AGC
Total Knee System

Operative
Technique

AGC
Total Knee System

Dual Articular 2000

Contents

Introduction

A knee system for revision arthroplasty and difficult primaries.

The Dual Articular 2000™ has been specifically designed to deal with the problems faced by the surgeon when revising failed primary arthroplasties. It is also very useful in primary cases associated with severe deformities and/or bone loss.

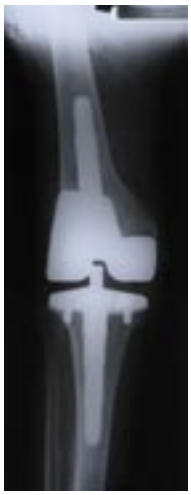
It combines all the advantages of a standard unconstrained knee replacement whilst supplying the desired stability of fixed hinged devices. The DA 2000™ incorporates a modular design which allows it to deal with unexpected situations often faced during revision arthroplasty.

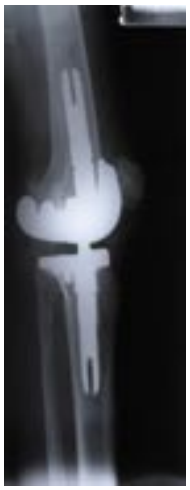
The central post on the tibial bearing provides varus/valgus stability combined with posterior stabilisation. Intramedullary fixation is achieved with modular stems of varying diameters and lengths. The stems are designed to be uncemented.

The design incorporates a revolutionary feature with a bihelical tibial bearing which allows free rotation at the tibial articulation while preserving maximum congruity between itself and the femoral component.

Mr. J. Hollingdale, F.R.C.S.
Central Middlesex Hospital, London

Mr. N. Goddard, F.R.C.S.
The Royal Free Hospital, London





Surgicaltechnique

Preoperative Planning

Preoperative planning is an essential step prior to any revision knee arthroplasty. The provision of transparent templates allows estimated sizing of both the femoral and tibial components prior to surgery. Preoperative planning will also determine whether bone graft and/or augmentation blocks need to be used during the procedure.

REVISION

Component Removal

In the revision situation once the knee has been exposed the next stage will be to carefully remove the previously implanted components.

Patella

If the patella has been resurfaced and is damaged or loose the patellar button will need to be replaced. This is most easily done with a fine oscillating saw to disrupt the prosthesis/cement interface. If the remaining bone stock is adequate the patella can be resurfaced with the Biomet AGC® patellar component. In those cases where the remaining patella is inadequate or too thin, any remaining osteophytes should be removed and the surface of the patella smoothed as much as possible following removal of any cement.

Femoral component

It is usually easier to remove the femoral component first. The bone cement interface should be disrupted using a Gigli saw. This can be used up to the metallic lugs on the femoral component. The remainder of the bone cement interface should be carefully disrupted with fine osteotomes and the component can be successfully destabilised using stacked osteotomes.

Alternatively, the ultrasonic knee osteotome of the Ultra-Drive® cement removal system can be used to disrupt the interface without causing damage to the underlying bone. The prosthesis can then be removed using a manual extractor attached to a slap hammer. After the femoral component has been removed, all particles of cement and membrane should be carefully excised from the bony surface. The bony surface can then be flushed using a pulsed lavage system.

Tibia

Following removal of the femoral component the tibial component can be removed. Firstly, excising all the soft tissue around the proximal tibia should expose the margins of the tibial component. Any obstructing osteophytes or bone can be removed manually. The bone cement interface is then disrupted using either fine osteotomes or the Ultra-Drive® system, and the tibial component removed with the extractor and slap hammer. Any remaining cement is carefully removed from the bone surface of the tibia. The use of a high-speed burr will often aid this process. Once the cement has been removed the bony surface should be flushed with a pulsed lavage system and thoroughly dried.

Notes on Correction of Deformities

Varus Deformity

Knees with fixed varus deformity usually have tightness of the tissues on the medial side of the knee. They need to be released but as with any soft tissue release, implemented with care so that undue laxity and instability is not produced at the end of the procedure. Normally this will mean complete release of the superficial medial collateral ligament plus partial resection of the deep collateral posteriorly. Correspondingly, release of the capsule with excision of any osteophytes is routinely undertaken. The medial meniscus is excised in its entirety during the initial soft tissue resection.

The anterior cruciate ligament is usually absent but excised if present. As the medial release is developed, the postero-medial corner of the joint capsule is released from the proximal tibia so that the whole of the upper medial tibial plateau can be exposed. If further release is needed, both the superficial portion and the posterior part of the deep collateral ligament may be released from the proximal tibia with a periosteal elevator. In severe cases the posterior capsule may be very carefully divided along with the attachment to the medial gastrocnemius from the proximal tibia.

Valgus Deformity

Adequate correction of the fixed valgus knee is important, not only with regards to the soft tissue tensioning but it will have a profound effect on patella tracking at the end of the operation. Normally a medial parapatella approach may be used, but in severe fixed valgus deformities a lateral parapatella approach (Keblish) may be used. However, this approach may cause restricted exposure of the medial side of the joint. With an adequate soft tissue release, however, the medial side of the joint can be exposed and the operation completed. Adequate correction of valgus deformity relies on the following steps:

1. A minimal release of the medial side of the knee is performed in order to expose the joint but care must be taken not to cause excess laxity.
2. The lateral aspect of both the proximal tibia and distal femur must be completely exposed and all meniscal remnants should be removed along with any osteophytes.
3. Release of the popliteus tendon and the postero-lateral capsule is often needed and this will often release both flexion and extension valgus contractures.
4. The ilio-tibial band and the lateral capsular attachments to the tibia commonly require release, especially for more severe contractures. This should be performed with the knee in extension.
5. If present, the posterior cruciate ligament should be removed and either or both of the collateral ligaments may need at least a partial release in severe deformities.
6. Very rarely the biceps tendon may need to be released. This should be performed starting from outside after adequate exposure of the common peroneal or lateral popliteal nerves.

