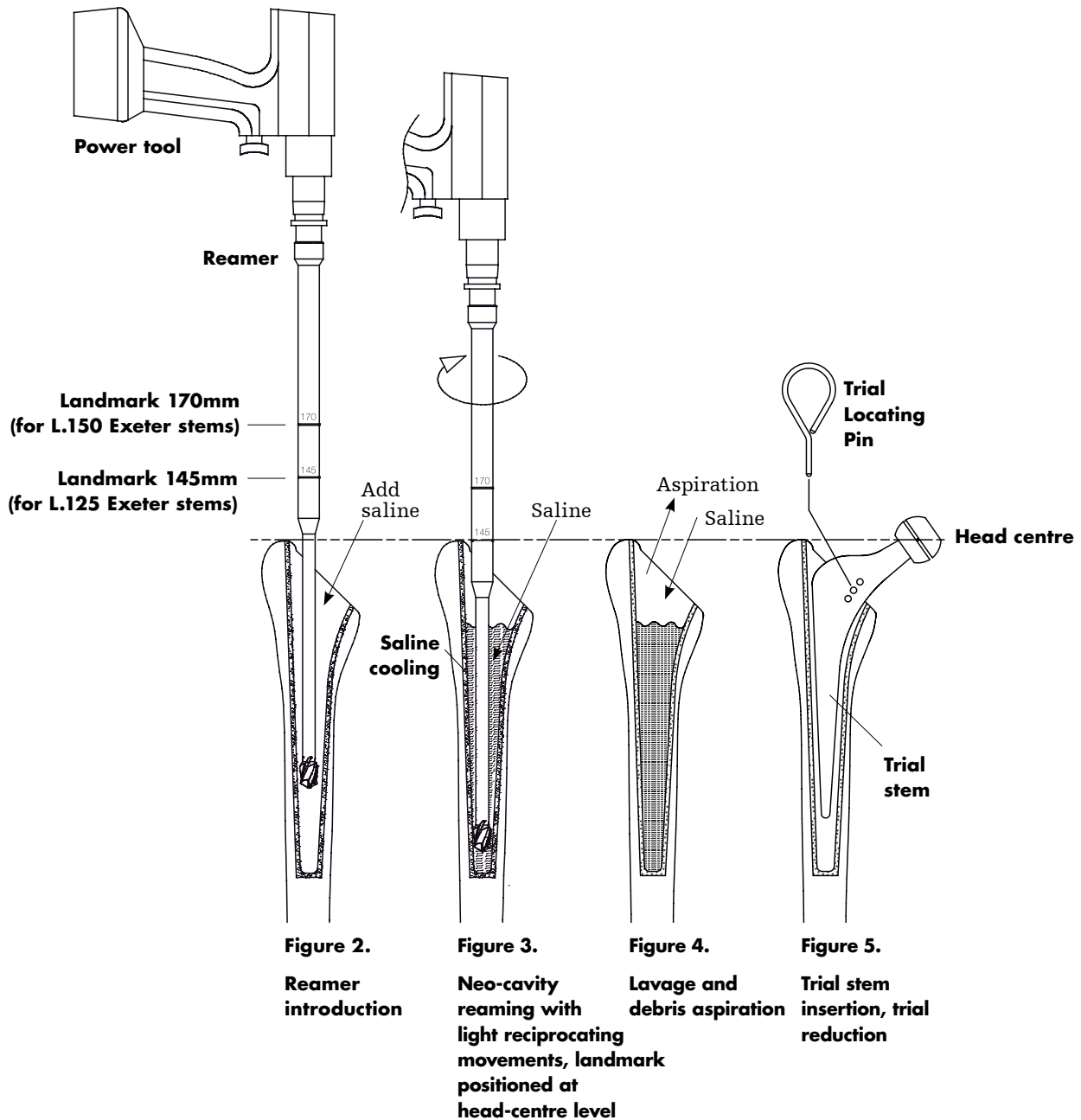


Figure 1.
Removal of proximal cement over shoulder of implant



Steps 2/3/4

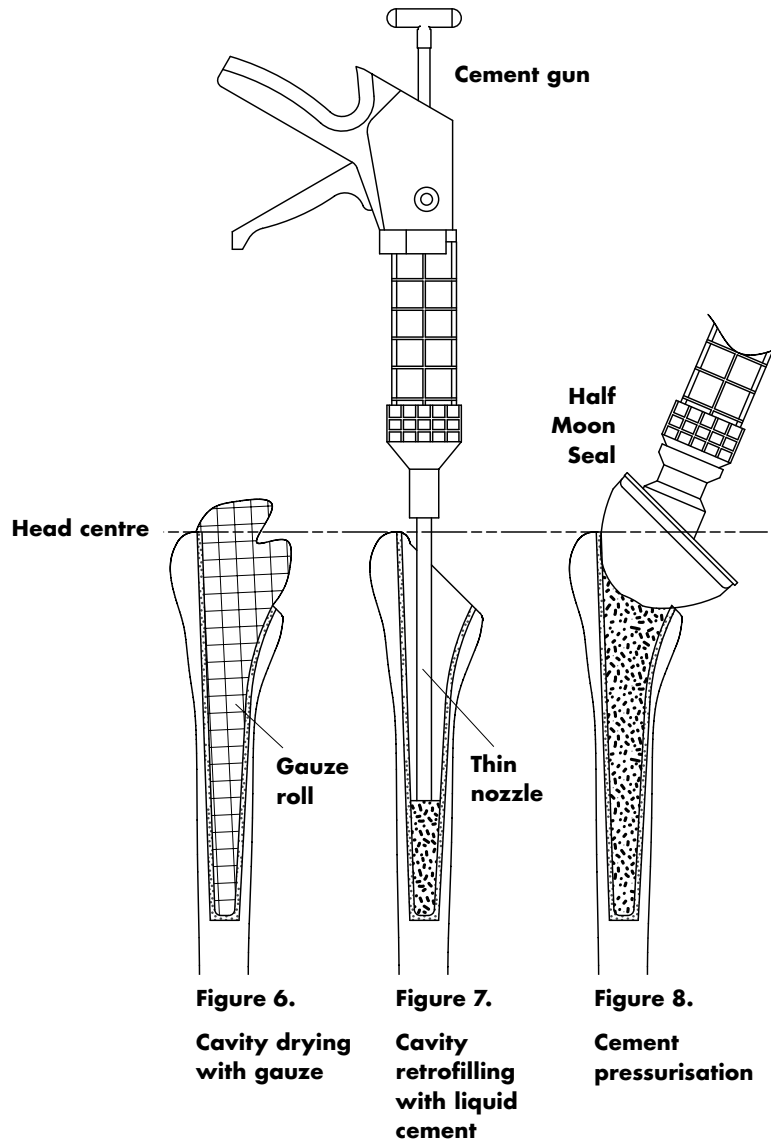
Distal reaming

If appropriate, a Cement Reamer is inserted into the cement mantle and the distal cement mantle is reamed until 145mm landmark on the drill is level with the tip of the greater trochanter (**Figures 2, 3 and 4**). This helps to ensure that a L.125mm stem with a straight-sided distal centraliser in place can be inserted. This depth may need to be adjusted if more distal insertion of the stem is required. Irrigate whilst reaming with Hartmann's solution or saline (**Figures 3 and 4**).

Step 5

Trial insertion

