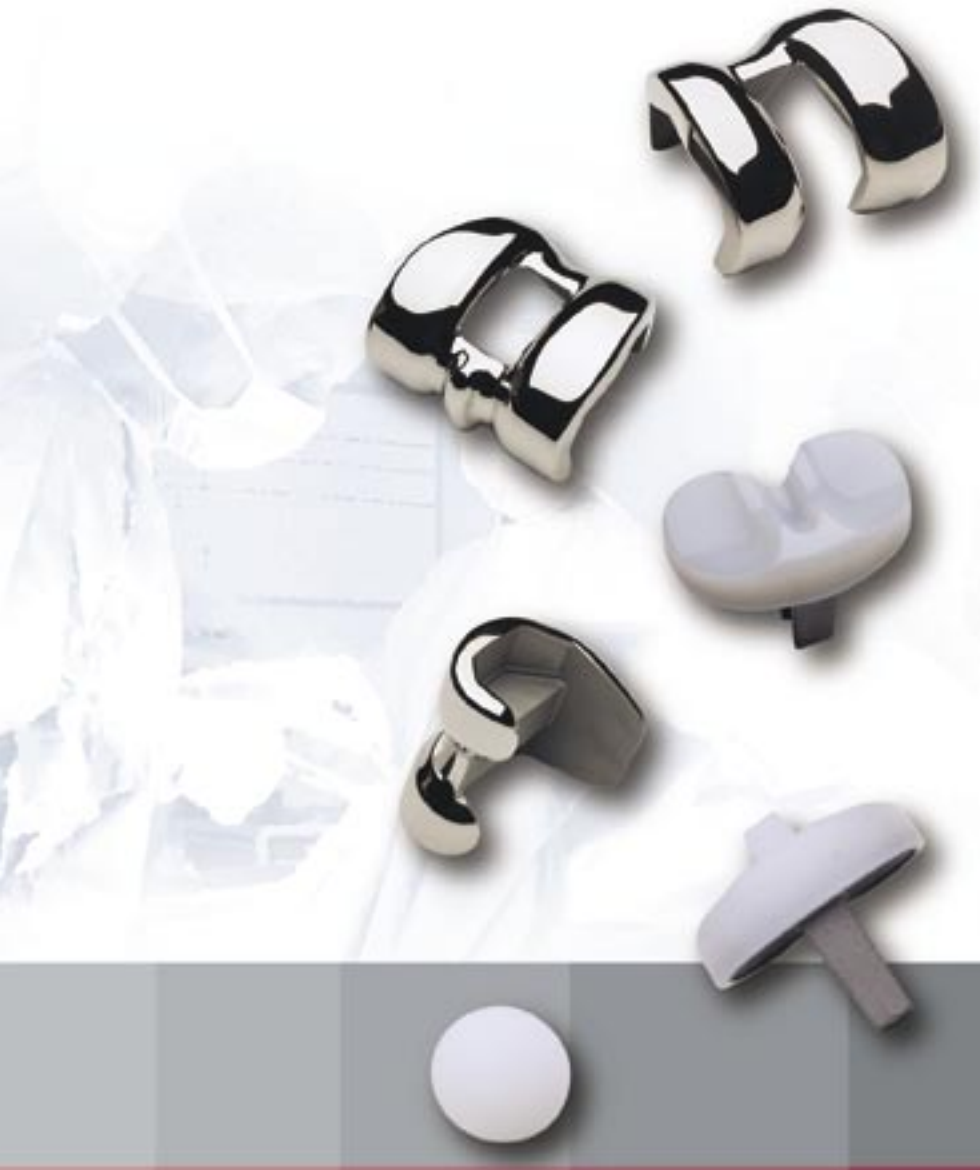

AGC
Total Knee System

Surgical Technique

with Millennium Instrumentation

Spine Trauma BioMaterials Cement **Joint Replacement**

BIOMET Europe

This document includes the operative techniques for AGC primary knees including AGC posterior cruciate retaining, cruciate substituting Cam & Groove and cruciate substituting - High Post (HPPS).

For the AGC cruciate retaining and substituting Cam & Groove procedure follow steps 1 to 15.

For the AGC posterior cruciate substituting High Post technique follow steps 1 to 6, 6a to 12b and 13 to 15.

BIOMET Europe

Disclaimer

Biomet, as the manufacturer of this device, does not practice medicine and does not recommend this or any other surgical technique for use on a specific patient. The surgeon who performs any implant procedure is responsible for determining and utilizing the appropriate techniques for implanting the prosthesis in each individual patient. Biomet is not responsible for selection of the appropriate surgical technique to be utilized for an individual patient.

AGC Total Knee System

Surgical Technique with Millennium Instrumentation

Contents

Preface

The AGC Knee System is indicated for use in total knee arthroplasty. Accompanying AGC Millennium instrumentation, developed specifically for the system, is required for undertaking an AGC procedure.

THIS DOCUMENT IS INTENDED AS A GUIDE ONLY FOR THOSE ORTHOPAEDIC SURGEONS PROFICIENT IN THE PROCEDURES FOR PRIMARY TOTAL KNEE ARTHROPLASTY. THE GUIDE DOES NOT TAKE ACCOUNT OF THE INDIVIDUALITY OF PATIENTS AND THE SURGEON PERFORMING THE PROCEDURE IS RESPONSIBLE FOR DECIDING UPON AND IMPLEMENTING THE APPROPRIATE TECHNIQUE OR IMPLANTING THE PROSTHESIS IN EACH PATIENT.

Product Description

Introduced in 1983, the AGC (Anatomically Graduated Components) Total Knee is a proven clinical success unsurpassed by any other knee system available today. **Ritter et al[1] reported a 98% tibiofemoral survival rate for the AGC Knee at 10 years. Independent data from the Swedish Knee Study reported a cumulative survival rate of 97.5% at 7 years for 3,258 AGC total knee arthroplasties[2].** Results from the Finnish Arthroplasty Study further supports these excellent results[3].

AGC Posterior Cruciate Retaining Femoral Component with ArCom® polyethylene Patella.

AGC Posterior Cruciate Substituting (Cam & Groove) Femoral Component with moulded Tibia.

AGC Posterior Cruciate Substituting (High Post) Femoral & Tibial Components.

The AGC Knee offers the following features:

- **ArCom® compression moulded polyethylene provides a highly consolidated bearing material with an increased resistance to wear[4][5].**
- Full interchangeability of femoral, tibial and patellar components allows independent sizing, meeting the specific anatomical demands of the individual patient[6].
- Cruciate-retaining and cruciate substituting implant options enable the surgeon to select intraoperatively the most appropriate AGC component for the patient[7].
- Cobalt chromium femoral articular surface for maximum durability of the tibiofemoral and patellofemoral articulation, reduces the potential for wear and loosening of the implant.
- Titanium alloy plasma sprayed porous coating for cementless fixation, or Interlok™ finish for cemented use, offer proven clinical biocompatibility[8], and have been in use with the AGC system since 1983.
- A deep, wide trochlear groove articulates with the dome shaped patellar component, creating a congruent and forgiving patellofemoral joint.
- Wide femoral condyles provide line contact with the articulating surfaces, reducing the contact stresses.

(Please refer to page 25 for complete product and instrument catalogue numbers).

References

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Pre-operative Assessment

In Total Knee Arthroplasty (T.K.A.) it is most important to ensure both correct leg alignment and soft tissue tension. While the instrumentation will help considerably with the problems associated with alignment and bone cuts, care needs to be taken by the surgeon to attain correct tension of the soft tissues.

Long-leg standing radiographs are recommended to determine both the mechanical and anatomical axis. The mechanical axis passes from the centre of the femoral head to the centre of the ankle passing slightly medial to the centre of the knee. The tibiofemoral (valgus) angle can be measured and is usually found to be between 5° and 10°. This angle represents the final transverse cut of the distal femur and restores the mechanical axis of the limb. Failure to achieve normal limb alignment is one of the common errors in T.K.A. and may lead to premature failure of the implant.

It may also be helpful to use x-ray templates to get an indication of the probable size of the prosthesis required, and to determine whether additional support in the form of bone graft or augmentation blocks/ wedges will be necessary. A lateral template overlaid on an M/L radiograph of the distal femur gives an indication of the correct size which will avoiding notching the femur. Using the A/P view template an indication is gained of the size required to provide adequate coverage of both medial and lateral femoral condyles, and the probable size and thickness of the tibial component.

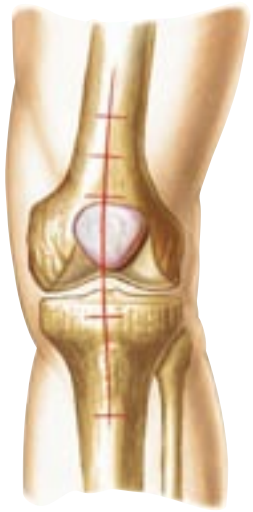


Fig 1

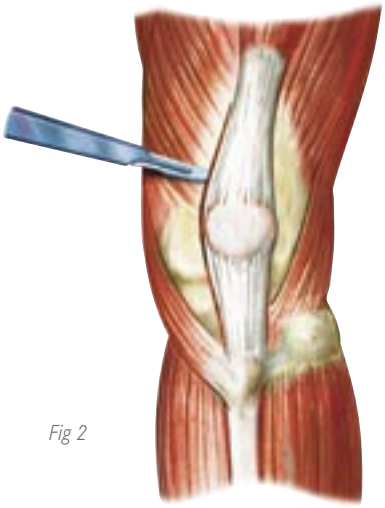


Fig 2

Surgical Approach

A thigh tourniquet is recommended but is not mandatory. Prepare and drape the limb so as to allow the centre of the ankle and the hip to be palpated during the course of the operation. This will be necessary when using extra-medullary instrumentation and also to check the limb alignment.

Skin marks provide a useful guide to aid closure - cross hatching over a mid-line longitudinal incision for a standard approach as shown [Figure 1]. Position the leg in 90° of flexion with the aid of a sandbag placed under the foot. A standard medial parapatellar approach can be made in the majority of cases, although a lateral approach may be indicated in the severe valgus knee.

A mid-line longitudinal, or slightly medial, skin incision is conventional. The existence of previous transverse scars e.g. prior upper tibial osteotomy, are not a cause for concern, but care should be taken if there are longitudinal scars. Use the most lateral of the pre-existing scars to minimise the risk of post-operative wound edge necrosis (the lateral wound edge is the most sensitive to hypoxia).

The incision is either longitudinal or slightly curved beginning approximately 5cm proximal to the patella, and extending to approximately 4cm below the tibial tubercle. Dissect the soft tissues until the quadriceps tendon and patella tendon are clearly exposed. Identify the interval between the rectus femoris and vastus medialis and incise the extensor mechanism on the medial aspect to leave a cuff of soft tissue around the patella for subsequent repair [Figure 2]. Evert the patella to complete the exposure of the joint. If difficulty is encountered in undertaking this step, the lateral patellofemoral ligaments should be divided first. Occasionally it may be necessary to perform a lateral release.

Principles of Ligamentous Balancing

The importance of soft tissue balancing in T.K.A. cannot be over stressed. Failure to achieve correct soft tissue balancing may result in premature wear of the implant and early failure. Ligamentous balancing is generally carried out in three phases:

1. A preliminary soft tissue release is performed at the beginning of surgery and is, essentially, part of the surgical exposure. This should be combined with excision of any peripheral osteophytes.

