stryker®

Orthopaedics

Exeter®

V40® Femoral Stem
Using Monolithic Rasp

Surgical Technique

Exeter V40 Femoral Stem

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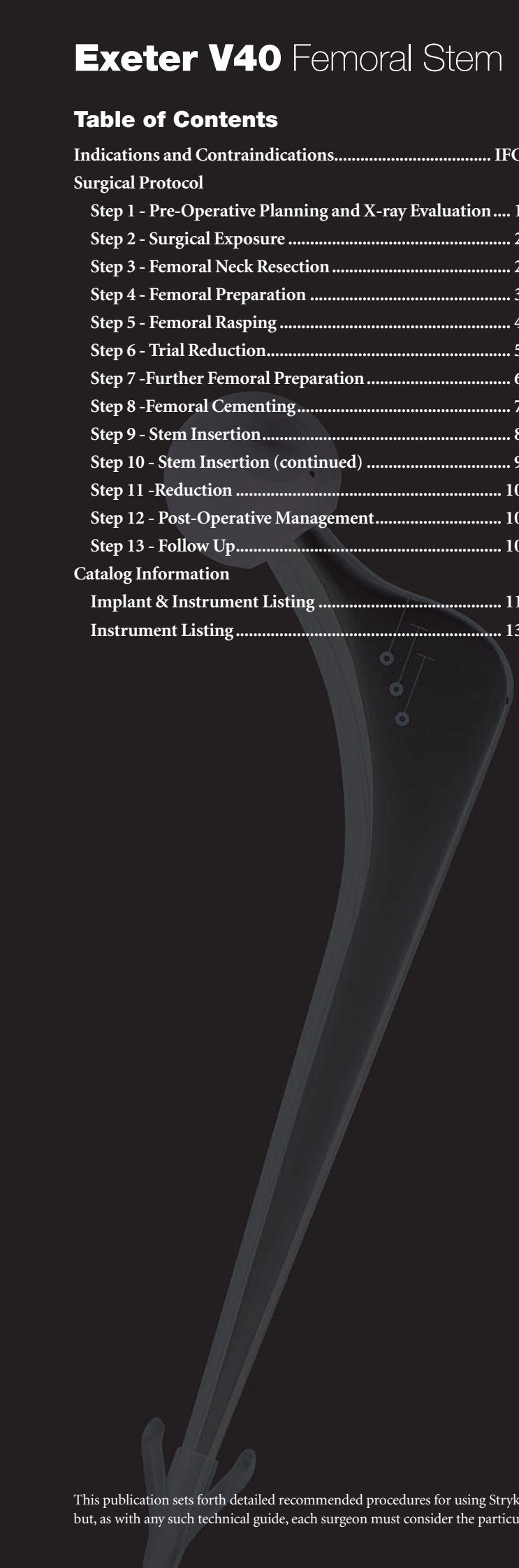

Indications

The indications for use in total hip arthroplasty include:

- Non-inflammatory degenerative joint disease, including osteoarthritis and avascular necrosis.
- Rheumatoid arthritis.
- Correction of functional deformity.
- Revision procedures where other treatments or devices have failed.
- Treatment of non-unions, femoral neck fractures and trochanteric fractures of the proximal femur with head involvement that are not manageable using other techniques.

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 immature.
- Any mental or neuromuscular disorder that would create an unacceptable risk of prosthesis instability, prosthesis fixation failure, or complications in postoperative care.

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 sterilization
- Instruments have been properly assembled post sterilization
- Instruments have maintained design integrity
- Proper size configuration is available

For instructions for Cleaning, Sterilization, Inspection and Maintenance of Orthopaedic Medical Devices, refer to LSTPI-B.

STEP 1

PRE-OPERATIVE PLANNING AND X-RAY EVALUATION

Pre-operative 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 implant that will restore the correct anatomy of the individual patient. Planning the positions of the cup and stem will also help the surgeon place each component at the correct centre of rotation and thereby restore the correct leg length.