Once the soft tissue release has been performed and the knee can be flexed and extended into the correct alignment, the bony cuts can then be made using the intramedullary guides.

Thetechnique

Femur

Intramedullary Femoral Alignment

1. A 9mm diameter hole is drilled in the centre, medio-laterally of the intercondylar notch and approximately one centimetre above the attachment of the posterior cruciate ligament to the distal femur (*figure 1)*. In the primary situation, the intramedullary awl can be used first, to avoid skiving of the drill across the cartilage of the distal femur. The hole should be placed through the cortical/ cancellous bone by drilling approximately 50 mm into the medullary canal. Note: the drill is used only to penetrate the diaphysis, not to open the proximal canal.

figure 1

2. The fluted intramedullary reamer with a blunt tip is attached to a T-handle and introduced into the femoral canal through the previously drilled hole. This 10mm reamer aligns the hole started by the 9mm drill in step 1 (*figure 2)*.

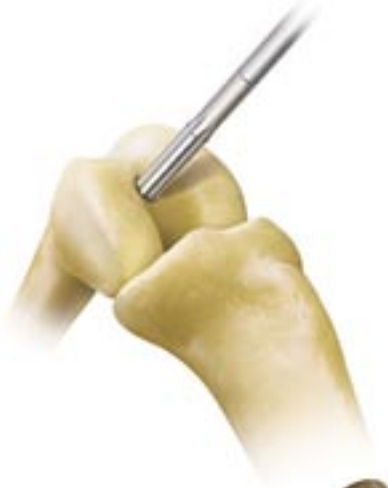


figure 2

3. The femoral canal is reamed sequentially using hand reamers until cortical contact is made (*figure 3*). The size of the final reamer should be similar to that chosen during pre-operative templating. The shaft can be reamed to a depth to match an 80 or 120 mm length stem. Ream to the tips of the flutes for an 80mm stem or to the marked ring for a 120mm stem. Ensure the reamers do not migrate posteriorly.

figure 3

REVISION

Revision Femoral Sizing

A femoral sizing template can then be applied to the distal end of the femur with the handle being kept in line with the intramedullary rod. This will approximately size the distal femur in the Antero-Posterior plane so that the appropriately sized component can be implanted. **Care should be taken not to undersize the component. The revised component often gives the best indication of size** (*figure 4*). Augment size and position may also be estimated from the notches on the template.

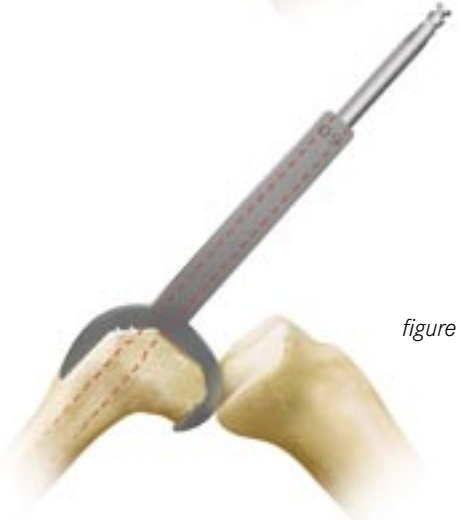


figure 4

PRIMARY

Distal Femoral Cut

The DA 2000™ femoral prosthesis has a pre-set valgus angle of 7 degrees. The intramedullary angle (gold coloured) guide must therefore be set to 7 degrees Left or Right before the distal femoral cut is made. In a primary procedure the amount of distal femoral bone that needs to be resected will be 9 mm. This can be set on the linear guide (silver screw) on the distal cutting guide (*figure 5*).

figure 5

REVISION

In a revision case the amount of bone to be resected will be determined by the amount of bone loss present when the components have been removed. Normally a clean up cut is required to obtain good bone for a flat and stable surface. Set the guide to the appropriate figure on the distal resection scale (normally 1 or 3 mm).

Before the guide is fixed in place, rotation can be set with reference to the posterior femoral condyles, if present. In the revision case, or where the posterior condyles are absent, the femoral epicondyles should be referenced. Once the correct rotation is achieved the guide can be pinned to the distal femur with long headed nails. The distal femoral resection guide is then attached and pinned to the anterior cortex of the distal femur with three headed pins. Hammer the proximal nail in first to prevent skiving of the distal nails. Once the guide is securely fixed the intramedullary rod and the angle guide can be removed. Alternatively the cut(s) may be performed with the entire instrument in place if the distal guide is not sufficiently stable by itself.

Resection of the distal femur is then performed with an oscillating saw of adequate thickness (1.35mm is optimal). The flatness of the distal femoral cut can then be assessed using the glass block (*figure 6*). Any high spots can be removed using an oscillating saw or a rasp.

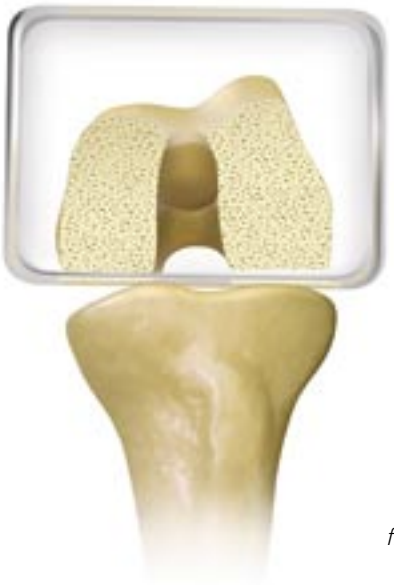


figure 6

Distal Femoral Augment Preparation

At this stage the distal femur can be resected differentially to allow insertion of an augmentation block. A thickness of either 6 mm or 10 mm, medial and/or laterally can be obtained using the relevant slots (*figure 7*).