2. Ligamentous balancing is achieved by correction of soft tissue contractures and not by modification of the bone cuts.

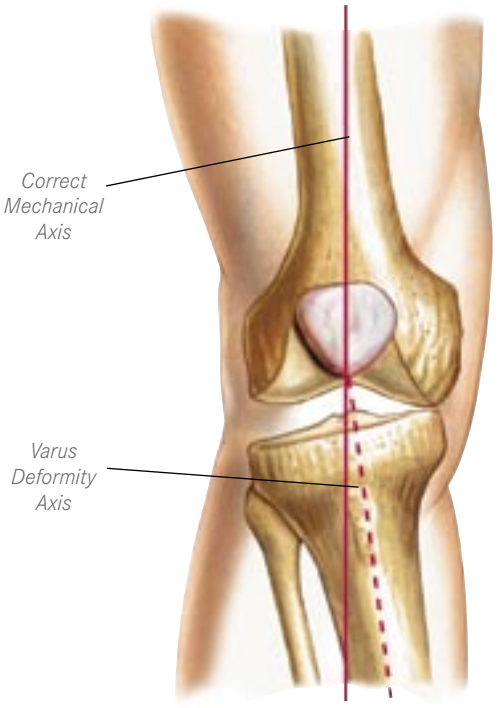
3. Fine tuning the soft tissue balancing is achieved at trial reduction and may include further soft tissue releases, especially lateral retinacular release to correct the patellar tracking.

The Correction of Varus Deformity

The medial tissues are generally released to some extent during the course of the surgical approach. This routinely involves resection of osteophytes, the meniscus, the capsule and the deep collateral ligament.

Following resection of the anterior cruciate it is possible to completely expose the proximal tibia by gently elevating the capsular-ligamentous complex as far as the semi-membranosus bursa in the postero-medial corner and then externally rotating the tibia to deliver the tibial plateau into the wound. In the majority of varus knees this is usually sufficient as there is no real tightening of the medial structures. However, when there is true fixed varus, care must be taken to perform a more extensive release without jeopardising future stability. The following principles of the correction are essentially to elevate an intact periosteal sleeve from the medial tibia:

1. Excision of medial osteophytes and medial meniscal remnants.
2. Complete capsular release from the periphery of the tibial plateau.
3. Release of the posterior portion of the deep medial collateral ligament.
4. Release of the superficial collateral ligament.
5. Release of the pes anserinus.

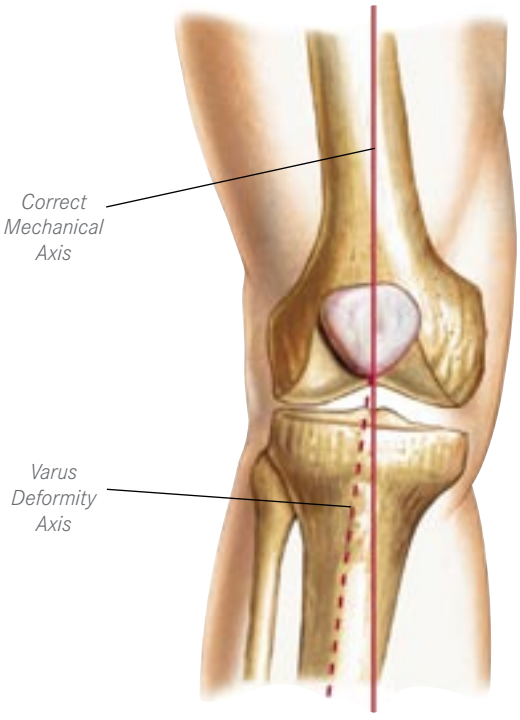


Varus Deformity

The Correction of Valgus Deformity

For the severe valgus knee a lateral approach should be considered. A lateral retinacular release and recession of the posterior cruciate ligament are almost inevitable. The sequence of correction of a valgus deformity are as follows:

1. Standard medial releases to include the dissection of the anterior half of the deep medial collateral ligament, leaving the superficial and the pes anserinus group intact.
2. Complete exposure of the lateral aspect of the tibial plateau taking care to excise all peripheral osteophytes and meniscal remnants.
3. Transverse division of the tensor fascia lata some 10-12cm proximal to its insertion. This is best accomplished from its deep surface.
4. Resection of the popliteus tendon.
5. Release or recession of the posterior cruciate ligament.
6. Release of the lateral head of the gastrocnemius from the posterior aspect of the femur.
7. Occasionally it may be necessary to release the lateral collateral ligament from the femoral condyle. This must be undertaken very carefully to allow the attachment to slide distally as a periosteal flap.
8. As a last resort the biceps tendon may be step lengthened, but this is a hazardous procedure and is often associated with a post-operative foot drop as a result of damage and stretching of the lateral popliteal nerve.



Varus Deformity

Posterior Cruciate Release

The understanding of posterior cruciate balancing is fundamental to achieving a tripod balance. There are arguments for and against retention of the posterior cruciate, but these of course relate to the choice of prosthesis and its ability to substitute posterior cruciate function. In the absence of the anterior cruciate there is no true four-bar linkage and roll back is altered. Nevertheless, a retained posterior cruciate will provide some A/P stability and preserve proprioception.

If the posterior cruciate is retained, it is of great importance that there is **no residual tightness.** This can be identified by either limited flexion, with excessive femoral roll back, anterior lift of the tibial tray in flexion and a palpable ligamentous tension in flexion. The likely causes of residual tightness of the posterior cruciate includes residual posterior osteophytes and incomplete resection of the menisci, or pre-operative fixed flexion deformity, especially in rheumatoid disease.

The cruciate can be lengthened by recession from the tibial attachment using cutting diathermy or a knife. In addition, further space can be gained by cutting the tibial plateau with a posterior slope. This may lead to division of the posterior cruciate by division of the tibial attachment. Further release can be gained by a posterior capsular release, stripping the posterior capsule off the femoral condyle using a curved-on-flat osteotome. **Care must be taken to protect the popliteal vessels in these circumstances.**

Surgical Technique

AGC Posterior Cruciate Retaining or Substituting (Cam & Groove)

Note: The AGC posterior cruciate retaining and substituting (Cam & Groove) knees use exactly the same bone cuts and follow the same surgical technique. If the Cam & Groove posterior cruciate substituting implant is to be used, simply select the Cam & Groove femoral trial instead of the cruciate retaining femoral trial (step 7).

Step 1

1. Trim peripheral osteophytes to restore the knee to its normal anatomical shape [Figure 3].
2. Providing adequate soft tissue release is obtained, enabling full exposure of the knee, the surgeon may elect to begin resection of either the femur or tibia. However, for a tight knee it may be easier to firstly resect the tibia thereby providing extra clearance to approach the femur.

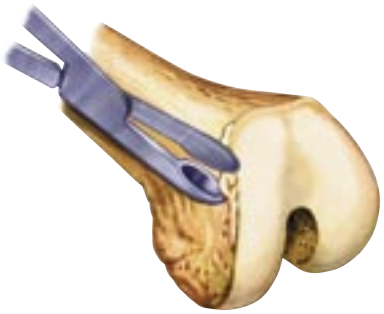


Fig 3

Femoral Intramedullary Technique

Note: If the patient has a long stem revision hip replacement then the extra-medullary alignment technique should be used.

Step 2

Preparing the Intramedullary Canal

1. Using the Intramedullary Awl, make a hole in the centre of the intercondylar notch approximately 1cm anterior to the emergence of the posterior cruciate ligament (P.C.L.). Cut through the cortical bone with the awl in a clockwise direction [Figure 4].
2. Enlarge the hole using a 9mm diameter Intramedullary Drill under power [Figure 5]. By placing a finger and thumb over the distal end of the femoral shaft the drill can be targeted in line with the intramedullary canal.

Note: Care should be exercised when using power tools to avoid piercing of the cortical wall of the femur.

3. Assemble the Intramedullary Reamer onto the T-Handle and ream the intramedullary canal, cutting in a clockwise direction [Figure 6]. This instrument has a blunt point to reduce the risk of penetrating the femoral cortex. Insert the reamer fully, until all the flutes are covered.
4. Insert a fluted Intramedullary Rod, again assembled onto the T-Handle, into the femoral canal leaving approximately 10cm protruding [Figure 7]. The fluted design of the rod prevents compression of the canal contents, reducing the risk of fat emboli. The T-handle is removed leaving the I/M rod in the bone.

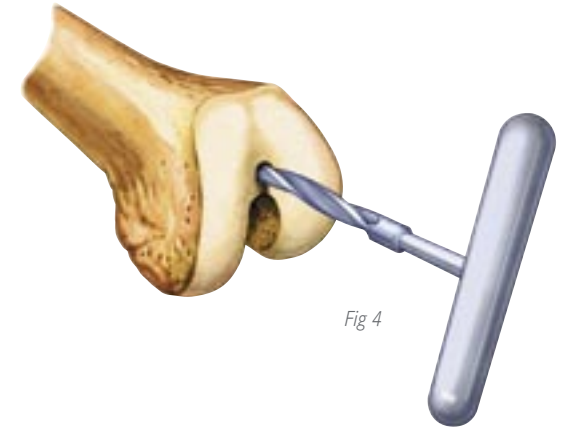


Fig 4

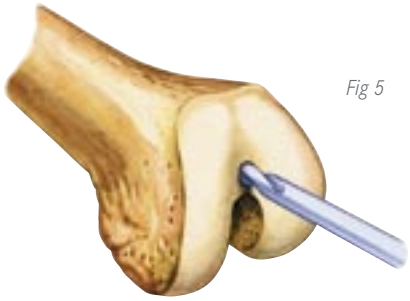


Fig 5

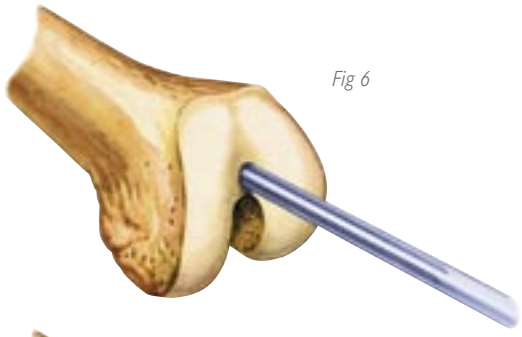


Fig 6

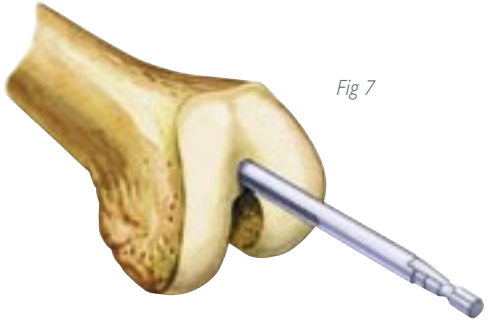


Fig 7

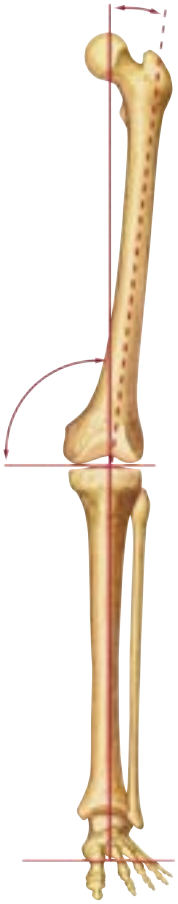


Fig 8

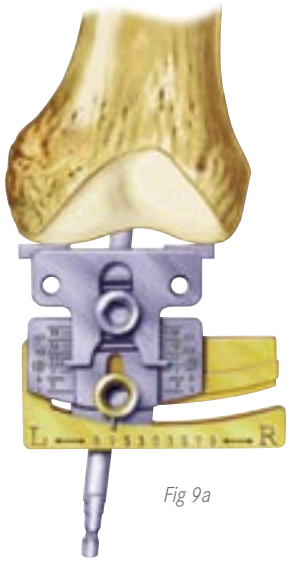


Fig 9a

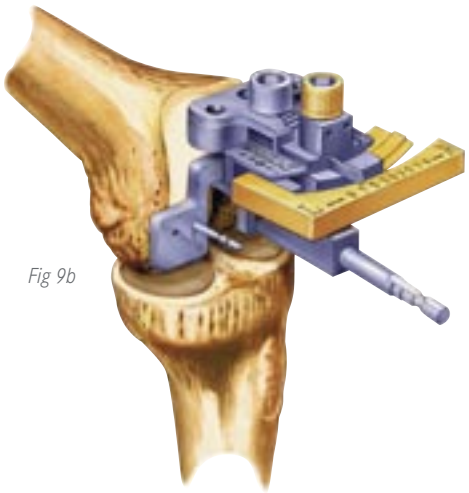


Fig 9b

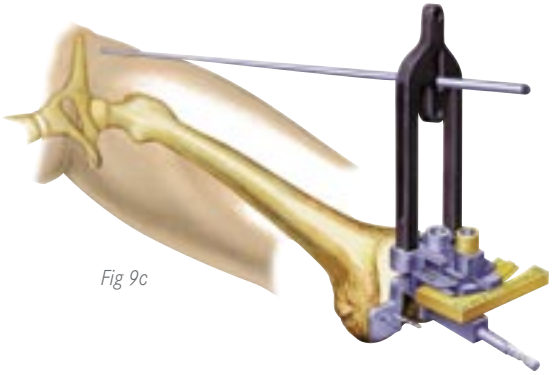


Fig 9c

Setting the Valgus Angle

1. By previously templating a long-leg radiograph of the patient, the valgus angle between the mechanical axis and the anatomical axis can be accurately determined [Figure 8]. Set the patient's valgus angle on the Intramedullary Angle Guide (I/M Guide) by releasing its gold coloured knob [Figure 9a]. This will enable subsequent instrumentation to resect the femur at 90° to the mechanical axis, thereby allowing optimal stress loading to the bone; a crucial factor in the long term survival of the prostheses.