Pre-operative planning can be done using acetate templates for printed radiographs or pre-operative planning software for digital studies (**Figure 1**). It should start with an assessment of the magnification of the radiograph and adjustment for that if necessary. The surgeon should then take account of the pre-operative 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 patients 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.

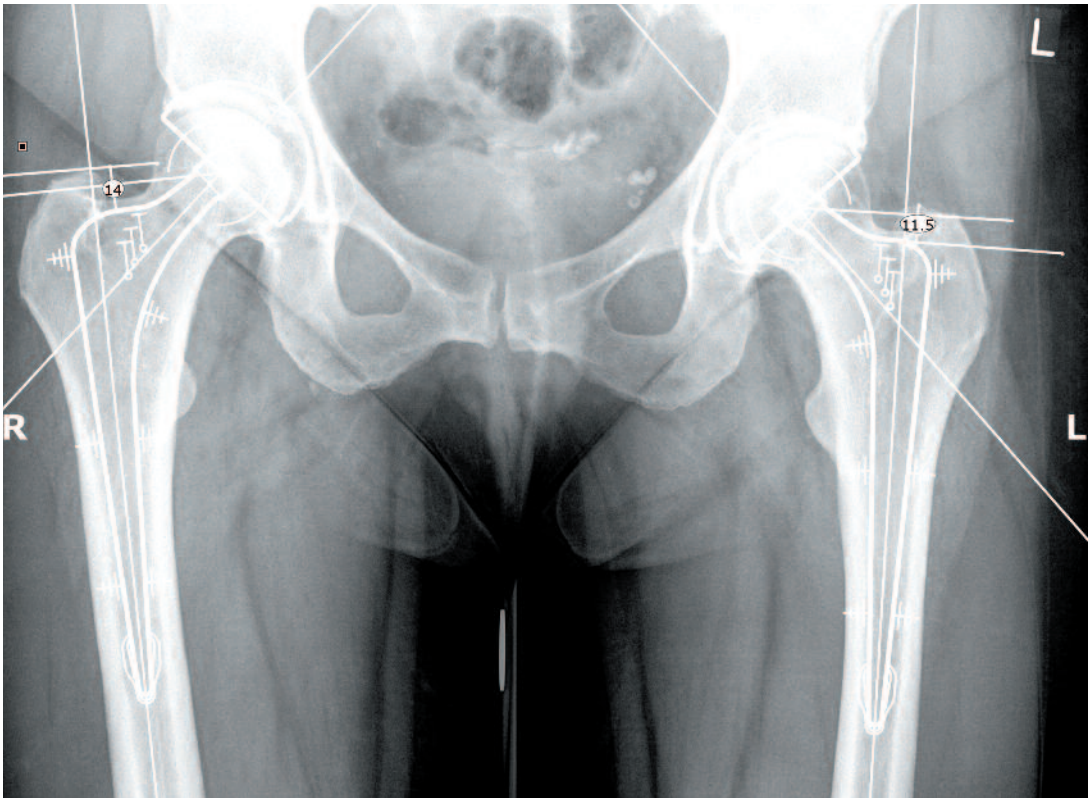

Figure 1

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 is 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**).

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 mid-way 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**).

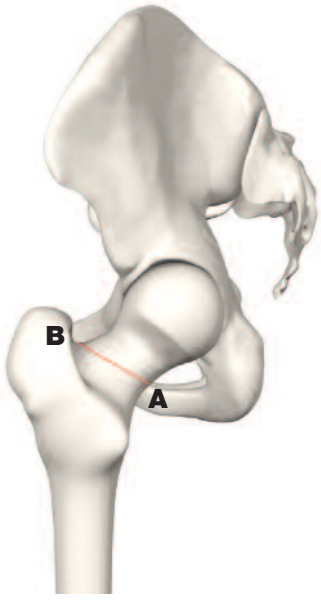

Figure 3

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 ante-version. 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 will help to deliver the femur out of the wound, providing 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 a hollow box chisel 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 tapered pin 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 tapered pin 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 rasps to prepare the cancellous bone for cementing.The aim is to preserve 2-3 mm of strong cancellous bone circumferentially around the stem cavity, into which the cement will be pressurized. Each rasp is slightly larger than the corresponding stem and creates a cavity that will hold the stem with a complete cement mantle around it.

