

**1. Distal Femoral Resector Block**

In conjunction with the IM Femoral Resection Guide, the Distal Femoral Resector Block provides for accurate distal condyle resection.

**2. IM Femoral Resection Guide**

The IM Femoral Resection Guide makes possible an accurate reproduction of the anatomical axis.

**3. IM Patellar Retractor**

Inserted into the IM canal, this retractor helps protect the patella and soft tissue from the cuts made with the Femoral Sizer/Finishing Guides.

# INVASIVE

**4. Tibial Depth Resection Stylus**

Affixed atop the Tibial Resector, this stylus helps to ensure that the desired depth of cut will be achieved.

**5. Tibial Resector**

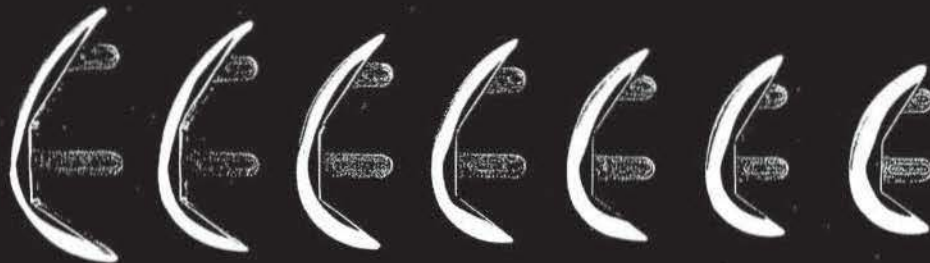
The angled Tibial Resector allows for access through a minimal incision and resection from 2-8mm in 2mm increments.

**6. Tibial Plate Impactor**

Through the minimal incision, this impactor facilitates insertion of the Tibial Base Plate Provisional.

**7. Tibial Spacer**

Tibial Spacers allow for the accurate selection of tibial component(s). They can also be used to check the accuracy of the tibial cut by means of an extramedullary rod.



## The M/G Unicompartmental Knee

The clinically proven<sup>1,2,3</sup> design permits normal biomechanical function, provides for secure fixation, and facilitates precise implantation. Seven femoral and five tibial component sizes in both modular and all-poly options, matched with polyethylene articulating surfaces from 8-14mm offer complete interchangeability for patient matching.

## 10 Years Of Clinical Success

### Average HSS Scores At 6-10 Years



Post-Op — 92  
<range:60-100>

Pre-Op — 55  
<range:30-79>

### Distribution Of Results



Excellent — 78%

Good — 20%

Fair — 2%

Berger RA, Sheinkop, et al. Unicompartmental knee arthroplasty.  
*Clin Orthop Rel Res.* 1999;367:50-60. HSS scores on 51 patients.



## MINIMALLY INVASIVE SOLUTION

The M/G  
Unicompartmental Knee  
Minimally Invasive  
Surgical Technique





# M/G UNICOMPARTMENTAL KNEE SYSTEM

## MINIMALLY INVASIVE SURGICAL TECHNIQUE

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## Minimally Invasive Solution



### INTRODUCTION

The M/G Unicompartmental MIS™ Minimally Invasive Solution Instrumentation System is designed to help provide an accurate, reproducible, minimally invasive technique, and eliminate many of the complexities that are inherent in some unicompartmental knee and instrumentation systems. The potential results of minimally invasive techniques may include earlier mobilization, shorter hospital stays, and quicker rehabilitation.<sup>1,2,3,4</sup> The system includes guides for accurate and reproducible alignment, sizing, and resection. It is designed for use with the M/G Unicompartmental Knee System, which has proven long-term clinical success<sup>5</sup> with excellent RSA results.<sup>6</sup>

This guide to the surgical technique is a concise step-by-step procedure. Combined with the surgeon's judgement, proper patient selection and appropriate use of the device, this guide offers a comprehensive technique that discusses the procedure for component selection, bone preparation, trial reduction, cementing techniques, and component implantation.

## RATIONALE

The goal of a successful unicompartmental knee arthroplasty operation is to create a mechanical axis that is neutral to help avoid overloading the lateral condyle, with the joint line parallel to the floor and perpendicular to the mechanical axis. The femoral and tibial components are oriented perpendicular to this mechanical axis. *It is important to avoid overcorrecting any deformities and transferring stress to the opposite compartment.* Overcorrection may transfer increased forces which may accelerate degeneration.

Well-designed instruments allow accurate cuts to help assure secure component fixation. A wide selection of component sizes allows soft tissue balancing with limited or no soft tissue release.

Templating the preoperative x-ray film assists with proper femoral component alignment. On the femoral x-ray film, a line is drawn from the center of the femoral head to the center of the knee. The femoral anatomic axis is drawn down the center of the femoral medullary canal to the center of the knee. By referencing the angle formed by these two lines, and using the IM Femoral Resection Guide in the femoral canal to reproduce the anatomic axis, the distal femur can be cut perpendicular to the mechanical axis.

In the frontal plane, the proximal tibia is cut perpendicular to the mechanical axis using a cutting guide to help facilitate accurate tibial resection. In the lateral plane, the cutting guide helps create a tibial resection that is sloped seven degrees posteriorly. Parallel distal femoral and proximal tibia cuts allow proper alignment for implant insertion.





## Minimally Invasive Solution



### PREOPERATIVE PLANNING

Take a standing weight-bearing A/P and lateral film of the knee and a skyline radiograph of the patella. Then take a long standing A/P radiograph showing the center of the femoral head, the knee, and as much of the tibia as possible (preferably including the ankle). Alternatively, a single A/P radiograph of the entire femur allows correct calculations and can be made on a 35cm x 42cm (14 x 17-inch) film. Draw a line from the center of the femoral head to the center of the distal femur at the knee. Draw a second line down the middle of the distal femoral shaft in the area where the IM Femoral Resection Guide will be used to reproduce the anatomic axis of the femur. The angle between the mechanical axis line and the anatomic axis line correlates with the valgus cut (Fig. 1). This angle is usually six degrees.

Occasionally, in patients who have had total hip arthroplasty with a femoral component that has more valgus in the neck shaft angle than usual, or in the patient with coxa valga, the angle between the mechanical axis and anatomic axis may be four degrees or even two degrees. The rare patient with significant coxa vara or a broad pelvis with long femoral necks may have an angle of eight degrees.

The IM Femoral Resection Guide has been designed to reestablish the anatomic axis.

After this landmark is determined, a cut on the distal femoral condyle is made using the Distal Femoral Resector Block. This cut is made at the angle determined by the templating procedure described above. The resection guide allows for a choice of four angles (2, 4, 6, and 8 degrees) which are measured from a reference perpendicular to the anatomic axis. Using the appropriate angle will help the surgeon create a resected surface that is perpendicular to the mechanical axis of the specific patient's femur.

No calculations for the tibia are necessary.

The center of the proximal tibia and the center of the ankle are determined visually.

The proximal portion of the cutting guide is centered in the medial third of the tibial tubercle just medial to the mid-point. The distal portion is positioned at the ankle with the tip pointing to the second metatarsal. The proximal tibia is then cut perpendicular to the line between these two points.