   Ensure that the gold knob is securely tightened using the hexagon wrench.

Note: Check the gauge on the silver coloured scale of the Assembly Guide. This should register at (9) as this is the amount of bone (9mm) to be resected from the posterior condyles in a primary case, i.e. this equates to the thickness of the component to be implanted. If the gauge is not set on (9), loosen the silver knob and adjust the scale accordingly.

2. Place the I/M Guide onto the intramedullary rod to abutt against the femoral distal condyles [Figure 9b]. In cases of severe condylar erosion it may be that only the least eroded condyl touches the face of the guide. **Do not attempt to alter the guide from its pre-set angle. Doing so will only result in a misaligned femoral component.**
3. Rotate the guide over the rod so that approximately equal amounts of posterior condyles are visible under the feet of the guide, or so that the anterior surface is horizontal.
4. Check the intramedullary alignment using an External Alignment Guide Tower. This instrument has two locating pegs which are inserted in the anterior holes of the I/M Guide. Pass the alignment rod through the tower over the mechanical axis of the femur pointing in the direction of the centre of the femoral head [Figure 9c]. This useful operative landmark can be located by pre-operatively determining it radiographically, and marking its position with an E.C.G. stud. Alternatively, intraoperatively feel for the patient's anterior superior iliac spine, and measure two finger breadths medially. This latter procedure may be difficult in the obese patient. If it is necessary to re-align the angle guide, remove the tower and guide, and reset it to the appropriate angle.
5. Retain the I/M angle guide in position by inserting quick release drills or nails into the holes in the feet of the guide.

Step 4

Distal Femoral Resection

1. Secure the Distal Femoral Resector Assembly onto the anterior surface of the Angle Guide ensuring that its 2 locating pegs fit into the respective holes. Tap the 3 nails into the anterior cortex starting with the proximal nail first followed by the distal nails [Figure 10a]. The quick release drills (or nails), I/M rod and Angle Guide are now removed for easier access [Figure 10b].

Note: If the bone is of poor quality the instrumentation can be retained in place on the bone for added stability. The quick release drills (or nails) may be removed just before completing the resection .

2. Resect the bone from the distal end of the femur through the cutting slot marked 'O'. This removes 9mm of bone which is of equal thickness to the distal condyles of the implant [Figure 10b].

Note: In case of fixed flexion deformity it may be necessary to remove additional bone from the distal condyles. For the required procedures see Step No. 9, Page 15.

Note: Use a saw blade of adequate thickness in order to achieve a smooth, flat resected surface. Thin blades have a tendency to flex on hard bone, thus fail to achieve an accurate cut. This step of the procedure is most important as this surface is the reference for all other resections.

3. A glass block is a useful aid to check for 'high spots' on the surface [Figure 11]. Remove any roughened areas with the rasp.

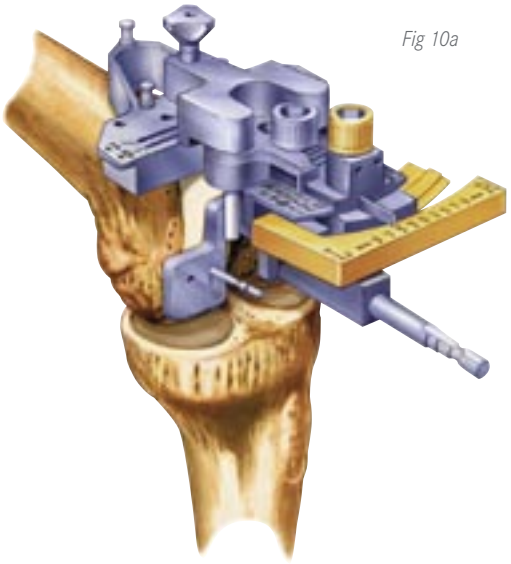


Fig 10a

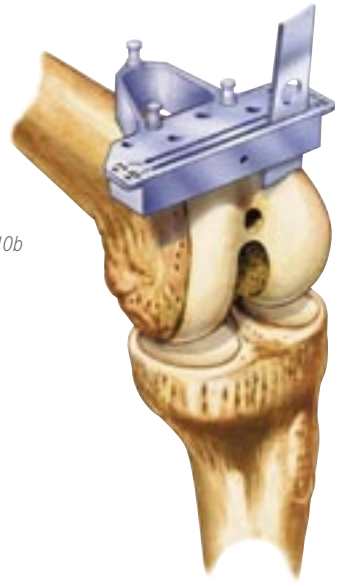


Fig 10b

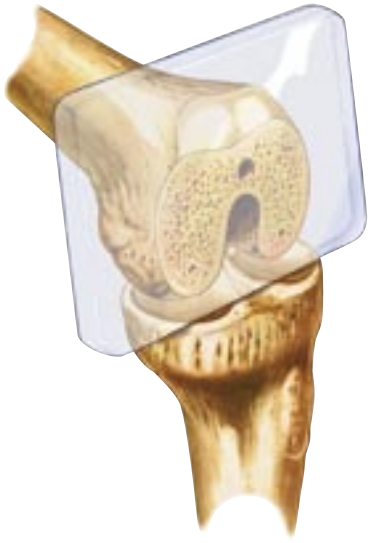


Fig 11

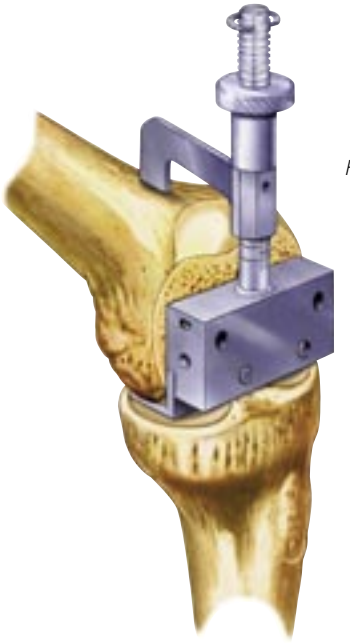


Fig 12a

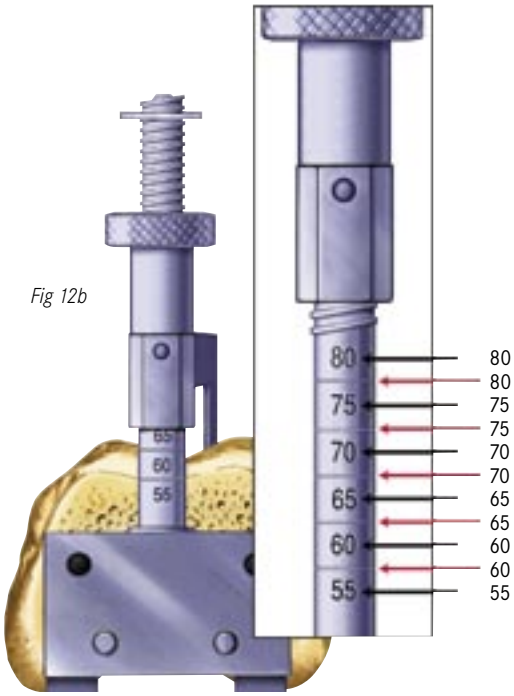


Fig 12b

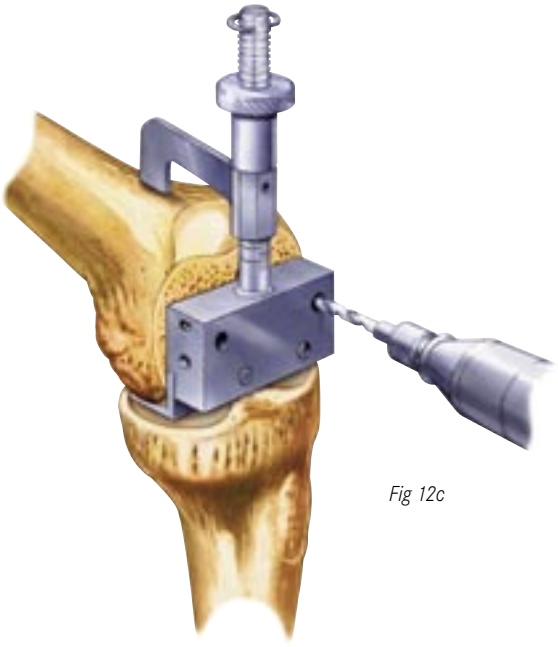


Fig 12c

Femoral Component Sizing

Step 5

1. Place the Anatomic Femoral Sizer assembled with Neutral (0°) feet onto the resected femur. Its adjacent face should be in **full contact** with the bone and its feet should sit touching the **least** eroded posterior condyle [Figure 12a].

   In some circumstances it may be desirable to obtain a few degrees of external rotation. To accomplish this, unclip the neutral feet attached to the sizer, and replace with the 3 degree L (for the left knee) or 3 degree R (for the right knee) feet. The holes are then drilled and their position will automatically align the cutting block into 3° of external rotation.

Note: If external rotation is required it may be necessary to choose the next larger size of femoral component to avoid notching the femur.

2. The anterior outrigger arm is free to pivot either medially or laterally. Swing this **LATERALLY** so that it registers on the highest part of the femoral cortex. Do not allow it to rest within the femoral fossa as this may indicate a femoral component which is undersized.
3. Move the positioner to the centre of the knee, and tighten the knurled knob [Figure 12b]. Note the size of the femoral component required (55, 60, 65, 70, 75 or 80mm) using the calibrated scale. **If the reading falls between two sizes select the larger option**. This will prevent notching the femur and leave enough bone for further resection if it is required.
4. Using a 6mm diameter drill under power, drill through one of the holes in the positioner [Figure 12c]. Leave the drill in this hole to prevent any movement of the positioner while the second hole is drilled. These holes accept the femoral contour block and also the anti-rotation pegs of the femoral component.

Step 6

Femoral Resection

1. Fit the appropriately sized Anatomic Femoral Contour Block onto the distal femur. Its orientation is indicated by the labelling 'POSTERIOR' and 'ANTERIOR'. The anterior resection produces a chamfer angled at 3° to avoid notching the femur.
2. Clip the handles onto either side of the contour block. This enables the assistant to gently pull the block against the distal surface, holding it firmly in place [Figure 13]. **If the contour block does not sit flush to the distal bone surface, remove it and check the depth of the previously drilled peg holes. Do not hit the block surface with a metal mallet as this will damage the slots.** If there is a need to impact the block to ensure close contact to the bone, use the femoral impactor and driver handle.

   Bone resections may be undertaken in any sequence.