A trial stem can now be used to help ensure that the correct depth of insertion and stem version can be achieved. Remove proximal cement with a burr or reamers until the desired position can be achieved. A trial reduction can now be performed to confirm stability and leg length (**Figure 5**). Mark the proximal femur in relation to the marks on the femoral stem to facilitate subsequent correct placement of the stem. The definitive stem should be placed as a final check into the existing cement mantle before introducing the new cement.



Step 6

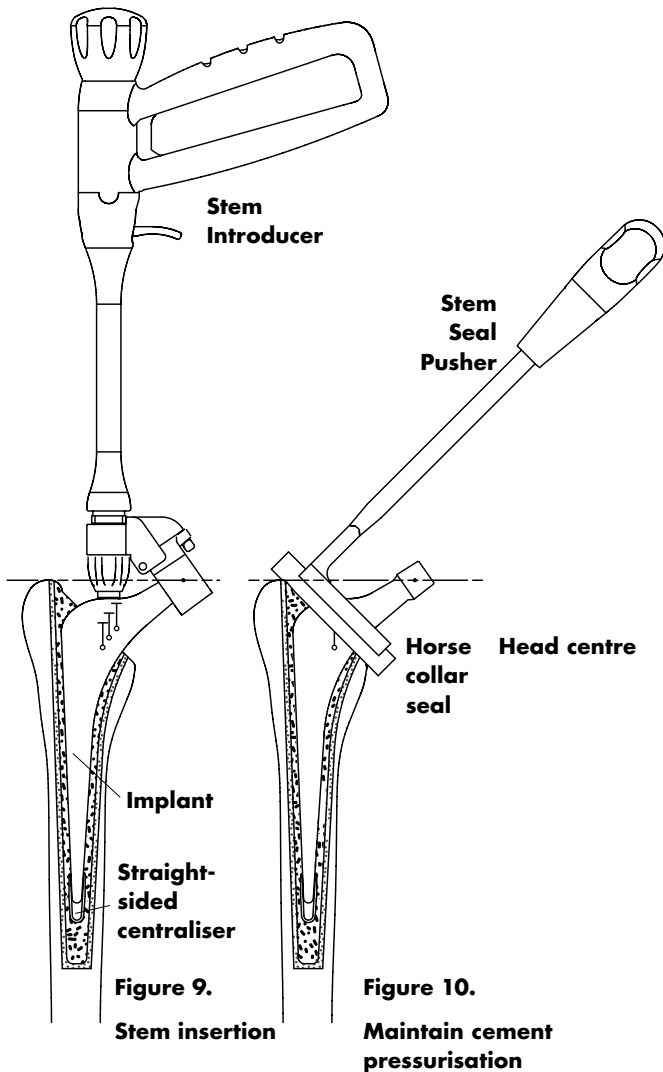
Canal preparation

Roughen the proximal cement with a burr, rasp or reamers and then wash and thoroughly dry the canal. Insert a narrow catheter, attached to suction, to the tip of the cavity, followed by a dry gauze pack, and leave in place until just before cement insertion.