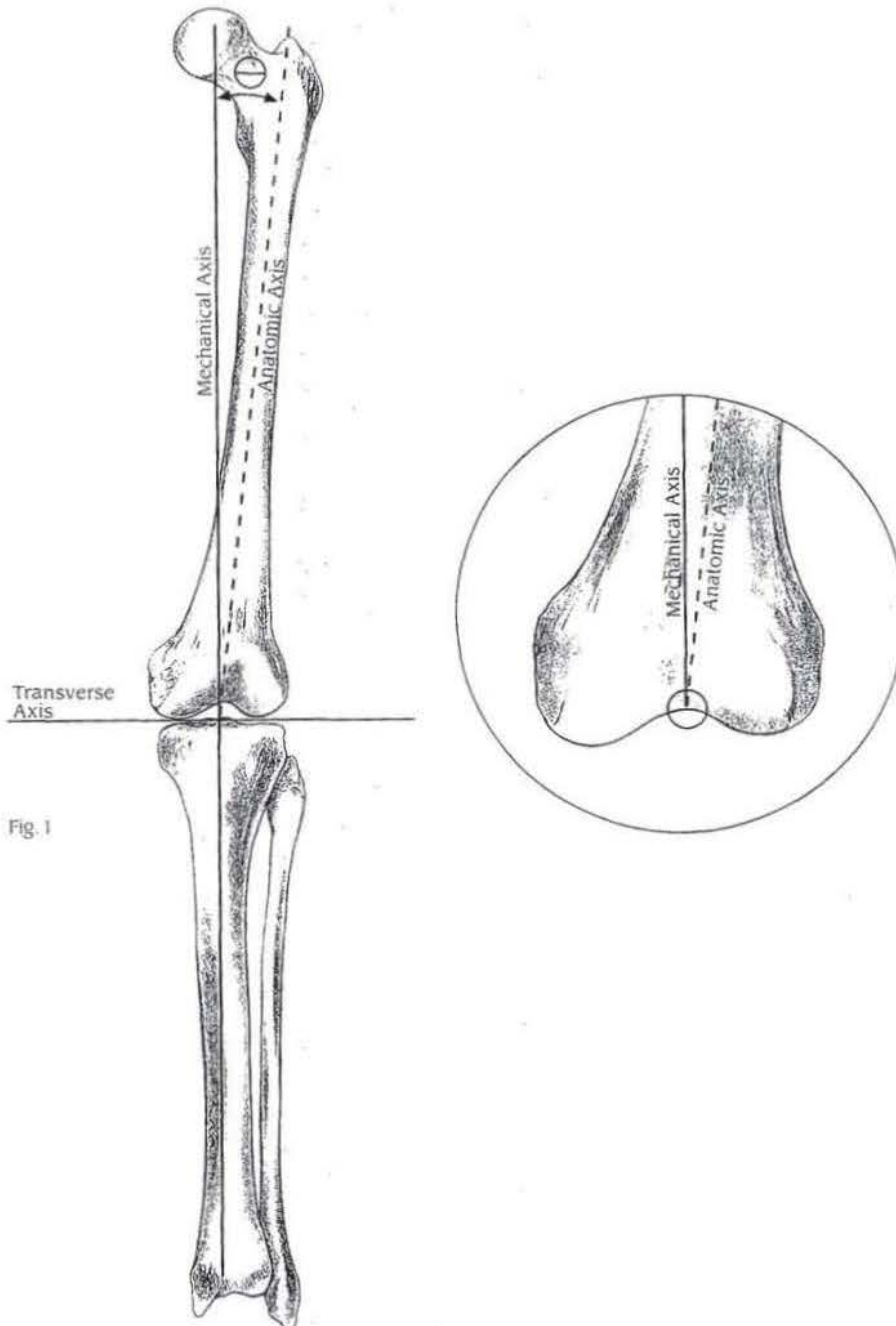


Fig. 1







## Minimally Invasive Solution



### SURGICAL APPROACH

With the patient in the supine position, flex the hip 70-90 degrees and the knee approximately 120 degrees, and place the leg in a stabilizer.

Flexion of 120 degrees is necessary to insert the components. If unable to achieve 120 degrees of flexion, a larger incision may be necessary to create sufficient exposures. Wrap the ankle area with an elastic wrap. Do not place bulky drapes on the distal tibia, ankle, or foot. A bulky drape in this area will make it difficult to locate the center of the ankle, and will displace the Tibial Resector which may cause inaccurate cuts.

Make an anteromedial longitudinal skin incision beginning at the superior pole of the patella and extending approximately 8-12cm down to the base of the tibial tubercle (Fig. 2).

Incise the medial joint capsule along the medial border of the patella with a knife, making an incision that begins at the medial proximal corner of the patella and extends to approximately (3cm) below the joint line (Fig. 3). Excise synovium, fat pad, and meniscal remnant to facilitate visualization. Make an additional 1-2cm long transverse or oblique linear incision in the medial capsule

just distal to the vastus medialis. This will create a V-incision in the capsule. At the level of the joint line, release the deep layer of the medial collateral ligament. Do not release other soft tissue unless specifically indicated.

As in any knee procedure, a principal goal of the surgery is to produce proper alignment. Therefore bone cuts and component implantation must serve to correct the deformity in order to limit or prevent the disease process from progressing. **It is important to avoid overcorrecting any deformities and transferring stress to the opposite compartment. Overcorrection may transfer increased forces, which may accelerate degeneration.**

Debride the joint and inspect it carefully. Remove intercondylar osteophytes to avoid impingement with the tibial spine or cruciate ligament. Also remove peripheral osteophytes that interfere with the collateral ligaments and capsule. Protect healthy cartilage with a moist sponge or cloth.

Inspect the patellofemoral joint and the lateral compartment. If significant cartilage damage is present, a total knee arthroplasty should be considered.

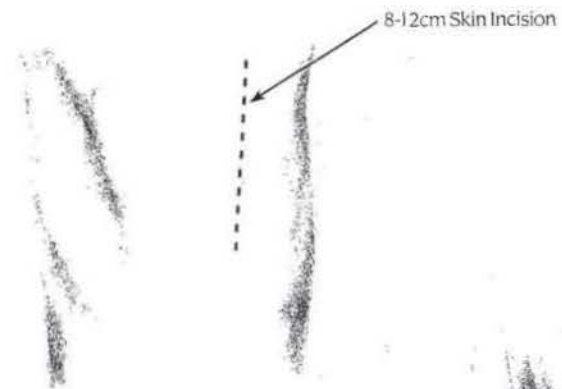


Fig. 2

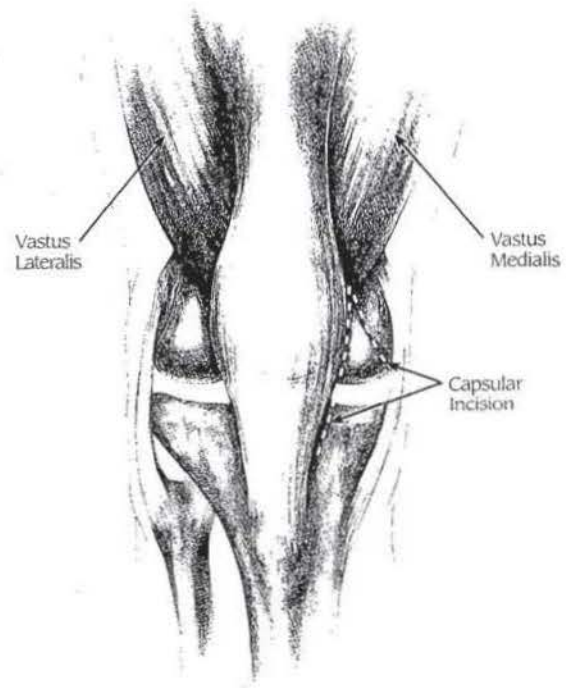


Fig. 3



## Minimally Invasive Solution



### TECHNIQUE

The distal femur is routinely prepared before the proximal tibia. Resection of the posterior femoral condyle allows greater exposure and facilitates resection of the proximal tibia.