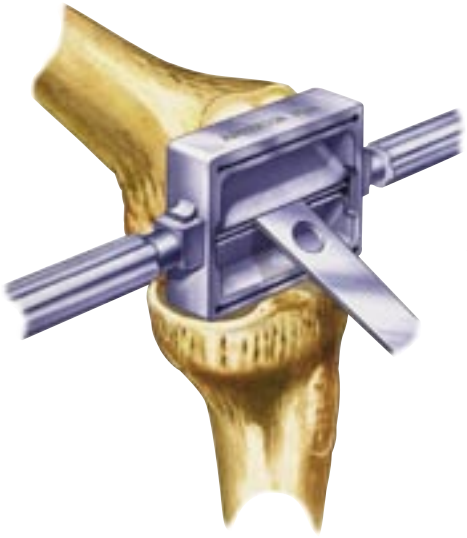


Fig 13

Step 7

Fitting the Trial Femoral Component

1. Place the appropriately sized Trial Femoral Component (posterior cruciate retaining or cruciate substituting Cam & Groove) onto the resected bone. Carefully align the component so that its anti-rotation pegs will fit into the drilled holes [Figure 14]. Because the contour block slots are accurately toleranced for press-fit prostheses it may be necessary to use the femoral impactor and driver handle to fully seat it flush to the bone.
2. To remove the trial, use the Femoral Trial Extractor in combination with the Slap Hammer [Figure 15]. The pincer tips of the extractor should fit securely into the recesses on the posterior surface of the femoral trial.

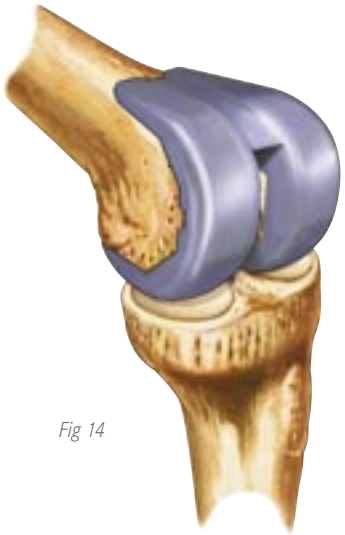


Fig 14

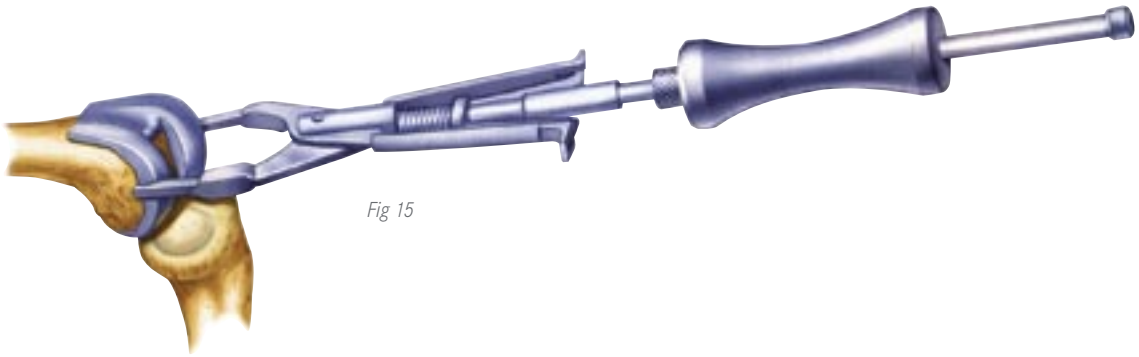


Fig 15

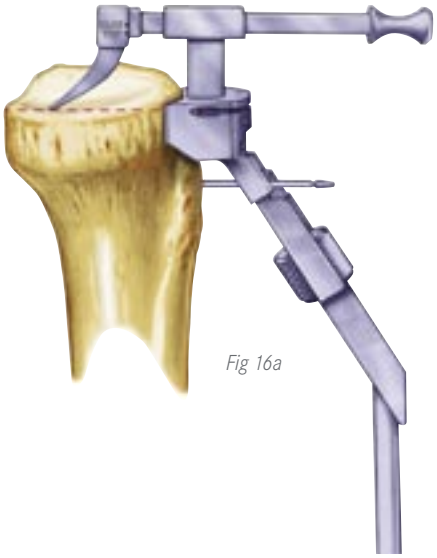


Fig 16a

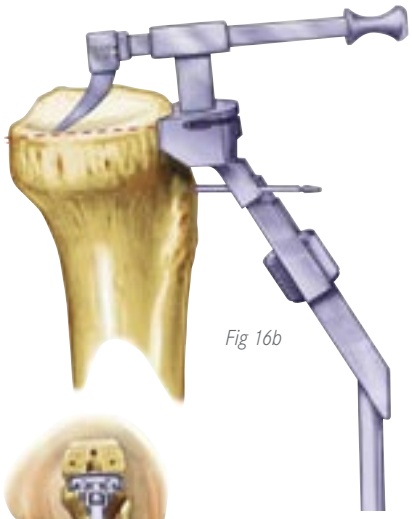
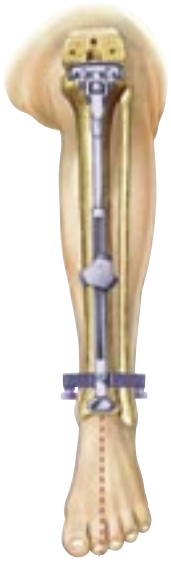


Fig 16b



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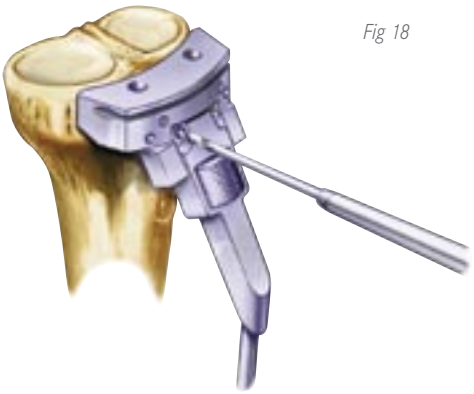


Fig 18

Tibial Resection

Tibial resection is as important as correct alignment of the femoral component. Resection should also be perpendicular to the mechanical axis, and is accomplished using an intramedullary or extramedullary surgical technique.

Tibial Extramedullary Technique

A choice of two Extramedullary Tibial Resecting Heads are supplied with each instrument set. One identified as 0° will provide a neutral or perpendicular resection in both the coronal and sagittal planes, whilst the other, identified as -5° will provide a 5° posterior slope when viewed in the sagittal plane [Figures 16a & 16b]. Both platforms have a choice of either a surface ('TOP'), or 'SLOT' guide for tibial resection.

1. With the leg in 90° of flexion place the Telescopic Tibial Resector onto the anterior tibia with its spring loaded clamp around the ankle. The ankle clamp attachment is biased left or right and is marked to indicate this [Figure 17].
2. Align the central shaft of the resector parallel to the mechanical axis of the tibia by releasing the distal locking screw and adjusting its height to suit.
3. By releasing the anterior locking screw on the central shaft, the resecting head can be extended or retracted as required. This head should be brought to an approximate level for resection. Check that the alignment has not been disturbed and then fix it onto the proximal end of the tibia using either 3mm diameter quick release drills [Figure 18], or nails, through the **lowest pair** of holes.
4. With the resector anchored to the tibia the head is still free to move superiorly or inferiorly by turning the knurled thumb knob. Insert the stylus for whichever method is chosen (TOP or SLOT) into one of the holes in the surface of the resecting head, so that the tip rests in the lowest part of the defect on the most worn condyle.

Note: When the -5° resecting head is used for undertaking a posterior cruciate retaining procedure, care should be taken to preserve the PCL.

5. If a level lower than that indicated is required, remove the stylus and turn the knurled thumb screw one revolution (one revolution approximates to 1mm). If it is felt that too much bone would be removed then the resector can be raised slightly until the appropriate level is determined, and a compromise is made to fill in any defects with either allograft bone or bone cement.
6. Anchor the resecting head to the anterior tibial bone by inserting quick release drills into any of the four holes in the anterior face of the head.

Note: If using nails for this function use only the lowest pair of holes in order that the saw blade does not foul on the nail head. A smooth flat tibial resection is more likely to be made using a saw blade of optimal thickness to prevent the blade skidding/bending on sclerotic bone.

Tibial Intramedullary Technique

1. A pre-operative A/P and M/L radiograph is used to determine whether the tibial canal is appropriately shaped to accept the I/M rod. A curved canal or bowed tibia may contra-indicate an intramedullary approach. When correctly positioned, the I/M rod should lie over the mechanical axis and be aligned with the centre of the talus.
2. Using an I/M awl make a hole into the tibial plateau. The hole may be started at a point just anterior to the tibial attachment of the anterior cruciate ligament, and just behind the tibial tubercle.
3. Enlarge the starter hole with a 9mm diameter drill under power, drilling only deep enough to penetrate the cortex and dense cancellous bone. Use the side-cutting I/M reamer with the T-handle to aspirate the contents of the canal.
4. The fluted I/M rod is slowly inserted into the canal, using the T-handle. Leave approximately 10cm of the rod protruding and detach the handle [Figure 19].

   A choice of two tibial Intramedullary Resecting Heads are supplied with each instrument set. One identified as 0° will provide a neutral or perpendicular resection in both the coronal and sagittal planes, whilst the other, identified as -5° will provide a 5° posterior slope when viewed in the sagittal plane. Both resecting heads have a choice of either a surface ('TOP'), or SLOT guide for tibial resection [Figure 20].
5. Assemble the Tibial Intramedullary Resector, locating it over the I/M rod and lower it to the approximate level of the tibial plateau. Choose the lowest defect of the proximal tibia and adjust the stylus so that its tip will register in it when the tibial resecting head is lowered.
6. Assess the amount of bone to be removed which will effectively provide a clean tibial plateau free of any defects. If it is felt that too much bone would be removed then the resector can be raised slightly until the appropriate level is determined, and a compromise is made to fill in any defects with either allograft bone or cement.
7. Remove the stylus [Figure 21a] and position the resecting platform posteriorly to lie adjacent to the bone. Quick release drills or nails are used to secure the platform to the tibia and the I/M rod can now be removed before making the cut [Figure 21b].
8. The platform can be lowered further if desired by sliding it off the quick release drills and repositioning it onto the holes above. This has the effect of lowering the resecting head by 2mm.