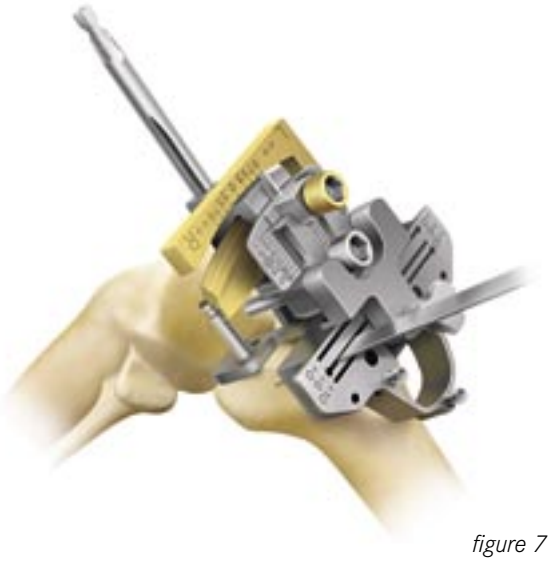


figure 7

PRIMARY

Primary Femoral Sizing

1. In the primary knee an accurate determination of femoral component A-P size can be achieved using the anatomical femoral sizer (*figure 8*).

2. The anterior outrigger arm is free to pivot either medially or laterally. The arm is swung LATERALLY until it registers outside of the femoral fossa (to prevent notching), but not onto the lateral anterior cortical ridge. The knurled knob is tightened. The size of the femoral component required is indicated on the calibrated scale. If the reading falls between two sizes the larger option is generally selected. The size can be checked using the angel wing, which is placed through the anterior slot of the contour resection block prior to completing resections. This will give an indication of the likelihood of either notching the femur or over stuffing the patello-femoral joint. As the femoral components "grow" from the stem position posteriorly, up or down sizing can be "fine tuned" at this stage to plan surgical options. Larger femoral sizes will tighten the flexion gap without affecting patella femoral fit whilst downsizing will have the opposite effect.

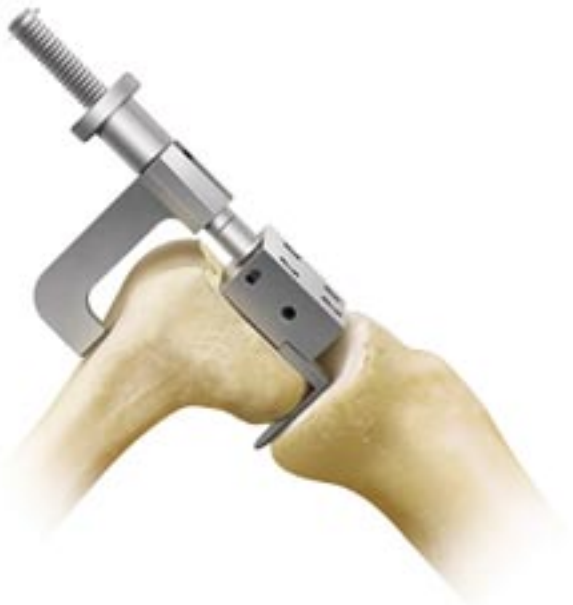


figure 8

Femoral Resection

The chosen femoral cutting block is then used for the distal femoral contour cuts (*figure 9*). Before the block is pinned in place the appropriate sized intramedullary reamer is re-inserted. The femoral cutting block is then inserted over the reamer using the appropriate bushing. The bush is inserted for a left or right knee by aligning the small arrow on the bush in the direction of the L or R on the block . The bushings are calibrated to an angle of 7 degrees to allow for the valgus angle of the femoral shaft. Once the cutting block is placed in the correct position, with the correct rotation, it is pinned in place using the special short chamfer headed pins. If standard headed pins are used, they may foul the saw blade. The block can also be secured over the intramedullary femoral reamer rod by tightening the locking bolt on the superior aspect of the cutting block.

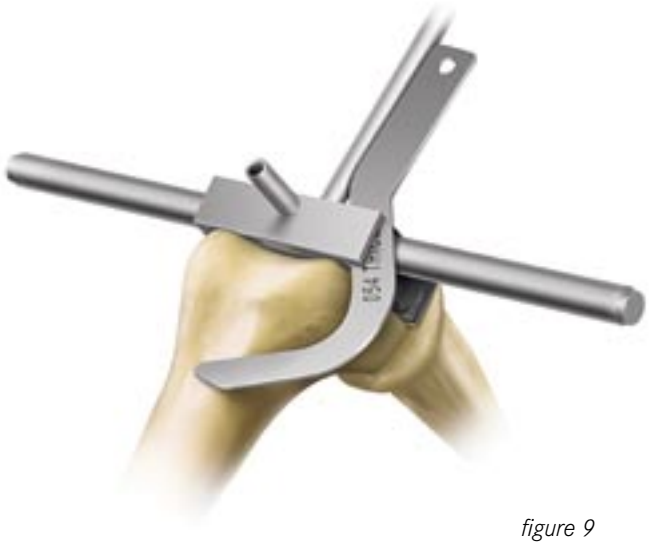


figure 9

If using distal augments and the steps above do not provide sufficient contour block stability, use bone wax or something similar to fix a femoral frame augment (6 or 10 mm) into the gap under the block. A nail cannot be used on the same side in this case.

Anterior and posterior bone resections are then completed before the chamfer resections, to aid stability of the contour block.