Steps 7/8

Retrograde cement insertion

Remove the gauze and catheter and using a narrow revision nozzle, insert cement with a cement gun. Introduce the cement early (at two minutes when using Simplex Bone Cement at 21°C). Use a proximal Half Moon Seal and pressurise the cement continuously until cement insertion (about five minutes at 21°C, if using Simplex Bone Cement) (**Figures 7 and 8**).



Steps 9/10

Stem insertion

Use the straight-sided centraliser on the tip of the stem and insert the stem. The insertion should be brisk until the stem reaches a position approximately 1cm above its final position. Insertion thereafter should be slower, gradually bringing the stem to its final position. The stem should not be left with all three circular markings proud of the cement mantle because this would risk leaving it with inadequate proximal support. Maintain proximal pressure, first with a thumb and then with a horse collar seal until the cement has polymerised (**Figures 9 and 10**). Ensure a small amount of cement is placed over the lateral shoulder of the stem to help prevent it from being pulled out of the mantle should the patient suffer a later dislocation.

Reduction

A further trial reduction can now be performed prior to selecting the appropriate femoral head and engaging it on the Morse taper.

Postoperative management

The postoperative management and programme of rehabilitation will depend on the acetabular side of the revision procedure. With regard to the femoral stem, full weight-bearing can commence as soon as patient comfort will allow.

Considerations:

1. It is only applicable in the presence of an intact bone-cement interface. Proximal bone-cement loosening should not extend below the upper border of the lesser trochanter.
2. The new cement should not be inserted until the existing cement is clean and dry.

Implant listing

Product code	Description
0580-1-044	Exeter V40 44mm No. 00 L.125
0580-3-371	Exeter V40 37.5mm No. 1 L.125
0580-3-441	Exeter V40 44mm No. 1 L.125
0580-3-501	Exeter V40 50mm No. 1 L.125

Instrument listing

Product code	Description
0581-1-044	Exeter V40 44mm No. 00 L.125 Stem Trial
0581-3-371	Exeter V40 37.5mm No. 1 L.125 Stem Trial
0581-3-441	Exeter V40 44mm No. 1 L.125 Stem Trial
0581-3-501	Exeter V40 50mm No. 1 L.125 Stem Trial
0570-9-000	Trial Locating Pin
0932-3-000	Cement Reamer (Hudson Connection)
0580-4-100	Exeter V40 44mm No. 00 L.125 X-Ray Template 0% Oversize (Scale 1)
0580-4-120	Exeter V40 44mm No. 00 L.125 X-Ray Template 20% Oversize (Scale 1.2)
0580-2-500	Exeter V40 37.5/44/50mm L.125mm X-Ray Template 0% Oversize (Scale 1)
0580-2-510	Exeter V40 37.5/44/50mm L.125mm X-Ray Template 10% Oversize (Scale 1.1)
0580-2-520	Exeter V40 37.5/44/50mm L.125mm X-Ray Template 20% Oversize (Scale 1.2)
0930-5-000	Exeter V40 Stem Introducer
0937-8-101	Half Moon Seal Backing Plate
0937-3-301	Femoral Stem Seal Pusher
0937-3-215	Horse Collar Femoral Seals Small (5 pack)
0937-3-225	Horse Collar Femoral Seals Large (5 pack)
0937-8-205	Half Moon Seals (5 pack)

Exeter V40 Stem Introducer contains the following spare parts:

Product code	Description
0930-5-050	Trigger for Introducer
0930-5-060	End Cap for Introducer
0930-5-070	Spring for Introducer

Step 11

Reduction

The Spigot Protector is removed and a further trial reduction is carried out using the appropriate trial head (**Figure 11a**) to confirm that the leg length and offset have been restored and the hip is stable through a full range of movement. Minor modifications to further improve stability or change leg length or offset are possible using the plus or minus neck lengths.

Exeter V40 stems can be used with Stryker V40 Heads including Orthinox, CoCr, LFIT CoCr, Alumina, BIOLOX *delta* and Universal Taper BIOLOX *delta*. For maximum head offset, refer to stem package label.

The appropriate size of femoral head is removed from its packaging and placed over the clean, dry stem spigot. It is secured in place by a single firm blow with a mallet on the Modular Head Impactor taking care not to damage the surface of the head (**Figure 11b**). The surgeon should avoid the use of excess impaction force and hard instruments as they may damage the fine polished surface (**Figure 11b**). The hip is then reduced and a thorough lavage carried out. The soft tissues and skin are closed according to the surgeon's usual practice.