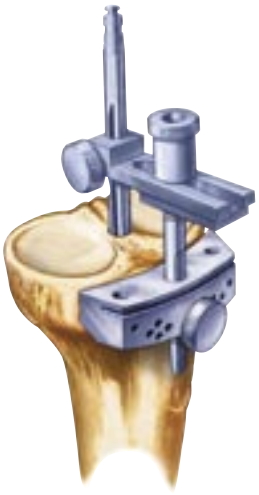


Fig 19

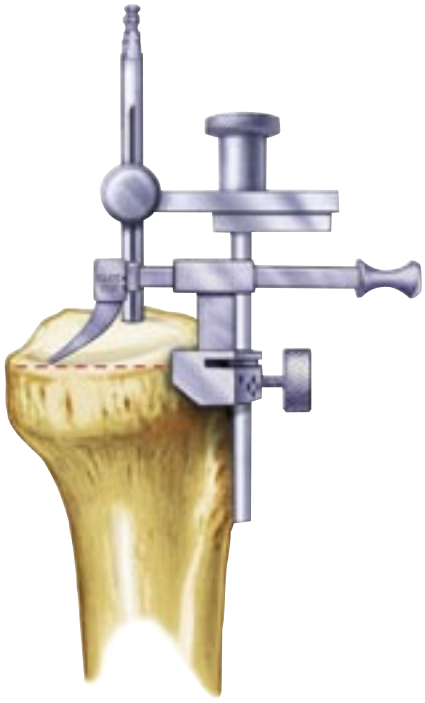


Fig 20

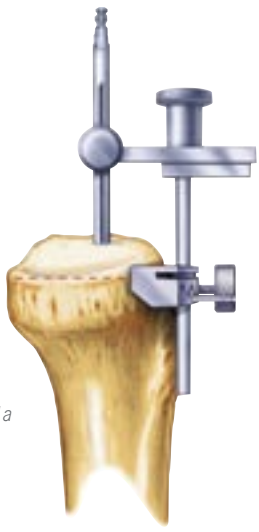


Fig 21a

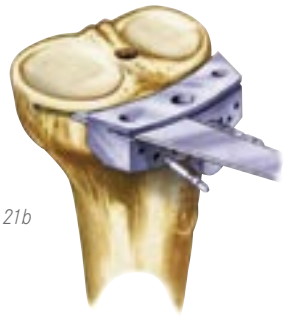


Fig 21b

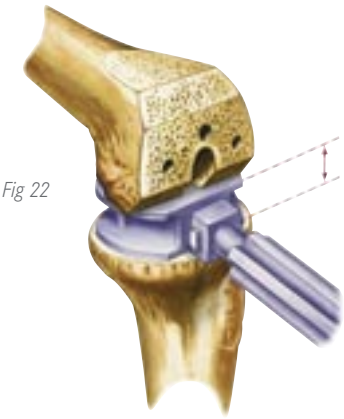


Fig 22

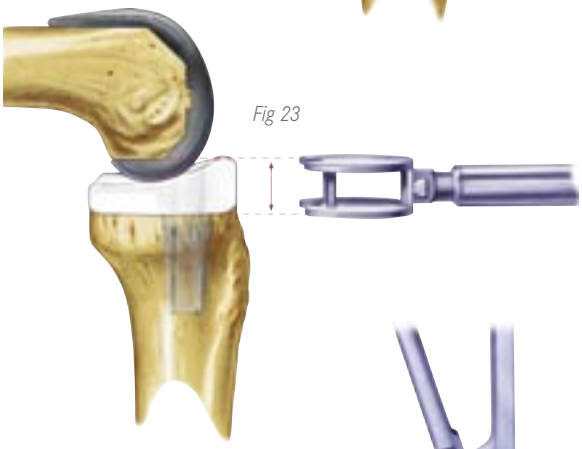


Fig 23

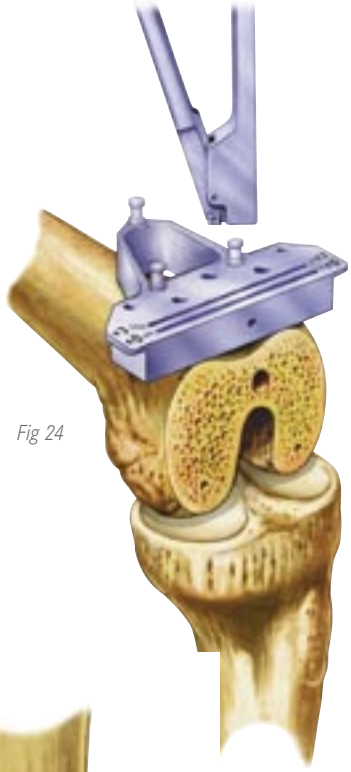


Fig 24

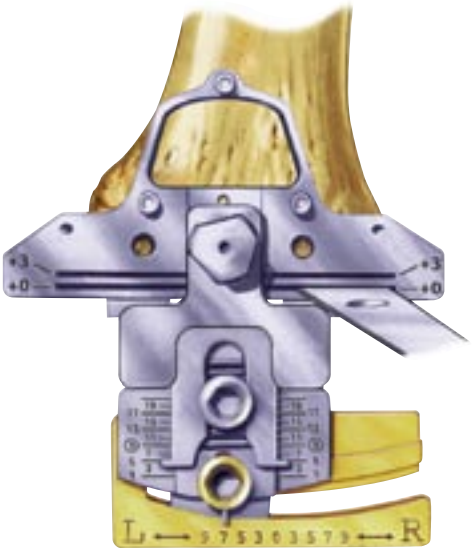


Fig 25

Balancing the Flexion and Extension Gaps

In balancing the flexion and extension gaps the following principles are fundamental:

1. The amount of distal bone resected determines the soft tissue tension in extension.
2. The amount of posterior femoral condylar bone resected determines the soft tissue tension in flexion.
3. The amount of tibial bone resected determines the soft tissue tension in both extension and flexion.

Correct leg alignment should have been achieved by the bone resections. However, if it is still necessary to further fine tune leg alignment by either a medial or lateral collateral ligament release, care should be taken and the flexion/extension gaps checked again [Figures 22 & 23].

The following procedures may be necessary in some exceptional cases:

1. Residual Flexion Contracture.

A residual flexion contracture in full extension implies that the extension gap is tighter than the flexion gap. The extension gap should be cut to match the flexion gap by resecting more distal femur, consequently placing the femoral component more proximal. This may however be at the expense of elevation of the joint line and subsequent patellar baja.

In case of fixed flexion deformity there are essentially two procedures which may be used to remove additional bone:

(i) With the distal femoral resector in its existing position, i.e. nailed at its original fixation points on the anterior surface, an additional 3mm of bone may be resected by placing the blade through the slot '3' on the resector [Figure 24]. **Note: Resection of the chamfer cuts will also be necessary.**

OR

(ii) If the distal cut has already been made the Angle Guide assembly can be used to remove additional bone. Loosen the silver coloured knob to adjust the sliding scale and reset to the desired resection, e.g. the scale is normally set to ⑨ but moving this to '3' will effectively take an extra 3mm of bone off the distal cut and a total of 12mm of bone is therefore removed (9mm already having been resected at the initial distal resection) [Figure 25].

2. Residual Tightness in Flexion and Extension.

This would imply either inadequate soft tissue releases or, more commonly inadequate bone cuts. Increase in the flexion and extension gaps can be achieved by resecting more proximal tibia. It is often helpful to leave the tibial resection guide in situ whilst attempting the trial reduction. This facilitates further resection of the proximal tibia if required.

3. Residual Tightness in Flexion i.e. flexion gap less than extension gap.

It is advisable in the first instance to check for posterior osteophytes which may be restricting flexion. Recession of the PCL may also allow greater flexion. The flexion gap can be increased by cutting the tibia with a posterior slope (no more than 7°).

Step 10

Determining the Tibial Component Size

1. Select an appropriate size of tibial template (63mm to 91mm medial/lateral in 4mm increments) and clip on the handle. Place the template onto the resected tibial plateau and assess coverage.

Step 11

Determining the Tibial Alignment & Trial Reduction

1. With the femoral trial in place it is possible to determine the correct orientation and thickness of the tibial component using the tibial trials [Figure 26].

Note: The tibial template must be removed for this method.

2. When the joint space has been correctly filled, articulate the limb from flexion to extension a few times to align the tibial trial.
3. Mark the anterior cortex of the tibia directly under the reference lines on the tibial trial. These can be used to re-align the template handle.
4. Leg alignment should now be evaluated with the leg in full extension. If this is not satisfactory it may be necessary to perform a ligamentous release.
5. An alternative method to determine correct orientation is to insert the long 6mm diameter Alignment Rod into the hole of the tibial template handle so that its inferior tip rests above the foot. The template can be rotated on the plateau until the rod lies over the mechanical axis, generally recognised to coincide with the second toe [Figure 27].

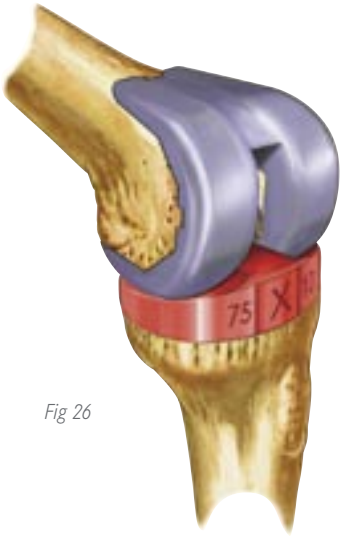


Fig 26

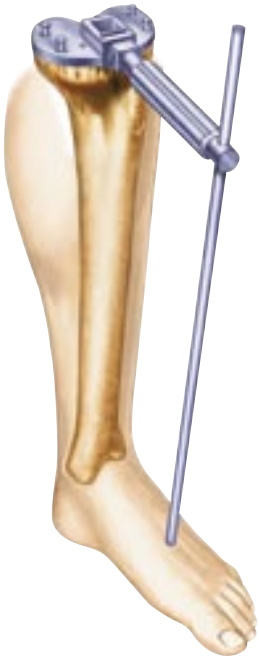


Fig 27

Principles of Lateral Ligamentous Release

Excision of peripheral osteophytes.

Release of the medial capsule.

Release of the iliotibial band from the tibial insertion.

Lateral retinacular release.

Recession of the lateral collateral ligament and division of popliteous tendon.

Release or recession of the posterior cruciate.

Division of the lateral inter-muscular septum and lateral antero-gastronemius.

Preparing the Tibial Plateau for the Stem

The stems of the tibial components are of different lengths according to the size of the component. To prepare the resected tibia for accepting the stem the following procedure is followed.

1. Slide the Tibial Tower Guide posteriorly over the tibial template surface.
2. For **cemented procedures use the Tibial Punch.** Insert the punch into the tower driving it down until it abutts against the collar of the tibial template [Figure 28a].
3. For **cementless procedures use the Cementless Tibial Chisel** in the same manner as described for the punch [Figure 28b]. This provides a tapered I-beam profile channel, fitting the stem exactly. A threaded hole in both the punch and chisel is provided for the insertion of a Slap Hammer to aid extraction.

Fig 28a

Fig 28b

Step 13

Re-Surfacing the Patella

1. Remove any peripheral osteophytes returning its shape to near normal anatomy.
2. The resection level and the resulting cut surface are important factors in correctly resurfacing the patella. The posterior articulating surface is removed with the patella everted laterally. The resection should begin just below the subchondral bone at a level which corresponds to the thickness of the patella component to be implanted.
3. Place the open jaws of a Patella Resecting Clamp around the patella and lock the ratchet mechanism.
4. To determine the required component size begin by resecting 8mm of bone, then using the trial prostheses, select for either Large (37mm diameter), Medium (34mm diameter) or Small (31mm diameter). The aim of this procedure is to ensure maximum coverage of the cut surface without implant overhang [Figure 29].

Note: If a medium sized component is selected it is necessary to resect an additional 1mm of bone. For a large component resect an additional 2mm ie. in total cut 10mm of bone for a large patella. Ideally, 10mm of bone should be retained following resection to allow full seating of the implants fixation peg. It is very important to make the cut in a smooth, uninterrupted motion to produce a level contact surface for the component.

5. To make a hole in the centre of the patella use the Tall Patella Drill Guide and Patella Stepped Drill. This will make a cavity to suit the provisional button peg [Figure 30].
6. Check the patella tracking with the trial patella in place. It should slide freely in the trochlea groove without any external assistance, i.e. the 'no thumb test'. If it displays a tendency to slide off laterally then a lateral retinacular release will be necessary to restore correct patella tracking.
7. Enlarge the diameter of the hole by 1mm to allow space for the cement. When cementing the patella in place use the Patella Clamp to pressurise the cement whilst it is setting. Ensuring all extruded surplus cement is removed [Figure 31].

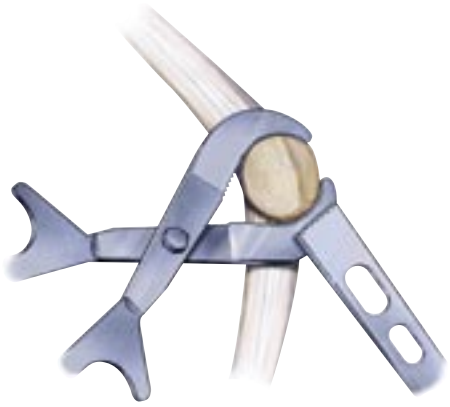


Fig 29

Fig 30

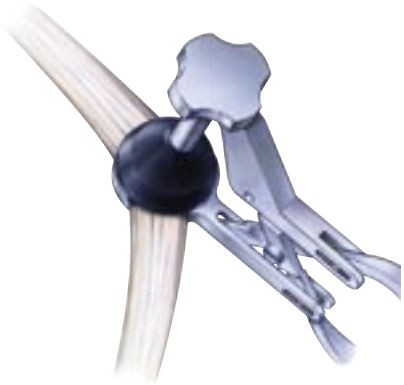


Fig 31

Fig 32

Cementing the Components

Step 14

1. Use a small piece of resected bone to plug the femoral intramedullary canal to relieve any post-operative blood loss into the wound.
2. All resected surfaces must be thoroughly cleaned, preferably with pressurised lavage, and dried. It is advisable to use suction to remove the debris and liquid trapped in the cavities of the trabecular bone.
3. Ideally cement is applied to all the internal surfaces of the femoral component and to all of the resected femoral bone surfaces. Similarly, cement is applied to the underside of the tibial component , the tibial plateau and the tibial stem hole. The components can be implanted simultaneously or sequentially.
4. After impacting the implants, care should be taken to remove all extruded surplus cement, especially from the posterior condyles of the femoral component. The cement can be pressurised whilst setting by extending the leg to 0° or slight hyper-extension [Figure 32].