### STEP ONE

#### DRILL HOLE IN DISTAL FEMUR

With the knee flexed 20-30 degrees (without everting the patella), move the patella laterally and choose the site for inserting the IM Femoral Resection Guide approximately one centimeter anterior to the origin of the posterior cruciate ligament and just anterior to the intercondylar notch in the distal femur. Use the 8mm Femoral IM Drill or an awl to create the hole for the guide. In drilling this hole, it is important to parallel the shaft of the femur in both the A/P and lateral

projections (Fig. 4). Only the cancellous bone of the distal femur should be drilled. **Suction the canal to remove intramedullary fat. This will reduce IM pressure during the placement of subsequent guides.**

The hollow diaphysis offers little resistance to the insertion of the intramedullary rod of the resection guide. IM Femoral Resection Guides are available for both right and left femurs, and with two different rod lengths. The standard length is 23cm (nine inches) long and provides the most accurate reproduction of the anatomical axis. If the femoral anatomy is altered, as in a femur with a long-stem total hip femoral component, or with a femoral fracture malunion, then use the optional resection guide with a 10cm (four-inch) rod. It is preferable to use the longer intramedullary rod for accurate replication of the anatomic axis.

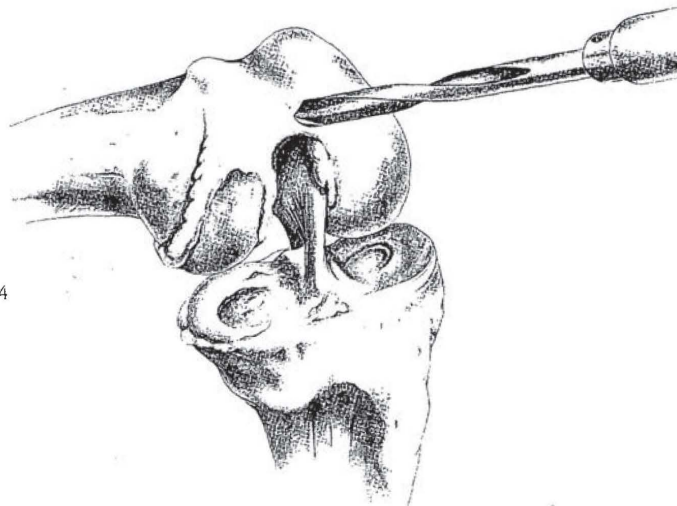


Fig. 4

Using the Universal Handle, insert the appropriate IM Femoral Resection Guide into the femur (Fig. 5). Carefully control the rotation of the guide as it approaches the articulating surface of the femur. The posterior edge of the guide should be parallel to the tibial articular surface (perpendicular to the tibial shaft) (Fig. 6). Flex

or extend the knee as necessary to properly position the guide. **Make sure that the surface of the resection guide is flush with the condyles and no soft tissue is impinged.** Predrill and place a holding pin on the posterior flange of the IM Femoral Resection Guide.



Fig. 5

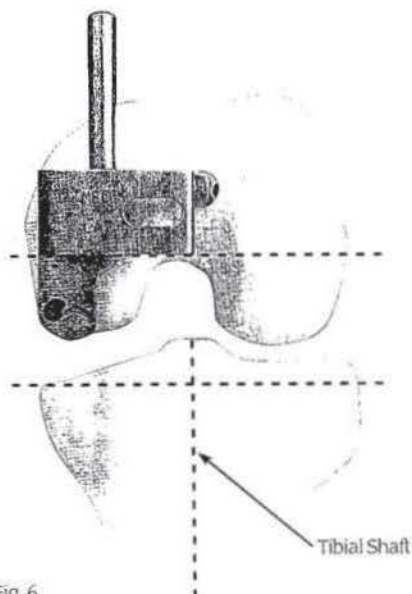
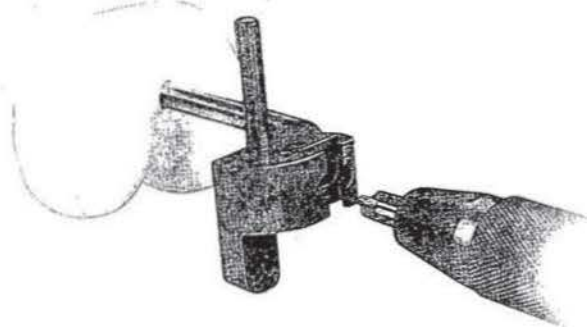


Fig. 6





## Minimally Invasive Solution



### STEP TWO

#### CUT THE DISTAL FEMORAL CONDYLE

Make sure that the IM Femoral Resection Guide is contacting the distal femur and that soft tissue is protected. Not seating this guide could cause insufficient resection of the distal femur. With the proper "right" or "left" indication facing up, slide the Distal Femoral Resector Block over the anterior post of the IM Femoral Resection Guide until the edge of the block contacts the distal femur. Observe the numbered angle-setting holes on the anterior surface of the block and select the appropriate angle as determined by preoperative radiographs.

Insert a pin through the appropriate hole until it drops, into the same numbered hole, in the IM Femoral Resection Guide. This locks the angle and prevents movement of the resector block. (Fig. 7). If fixation of the IM Resection Guide is

desired, a Spring Pin or Hex-Head Holding Pin can be inserted through the hole(s) on the posterior portion of the guide. Please note that if a pin is used for fixation, impingement may occur with the sawblade. The distal cut may be started with the pin in place, but the pin should be removed before contact with the blade occurs.

Using the slot of the Distal Femoral Resector Block, cut the distal portion of the condyle (Fig. 8). The amount of articular cartilage and bone removed will be replaced by the femoral component. Having the IM Femoral Resection Guide flush against the medial femoral condyle will help the surgeon obtain the proper thickness of bone to be resected.

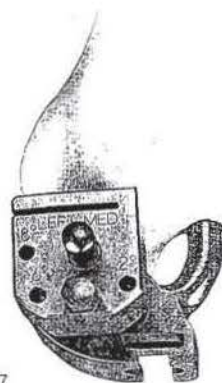


Fig. 7

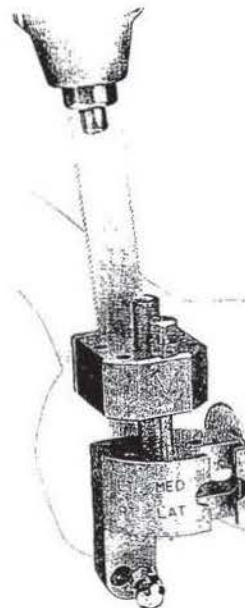


Fig. 8



After removing the IM Femoral Resection Guide and Distal Femoral Resector Block, check the flatness of the distal femoral condyle cut with a flat surface. If necessary, modify the cut surface of the distal condyle so that it is completely flat. **This is extremely important for the placement of subsequent guides and for proper fit of the implant.** Use a file to smooth any bony prominences that remain and to contour the peripheral edge of the femur to restore anatomic shape (Fig. 9, Fig. 10).

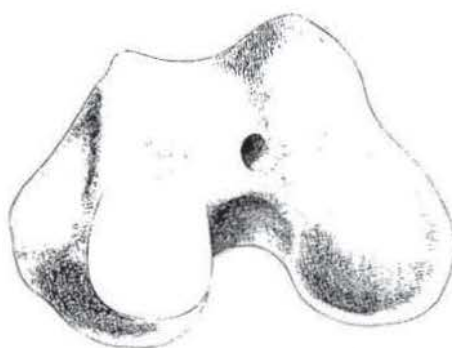


Fig. 9

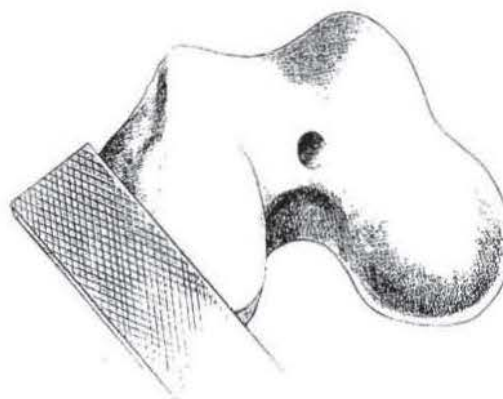


Fig. 10



## Minimally Invasive Solution



### STEP THREE

#### SIZE THE FEMUR

Insert the IM Patella Retractor into the intramedullary hole (Fig. 11). **At this point in the procedure, the tibia may be prepared first if desired.** Then insert the foot of the appropriate left or right Femoral Sizer/Finishing Guide into the joint and rest the flat surface of the guide against the cut distal condyle. Pull the foot of the guide up against the cartilage of the posterior condyle. The perimeter of the guide should match the perimeter of the cut distal surface, leaving 1-2mm of exposed bone above its anterior edge (Fig. 12). There are seven sizes: small, small+, regular, regular+, large, large+ and large++. Repeat with additional guides until the proper size is selected. If the condyle

appears to be between two sizes, choose the smaller size. This helps prevent the patella from impinging on the prosthesis. Be sure that there is no soft tissue between the Femoral Sizer/Finishing Guide and the cut distal condyle. If the Femoral Sizer/Finishing Guide does not rest directly on the flat surface of the cut distal condyle, final component fit may be compromised.