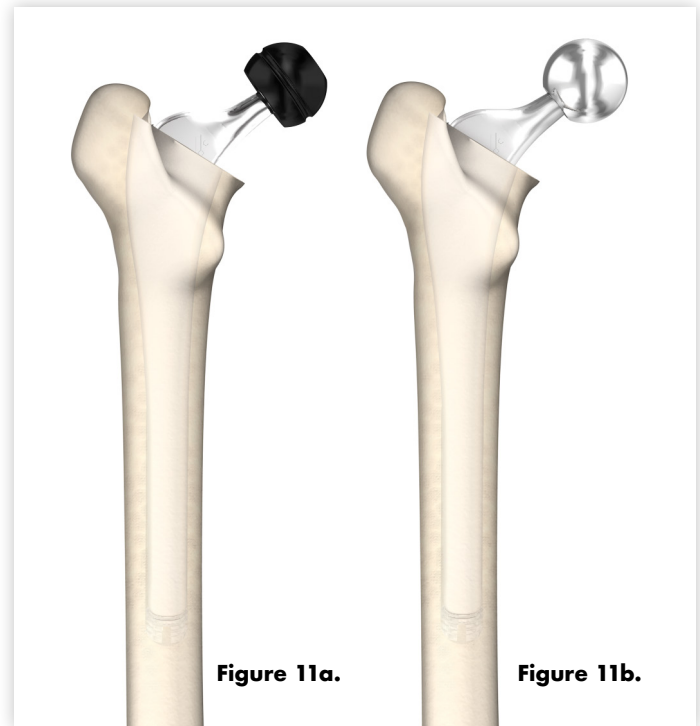


Figure 11a.

Figure 11b.

Step 12

Postoperative management

The general postoperative management of the patient should follow the normal protocols of the operating surgeon and the hospital in which the procedure is carried out. A check X-ray is taken to confirm satisfactory appearances of the arthroplasty. When inserted using the technique outlined above, the Exeter stem is ready for full weight-bearing immediately after the operation. Most patients prefer to use crutches for a short period after the surgery, but these can be discarded as soon as the patient feels confident to do without them.

Step 13

Follow-up

The follow-up arrangements should follow the normal protocols of the operating surgeon and the institution in which the surgery was performed. The Exeter Hip Unit surgeons repeat X-rays at five yearly intervals after the operation, unless a clinical presentation suggests that an earlier review is required.

Instruments



Exeter V40 Stem
0580-X-XXX



V40 Trial Head
6264-X-XXXR
6365-9-022



V40 Stainless Steel Head
6364-2-XXX



Modular Head Impactor
1601-1700

Implant and instrument listing

Exeter V40 Femoral Stems made from Orthinox stainless steel



Product code	Length (mm)	Description
0580-1-300	95	30mm L.95
0580-1-330	115	33mm L.115
0580-1-351	125	35.5mm L.125
0580-1-352	150	37.5mm N°0 L.150
0580-3-371	125	37.5mm N°1 L.125
0580-1-371	150	37.5mm N°1 L.150
0580-1-372	150	37.5mm N°2 L.150
0580-1-373	150	37.5mm N°3 L.150
0580-1-374	150	37.5mm N°4 L.150
0580-1-044	125	44mm N°00 L.125
0580-1-440	150	44mm N°0 L.150
0580-3-441	125	44mm N°1 L.125
0580-1-441	150	44mm N°1 L.150
0580-1-442	150	44mm N°2 L.150
0580-1-443	150	44mm N°3 L.150
0580-1-444	150	44mm N°4 L.150
0580-3-501	125	50mm N°1 L.125
0580-1-501	150	50mm N°1 L.150
0580-1-502	150	50mm N°2 L.150
0580-1-503	150	50mm N°3 L.150
0580-1-504	150	50mm N°4 L.150
0580-1-561	150	56mm N°1 L.150
0580-1-562	150	56mm N°2 L.150

Exeter V40 Long Stems



Product code	Length (mm)	Description	Trial stem
0580-3-321	205	37.5mm N°1 L205 fully tapered	0581-3-321
0580-3-422	205	44mm N°2 L205 fully tapered	0581-3-422
0580-1-200	200	44mm N°3 L200	0581-1-200
0580-1-220	220	44mm N°3 L220	0581-1-220
0580-1-240	240	44mm N°3 L240	0581-1-240
0580-1-260	260	44mm N°3 L260	0581-1-260

Exeter IM Plugs (PMMA)



Product code	Description	Plug trial
0939-0-106	Exeter IM Plug 6mm	0939-1-106M
0939-0-108	Exeter IM Plug 8mm	0939-1-108M
0939-0-110	Exeter IM Plug 10mm	0939-1-110M
0939-0-112	Exeter IM Plug 12mm	0939-1-112M
0939-0-114	Exeter IM Plug 14mm	0939-1-114M
0939-0-116	Exeter IM Plug 16mm	0939-1-116M
0939-0-118	Exeter IM Plug 18mm	0939-1-118M
0939-0-120	Exeter IM Plug 20mm	0939-1-120M