Figure 4

Figure 5

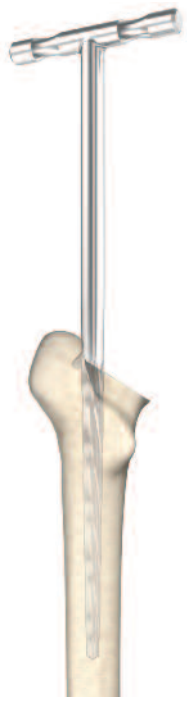

Figure 6

Instruments

Hollow Chisel
4842-3012

Exeter Tapered Pin Reamer
Large and Small
Small = 0932-0-000
Large = 0932-2-000

STEP 5

FEMORAL RASPING

The surgeon should start with a rasp that is one or two sizes smaller than the anticipated stem size predicted by pre-operative planning.The rasp is inserted along the long axis of the femur (**Figure 7A**) to the level at which templating has shown the leg length will be restored.

The rasp bears three holes in the neck region that correspond to the three marks on the neck of the prosthesis. The surgeon should ensure that these three holes are not all left proud of the femur because this would risk leaving a stem with inadequate proximal support (**Figure 7B**).

Having started with a small rasp, the surgeon sequentially introduces larger rasps until a firm fit is achieved with a rasp at the correct insertion depth. It is a serious mistake to over-rasp the canal and remove too much cancellous bone.

If excess force is required to introduce a rasp to the correct level then the surgeon should either drop down a rasp size or, if this is not possible, the canal may be enlarged with the taper pin reamer, taking care not to compromise the layer of trabecular bone.

Figure 7A

Figure 7B

Instruments

Exeter V40 Rasp
0579-X-XXX

Exeter V40 Rasp Handle
0930-9-005

STEP 6

TRIAL REDUCTION

Once a rasp is securely seated at the correct insertion depth it is used as a trial for the femoral stem. A trial femoral head is placed over the spigot (**Figure 8A**) and the hip is reduced. Head trials are color 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 intra-operative measurement of leg length.

The maximum head offset possible is mentioned 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 rasp can be carefully seated further down the femur. This is usually possible with the same rasp but, if the femur is very tight, the next size down may be required.

If the leg has been shortened, the rasp may be left a little more proud in the femur and the trial reduction repeated. This may mean that a larger rasp 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 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 means that the offset can be adjusted to match the patients needs and then any adjustment to the leg length that is required can be achieved by adjusting the depth of stem insertion.

When the correct leg length and offset have been achieved, the position of the stem is marked in line with the first visible hole on the rasp (**Figure 8C**) and then the rasp is removed. During stem insertion the corresponding mark on the stem is placed in the same position as the rasp, thus recreating the correct 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-XXXR

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 three markings proximally as the rasp 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.

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 rasp, the restrictor will lie 10mm below the final position of the stem.

The theatre nursing staff can now start to prepare the cement, while the surgeon washes the femoral canal thoroughly using pressurized lavage. The aim is to remove the blood from the strong cancellous bone in preparation for cementing. A catheter is placed in the distal end of the canal and connected to suction. Hydrogen Peroxide (1.5% concentration) soaked ribbon gauze is moderately squeezed before being packed into the femur to maintain haemostasis in the canal and to provide a clean dry surface into which the cement can key.