*Note: If positioning of the Femoral Sizer/Finishing Guide is difficult, as in tight joints, try hyperflexing the knee and/or rotating the tibia. If this does not help to position the guide, proceed to Tibial Preparation Step One and resect the proximal tibial plateau. Then, return to Femoral Preparation Step Three.*

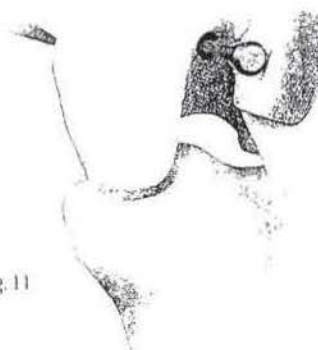
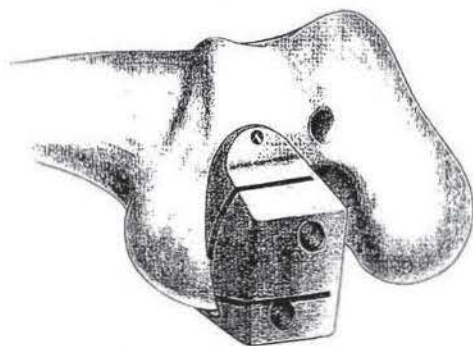
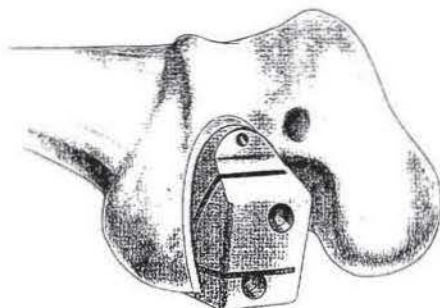


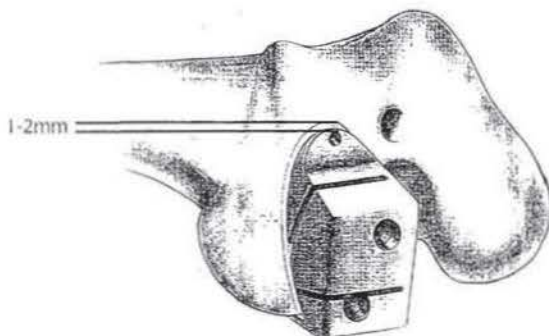
Fig. 11



Too Large



Too Small



Properly Sized

Fig. 12







Minimally Invasive Solution



## STEP FOUR

### MAKE THE FINAL FEMORAL PREPARATIONS

*Note: It is important that the Femoral Sizer/Finishing Guide sits flush against the bone. Any gaps between the guide and the bone will compromise the accuracy of the cuts and subsequently, component fit may be compromised.*

The following order is recommended to maximize the stability and fixation of the Femoral Sizer/Finishing Guide. This will help ensure that the cuts and holes are precise.

1. With the proper size Femoral Sizer/Finishing Guide in position, drill the top pin hole and insert a holding pin (Fig. 13). Rotate the guide into the proper position using the cut peripheral edge of the femoral condyle as a guide. Leave 1-2mm of exposed bone at the peripheral edge.
2. Drill the anterior post hole and insert a Femoral Holding Peg (Fig. 14).
3. Drill the posterior post hole and leave the drill in place (Fig. 15).

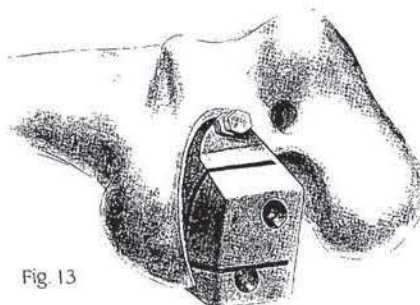


Fig. 13

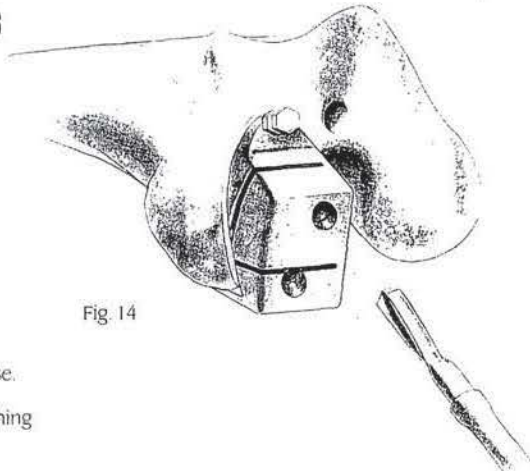


Fig. 14

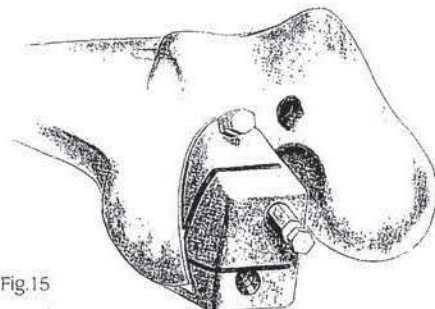


Fig. 15

4. If added fixation is desired, drill the side pin hole(s) and insert Long-Head Holding Pin(s) (Fig. 16). *Note: The patella may prevent access to these holes.*

5. Remove the drill from the posterior post hole and cut the posterior condyle (Fig. 17).

6. Remove the anterior Femoral Holding Peg and cut the posterior chamfer.

Remove the top and side holding pins, and the Femoral Sizer/Finishing Guide.

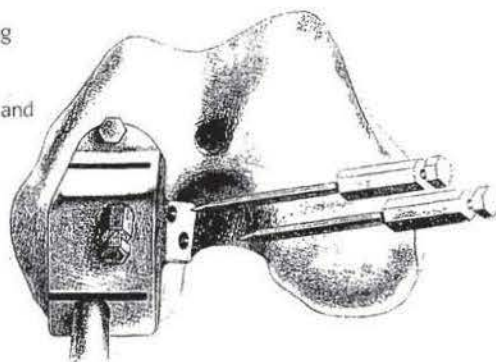


Fig. 16

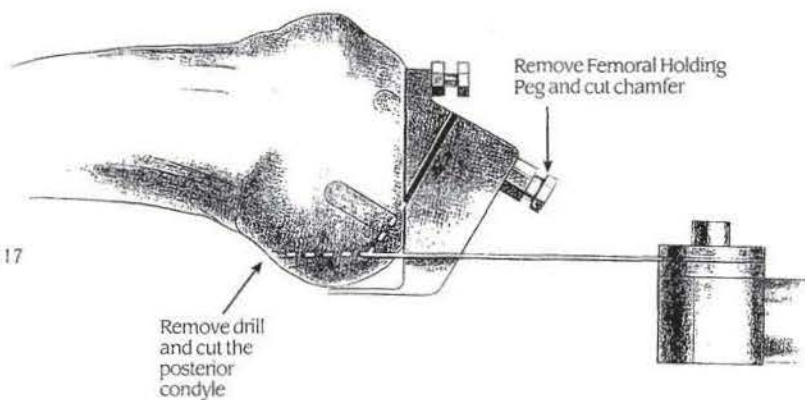


Fig. 17



## Minimally Invasive Solution



### STEP FIVE

#### CUT THE TIBIA

The M/G Unicompartamental Tibial Component is designed for an anatomic position with seven degrees of posterior tilt. It is important that the cut be made accurately. Positioning of the Tibial Resector is crucial (Fig. 18).