After resection, the locking bolt is loosened and the anatomic femoral contour block assembly removed. The intramedullary reamer is left in place.

Femoral Intercondylar Box Resection

Select the femoral frame that corresponds in size to the chosen femoral component. Insert the small punch guide onto the frame with “anterior” at the front. Lock the 7-degree bush into the small punch guide and lock onto the frame using swivel retaining clips. The frame is oriented for a left or right knee by sliding down the reamer in the L or R hole (*figure 10*).

Note: If distal femoral augmentation is used, trial distal spacer blocks can be attached to the underside of the femoral frame. They are available in both 6 mm and 10 mm thicknesses. Secure the spacers using the hexagonal screwdriver.

figure 10

The intercondylar box resection is completed using an oscillating saw run along the internal walls to the depth of the box (*figure 11*). It is often useful to insert the box chisel (with bevel upwards) a few millimetres into the anterior trough for gauging cutting depth. Once having cut the sides of the intercondylar box, the chisel can be driven posteriorly until it hits its stop (inserting the chisel before cutting may fracture a posterior condyle). The guide bush for the femoral reamer is then orientated for a left or right knee by having the L or R upright, then attached to the frame and clipped in place after removing the small punch guide. The short femoral reamer is then attached to the T-handle, passed through the opening in the guide and advanced by hand until the collar abuts against the margin of the guide (*figure 12*). The reamer is removed from the frame. Finally, remove the reamer bush and replace with the appropriately sized punch guide (Small – 55/60 (*figure 13*); Large 65/70/75) (*figure 14*). The corresponding box punch is inserted through the appropriate guide and advanced with a mallet, making sure that the chamfer faces anteriorly (*figure 15*). This punch shapes and provides room for the femoral inter condylar box. At this stage the bony cuts of the femur have now been completed.

Where posterior femoral augments are required, cut through the six or ten millimetre augment slots on the posterior of the frame. These cuts may need to be completed after removing the frame.

figure 11

figure 12

figure 13

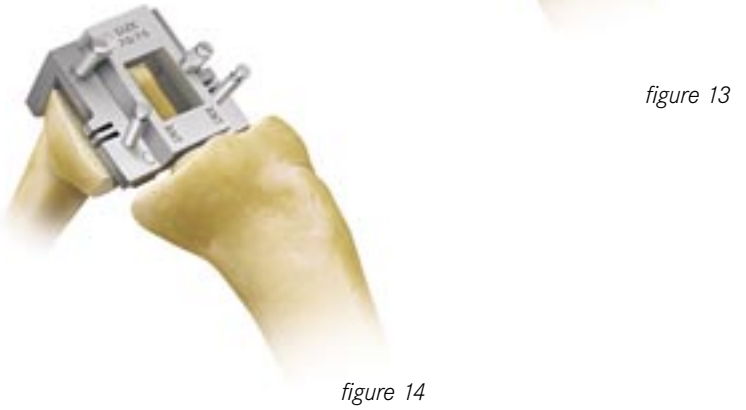


figure 14

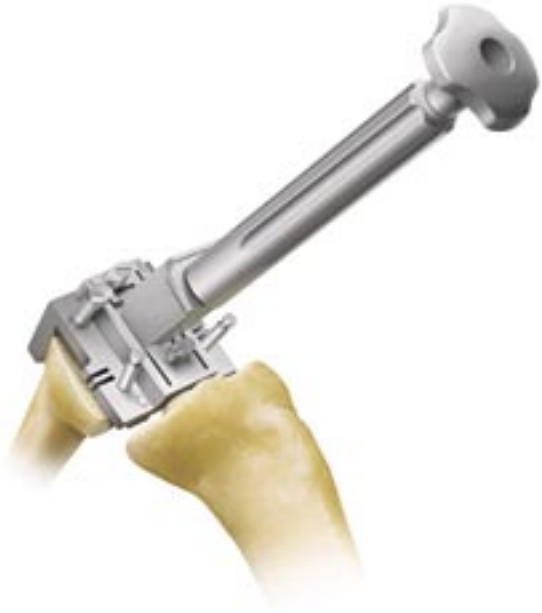


figure 15

Tibial Preparation

The Dual Articular 2000™ tibia is designed to have a perpendicular plateau, with zero degree posterior slope. If a posterior slope is cut, extension of the knee can be compromised.

Resection of the tibial plateau may be achieved with either Extramedullary or Intramedullary alignment. However Intramedullary alignment is recommended as the stems are press fitted into the canal.

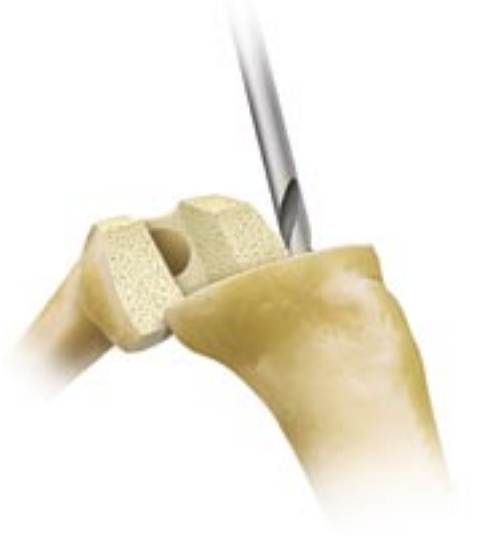


figure 16

The 9 mm starter drill (*figure 16*) is used on power to enter the tibial canal centrally, about 16 mm behind the anterior cortex. The special blunt tipped reamer (*figure 17*) is then inserted clockwise by hand to establish a hole aligned with the intramedullary canal. Incrementally larger reamers are used manually in the T-handle until cortical contact is made, which can be felt and often heard. Ream to the depth of stem, the end of the flutes for 80mm stem, or to the marked ring for 120mm stem. This depth will correspond to the length of stem to be attached to the tibial component.

figure 17

Intramedullary Tibial Resection

It is useful to tap the final reamer a couple of times into the canal to engage the flutes and stabilise the reamer further. Before sliding the Tibial Intramedullary Guide over the reamer shaft, set the resection level on the guide (2 mm to cleanup the bone surface in revision cases and 12 or 14mm for a primary knee) (*figure 18*).