Post Operative Care

Step 15

Post operative care is largely a matter of surgeon choice. The following guidelines are however provided by Mr. N. J. Goddard F.R.C.S., The Royal Free Hospital, London, U.K.

1. Use a compression dressing for the first 24 hours. A drain is not routinely necessary.
2. Reduce the compression dressing after 24 hours.
3. Commence continuous passive motion after 24 hours, increasing the degree of flexion as tolerated by the patient.
4. Aim to mobilise the patient as quickly as possible (certainly within 48 hours post-op). Full weight bearing with the aid of crutches should be encouraged. Partial weight bearing is an unnecessary precaution given the stability of the prosthesis.
5. The patient is usually discharged home between 7-12 days.
6. Sutures are removed at 10-12 days.
7. Patient follow-up is undertaken at 6 weeks, 3 months and 6 months.

Surgical Technique

AGC High Post Posterior Stabilised (HPPS) Knee

Preparation of the Femur

Follow steps 1-6 inclusive as for the AGC cruciate retaining procedure (Pages 8 to 12).

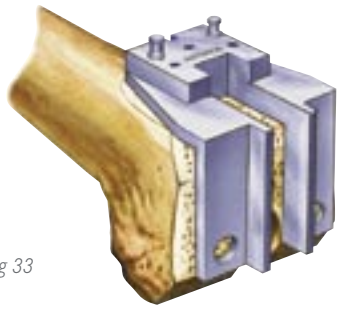


Fig 33

Step 6A

Femoral Resections for HPPS Components

1. Place the universal intercondylar Box Resection Guide onto the resected femur. Offset the Guide one to two millimetres from the centre towards the lateral side of the distal bone. Secure the box resection guide with two Quick Release drills or pins through the holes located in the anterior flange [Figure 33].
2. Resect along the inside of the box guide with an oscillating saw to the depth of the box (16mm from anterior to posterior).
3. Introduce the osteotome into the box resection guide with its bevelled edge abutting against the distal femur. Impact the osteotome until the intercondylar bone is removed [Figure 34].
4. Place the P.S. femoral box gauge into the resected intercondylar box to verify depth and width of the prepared site. Use the 'P.S.' depth line to verify a 16mm intercondylar resection [Figure 35].

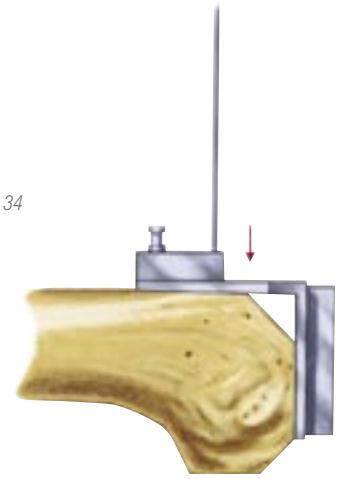


Fig 34

Step 7A

1. Place the appropriately sized Trial Femoral Component onto the resected bone. Carefully align the component so that its anti-rotation pegs will fit into the drilled holes. Because the contour block slots are accurately toleranced for press-fit prostheses it may be necessary to use the femoral impactor and driver handle to fully seat it flush to the bone.
2. To remove the trial, use the Femoral Trial Extractor in combination with the Slap Hammer. The pincer tips of the extractor should fit securely into the recesses on the posterior surface of the femoral trial.

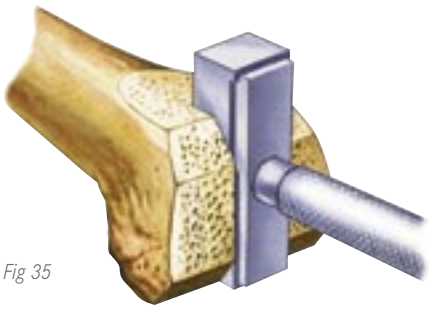


Fig 35

Preparation of the Tibia

Follow steps 8 and 9 as for the AGC cruciate retaining procedure (Pages 13 to 15).

Step 10A

Determining the Tibial Component Size

1. Select the appropriate size of tibial trial baseplate or template (both trial baseplates and templates are available in sizes 63-87mm).
2. Clip on the handle and place the trial baseplate/ template onto the resected tibial plateau to assess coverage.

Step 11A

Trial Reduction to Determine Tibial Component Sizing & Rotation

It is important to carry out a tibial trial reduction without the trial stems in order to establish rotation of the tibial component, and alignment with the femur.

The trial HPPS base plates are available in sizes 63-87mm in 4mm increments, and the tibial trial HPPS bearings are in sizes 63, 71, 79 & 87mm (thicknesses 10-22mm). The HPPS trial bearings are designed to fit more than one trial plate, i.e.

Trial bearing (mm)	Compatible trial plate (mm)
63	63/67
71	71/75
79	79/83
87	87

NOTE: The combined thickness of the trial baseplate and bearing is equivalent to the thickness of the definitive tibial component.

1. Using the appropriate trial baseplate, assemble the thinnest (10mm) trial bearing onto the plate. Revert the patella to track in the trochlea groove then fully flex and extend the knee, testing also for medial/ lateral stability. The high post of the trial should engage fully, but without impingement, into the intercondylar box of the femoral trial throughout the range of motion. If the bearing is too thin choose the next thickest size until the joint space is adequately filled and the knee is stable.
2. On articulation of the knee the trial bearing/plate will orientate themselves with respect to the femoral trial. Mark the anterior cortex of the tibia with methylene blue or electrocautery under the two reference lines etched on the tibial plate. These will serve as landmarks for the correct rotational position of the tibial component.

NOTE: It is essential to repeat the trial reduction of the HPPS components with the trial stem in place (step 12B). Without the trial stem posterior lift of the plate may be observed due to the increased toggle forces placed upon the high post.

Step 12A

Preparing the Tibial Stem for the Plateau

The stems of the tibial components are of different lengths according to the size of the component (63mm to 87mm). To prepare the resected tibia for accepting the stem the following procedure is followed.

1. Place the tibial template onto the resected surface and rotate it so that the two guide lines on the anterior face align with those marked on the bone from Step 11A. The template can be secured in place with nails.
2. Slide the Tibial Tower Guide posteriorly over the tibial template surface.
3. For **cemented procedures use the Tibial Punch.** Insert the punch into the tower driving it down until it abutts against the collar of the tibial template.
4. For **cementless procedures use the Cementless Tibial Chisel** in the same manner as described for the punch. This provides a tapered I-beam profile channel, fitting the stem exactly. A threaded hole in both the punch and chisel is provided for the insertion of a Slap Hammer to aid extraction.

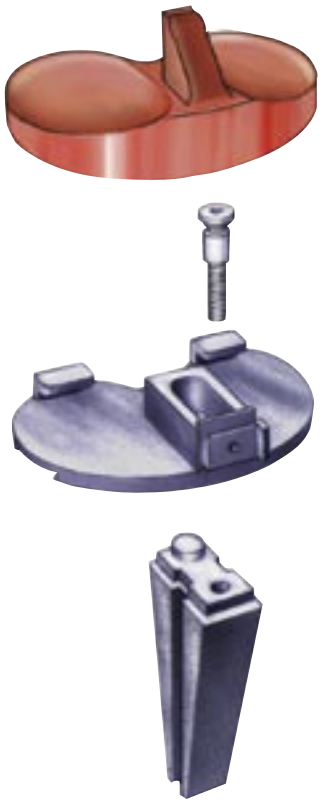


Fig 36

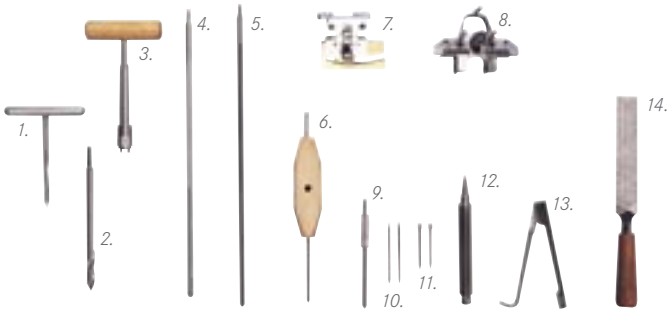
Step 12B

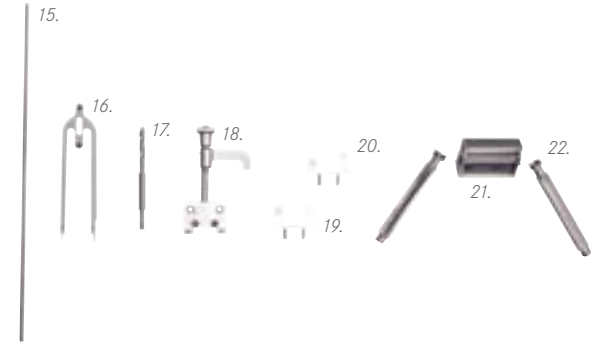
Trial Reduction with Trial Tibial Stem

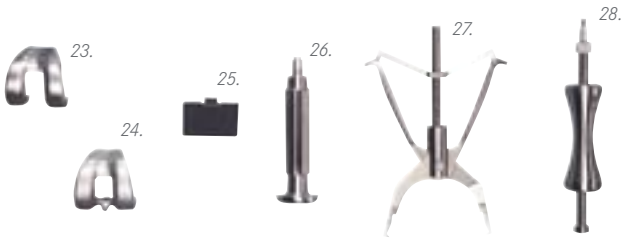
NOTE: There are two trial HPPS stems within the set. The short trial stem is for use with trial tibial baseplates sizes 63, 67, 71 and 75mm inclusive. The long trial stem is for use with trial tibial baseplates 79, 83 and 87mm inclusive.

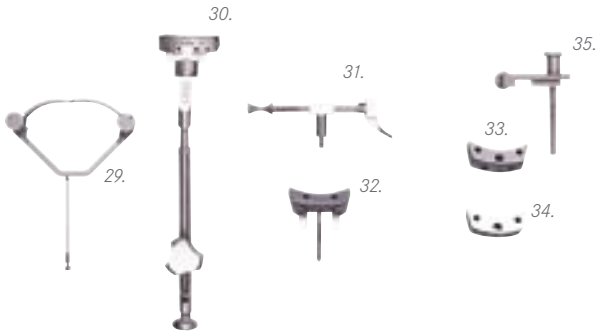
1. Select the appropriate trial stem (long or short) to accompany the selected trial baseplate.
2. Using the hex. screwdriver, firmly secure the stem to the trial baseplate [Figure 36].
3. Place the trial assembly onto the tibia seating the stem fully into position. Clip the chosen trial bearing onto the trial baseplate. Articulate the knee through a full motion testing for stability and alignment.

To complete the procedure for the AGC HPPS knee follow steps 13 to 15 inclusive as for the AGC Cruciate Retaining Procedure (pages 18-19).