Implant and instrument listing

V40 Orthinox compatible heads – SS

Product code	Description	Trial head
6364-2-022	Stainless Steel 22.2mm (-2)	
6364-2-122	Stainless Steel 22.2mm (0)	6264-8-122R
6364-2-222	Stainless Steel 22.2mm (+3)	6264-8-222R
6364-2-322	Stainless Steel 22.2mm (+8) skirted	6264-8-322R
6364-2-026	Stainless Steel 26mm (-3)	6264-8-026R
6364-2-126	Stainless Steel 26mm (0)	6264-8-126R
6364-2-226	Stainless Steel 26mm (+4)	6264-7-226R
6364-2-326	Stainless Steel 26mm (+8) skirted	6264-8-326R
6364-2-028	Stainless Steel 28mm (-4)	6264-8-028R
6364-2-128	Stainless Steel 28mm (0)	6264-8-128R
6364-2-228	Stainless Steel 28mm (+4)	6264-8-228R
6364-2-628	Stainless Steel 28mm (+6mm)	6264-8-628R
6364-2-328	Stainless Steel 28mm (+8) skirted	6264-8-328R
6364-2-032	Stainless Steel 32mm (-4)	6264-8-032R
6364-2-132	Stainless Steel 32mm (0)	6264-8-132R
6364-2-232	Stainless Steel 32mm (+4)	6264-8-232R
6364-2-332	Stainless Steel 32mm (+8)	6264-8-332R
6364-2-036	Stainless Steel 36mm (-5)	6264-8-036R
6364-2-136	Stainless Steel 36mm (0)	6264-8-136R
6364-2-236	Stainless Steel 36mm (+5)	6264-8-236R

V40 Taper LFIT CoCr Heads

Product code	Description	Trial head
6260-9-122	LFIT CoCr 22.2mm (0)	6264-8-122R
6260-9-222	LFIT CoCr 22.2mm (+3)	6264-8-222R
6260-9-322	LFIT CoCr 22.2mm (+8) skirted	6264-8-322R
6260-9-026	LFIT CoCr 26mm (-3)	6264-8-026R
6260-9-126	LFIT CoCr 26mm (0)	6264-8-126R
6260-9-226	LFIT CoCr 26mm (+4)	6264-8-226R
6260-9-326	LFIT CoCr 26mm (+8) skirted	6264-8-326R
6260-9-028	LFIT CoCr 28mm (-4)	6264-8-028R
6260-9-128	LFIT CoCr 28mm (0)	6264-8-128R
6260-9-228	LFIT CoCr 28mm (+4)	6264-8-228R
6260-9-328	LFIT CoCr 28mm (+8) skirted	6264-8-328R
6260-9-032	LFIT CoCr 32mm (-4)	6264-8-032R
6260-9-132	LFIT CoCr 32mm (0)	6264-8-132R
6260-9-232	LFIT CoCr 32mm (+4)	6264-8-232R
6260-9-332	LFIT CoCr 32mm (+8) skirted	6264-8-332R

V40 Taper LFIT CoCr Anatomic Heads

Product code	Description	Trial head
6260-9-036	LFIT CoCr Anatomic 36mm (-5)	6264-8-036R
6260-9-136	LFIT CoCr Anatomic 36mm (0)	6264-8-136R
6260-9-236	LFIT CoCr Anatomic 36mm (+5)	6264-8-236R
6260-9-040	LFIT CoCr Anatomic 40mm (-4)	6264-8-040R
6260-9-140	LFIT CoCr Anatomic 40mm (0)	6264-8-140R
6260-9-240	LFIT CoCr Anatomic 40mm (+4)	6264-8-240R
6260-9-044	LFIT CoCr Anatomic 44mm (-4)	6264-8-044R
6260-9-144	LFIT CoCr Anatomic 44mm (0)	6264-8-144R
6260-9-244	LFIT CoCr Anatomic 44mm (+4)	6264-8-244R

V40 Taper Alumina Ceramic Head

Product code	Description	Trial head
6565-0-028	Alumina Ceramic 28mm (-2.7)	6264-8-928R
6565-0-128	Alumina Ceramic 28mm (0)	6264-8-128R
6565-0-228	Alumina Ceramic 28mm (+4)	6264-8-228R
6565-0-032	Alumina Ceramic 32mm (-4)	6264-8-032R
6565-0-132	Alumina Ceramic 32mm (0)	6264-8-132R
6565-0-232	Alumina Ceramic 32mm (+4)	6264-8-232R
6565-0-036	Alumina Ceramic 36mm (-5)	6264-8-036R
6565-0-136	Alumina Ceramic 36mm (0)	6264-8-136R
6565-0-236	Alumina Ceramic 36mm (+5)	6264-8-236R

V40 Taper BIOLOX delta Ceramic Heads

Product code	Description	Trial head
6570-0-028	Delta Ceramic 28mm (-4)	6264-8-028R
6570-0-328	Delta Ceramic 28mm (-2.7)	6264-8-928R
6570-0-128	Delta Ceramic 28mm (0)	6264-8-128R
6570-0-228	Delta Ceramic 28mm (+4)	6264-8-228R
6570-0-032	Delta Ceramic 32mm (-4)	6264-8-032R
6570-0-132	Delta Ceramic 32mm (0)	6264-8-132R
6570-0-232	Delta Ceramic 32mm (+4)	6264-8-232R
6570-0-036	Delta Ceramic 36mm (-5)	6264-8-036R
6570-0-436	Delta Ceramic 36mm (-2.5)	6264-8-436R
6570-0-136	Delta Ceramic 36mm (0)	6264-8-136R
6570-0-536	Delta Ceramic 36mm (+2.5)	6264-8-536R
6570-0-236	Delta Ceramic 36mm (+5)	6264-8-236R
6570-0-736	Delta Ceramic 36mm (+7.5)	6264-8-736R

Note: When selecting a BIOLOX delta Universal Taper Ceramic Femoral Head for implantation, use of a V40 Universal Adaptor Sleeve is necessary (6519-T-XXX).