Adjust the telescoping rod to the approximate length of the tibia and turn the knob on the shaft of the rod to temporarily maintain the length. The foot of the rod should be positioned about 5-10mm medial to the midpoint between the palpable medial and lateral malleoli. The tip should point to the second metatarsal. Secure the distal portion of the instrument by placing the spring arms of the ankle clamp around the ankle (Fig. 19).

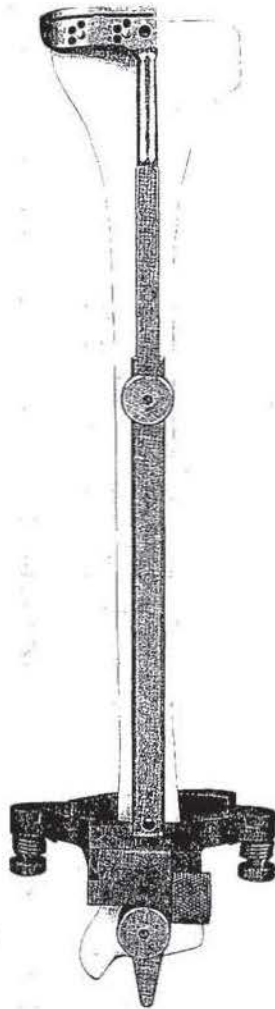


Fig. 18



Fig. 19

Loosen the knob in the middle of the Tibial Resector shaft. Position the top of the instrument proximal to the tibial tubercle with the cutting slot at the approximate desired level of resection.

The longitudinal axis of the rod will usually lie just medial to the midpoint of the tibial tubercle and be centered over the intercondylar eminence.

In the sagittal plane, align the rod so it is parallel to the anterior tibial shaft by using the slide adjustment at the distal end of the rod. Tighten the knob for the adjustment. If there is a bulky bandage around the ankle, adjust the rod to accommodate the bandage. This will help in cutting the tibia in the proper slope.

Use the 2mm tip of the Tibial Depth Resection Gauge to help achieve that the desired depth of cut. Insert the gauge into the hole on the top of the Tibial Resector. The arm of the gauge should rest in the deepest defect in the tibia (Fig. 20). This indicates a cut that will remove two millimeters of bone below the tip of the gauge. When the depth is set, tighten the knob on the shaft.

Use the Universal Resection Guide to check that the sagittal cut will be properly rotated and located as close to the tibial spine as possible without cutting or harming the anterior cruciate ligament (Fig. 21).

#### **SURGICAL TIP:**

If the femoral provisional is in place, the lateral edge can also be used as a guide for the sagittal cut.

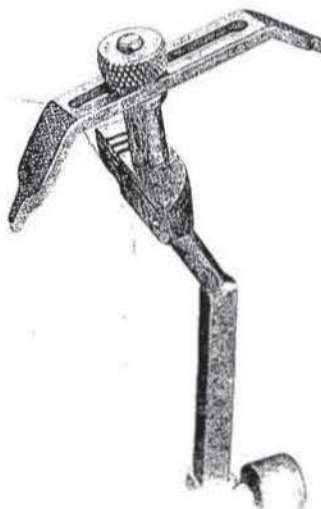


Fig. 20

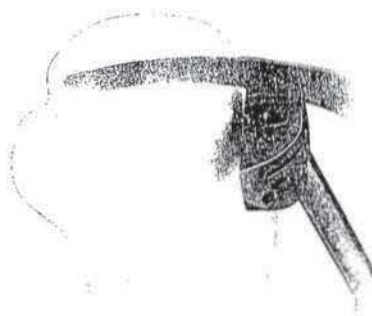


Fig. 21







## Minimally Invasive Solution



Secure the cutting platform of the resector to the proximal tibia by inserting a Headless Holding Pin into each of the two holes marked "0" on the resector (Fig. 22). Use electrocautery or the reciprocating saw to score the tibial surface where the sagittal cut will be made.

If desired, the depth of cut can be verified by inserting the Tibial Depth Resection Gauge again. If the gauge indicates that the resection will not be deep enough, remove the proximal portion of the resector and reinsert it over the Headless Holding Pins using the holes marked +2, +4, or +6. This will remove an additional 2, 4, or 6mm of bone. Once the tibial resection has been determined, use the Hex-Head Holding Pin or Silver Spring Pin to further stabilize the guide (Fig. 23).

Insert a retractor medially to protect the medial collateral ligament. Use a reciprocating saw to make the sagittal cut (Fig. 24). Then use the slot of the resector to cut the upper surface of the tibia flat. If the first cut of the proximal tibia is not deep enough, adjust the level of the cut by using the +2, +4, or +6 holes as indicated above. Remove the Tibial Resector when the tibial preparation is complete. If necessary, a second sagittal cut can be made to allow for optimal coverage with the next larger sized tibial base plate.

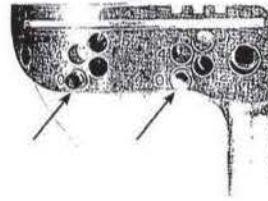


Fig. 22

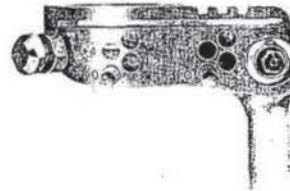


Fig. 23

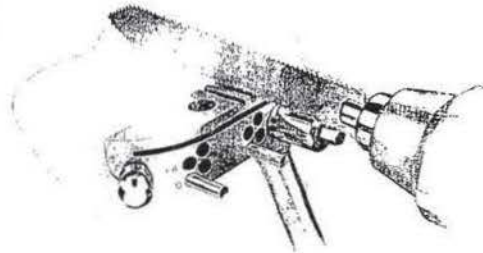


Fig. 24

Debride the joint and inspect the posterior condyle. Then resect the posterior corner of the femur and make sure that no soft tissue is impinged. If any prominent spurs or osteophytes are present, especially in the popliteal area of the posterior femoral condyle, remove them with an oscillating saw or an osteotome, as they could inhibit flexion (Fig. 25).

## STEP SIX

### MAKE THE FINAL TIBIAL PREPARATIONS

Place the Tibial Sizers on the cut surface of the tibia with the straight edge against the surface created by the sagittal cut. Select the Tibial Sizer that best covers the resected proximal tibia in both the A/P and M/L dimensions (Fig. 26). Be sure that the sizer rests on cortical bone around its entire perimeter to provide the implant with strong cortical support. Remove the Tibial Sizer and resect any tibial osteophytes, especially those interfering with the collateral ligament. Remove all soft tissue debris from the popliteal region.