1. IM Awl
2. 3/8 Dia IM Drill
3. Reamer T Handle
4. IM Reamer
5. IM Rod
6. Hex Driver
7. Angle Guide
8. Distal Femoral Resector Assembly
9. QR Drill Chuck
10. QR Drills
11. Puller Nails
12. Pin Punch
13. Combined QR Drill and Nail Puller
14. Bone Rasp

15. Alignment Rod
16. External Alignment Tower
17. 1/4" Dia Drill
18. Femoral Positioner
19. Femoral Positioner 3° Right Feet
20. Femoral Positioner 3° Left Feet
21. Femoral Contour Block
22. Universal Instrument Handle

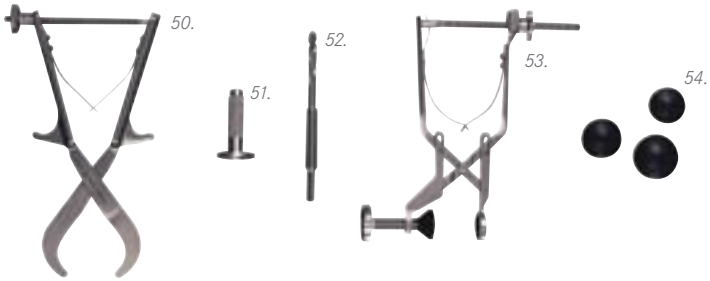
23. AGC Universal V2 Trial Femur
24. AGC Universal Cam & Groove V2 Trial Femur
25. Femoral Impactor Head
26. Impactor Handle
27. Femoral Extractor
28. Slap Hammer

29. EM Tibial Resector Body with claw clamp
30. EM Tibial Resector 5° Cutting Head
31. IM/EM Resector Stylus
32. EM Tibial Resector Neutral Cutting Head
33. IM Tibial Resector Neutral Cutting Head
34. IM Tibial Resector 5° Cutting Head
35. IM Tibial Resector Body with

36. Tibial Trial
37. Flexion Gauge
38. Tibial Template
39. Tibial Chisel/Punch Guide
40. Tibial Chisel
41. Tibial Punch
42. Tibial Impactor Head
43. Impactor Handle

44. HPPS Tibial trial baseplate
45. HPPS Tibial trial bearing
46. HPPS Tibial trial stem
47. HPPS Box Resection Guide
48. HPPS Box Sizer
49. AGC Universal HPPS Trial Femur

50. Patella Resecting Clamp
51. Tall Patella Drill Guide
52. Patella drill with Stop
53. Patella Clamp
54. Patella Trials



Ordering information - AGC Implants

Femoral Components

PCL Retaining

Universal V2 Porous Femoral Components			
155411	55mm	155414	70mm
155412	60mm	155415	75mm
155413	65mm	155416	80mm

Universal V2 Interlok Femoral Components			
155421	55mm	155424	70mm
155422	60mm	155425	75mm
155423	65mm	155426	80mm

Anatomic Porous Femoral Components			
Right		Left	
152730	55mm	152740	55mm
152732	60mm	152742	60mm
152734	65mm	152744	65mm
152736	70mm	152746	70mm
152738	75mm	152748	75mm
152739	80mm	152749	80mm

Anatomic Interlok Femoral Components			
Right		Left	
152830	55mm	152840	55mm
152832	60mm	152842	60mm
152834	65mm	152844	65mm
152836	70mm	152846	70mm
152838	75mm	152848	75mm
152839	80mm	152849	80mm

PCL Substituting - Cam & Groove

Universal V2 PS Porous Femoral Components			
155431	55mm	155434	70mm
155432	60mm	155435	75mm
155433	65mm	155436	80mm

Universal V2 PS Interlok Femoral Components			
155441	55mm	15544470mm	
155442	60mm	15544575mm	
155443	65mm	15544680mm	

Anatomic PS Porous Femoral Components			
Right		Left	
155051	55mm	155041	55mm
155052	60mm	155042	60mm
155053	65mm	155043	65mm
155054	70mm	155044	70mm
155055	75mm	155045	75mm
155056	80mm	155046	80mm

Anatomic PS Interlok Femoral Components			
Right		Left	
155031	55mm	155021	55mm
155032	60mm	155022	60mm
155033	65mm	155023	65mm
155034	70mm	155024	70mm
155035	75mm	155025	75mm
155036	80mm	155026	80mm

PCL Substituting - High Post Posterior Stabilised (HPPS)

Universal Interlok Femoral Components			
151090	55mm	151093	70mm
151091	60mm	151094	75mm
151092	65mm		

Porous coated components are designed for press fit application.

Interlok™ components are designed for cemented application.

Tibial Components

PCL Retaining and Substituting - (Cam & Groove)

V2 Porous Moulded Tibial Components (ArCom®)				V2 Interlok™ Moulded Tibial Components (ArCom®)			
158370	8 x 63mm	158410	8 x 79mm	158470	8 x 63mm	158510	8 x 79mm
158371	10 x 63mm	158411	10 x 79mm	158471	10 x 63mm	158511	10 x 79mm
158372	12 x 63mm	158412	12 x 79mm	158472	12 x 63mm	158512	12 x 79mm
158373	14 x 63mm	158413	14 x 79mm	158473	14 x 63mm	158513	14 x 79mm
158375	18 x 63mm	158415	18 x 79mm	158475	18 x 63mm	158515	18 x 79mm
158377	22 x 63mm	158417	22 x 79mm	158477	22 x 63mm	158517	22 x 79mm
158380	8 x 67mm	158420	8 x 83mm	158480	8 x 67mm	158520	8 x 83mm
158381	10 x 67mm	158421	10 x 83mm	158481	10 x 67mm	158521	10 x 83mm
158382	12 x 67mm	158422	12 x 83mm	158482	12 x 67mm	158522	12 x 83mm
158383	14 x 67mm	158423	14 x 83mm	158483	14 x 67mm	158523	14 x 83mm
158385	18 x 67mm	158425	18 x 83mm	158485	18 x 67mm	158525	18 x 83mm
158387	22 x 67mm	158427	22 x 83mm	158487	22 x 67mm	158527	22 x 83mm
158390	8 x 71mm	158430	8 x 87mm	158490	8 x 71mm	158530	8 x 87mm
158391	10 x 71mm	158431	10 x 87mm	158491	10 x 71mm	158531	10 x 87mm
158392	12 x 71mm	158432	12 x 87mm	158492	12 x 71mm	158532	12 x 87mm
158393	14 x 71mm	158433	14 x 87mm	158493	14 x 71mm	158533	14 x 87mm
158395	18 x 71mm	158435	18 x 87mm	158495	18 x 71mm	158535	18 x 87mm
158397	22 x 71mm	158437	22 x 87mm	158497	22 x 71mm	158537	22 x 87mm
158400	8 x 75mm	158440	8 x 91mm	158500	8 x 75mm	158540	8 x 91mm
158401	10 x 75mm	158441	10 x 91mm	158501	10 x 75mm	158541	10 x 91mm
158402	12 x 75mm	158442	12 x 91mm	158502	12 x 75mm	158542	12 x 91mm
158403	14 x 75mm	158443	14 x 91mm	158503	14 x 75mm	158543	14 x 91mm
158405	18 x 75mm	158445	18 x 91mm	158505	18 x 75mm	158545	18 x 91mm
158407	22 x 75mm	158447	22 x 91mm	158507	22 x 75mm	158547	22 x 91mm

PCL Substituting - High Post (HPPS)

V2 HPPS Interlok™ Tibial Components (ArCom®)			
158959	63x10mm	158980	75x16mm
158960	63x12mm	158981	75x18mm
158961	63x14mm	158982	75x22mm
158962	63x16mm	158983	79x10mm
158963	63x18mm	158984	79x12mm
158964	63x22mm	158985	79x14mm
158965	67x10mm	158986	79x16mm
158966	67x12mm	158987	79x18mm
158967	67x14mm	158988	79x22mm
158968	67x16mm	158989	83x10mm
158969	67x18mm	158990	83x12mm
158970	67x22mm	158991	83x14mm
158971	71x10mm	158992	83x16mm
158972	71x12mm	158993	83x18mm
158973	71x14mm	158994	83x22mm
158974	71x16mm	158995	87x10mm
158975	71x18mm	158996	87x12mm
158976	71x22mm	158997	87x14mm
158977	75x10mm	158998	87x16mm
158978	75x12mm	158999	87x18mm
158979	75x14mm	159000	87x22mm

Patella Components

ArCom® Patella Components		
11-150820	ArCom Poly Patella Button	31mm
11-150822	ArCom Poly Patella Button	34mm
11-150824	ArCom Poly Patella Button	37mm

Ordering information - AGC Millennium Instrumentation

AGC V2 Trial Components - Femoral

PCL Retaining and Substituting - (Cam & Groove)

Trial Universal V2 Femoral Components			
32-468441	55mm	32-468442	60mm
32-468443	65mm	32-468444	70mm
32-468445	75mm	32-468446	80mm

Trial Universal V2 Cam and Groove Femoral Components			
32-468451	55mm	32-468452	60mm
32-468453	65mm	32-468454	70mm
32-468455	75mm	32-468456	80mm

Trial Anatomic Femoral Components			
Right		Left	
32-467330	55mm	32-467340	55mm
32-467332	60mm	32-467342	60mm
32-467334	65mm	32-467344	65mm
32-467336	70mm	32-467346	70mm
32-467338	75mm	32-467348	75mm
32-467339	80mm	32-467349	80mm

Trial Anatomic Cam and Groove Components			
Right		Left	
32-468021	55mm	32-468011	55mm
32-468022	60mm	32-468012	60mm
32-468023	65mm	32-468013	65mm
32-468024	70mm	32-468014	70mm
32-468025	75mm	32-468015	75mm
32-468026	80mm	32-468016	80mm

PCL Substituting - High Post (HPPS)

Trial Universal V2 Femoral Components HPPS			
32-467020	55mm	32-467023	70mm
32-467021	60mm	32-467024	75mm
32-467022	65mm		

AGC V2 Trial Components - Tibial

PCL Retaining and Substituting - (Cam & Groove)

V2 Trial Tibial Components			
32-401300 8 x 63mm	32-401340 8 x 71mm	32-401380 8 x 79mm	32-401420 8 x 87mm
32-401301 10 x 63mm	32-401341 10 x 71mm	32-401381 10 x 79mm	32-401421 10 x 87mm
32-401302 12 x 63mm	32-401342 12 x 71mm	32-401382 12 x 79mm	32-401422 12 x 87mm
32-401303 14 x 63mm	32-401343 14 x 71mm	32-401383 14 x 79mm	32-401423 14 x 87mm
32-401305 18 x 63mm	32-401345 18 x 71mm	32-401385 18 x 79mm	32-401425 18 x 87mm
32-401307 22 x 63mm	32-401347 22 x 71mm	32-401387 22 x 79mm	32-401427 22 x 87mm
32-401320 8 x 67mm	32-401360 8 x 75mm	32-401400 8 x 83mm	32-401440 8 x 91mm
32-401321 10 x 67mm	32-401361 10 x 75mm	32-401401 10 x 83mm	32-401441 10 x 91mm
32-401322 12 x 67mm	32-401362 12 x 75mm	32-401402 12 x 83mm	32-401442 12 x 91mm
32-401323 14 x 67mm	32-401363 14 x 75mm	32-401403 14 x 83mm	32-401443 14 x 91mm
32-401325 18 x 67mm	32-401365 18 x 75mm	32-401405 18 x 83mm	32-401445 18 x 91mm
32-401327 22 x 67mm	32-401367 22 x 75mm	32-401407 22 x 83mm	32-401447 22 x 91mm

PCL Substituting - (HPPS)

HPPS Trial V2 Tibial Baseplates			
32-420194	63mm	32-420198	79mm
32-420195	67mm	32-420199	83mm
32-420196	71mm	32-420200	87mm
32-420197	75mm		

Trial V2 Tibial HPPS Bearings							
32-420205	63/67 x 10mm	32-420211	71/75 x 10mm	32-420217	79/83 x 10mm	32-420223	87/91 x 10mm
32-420206	63/67 x 12mm	32-420212	71/75 x 12mm	32-420218	79/83 x 12mm	32-420224	87/91 x 12mm
32-420207	63/67 x 14mm	32-420213	71/75 x 14mm	32-420219	79/83 x 14mm	32-420225	87/91 x 14mm
32-420209	63/67 x 18mm	32-420215	71/75 x 18mm	32-420221	79/83 x 18mm	32-420227	87/91 x 18mm
32-420210	63/67 x 22mm	32-420216	71/75 x 22mm	32-420222	79/83 x 22mm	32-420228	87/91 x 22mm

AGC HPPS Trial Tibial Stem	
32-420202	63-75mm
32-420203	79-87mm
32-420204	Tibial Trial Stem Screw