After completing the trialing process, intraoperatively assemble the Adaptor Sleeve to the femoral stem manually. The Universal Adaptor Sleeve must be fully seated on the stem taper before the head is assembled.

Implant and instrument listing

BILOX *delta* Universal Taper Ceramic Heads

Product code	Description
6519-1-028	Universal T Ceramic 28mm (+0)
6519-1-032	Universal T Ceramic 32mm (+0)
6519-1-036	Universal T Ceramic 36mm (+0)
6519-1-040	Universal T Ceramic 40mm (+0)
6519-1-044	Universal T Ceramic 44mm (+0)

V40 Taper Universal Trial Heads

Product code	Description
6264-8-728R	Universal Trial 28mm (-2.5)
6264-8-632R	Universal Trial 32mm (-2.5)
6264-3-236R	Universal Trial 36mm (+4.0)
6264-8-940R	Universal Trial 40mm (-2.5)
6264-8-944R	Universal Trial 44mm (-2.5)

V40 Universal Adapter Sleeves – Titanium

Product code	Description
6519-T-025	Universal Adapter (-2.5mm)
6519-T-100	Universal Adapter (+0mm)
6519-T-204	Universal Adapter (+4mm)

Note: In no instance should any attempt be made to preassemble the Adaptor Sleeve inside the BILOX *delta* Universal Ceramic head.

Intraoperatively assemble the BILOX *delta* Universal Taper Ceramic Head onto the sleeved femoral stem and set with two moderate blows using a head impactor instrument. Care must be taken to avoid excessive impact forces when assembling the Ceramic Head to the sleeved femoral component.

Unitrax Unipolar Head

Product code	Description
6942-5-038	Unitrax Unipolar Head 38mm
6942-5-040	Unitrax Unipolar Head 40mm
6942-5-041	Unitrax Unipolar Head 41mm
6942-5-042	Unitrax Unipolar Head 42mm
6942-5-043	Unitrax Unipolar Head 43mm
6942-5-044	Unitrax Unipolar Head 44mm
6942-5-045	Unitrax Unipolar Head 45mm
6942-5-046	Unitrax Unipolar Head 46mm
6942-5-047	Unitrax Unipolar Head 47mm
6942-5-048	Unitrax Unipolar Head 48mm
6942-5-049	Unitrax Unipolar Head 49mm
6942-5-050	Unitrax Unipolar Head 50mm
6942-5-051	Unitrax Unipolar Head 51mm
6942-5-052	Unitrax Unipolar Head 52mm
6942-5-053	Unitrax Unipolar Head 53mm
6942-5-054	Unitrax Unipolar Head 54mm
6942-5-055	Unitrax Unipolar Head 55mm
6942-5-056	Unitrax Unipolar Head 56mm
6942-5-058	Unitrax Unipolar Head 58mm
6942-5-061	Unitrax Unipolar Head 61mm

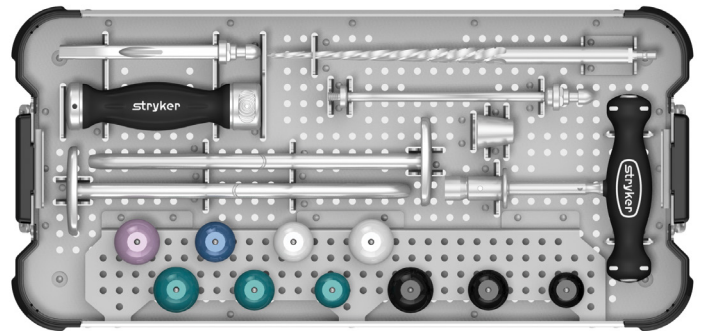
Unitrax Unipolar Sleeves

Product code	Description
6942-6-060	V40 Taper Sleeve -4mm
6942-6-065	V40 Taper Sleeve 0
6942-6-070	V40 Taper Sleeve +4mm
6942-6-075	V40 Taper Sleeve +8mm

Instrument listing

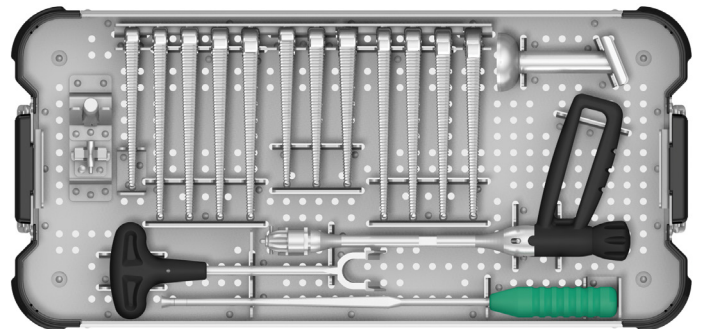
General Femoral Tray

Product code	Description
1020-2900	Orthonomic Modular Handle
1601-1210	Modular Box Osteotome
1020-1460	Offset Broach Handle
1440-1460	Straight Broach Handle
1101-2200	Orthonomic T-Handle
1020-1200	Accolade Axial Starter Reamer
1601-1700	Modular Head Impactor
XXXX-X-XXXX	V40 Trial Heads (10 spaces)
0585-9-905	General Femoral Tray