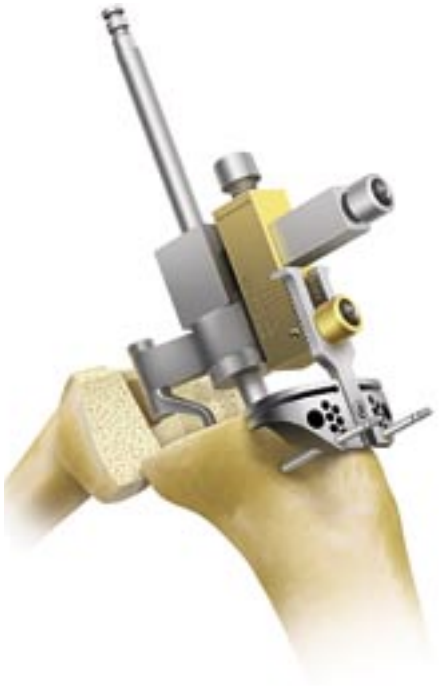


figure 18

Extramedullary Tibial Resection

With the extra medullary technique, the standard tibial cutting guide is attached to the lower part of the leg ensuring either Left Medial or Right Medial appear upright on the ankle clamp. This provides a standard offset to align onto the second metatarsal bone. The body of the guide should be parallel with the anterior cortical ridge when viewed in the medio-lateral plane, ignoring the proximal flare. Inserting a couple of fingers between the body and the tibia at different heights does this most easily.

The depth of cut can be assessed using the stylus, which screws into the upper end of the guide assembly. Set the stylus to the appropriate resection (2 or 4mm for a revision and 12 or 14mm for a primary) (*figure 19*). It is also possible to check the angle of the cut using the intramedullary reamer as a secondary reference.

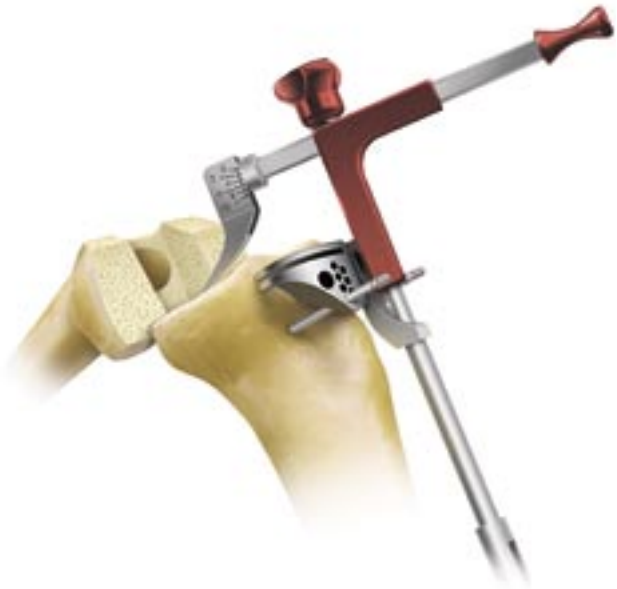


figure 19

Making the Cut

Whether using intramedullary or extramedullary alignment, the deeper tibial revision block (with seven nail holes each side) should be assembled onto the chosen resector guide using the hexagonal screwdriver.

The cutting block is then pinned in place with headless pins, using the quick connector in a drill and placing the nails in the two most distal holes (*figure 20*). Confirm the alignment of the cut and the amount to be resected. The cut can be completed using an oscillating saw. An additional headed nail may be inserted into a proximal hole to stop the guide backing off the headless pins.

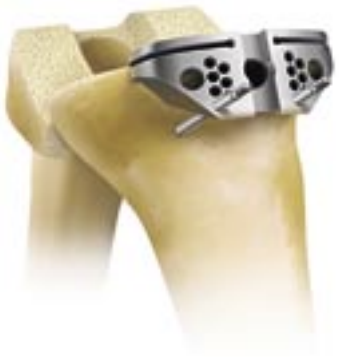


figure 20

Prior to cutting, the resection can be checked with the angel wing or saw blade, to confirm a full width cut is made. Should it appear that there is too much bone loss on either side, the cut can be deepened or an augment cut made to compensate.

At this stage it is quite useful to check the flexion/extension gap between the tibia and the femur using the appropriate flexion/extension gauges (*figure 21*). Use the markings adjacent to DA 2000™, these correspond to the composite size: distal femoral, chosen bearing and tibial tray thicknesses. If further tibial cuts have to be made to use the thinnest bearing (8mm) they should be done at this stage.

figure 21

Tibial Augments

If tibial augments are to be used to deal with bone loss then the pins are left in place and the cutting block is removed. It can then be slotted back onto the two headless nails either 3 holes up for a 6mm augment or 5 holes up for a 10 mm augment (*figure 22*). Another cut can then be made on either the half or full plateau to match what augments are required.