AGC V2 Trial Millennium Instrumentation

Complete and Reduced Tray Options

AGC V2 Complete Set	
32-420162	Femoral Tray #1 Complete with instruments
32-420178	Femoral Tray #2 Complete with instruments
32-420179	Reduced Femoral Tray #2 Complete with instruments
32-420181	Femoral Tray #3 Complete with instruments
32-420183	AGC V2 Universal & PS Universal Femoral Trials
32-420184	Reduced AGC V2 Universal & PS Universal Femoral Trials
32-420186	AGC Anatomic Femoral Trials
32-420187	Reduced AGC Anatomic Femoral Trials
32-420189	AGC Anatomic PS Femoral Trials
32-420190	Reduced AGC Anatomic PS Femoral Trials
32-420170	Tibial Tray #1 Complete with instruments
32-420172	Tibial Tray #2 Complete with instruments
32-420173	Reduced Tibial Tray #2 Complete with instruments
32-420175	Tibial Trials
32-420176	Reduced Tibial Trials
32-420167	AGC V2 Universal & Universal Femoral HPPS Trials
32-420168	Reduced AGC V2 Universal & Universal Femoral HPPS Trials
32-420232	AGC V2 HPPS Tibial Tray with Trials
32-400234	AGC V2 HPPS Tibial Tray with Instruments

32-420183 - V2 Universal and PS (Cam & Groove) Universal Femoral Trial Tray with Trials	
32-468441	AGC Universal V2 Trial Femur 55mm
32-468442	AGC Universal V2 Trial Femur 60mm
32-468443	AGC Universal V2 Trial Femur 65mm
32-468444	AGC Universal V2 Trial Femur 70mm
32-468445	AGC Universal V2 Trial Femur 75mm
32-468446	AGC Universal V2 Trial Femur 80mm
32-468451	AGC Universal PS V2 Trial Femur 55mm
32-468452	AGC Universal PS V2 Trial Femur 60mm
32-468453	AGC Universal PS V2 Trial Femur 65mm
32-468454	AGC Universal PS V2 Trial Femur 70mm
32-468455	AGC Universal PS V2 Trial Femur 75mm
32-468456	AGC Universal PS V2 Trial Femur 80mm

32-420162 - Femoral Tray No 1 (with instruments)	
32-347120	Angle Guide
32-420162	Distal Femoral Assembly
32-420143	Pin Punch
32-420160	Combined QR Drill and Nail Puller
32-401122	Glass Block
32-467619	QR Drill
32-347911	Puller Pin
32-349208	Hex Driver
32-468406	External Alignment Tower
32-467618	QR Drill Chuck
32-466616	Alignment Rod
32-467603	I/M Rod
32-467602	I/M Reamer
31-473620	T-Handle
32-401110	I/M Awl
32-467600	3/8" Drill

32-420178 - Femoral Tray No 2 (with instruments)	
32-347200	Femoral Positioner with Neutral Feet
32-347204	Femoral Positioner 3° Right Feet
32-347206	Femoral Positioner 3° Left Feet
32-467261	1/4" Dia Drill
32-420136	Universal Instrument Handle
32-420130	Femoral Contour Block 55mm
32-420131	Femoral Contour Block 60mm
32-420132	Femoral Contour Block 65mm
32-420133	Femoral Contour Block 70mm
32-420134	Femoral Contour Block 75mm
32-420135	Femoral Contour Block 80mm
32-420193	Anterior Femoral Reference Finger

32-420181 - Femoral Tray No 3 (with instruments)	
32-401692	Bone Rasp
31-473621	Slap Hammer
32-467295	Femoral Extractor
32-420746	Femoral Impactor Head
32-420645	Impactor Handle

32-420170 - Tibial Tray No 1 (with instruments)	
32-420144	EM Tibial Resector Body
23-420230	Claw Ankle Clamp Assembly *
32-420299	Spring Ankle Clamp Assembly *
32-420191	EM Tibial Resector Neutral Cutting Head
32-420145	EM Tibial Resector 5° Cutting Head
32-420146	IM Tibial Resector Body
32-420192	IM Tibial Resector Neutral Cutting Head
32-420147	IM Tibial Resector 5° Cutting Head
32-420148	IM/EM Resector Stylus
32-467619	QR Drill
32-347911	Puller Nail
32-467618	QR Drill Chuck

32-420172 - Tibial Tray No 2 (with instruments)	
32-420149	Tibial Punch
31-420150	Tibial Chisel
32-420151	Tibial Chisel/Punch Guide
32-420152	Tibial Template 63mm
32-420153	Tibial Template 67mm
32-420154	Tibial Template 71mm
32-420155	Tibial Template 75mm
32-420156	Tibial Template 79mm
32-420157	Tibial Template 83mm
32-420158	Tibial Template 87mm
32-420159	Tibial Template 91mm
32-420747	Impactor Handle
32-420646	Tibial Impactor Head
32-420137	Flexion Gauge 8mm
32-420138	Flexion Gauge 10mm
32-420139	Flexion Gauge 12mm
32-420140	Flexion Gauge 14mm
32-420141	Flexion Gauge 18mm
32-420142	Flexion Gauge 22mm

**Alternative item*

32-420175 - V2 Tibial Tray (with instruments)	
32-401300	Tibial Trial 63mm x 8mm
32-401301	Tibial Trial 63mm x 10mm
32-401302	Tibial Trial 63mm x 12mm
32-401303	Tibial Trial 63mm x 14mm
32-401305	Tibial Trial 63mm x 18mm
32-401307	Tibial Trial 63mm x 22mm
32-401320	Tibial Trial 67mm x 8mm
32-401321	Tibial Trial 67mm x 10mm
32-401322	Tibial Trial 67mm x 12mm
32-401323	Tibial Trial 67mm x 14mm
32-401325	Tibial Trial 67mm x 18mm
32-401327	Tibial Trial 67mm x 22mm
32-401340	Tibial Trial 71mm x 8mm
32-401341	Tibial Trial 71mm x 10mm
32-401342	Tibial Trial 71mm x 12mm
32-401343	Tibial Trial 71mm x 14mm
32-401345	Tibial Trial 71mm x 18mm
32-401347	Tibial Trial 71mm x 22mm
32-401360	Tibial Trial 75mm x 8mm
32-401361	Tibial Trial 75mm x 10mm
32-401362	Tibial Trial 75mm x 12mm
32-401363	Tibial Trial 75mm x 14mm
32-401365	Tibial Trial 75mm x 18mm
32-401367	Tibial Trial 75mm x 22mm
32-401380	Tibial Trial 79mm x 8mm
32-401381	Tibial Trial 79mm x 10mm
32-401382	Tibial Trial 79mm x 12mm
32-401383	Tibial Trial 79mm x 14mm
32-401385	Tibial Trial 79mm x 18mm
32-401387	Tibial Trial 79mm x 22mm
32-401400	Tibial Trial 83mm x 8mm
32-401401	Tibial Trial 83mm x 10mm
32-401402	Tibial Trial 83mm x 12mm
32-401403	Tibial Trial 83mm x 14mm
32-401405	Tibial Trial 83mm x 18mm
32-401407	Tibial Trial 83mm x 22mm
32-401420	Tibial Trial 87mm x 8mm
32-401421	Tibial Trial 87mm x 10mm
32-401422	Tibial Trial 87mm x 12mm
32-401423	Tibial Trial 87mm x 14mm
32-401425	Tibial Trial 87mm x 18mm
32-401427	Tibial Trial 87mm x 22mm
32-401440	Tibial Trial 91mm x 8mm
32-401441	Tibial Trial 91mm x 10mm
32-401442	Tibial Trial 91mm x 12mm
32-401443	Tibial Trial 91mm x 14mm
32-401445	Tibial Trial 91mm x 18mm
32-401447	Tibial Trial 91mm x 22mm

32-420167 - V2 Universal and Universal Femoral HPPS Trial Tray with Trials	
32-468441	AGC Universal V2 Trial Femur 55mm
32-468442	AGC Universal V2 Trial Femur 60mm
32-468443	AGC Universal V2 Trial Femur 65mm
32-468444	AGC Universal V2 Trial Femur 70mm
32-468445	AGC Universal V2 Trial Femur 75mm
32-468446	AGC Universal V2 Trial Femur 80mm
32-467020	AGC Universal HPPS Trial Femur 55mm
32-467021	AGC Universal HPPS Trial Femur 60mm
32-467022	AGC Universal HPPS Trial Femur 65mm
32-467023	AGC Universal HPPS Trial Femur 70mm
32-467024	AGC Universal HPPS Trial Femur 75mm

32-401294 - Patella Instrumentation	
32-467189	Patella Resecting Clamp
32-467263	Tall Patella Drill Guide
32-467261	Patella Drill Guide W/Stop
32-467249	Patella Clamp

Sawblades	
32-401164	Oscillatory Sawblade Hall Type
32-401165	Oscillatory Sawblade Stryker Type
32-401166	Oscillatory Sawblade Howmedica Type
32-401167	Oscillatory Sawblade 3M Type
32-401168	Oscillatory Sawblade A.O Type
32-401195	Oscillatory Sawblade Stryker 2000 Type
32-401169	Oscillatory Sawblade 3M Maxi Drive Type

Pre-Operative Planning		
32-401455	AGC Universal V2 X-Ray Overlay	110%
32-401456	AGC Universal V2 X-Ray Overlay	115%
32-401457	AGC Universal V2 X-Ray Overlay	120%
32-401107	AGC Valgus Angle X-Ray Template	
32-400235	AGC HPPS V2 X-ray overlay	110%
32-400236	AGC HPPS V2 X-ray overlay	115%
32-400237	AGC HPPS V2 X-ray overlay	120%

32-420231 - HPPS Tibial Trials Tray	
32-420194	Tibial Trial Base Plate 63mm
32-420195	Tibial Trial Base Plate 67mm
32-420196	Tibial Trial Base Plate 71mm
32-420197	Tibial Trial Base Plate 75mm
32-420198	Tibial Trial Base Plate 79mm
32-420199	Tibial Trial Base Plate 83mm
32-420200	Tibial Trial Base Plate 87mm
32-420202	AGC HPPS Tibial Trial Stem 63 to 75mm
32-420203	AGC HPPS Tibial Trial Stem 79 to 87mm
32-420204	Spare Tibial Trial Stem Screw
32-420205	AGC HPPS Tibial Trial Bearing 63/67 x10mm
32-420206	AGC HPPS Tibial Trial Bearing 63/67 x12mm
32-420207	AGC HPPS Tibial Trial Bearing 63/67 x14mm
32-420209	AGC HPPS Tibial Trial Bearing 63/67 x18mm
32-420210	AGC HPPS Tibial Trial Bearing 63/67 x22mm
32-420211	AGC HPPS Tibial Trial Bearing 71/75 x10mm
32-420212	AGC HPPS Tibial Trial Bearing 71/75 x12mm
32-420213	AGC HPPS Tibial Trial Bearing 71/75 x14mm
32-420215	AGC HPPS Tibial Trial Bearing 71/75 x18mm
32-420216	AGC HPPS Tibial Trial Bearing 71/75 x22mm
32-420217	AGC HPPS Tibial Trial Bearing 79/83 x10mm
32-420218	AGC HPPS Tibial Trial Bearing 79/83 x12mm
32-420219	AGC HPPS Tibial Trial Bearing 79/83 x14mm
32-420221	AGC HPPS Tibial Trial Bearing 79/83 x18mm
32-420222	AGC HPPS Tibial Trial Bearing 79/83 x22mm
32-420223	AGC HPPS Tibial Trial Bearing 87 x10mm
32-420224	AGC HPPS Tibial Trial Bearing 87 x12mm
32-420225	AGC HPPS Tibial Trial Bearing 87 x14mm
32-420227	AGC HPPS Tibial Trial Bearing 87 x18mm
32-420228	AGC HPPS Tibial Trial Bearing 87 x22mm
37-100128	Hex Driver

32-420234 - AGC HPPS Instrument Tray	
32-348005	Box Resection Guide
32-348000	Box Chisel
32-348010	Femoral Box Gauge
32-420646	Tibial Impactor Head
32-420103	Tibial Trial Base Plate Impactor
32-420645	Impactor Handle

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