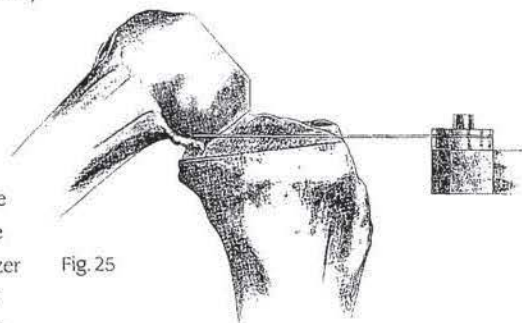


Fig. 25

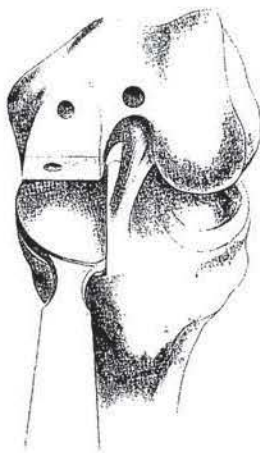


Fig. 26



## Minimally Invasive Solution



Place the corresponding size Tibial Base Plate Provisional on the cut surface of the tibia. Insert the Tibial Plate Impactor into the recess on the provisional and impact it so the lateral fin engages the bone and the provisional sits flush on the tibial surface (Fig. 27). Drill the anterior pin hole and insert holding pin.

Use the Tibial Peg Drill to drill the two tibial post holes (Fig. 28). Note that these **holes are angled 20 degrees posteriorly** to facilitate drilling. Although the posts on the implant are at 90 degrees, the drill is designed so that the posts will fit into these angled holes.

### **SURGICAL TIP:**

External rotation of the flexed tibia provides ease of tibial base plate insertion.

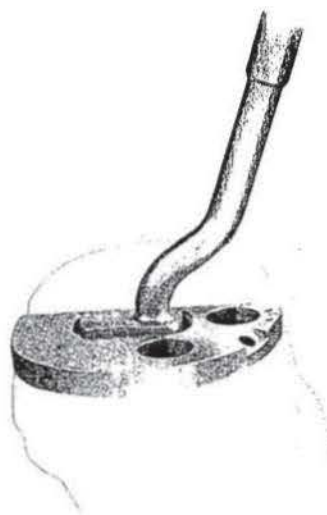


Fig. 27

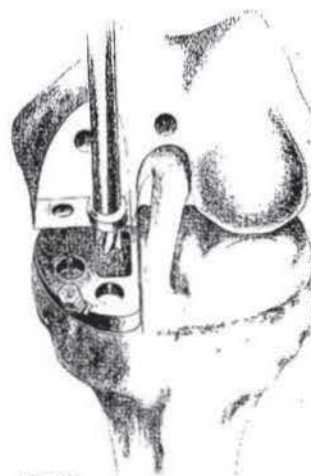


Fig. 28

## TRIAL REDUCTION

With all bone surfaces prepared, perform a trial reduction with the appropriate size Tibial Articular Surface Provisional and Provisional Femoral Component. Check to make sure that a proper fit of the trial components exists. If necessary, perform minor trimming of bone surfaces.

With all trial components in place, check for proper range of motion and ligament stability. The tibial articular surface used should permit full flexion and full extension. Overcorrection should be avoided as this will overload the non-diseased compartment. Evaluate soft tissue tension in flexion and extension. Additional tibial resection is indicated if the involved ligament is disproportionately tight in either flexion or extension. Use the Tension Gauge to balance the flexion and extension gaps properly (Fig. 29).

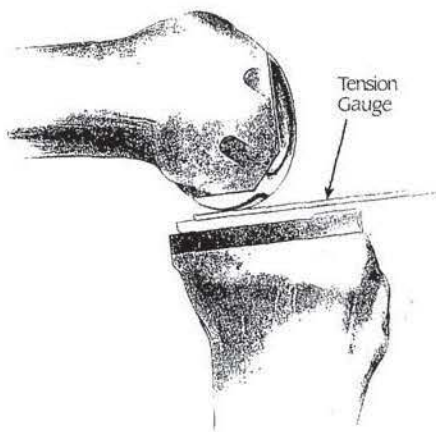


Fig. 29

## SURGICAL TIP 1

The Tension Gauge is used to help balance the unicompartmental knee in both flexion and extension. With the knee flexed 90 degrees, position the 2mm end of the Tension Gauge between the Femoral Provisional and the Tibial Spacer. This should be a snug, but not an overly tight fit. The same test is used with the knee in full extension.

The correct thickness of the prosthesis is one that fills the joint space, but which is not so tight that it causes excessive pressure on the contralateral compartment or stress on the collateral ligaments. As a rule, the correct prosthesis should allow the joint space to be opened approximately 2mm when a stress is applied, with the knee in full extension and without soft tissue release. The knee must also be tested in 90-degree flexion to allow a 2mm flexion gap. Excessive flexion tightness will prevent postoperative flexion and may cause the tibial prosthesis to lift up anteriorly as the femoral component rolls posteriorly on the tibial component. If this occurs, it can be prevented by using a thinner tibial articulating component or increasing the posterior tilt of the tibial resection.

## SURGICAL TIP 2

The end of the Tension Gauge can be used to help apply pressure after cementing the components in place. After applying cement and inserting the components, insert the Tension Gauge between the components and extend the knee. This should apply pressure until the cement is sufficiently cured.







## Minimally Invasive Solution



### IMPLANTATION

If the resected surfaces of the tibia and femur are sclerotic, drill multiple holes with a 3.2mm drill to improve cement fixation.

#### WHEN USING A METAL-BACKED TIBIAL COMPONENT

Obtain the final sterile components and implant the Tibial Base Plate first. Place a sterile swab behind the tibia before applying cement. Impact the Tibial Base Plate onto the tibia. Pull the sterile swab out of the joint to help remove excess cement from behind the tibia.

Implant the femoral component with the knee acutely flexed (Fig. 30).

Choose the correct size and thickness of the final tibial articulating surface by testing with the Provisional Articulating Surfaces in maximum flexion and extension. Use the Tension Gauge to balance that the flexion and extension gaps. Recheck alignment to verify that the joint has not been overcorrected.

Remove any excess cement before the final placement of the Tibial Articulating Surface. With the engraved side down, slide the edge of the component under the posterior lip of the base plate on the side opposite the spring (Fig. 31). Then press down to snap the component into place. The spring will lock the articulating surface securely in place.

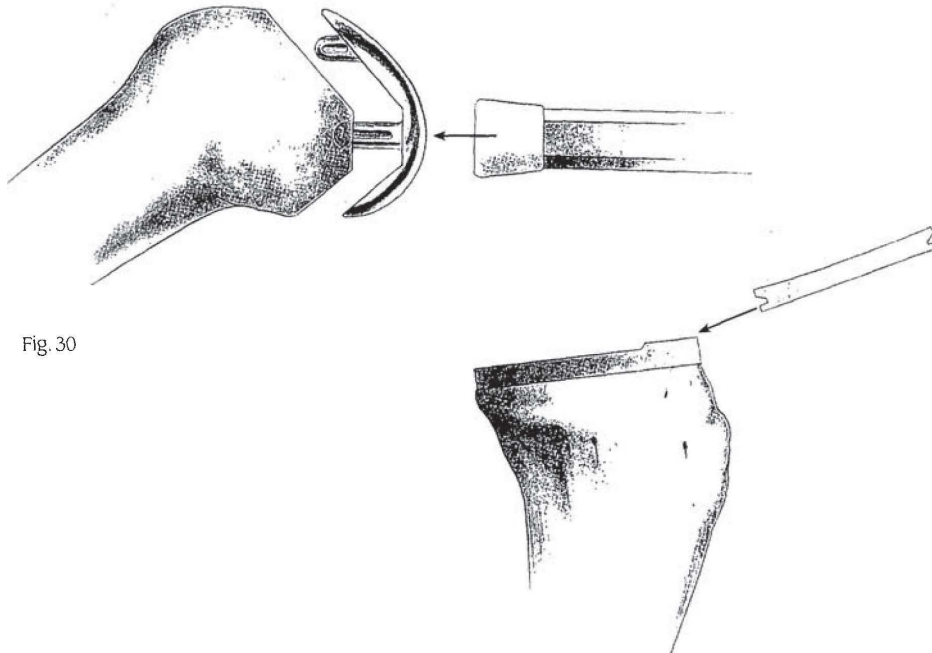


Fig. 30

Fig. 31

## SURGICAL TIP

Prior to cementing the tibial component, grasp a mass of tissue and available fat with a hemostat and use it to coat the top surface of the tibial base plate (especially the special retaining clip) to prevent cement from adhering to this area. Finally, pack the lump of fat against the retaining spring to help ensure that no cement will be behind it and prevent its proper operation. Remove the lump of fat prior to tibial articular surface insertion.