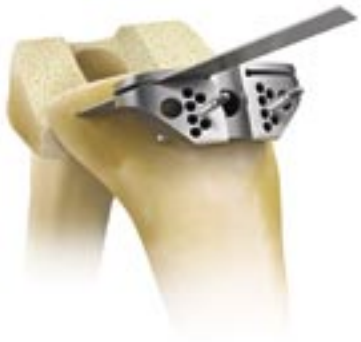


figure 22

Final Tibial Preparation

Once the tibial cut has been completed, the superior surface of the tibia needs to be prepared using the tibial template. First size the tibia using the templates by themselves to maximise cortical coverage and minimise overhang. Once the size has been chosen, attach the tibial tower with the anterior screw, and the specific augment trials to the underside as required (6 or 10mm) (*figure 23*).

figure 23

It is important to align the template both from the intramedullary stem position and to obtain correct rotation. The intramedullary alignment is set by dropping the intramedullary bush guide into the tower before sliding the assembly over the final reamer in the tibia. A long rod may be dropped through the template handle and aligned with the shaft of the tibia and the second metatarsal to obtain good rotational alignment. Once the template is in the correct position it is pinned in place using the long headed pins (*figure 23*). The next stage is to drill the medial and lateral peg holes using the tibial post drill (*figure 24*). It is useful to assist secure fixation of the tibial template by inserting the specially designed trial pegs after each drill hole is made. These are left in place and the reamer plus its guide bush removed through the tower. A central hole is manually drilled with the T-handle, using the tibial reamers (*figure 25*), through the tower to provide space for the tibial component stem boss. The reamer has a mechanical stop and may be used with the T-handle or on power if the bone is hard. In revision cases and in osteoporotic bone it is advisable to use the tibial reamers on hand power.

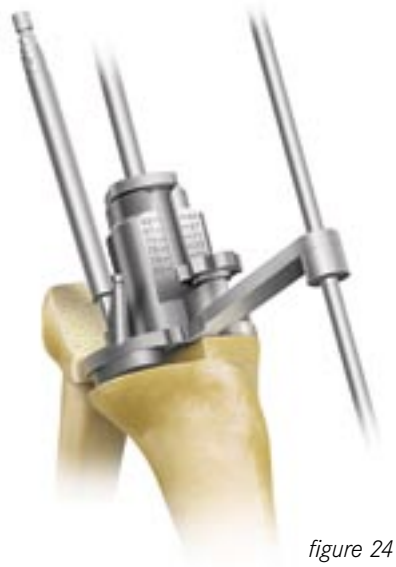


figure 24

figure 25

Trial Implantation

At this stage all the bony cuts and preparation of the bony surfaces have been completed. The trial components should then be assembled with the correctly sized stems on each component. The tibial stem trial simply screws into the tibial trial baseplate. However, the femoral stem trial is attached using a captive screw in the femur. Insert the driver between the condyles distally to tighten the screw.

It is important to trial the femoral component first without its stem extension. This will ensure the integrity of the bone resection prior to attaching the trial stem.

Trial augments can also be attached and secured with the hexagonal headed screws. These are marked medial or lateral, left or right, 6 or 10mm thick and to the size of the femur for opimal bone fit. Once the components have been assembled the trial reduction can be performed.

Both tibial (*figure 26*) and femoral (*figure 27*) trial components have specific impactors to drive the trials onto the bone cuts. The spiral ended plastic block is slid onto the impactor handle to impact the tibia and the two platform plastic block may be used on the same impactor handle for driving on the femur.

Following full seating of these trials, the correct size of bearing may be determined by inserting the thinnest, and then progressively thicker bearings until adequate stability is achieved (*figure 28*). In very tight knees, both the trial and definitive implant bearing may need to be pushed onto the post back to front before spinning into final position.

The trial components can be removed using the extractor attached to the slap hammer (*figure 29*).

figure 26

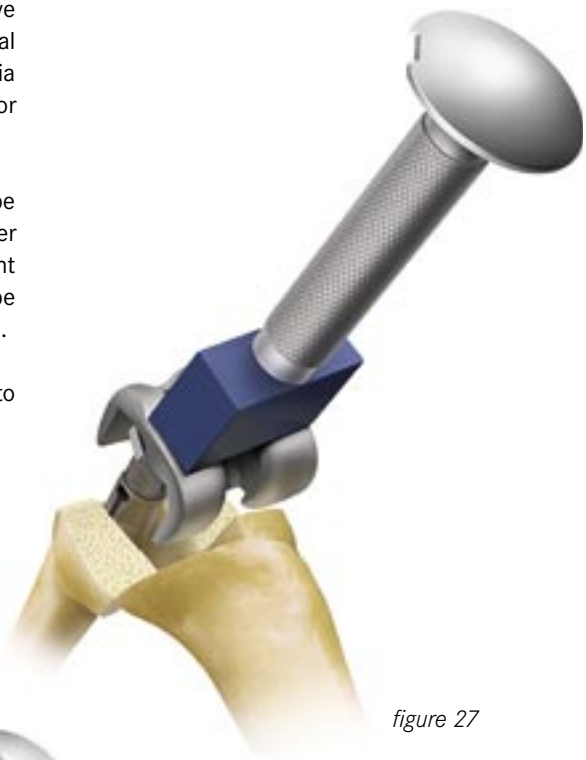


figure 27

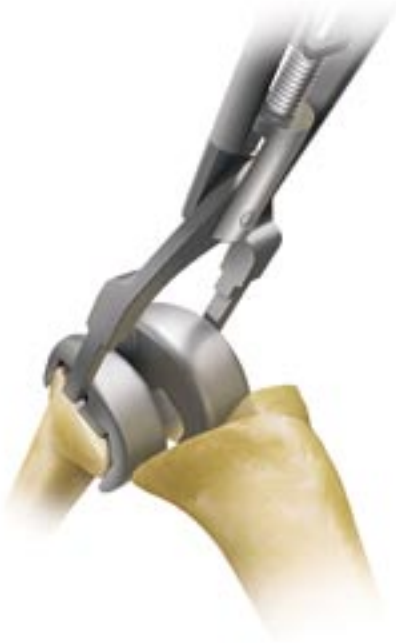


figure 29

figure 28

Patella Preparation

A minimum of 15mm of bone should remain to limit the risk of patella fracture. Three sizes of patella are available (31, 34 and 37mm), which are fully interchangeable with all femurs.