General Broach Tray

Product code	Description
0585-9-001	Exeter Neck Trial
0585-9-351	35.5mm L.125
0585-9-352	37.5mm N°0 L.150
0585-3-371	37.5mm N°1 L.125
0585-9-371	37.5mm N°1 L.150
0585-9-372	37.5mm N°2 L.150
0585-9-373	37.5mm N°3 L.150
0585-9-440	44mm N°0 L.150
0585-3-441	44mm N°1 L.125
0585-9-441	44mm N°1 L.150
0585-9-442	44mm N°2 L.150
0585-9-443	44mm N°3 L.150
0585-3-501	50mm N°1 L.125
0937-8-101	Half Moon Seal Backing Plate
0930-5-000	Exeter V40 Stem Introducer
0939-0-002M	Exeter Plug Introducer
0939-1-000	Exeter Plug Introducer Adaptor 6-8mm
0939-2-000	Exeter Plug Introducer Adaptor 10-20mm
0937-3-301	Femoral Stem Seal Pusher (for Horse Collar)
0585-9-900	Exeter Broach Tray



Stryker Orthopaedics has validated the following reusable instrument trays with Aesculap's SterilContainer™ System and with CSR Wrap. Refer to LSTPI-B (Instructions for Cleaning, Sterilisation, Inspection, and Maintenance of Reusable Medical Devices).

Product code	Description
0585-9-905	General Femoral Tray
0585-9-900	Exeter Broach Tray
0585-9-903	Exeter Extension Broach Tray
0585-9-901	Exeter Plug Trial Tray
0585-9-902	Exeter Retractor Tray

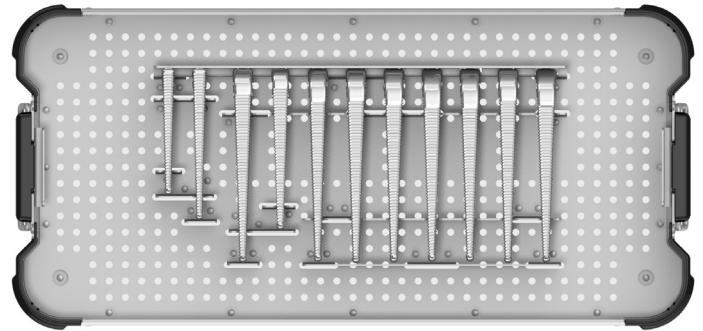
Optional General Instruments

Product code	Description
0930-4-000	Leg Length Gauge
0930-6-000	Exeter V40 Leg Length Gauge
0930-6-001	Exeter Trial Spigot Protector
0930-6-002	Exeter V40 Spigot Adaptor

Instrument listing

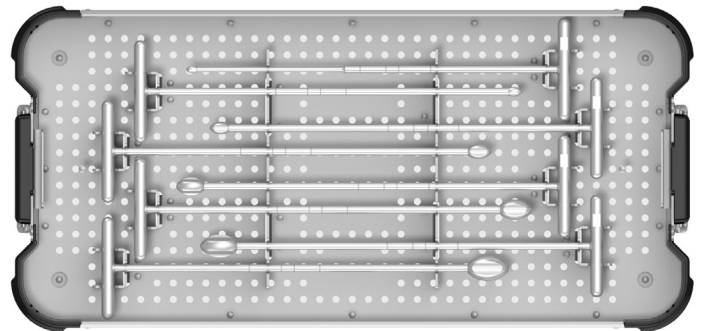
Exeter Extension Broach Tray

Product code	Description
0585-9-300	30mm L.95
0585-9-330	33mm L.115
0585-9-374	37.5mm N°4 L.150
0585-9-400	44mm N°00 L.125
0585-9-444	44mm N°4 L.150
0585-9-501	50mm N°1 L.150
0585-9-502	50mm N°2 L.150
0585-9-503	50mm N°3 L.150
0585-9-504	50mm N°4 L.150
0585-9-561	56mm N°1 L.150
0585-9-562	56mm N°2 L.150
0585-9-903	Exeter Extension Broach Tray



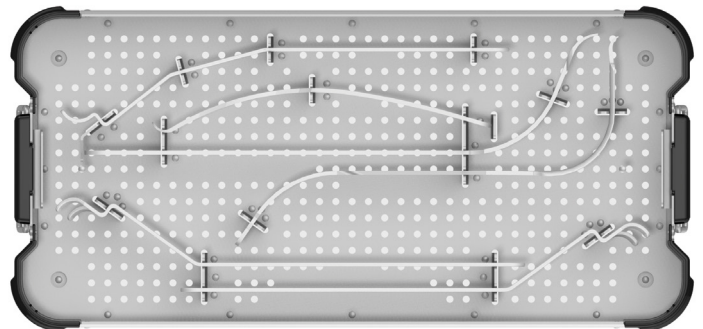
Exeter Plug Trial Tray

Product code	Description
0939-1-106M	Exeter Plug Trial 6mm
0939-1-108M	Exeter Plug Trial 8mm
0939-1-110M	Exeter Plug Trial 10mm
0939-1-112M	Exeter Plug Trial 12mm
0939-1-114M	Exeter Plug Trial 14mm
0939-1-116M	Exeter Plug Trial 16mm
0939-1-118M	Exeter Plug Trial 18mm
0939-1-120M	Exeter Plug Trial 20mm
0585-9-901	Exeter Plug Trial Tray