Figure 9A

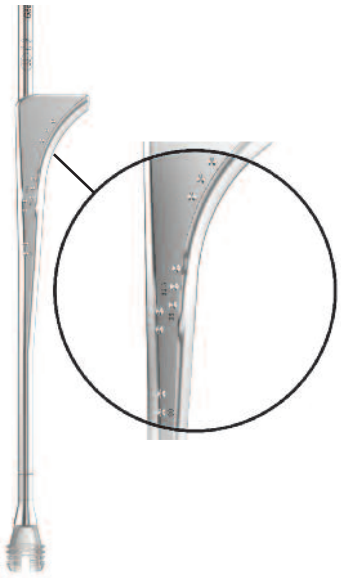

Figure 9B

Figure 9C

Instruments

Exeter IM Plug
0939-0-1XX

Exeter 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 pressurization 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 1 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 rasp 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 2½ to 3 minutes after the commencement of mixing. The nozzle of the cement gun is inserted all the way down the femoral canal until the tip is at the level of the plug, or as far as it can be inserted if the femur is very tight (**Figure 10A**).

Cement is introduced in a retrograde (i.e. from distal to proximal) fashion and as the canal fills distally the cement gun nozzle is gradually withdrawn until the canal is completely filled with cement (**Figure 10B**). When the canal is full, the gun is withdrawn and the femoral seal and metal backing plate are placed over the nozzle of the gun. The cement in the nozzle is pushed back until it is level with the seal and then the nozzle is cut short at the point at which it emerges through the seal (**Figure 10C**).

Cement injection and pressurization 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 5 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.

Figure 10A

Figure 10B

Figure 10C

Instruments

Exeter Half Moon Seal Backing Plate
0937-8-101

Half Moon Seal
0937-8-205

STEP 9

STEM INSERTION

The hollow centralizer must be used with the Exeter stem because it provides a space below the stem tip, which prevents 'end-bearing' of the stem and ensures 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 centralizer (**Figure 11A**).

If an intramedullary plug of 10mm or less has been used, the straight-sided centralizer should be fitted to the stem, but when a plug size of 12mm or more has been inserted, the winged centralizer is applied. The stem centralizer 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 centralizer 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.

Figure 11A

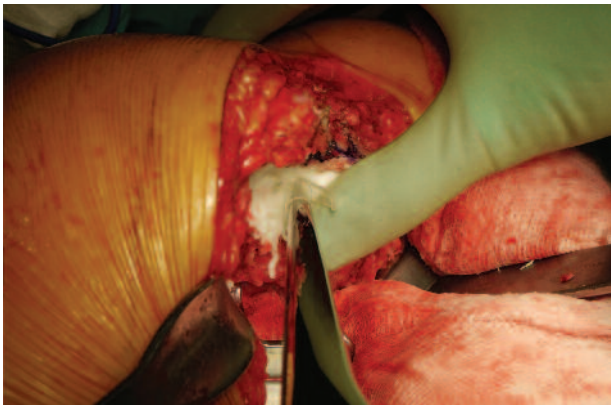

Figure 11B

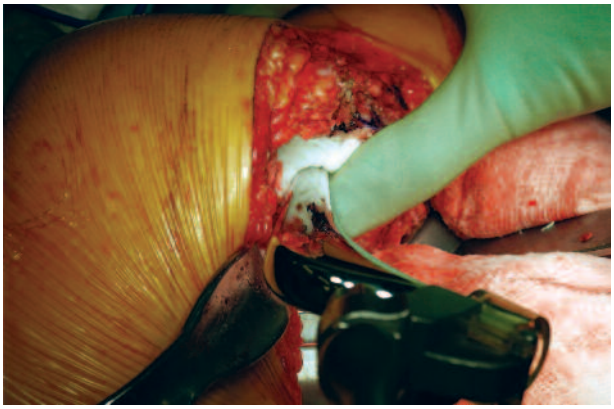

Figure 11C

Exeter V40 Femoral Stem Sizing Chart

Offset	Length	Sizes (No.)
30	95	
33	115	
35.5	125	
37.5	125	1
37.5	150	0,1,2,3,4
44	125	1
44	150	0,1,2,3,4,5,6
50	125	1
50	150	1,2,3,4,5
56	150	1,2

Instruments

Exeter V40 Stem Introducer
0930-5-000

Exeter Winged Centralizer
0920-2-920

STEP 10

STEM INSERTION *CONTINUED*

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

Insertion thereafter should be slower, gradually bringing the stem to its final pre-determined position as judged by the marks placed on the femur that were made after trial reduction with the rasp (**Figure 11E**).