Trial sizes of these may be used during trial reduction to assess tracking.

Implant Assembly

The 80 and 120mm press fit stems are identical for the femur and tibia, both relying on a morse-taper to carry functional loads. All stems 16mm or greater in diameter have a stress reducing coronal slot.

It is imperative that the stem tapers are securely tapped into place, protecting the stem and component with swabs.

Gently tap on a firm surface, which produces an initial cold weld and secures the joint. Finally a screw with self-locking thread is used to secure the stem.

Important Note: Discard the screws supplied with the stems and use the screw supplied with the femoral and tibial components respectively.

Secure any augments as required with the 3.5mm driver and the grub screws supplied.

Implantation

The definitive prosthesis can now be implanted. It is important with the DA 2000™ that cement is not used on the stem of either the tibia or the femur. Cover the internal face of the femoral and tibial components with cement, plus the cut ends of bone if necessary. Use the femoral and tibial impactors to drive the respective components onto the bone. In a tight knee it is often useful to implant the femur first as the tibial post can interfere with the femur if the tibia is implanted first. Note that the stems are press fit with longitudinal fins which bite as they are inserted.

Whilst the cement is curing it is often useful to use a trial bearing between the femur and the tibia to compress the component until the cement has set. At this stage the size of trial bearing can be finally assessed before the definitive bearing is opened and implanted. In particularly tight knees it can be easier to insert the bearing over the post back to front, and then rotate to the correct position around the post as the knee is reduced.

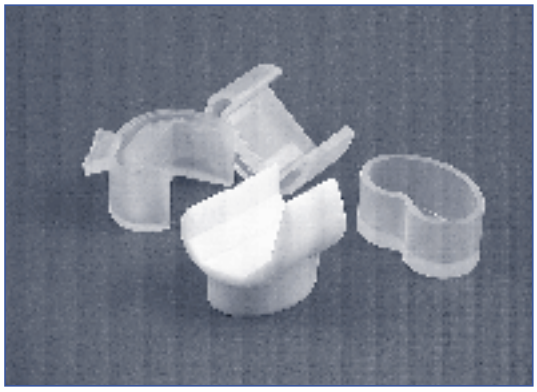
If the patella is to be resurfaced, the patella button is attached and held in the routine fashion with the patella clamp until the cement has fully hardened.

Options

A range of ancillary products is available from Biomet Merck, which are specifically designed to assist the surgeon during revision procedures.

Cement Spacers

A range of cement spacers for both knees and hips for performing two stage revisions. Conventional manual cement spacers simply maintain the gap between the femur and tibia, normally fixed in extension. Biomet Cement Spacer Moulds are two piece cement spacers, similar to metal implants in shape. These permit joint flexion; thereby reducing the risk of stiffening during the six to eight weeks normally required to resolve an active periprosthetic infection. The medical grade silicone spacers can be filled by gun or cement simply poured into the tibial spacer. Once cured, the antibiotic loaded mould is removed from the silicone and implanted into the joint space.



Catalogue Number	Femoral Mould Size	Recommended Cement Mixes per Mould
432 160	60mm	2
432 165	65mm	2
432 170	70mm	2
432 175	75mm	2
	Tibial Mould Size	
433 165	65mm	2
433 170	70mm	2
433 175	75mm	2
433 180	80mm	2

Ultra-Drive®

Ultra-Drive® is designed to rapidly loosen components without risking damage to bone or soft tissues. Any contact with bone is instantly audible, allowing the surgeon to limit damage. Distal cement plugs are quickly and easily removed, normally without the need to resort to cortical windows and reducing the risk of thinning or perforating bone.

The result is reduced operative time incurring decreased blood loss, tourniquet and anaesthetic time.

Manual Revision Instruments

A complete range of manual instruments specifically designed for implant removal. The instruments feature high impact, ergonomically designed handles for minimal hand fatigue and precise application. A set of modular flexible osteotomes can also be included.

Implants and Instruments

Implant Listing

Femoral Components

154800	55mm	DA 2000™ Femoral Component	L/H
154801	60mm		
154802	65mm		
154803	70mm		
154804	75mm		
154805	55mm	DA 2000™ Femoral Component	R/H
154806	60mm		
154807	65mm		
154808	70mm		
154809	75mm		

Tibial Components

154810	DA 2000™ Tibial Tray	59mm
154811		63mm
154812		67mm
154813		71mm
154814		75mm
154815		79mm
154816		83mm

Tibial Bearings

154817	DA 2000™ Tibial Bearing	59mm x 8mm
154818		59mm x 10mm
154819		59mm x 12mm
154820		59mm x 14mm
154821		59mm x 16mm
154822		59mm x 18mm
154823		59mm x 20mm
154824	DA 2000™ Tibial Bearing	63/67mm x 8mm
154825		63/67mm x 10mm
154826		63/67mm x 12mm
154827		63/67mm x 14mm
154828		63/67mm x 16mm
154829		63/67mm x 18mm
154830		63/67mm x 20mm
154838	DA 2000™ Tibial Bearing	71/75mm x 8mm
154839		71/75mm x 10mm
154840		71/75mm x 12mm
154841		71/75mm x 14mm
154842		71/75mm x 16mm
154843		71/75mm x 18mm
154844		71/75mm x 20mm
154852	DA 2000™ Tibial Bearing	79/83mm x 8mm
154853		79/83mm x 10mm
154854		79/83mm x 12mm
154855		79/83mm x 14mm
154856		79/83mm x 16mm
154857		79/83mm x 18mm
154858		79/83mm x 20mm