## WHEN USING AN ALL-POLYETHYLENE TIBIAL COMPONENT

Obtain the final sterile components and implant the polyethylene tibial component first. Place a sterile twisted swab behind the tibia before applying cement. Impact the component onto the tibia. Pull the sterile swab out of the joint to help remove excess cement from behind the tibia.

Implant the femoral component with the knee acutely flexed and externally rotated.

Use the Tension Gauge to ensure that the flexion and extension gaps are balanced.

*Note: It is important not to use the Tibial Plate Impactor to impact the All-Polyethylene Tibial Component.*

## CLOSURE

Irrigate the knee for the final time and close. Cover the incision with sterile dressing and wrap the leg with an elastic bandage from the toes to the groin.



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2. Kald A, Anderberg B, Carlsson P, et al. Surgical outcome and cost-minimization analyses of laparoscopic and open repair: A randomised prospective trial with one year follow up. *Eur J Surg*. 1997; 163(7):505-10.
3. Kozol R, Lange PM, Kosir M, et al. A prospective, randomised study of open vs. laparoscopic inguinal hernia repair: An assessment of postoperative pain. *Arch Surg*. 1997; 132(3):292-5.
4. Kelly MA. Minimally invasive total knee arthroplasty and the unicompartmental knee. 14th Annual Vail Orthopaedics Symposium. 2000.
5. Berger RA, Nodell DD, Barden RM, et al. Unicompartmental knee arthroplasty: Clinical experience at 6- to 10-year follow up. *Clin Orth Rel Res*. 1999; 367:50-60.
6. Ahlback S. Osteoarthritis of the knee: A radiographic investigation. *Acta Radiol. Suppl*. 1968;277:55.



Minimally Invasive Solution

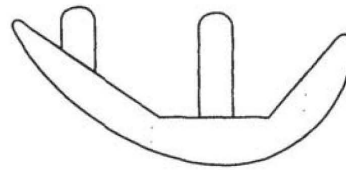


## M/G UNICOMPARTMENTAL KNEE SYSTEM

### IMPLANTS

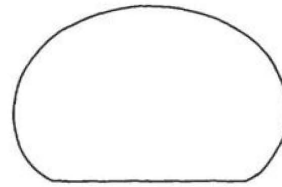
#### Femorals, Precoat

Prod. No.	Description	AP
5790-20	Small Left Medial/Right Lateral	42
5790-21	Small Right Medial/Left Lateral	42
5790-22	Small Plus Left Medial/Right Lateral	44
5790-23	Small Plus Right Medial/Left Lateral	44
5790-24	Regular Left Medial/Right Lateral	47
5790-25	Regular Right Medial/Left Lateral	47
5790-26	Regular Plus Left Medial/Right Lateral	50
5790-27	Regular Plus Right Medial/Left Lateral	50
5790-28	Large Left Medial/Right Lateral	52
5790-29	Large Right Medial/Left Lateral	52
5790-30	Large Plus Left Medial/Right Lateral	56
5790-31	Large Plus Right Medial/Left Lateral	56
5790-32	Large Plus Plus Left Medial/Right Lateral	60
5790-33	Large Plus Plus Right Medial/Left Lateral	60



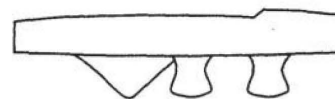
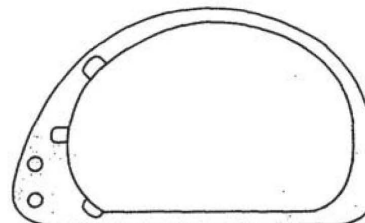
#### Tibial Articulating Surfaces

Prod. No.	Description
5788-40-08	Series 1 - 8mm
5788-40-10	Series 1 - 10mm
5788-40-12	Series 1 - 12mm
5788-40-14	Series 1 - 14mm
5788-50-08	Series 2 - 8mm
5788-50-10	Series 2 - 10mm
5788-50-12	Series 2 - 12mm
5788-50-14	Series 2 - 14mm
5788-60-08	Series 3 - 8mm
5788-60-10	Series 3 - 10mm
5788-60-12	Series 3 - 12mm
5788-60-14	Series 3 - 14mm
5788-70-08	Series 4 - 8mm
5788-70-10	Series 4 - 10mm
5788-70-12	Series 4 - 12mm
5788-70-14	Series 4 - 14mm
5788-80-08	Series 5 - 8mm
5788-80-10	Series 5 - 10mm
5788-80-12	Series 5 - 12mm
5788-80-14	Series 5 - 14mm



#### Tibial Fixation Plates, Precoat

Prod. No.	Description
5790-45-11	Series 1 - Right Medial/Left Lateral
5790-45-12	Series 1 - Left Medial/Right Lateral
5790-55-11	Series 2 - Right Medial/Left Lateral
5790-55-12	Series 2 - Left Medial/Right Lateral
5790-65-11	Series 3 - Right Medial/Left Lateral
5790-65-12	Series 3 - Left Medial/Right Lateral
5790-75-11	Series 4 - Right Medial/Left Lateral
5790-75-12	Series 4 - Left Medial/Right Lateral
5790-85-11	Series 5 - Right Medial/Left Lateral
5790-85-12	Series 5 - Left Medial/Right Lateral



## All-Polyethylene Tibial Components

Prod. No.	Description - Series 1		
5790-40-08	Tibial Component	MRT/LLT	8mm
5790-40-10	Tibial Component	MRT/LLT	10mm
5790-40-12	Tibial Component	MRT/LLT	12mm
5790-40-14	Tibial Component	MRT/LLT	14mm
5790-41-08	Tibial Component	MLT/LRT	8mm
5790-41-10	Tibial Component	MLT/LRT	10mm
5790-41-12	Tibial Component	MLT/LRT	12mm
5790-41-14	Tibial Component	MLT/LRT	14mm

Prod. No.	Description - Series 2		
5790-50-08	Tibial Component	MRT/LLT	8mm
5790-50-10	Tibial Component	MRT/LLT	10mm
5790-50-12	Tibial Component	MRT/LLT	12mm
5790-50-14	Tibial Component	MRT/LLT	14mm
5790-51-08	Tibial Component	MLT/LRT	8mm
5790-51-10	Tibial Component	MLT/LRT	10mm
5790-51-12	Tibial Component	MLT/LRT	12mm
5790-51-14	Tibial Component	MLT/LRT	14mm

Prod. No.	Description - Series 3		
5790-60-08	Tibial Component	MRT/LLT	8mm
5790-60-10	Tibial Component	MRT/LLT	10mm
5790-60-12	Tibial Component	MRT/LLT	12mm
5790-60-14	Tibial Component	MRT/LLT	14mm
5790-61-08	Tibial Component	MLT/LRT	8mm
5790-61-10	Tibial Component	MLT/LRT	10mm
5790-61-12	Tibial Component	MLT/LRT	12mm
5790-61-14	Tibial Component	MLT/LRT	14mm

Prod. No.	Description - Series 4		
5790-70-08	Tibial Component	MRT/LLT	8mm
5790-70-10	Tibial Component	MRT/LLT	10mm
5790-70-12	Tibial Component	MRT/LLT	12mm
5790-70-14	Tibial Component	MRT/LLT	14mm
5790-71-08	Tibial Component	MLT/LRT	8mm
5790-71-10	Tibial Component	MLT/LRT	10mm
5790-71-12	Tibial Component	MLT/LRT	12mm
5790-71-14	Tibial Component	MLT/LRT	14mm