Exeter Retractor Tray

Product code	Description
0929-1-001	Exeter Femoral Elevator – Straight
0929-1-002	Exeter Femoral Elevator Curved Left
0929-1-003	Exeter Femoral Elevator Curved Right
0929-1-020	Exeter Inferior Acetabular Retractor
0929-1-030	Exeter Short Blunt Retractor
1440-1130S	Narrow Hohmann Retractor
0585-9-902	Exeter Retractor Tray



Instrument listing

Acetate Surgical Templates (1 pack)



Product code	Description
0580-3-500	30mm L.95 / 33mm L.115 / 35.5mm L.125 Stems 0% oversize (scale 1)
0580-3-520	30mm L.95 / 33mm L.115 / 35.5mm L.125 Stems 20% oversize (scale 1.2)
0580-2-500	37.5mm/44mm/50mm L.125mm Stems 0% oversize (scale 1)
0580-2-510	37.5mm/44mm/50mm L.125mm Stems 10% oversize (scale 1.1)
0580-2-520	37.5mm/44mm/50mm L.125mm Stems 20% oversize (scale 1.2)
0580-3-700	37.5mm L.150 Stems 0% oversize (scale 1)
0580-3-720	37.5mm L.150 Stems 20% oversize (scale 1.2)
0580-4-400	44mm L.150 Stems 0% oversize (scale 1)
0580-4-420	44mm L.150 Stems 20% oversize (scale 1.2)
0580-5-000	50mm L.150 Stems 0% oversize (scale 1)
0580-5-020	50mm L.150 Stems 20% oversize (scale 1.2)
0580-5-600	56mm L.150 Stems 0% oversize (scale 1)
0580-5-620	56mm L.150 Stems 20% oversize (scale 1.2)

Exeter Femoral Seals

Product code	Description
0937-3-215	Horse Collar Femoral Seals Sm (5 pack)
0937-3-225	Horse Collar Femoral Seals Lg (5 pack)
0937-8-205	Half Moon Seals (5 pack)

Instrument listing

Instrument Trays

Catalog no.	Description
7000-5520	Femoral Instrument Tray – General
1020-1111	Calcar Planer – Standard
1020-1112	Calcar Planer – Large
1101-2200	Orthonomic T-Handle
1601-1700	Modular Head Impactor
6264-X-XXXX	Femoral heads (select 10 from list)
1XXX-1460	Broach handles x2 (select from below list of handle options)
1601-1210	Modular Box Osteotome
1020-1200	Axial Starter Reamer
1020-2900	Orthonomic Modular Handle

Broach handles (Select two from the following options)

Catalog no.	Description
7000-5529	Extra Offset Broach Handle – Lever
7000-5525	Straight Broach Handle – Lever
7000-5226	Offset Broach Handle – Lever
1440-1460	Straight Broach Handle
1020-1460	Offset Broach Handle

Stryker Orthopaedics has validated the following reusable instrument trays with Aesculap’s SterilContainer™ System and with CSR wrap. Refer to LSTPI-B (Instructions for Cleaning, Sterilization, Inspection, and Maintenance of Reusable Medical Devices).

- 6147-0-100 Universal Lid
- 7000-5200 Femoral Instrument Tray – General

Instrument Trays

Catalog no.	Description
6264-8-028R	28mm -4mm V40 Trial Head
6264-8-728R	28mm -2.5mm Trial Head
6264-8-928R	28mm -2.7mm V40 Trial Head
6264-8-128R	28mm +0(STD) V40 Trial Head
6264-8-228R	28mm +4mm V40 Trial Head
6264-8-828R	28mm +5mm Trial Head
6264-8-628R	V40 Trial Femoral Head 28+6mm
6264-8-328R	28mm +8mm V40 Trial Head
6264-8-428R	28mm +12mm Trial Head
6264-8-032R	32mm -4mm V40 Trial Head
6264-8-632R	32mm -2.5mm Trial Head
6264-8-132R	32mm +0(STD) V40 Trial Head
6264-8-232R	32mm +4mm V40 Trial Head
6264-8-732R	32mm +5mm Trial Head
6264-8-332R	32mm +8mm V40 Trial Head
6264-8-432R	32mm +12mm Trial Head
6264-8-036R	36mm -5mm V40 Trial Head
6264-8-436R	36mm/-2.5mm Trial Head
6264-8-136R	36mm +0(STD) V40 Trial Head
6264-8-536R	36mm +2.5mm Trial Head
6264-3-236R	36mm +4mm V40 Trial Head
6264-8-236R	36mm +5mm V40 Trial Head
6264-8-736R	36mm/+7.5mm Trial Head
6264-8-336R	36mm +10mm Trial Head



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Howmedica Osteonics Corp.

325 Corporate Drive
Mahwah, NJ 07430, USA
A subsidiary of Stryker Corporation
t: 201 831 5000

stryker.com