Femoral Augmentation Blocks

145310	Distal Femoral Augment	6mm x 55mm	ML/LR	145330	Posterior Femoral Augment	6mm x 55mm	ML/LR
145311		6mm x 60mm	ML/LR	145331		6mm x 60mm	ML/LR
145312		6mm x 65mm	ML/LR	145332		6mm x 65mm	ML/LR
145313		6mm x 70mm	ML/LR	145333		6mm x 70mm	ML/LR
145314		6mm x 75mm	ML/LR	145334		6mm x 75mm	ML/LR
145350	Distal Femoral Augment	10mm x 55mm	ML/LR	145370	Posterior Femoral Augment	10mm x 55mm	ML/LR
145351		10mm x 60mm	ML/LR	145371		10mm x 60mm	ML/LR
145352		10mm x 65mm	ML/LR	145372		10mm x 65mm	ML/LR
145353		10mm x 70mm	ML/LR	145373		10mm x 70mm	ML/LR
145354		10mm x 75mm	ML/LR	145374		10mm x 75mm	ML/LR
145320	Distal Femoral Augment	6mm x 55mm	MR/LL	145340	Posterior Femoral Augment	6mm x 55mm	MR/LL
145321		6mm x 60mm	MR/LL	145341		6mm x 60mm	MR/LL
145322		6mm x 65mm	MR/LL	145342		6mm x 65mm	MR/LL
145323		6mm x 70mm	MR/LL	145343		6mm x 70mm	MR/LL
145324		6mm x 75mm	MR/LL	145344		6mm x 75mm	MR/LL
145360	Distal Femoral Augment	10mm x 55mm	MR/LL	145380	Posterior Femoral Augment	6mm x 55mm	MR/LL
145361		10mm x 60mm	MR/LL	145381		6mm x 60mm	MR/LL
145362		10mm x 65mm	MR/LL	145382		6mm x 65mm	MR/LL
145363		10mm x 70mm	MR/LL	145383		6mm x 70mm	MR/LL
145364		10mm x 75mm	MR/LL	145384		6mm x 75mm	MR/LL

Tibial Augmentation Blocks

154866	Tibial Augment	59mm x 6mm	LL/RM
154867		59mm x 6mm	LM/RL
154868		59mm x 10mm	LL/RM
154869		59mm x 10mm	LM/RL

154530	Tibial Augment	63mm x 6mm	LL/RM
154537		63mm x 6mm	LM/RL
154544		63mm x 10mm	LL/RM
154551		63mm x 10mm	LM/RL

154531	Tibial Augment	67mm x 6mm	LL/RM
154538		67mm x 6mm	LM/RL
154545		67mm x 10mm	LL/RM
154552		67mm x 10mm	LM/RL

154532	Tibial Augment	71mm x 6mm	LL/RM
154539		71mm x 6mm	LM/RL
154546		71mm x 10mm	LL/RM
154553		71mm x 10mm	LM/RL

154533	Tibial Augment	75mm x 6mm	LL/RM
154540		75mm x 6mm	LM/RL
154547		75mm x 10mm	LL/RM
154554		75mm x 10mm	LM/RL

154658	Tibial Augment	79mm x 6mm	LL/RM
154659		79mm x 6mm	LM/RL
154662		79mm x 10mm	LL/RM
154663		79mm x 10mm	LM/RL

154660	Tibial Augment	83mm x 6mm	LL/RM
154661		83mm x 6mm	LM/RL
154664		83mm x 10mm	LL/RM
154663		83mm x 10mm	LM/RL

DA 2000™ Instrument Listing

Femoral and Tibial Stem Extensions

141610	Femoral/Tibial Stem	80mm x 10mm	Diam
141612		80mm x 12mm	Diam
141614		80mm x 14mm	Diam
141616		80mm x 16mm	Diam
141618		80mm x 18mm	Diam
141620		80mm x 20mm	Diam
141622		80mm x 22mm	Diam
141624		80mm x 24mm	Diam
141652		120mm x 12mm	Diam
141654		120mm x 14mm	Diam
141656		120mm x 16mm	Diam
141658		120mm x 18mm	Diam
141660		120mm x 20mm	Diam
141662		120mm x 22mm	Diam

141872	Femoral Stem	160mm x 12mm	Diam	Bowed
141874		160mm x 14mm	Diam	Bowed
141876		160mm x 16mm	Diam	Bowed
141878		160mm x 18mm	Diam	Bowed
141880		160mm x 20mm	Diam	Bowed
141882		160mm x 22mm	Diam	Bowed

32-420896	DA 2000™ Instrument Set Complete	
32-420814	DA 2000™ Tibial Resection Case 1	
32-420816	DA 2000™ Tibial Templates Case 2	
32-420543	DA 2000™ Tibial Trials Case 3	
32-420818	DA 2000™ Tibial Trial Augments Case 4	
32- 420881	DA 2000™ Femoral Sizing Case 1	
32- 420875	DA 2000™ Femoral Reamers Case 2	
32- 420886	DA 2000™ Femoral Resection Case 3	
32- 420072	DA 2000™ Femoral Resection Case 4	
32-420899	DA 2000™ General Femoral Case 5	
32- 420809	DA 2000™ Femoral Trials Case 6	
32- 420861	DA 2000™ Femoral Augment Trials Case 7	
32- 420541	DA2000™ Femoral Stem extensions Case 8	
32-420750	DA 2000™ X-ray template	(110%)
32-420751	DA 2000™ X-ray template	(115%)
32-420752	DA 2000™ X-ray template	(120%)

Notes