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. When the final position has been reached and the introducer has been removed, the stem seal and backing plate are placed around the stem and firm pressure maintained on the top of the cement until it has polymerized (**Figure 11F**).

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

Figure 11D

Figure 11E

Figure 11F

NOTE

Exeter V40 Stem Trials (0581-X-XXX) are approved in some markets to assess cement mantle around the stem, avoiding excessive bone removal around the stem that allows anatomic restoration in cases where the broach is oversized compared to the femoral canal.

After bone preparation with the rasp, the trial stem can be used to ensure that the correct depth of insertion and stem version can be achieved.

Once the desired position of the stem has been achieved, using the Trial Locating Pin, a trial reduction can now be performed to confirm stability and leg length.

When the correct leg length and offset have been achieved, the position of the stem is marked in line with the hole in which the trial locating pin is located.

During stem insertion the corresponding mark on the stem is placed in the same position as the stem trial, thus recreating the correct leg length and offset.

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.

Exeter V40 stems can be used with Stryker V40 Heads including Orthinox, CoCr, LFIT CoCr, Alumina, BIOLOX delta, Universal Taper BIOLOX delta and Unitrax. 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 firm blows with the palm of the hand on an impactor or the head may be pushed onto the spigot by hand and rotated 10°. 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 surgeons's usual practice.

Figure 12A

Figure 12B

STEP 12
POST-OPERATIVE MANAGEMENT

The general post-operative 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 5 yearly intervals after the operation, unless a clinical presentation suggests that an earlier review is required.

Instruments & Implants

Exeter V40 Stem
0580-X-XXX

V40 Trial Head
6264-X-XXXR

V40 Stainless Steel Head
6364-2-XXX

IMPLANT & INSTRUMENT LISTING

Exeter V40 Femoral Stems

Made from Orthinox Stainless Steel

Product Code	Length (mm)	Description	Trial Stem
0580-1-300	95	30 mm L.95	0581-1-300
0580-1-330	115	33 mm L.115	0581-1-330
0580-1-351	125	35.5 mm L.125	0581-1-351
0580-1-352	150	37.5 mm N°0 L.150	0581-1-352
0580-3-371	125	37.5 mm N°1 L.125	0581-3-371
0580-1-371	150	37.5 mm N°1 L.150	0581-1-371
0580-1-372	150	37.5 mm N°2 L.150	0581-1-372
0580-1-373	150	37.5 mm N°3 L.150	0581-1-373
0580-1-374	150	37.5 mm N°4 L.150	0581-1-374
0580-1-440	150	44 mm N°0 L.150	0581-1-440
0580-3-441	125	44 mm N°1 L.125	0581-3-441
0580-1-441	150	44 mm N°1 L.150	0581-1-441
0580-1-442	150	44 mm N°2 L.150	0581-1-442
0580-1-443	150	44 mm N°3 L.150	0581-1-443
0580-1-444	150	44 mm N°4 L.150	0581-1-444
0580-1-445	150	44 mm N°5 L.150	0581-1-445
0580-1-446	150	44 mm N°6 L.150	0581-1-446
0580-3-501	125	50 mm N°1 L.125	0581-3-501
0580-1-501	150	50 mm N°1 L.150	0581-1-501
0580-1-502	150	50 mm N°2 L.150	0581-1-502
0580-1-503	150	50 mm N°3 L.150	0581-1-503
0580-1-504	150	50 mm N°4 L.150	0581-1-504
0580-1-505	150	50 mm N°5 L.150	0581-1-505
0580-1-561	150	56 mm N°1 L.150	0581-1-561
0580-1-562	150	56 mm N°2 L.150	0581-1-562

Winged Centralizer

	0920-2-920

V40 Spigot Protector

	0930-3-005

Exeter V40 Long Stems

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

Exeter IM Plug (PMMA)

Product Code	Description	Trial Plug
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

V40 Orthinox Compatible Heads – SS

Product Code	Description	Trial Head
6364-2-022	Stainless steel 22.2mm (-2)	6365-9-022
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
6364-2-328	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

IMPLANT & INSTRUMENT LISTING

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, intra-operatively 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.