Prod. No.	Description - Series 5		
5790-80-08	Tibial Component	MRT/LLT	8mm
5790-80-10	Tibial Component	MRT/LLT	10mm
5790-80-12	Tibial Component	MRT/LLT	12mm
5790-80-14	Tibial Component	MRT/LLT	14mm
5790-81-08	Tibial Component	MLT/LRT	8mm
5790-81-10	Tibial Component	MLT/LRT	10mm
5790-81-12	Tibial Component	MLT/LRT	12mm
5790-81-14	Tibial Component	MLT/LRT	14mm







## Minimally Invasive Solution



### M/G UNICOMPARTMENTAL KNEE SYSTEM

#### Instrumentation

Prod. No.	Description
1336-28	Femoral Impactor
5061-63	Holding Pins (4)
5061-88	Anterior Femoral File
5120-85	Q/C Drill, 3.2mm
5222-39	Headless Smooth Pin
5785-72	Universal Handle Driver
5785-79	Alignment Rod
5785-80	Alignment Rod w/Coupler
5785-82	Q/C Femoral Intramedullary Drill, 8mm
5785-97	Slaphammer Extractor
5791-01	Femoral Sizer/Finishing Guide, Small Right Medial/Left Lateral
5791-02	Femoral Sizer/Finishing Guide, Small Left Medial/Right Lateral
5791-03	Femoral Sizer/Finishing Guide, Small + Right Medial/Left Lateral
5791-04	Femoral Sizer/Finishing Guide, Small + Left Medial/Right Lateral
5791-05	Femoral Sizer/Finishing Guide, Regular Right Medial/Left Lateral
5791-06	Femoral Sizer/Finishing Guide, Regular Left Medial/Right Lateral
5791-07	Femoral Sizer/Finishing Guide, Regular + Right Medial/Left Lateral
5791-08	Femoral Sizer/Finishing Guide, Regular + Medial/Right Lateral
5791-09	Femoral Sizer/Finishing Guide, Large Right Medial/Left Lateral
5791-10	Femoral Sizer/Finishing Guide, Large Left Medial/Right Lateral
5791-11	Femoral Sizer/Finishing Guide, Large + Right Medial/Left Lateral
5791-12	Femoral Sizer/Finishing Guide, Large + Medial/Right Lateral
5791-13	Femoral Sizer/Finishing Guide, Large ++ Medial/Right Lateral
5791-14	Femoral Sizer/Finishing Guide, Large ++ Medial/Right Lateral
5789-15	Series 1 - Tibial Sizer
5789-16	Series 2 - Tibial Sizer
5789-17	Series 3 - Tibial Sizer
5789-18	Series 4 - Tibial Sizer
5789-51	Series 5 - Tibial Sizer
5789-38	Tibial Articular Surface Remover
5789-42	Unicompartmental Femoral Drill w/Stop
5789-43	Holding Pin Pliers
5789-46	Femoral Holding Peg
5789-47	Tibial Holding Clamp
5789-48	Long Head Holding Pins (2)
5789-49	Tibial Drill w/Stop
5789-71	Tension Gauge
5977-84	Tibial Resection Guide
5967-33-01	Spring Screws, Short

#### Minimally Invasive Surgical Instrumentation

Prod. No.	Description
5791-21	Right Medial/Left Lateral Intramedullary Femoral Resector Guide (9")
5791-22	Left Medial/Right Lateral Intramedullary Femoral Resector Guide (9")
5791-23	Distal Femoral Resector Block - Medial
5791-25	Intramedullary Patellar Retractor
5791-31	Left Medial/Right Lateral Tibial Resector
5791-32	Right Medial/Left Lateral Tibial Resector
5791-35	Tibial Plate Impactor
5791-60-08	Concave Tibial Spacer, 8mm
5791-60-10	Concave Tibial Spacer, 10mm
5791-60-12	Concave Tibial Spacer, 12mm
5791-60-14	Concave Tibial Spacer, 14mm
5791-70-00	Ankle Clamp
5791-71-00	Distal Telescope Rod
5791-81-00	Depth Resection Stylus

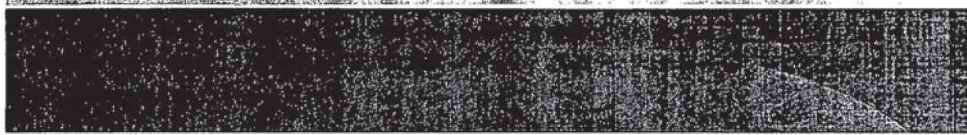
#### SAWBLADES

Prod. No.	Description
5052-73	Reciprocator Saw Blade 12.5 x 73.5 x .9mm
5071-00	Oscillating Brazol Blade 19.5 x 86 x 1.27mm
5071-180	Oscillating Saw Blade 10 x 90 x 1.27mm

Femoral Sizer/Finishing Guides 1.27mm Slots (.040in.)

Distal Femoral Resector and Tibial Resector 1.27mm

Slots (.050in.)



## M/G UNICOMPARTMENTAL KNEE SYSTEM PROVISIONALS



### Femorals

Prod. No.	Description	AP
5792-20	Small Left Medial/Right Lateral	42
5792-21	Small Right Medial/Left Lateral	42
5792-22	Small + Left Medial/Right Lateral	44
5792-23	Small + Right Medial/Left Lateral	44
5792-24	Regular Left Medial/Right Lateral	47
5792-25	Regular Right Medial/Left Lateral	47
5792-26	Regular + Left Medial/Right Lateral	50
5792-27	Regular + Right Medial/Left Lateral	50
5792-28	Large Left Medial/Right Lateral	52
5792-29	Large Right Medial/Left Lateral	52
5792-30	Large + Left Medial/Right Lateral	56
5792-31	Large + Right Medial/Left Lateral	56
5792-32	Large ++ Left Medial/Right Lateral	60
5792-33	Large ++ Right Medial/Left Lateral	60

### Tibial Articulating Surfaces

Prod. No.	Description
5789-40-08	Series 1 - 8mm
5789-40-10	Series 1 - 10mm
5789-40-12	Series 1 - 12mm
5789-40-14	Series 1 - 14mm
5789-50-08	Series 2 - 8mm
5789-50-10	Series 2 - 10mm
5789-50-12	Series 2 - 12mm
5789-50-14	Series 2 - 14mm
5789-60-08	Series 3 - 8mm
5789-60-10	Series 3 - 10mm
5789-60-12	Series 3 - 12mm
5789-60-14	Series 3 - 14mm
5789-70-08	Series 4 - 8mm
5789-70-10	Series 4 - 10mm
5789-70-12	Series 4 - 12mm
5789-70-14	Series 4 - 14mm
5789-80-08	Series 5 - 8mm
5789-80-10	Series 5 - 10mm
5789-80-12	Series 5 - 12mm
5789-80-14	Series 5 - 14mm

### Tibial Fixation Plates

Prod. No.	Description
5789-45-01	Series 1 - Right Medial/Left Lateral
5789-45-02	Series 1 - Left Medial/Right Lateral
5789-55-01	Series 2 - Right Medial/Left Lateral
5789-55-02	Series 2 - Left Medial/Right Lateral
5789-65-01	Series 3 - Right Medial/Left Lateral
5789-65-02	Series 3 - Left Medial/Right Lateral
5789-75-01	Series 4 - Right Medial/Left Lateral
5789-75-02	Series 4 - Left Medial/Right Lateral
5789-85-01	Series 5 - Right Medial/Left Lateral
5789-85-02	Series 5 - Left Medial/Right Lateral



Please refer to the package insert for product information, including contraindications, warnings, and precautionary information.

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