BIOLOX *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 pre-assemble the Adaptor Sleeve inside the BIOLOX *delta* Universal Ceramic head.

Intra-operatively assemble the BIOLOX *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

V40 Unipolar Head

Product Code	Description	Trial Head
4656-0-041	V40 Unipolar head 41mm	4656-0-141
4656-0-043	V40 Unipolar head 43mm	4656-0-143
4656-0-044	V40 Unipolar head 44.5mm	4656-0-144
4656-0-046	V40 Unipolar head 46mm	4656-0-146
4656-0-047	V40 Unipolar head 47.5mm	4656-0-147
4656-0-049	V40 Unipolar head 49mm	4656-0-149
4656-0-051	V40 Unipolar head 51mm	4656-0-151
4656-0-052	V40 Unipolar head 52.5mm	4656-0-152
4656-0-054	V40 Unipolar head 54mm	4656-0-154
4656-0-056	V40 Unipolar head 56mm	4656-0-156

INSTRUMENT LISTING

Exeter V40 Rasp

Product Code	Description
0579-9-300	30 mm L.95
0579-9-330	33 mm L.115
0579-9-351	35.5 mm L.125
0579-9-352	37.5 mm N°0 L.150
0579-3-371	37.5 mm N°1 L.125
0579-9-371	37.5 mm N°1 L.150
0579-9-372	37.5 mm N°2 L.150
0579-9-373	37.5 mm N°3 L.150
0579-9-374	37.5 mm N°4 L.150
0579-9-440	44 mm N°0 L.150
0579-3-441	44 mm N°1 L.125
0579-9-441	44 mm N°1 L.150
0579-9-442	44 mm N°2 L.150
0579-9-443	44 mm N°3 L.150
0579-9-444	44 mm N°4 L.150
0579-9-445	44 mm N°5 L.150
0579-9-446	44 mm N°6 L.150
0579-3-501	50 mm N°1 L.125
0579-9-501	50 mm N°1 L.150
0579-9-502	50 mm N°2 L.150
0579-9-503	50 mm N°3 L.150
0579-9-504	50 mm N°4 L.150
0579-9-505	50 mm N°5 L.150
0579-9-561	56 mm N°1 L.150
0579-9-562	56 mm N°2 L.150

Exeter V40 Rasp Tray

	0590-1-401

Exeter V40 Rasp Handle

	0930-9-005

General instruments

Product Code	Description
4842-3-012	Hollow chisel
0932-0-000	Exeter tapered reamer small
0932-2-000	Exeter tapered reamer large
0939-0-002M	Exeter plug introducer
4842-2-000	Head impactor
0930-5-000	Exeter V40 stem introducer
0590-1-200	Exeter femoral tray
0570-9-000	Trial Locating Pin

Retractors

Product Code	Description
0929-1-001	Straight femoral elevator
0929-1-002	Left femoral elevator
0929-1-003	Right femoral elevator
0929-1-020	Exeter inferior acetabular retractor
0929-1-030	Exeter short blunt retractor
1440-1130	Narrow Hohmann retractor

Exeter Femoral Seals

Product Code	Description
0937-3-301	Femoral stem seal pusher (horse collar)
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)
0937-8-101	Half moon seal backing plate

Exeter Plug Trial

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

Exeter V40 Plug Trial instrument Tray

	0590-1-500

Acetate Surgical Templates (5 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)
0580-3-200	37.5mm N°1 / 44mm No 2 L205 0% oversize (scale 1)
0580-3-220	37.5mm N°1 / 44mm No 2 L205 20% oversize (scale 1.2)
0580-4-200	44mm N°3 L200/220/240/260 0% oversize (scale 1)
0580-4-220	44mm N°3 L200/220/240/260 20% oversize (scale 1.2)

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