

Unicondylar Surgical Technique



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## Indications, Contra-indications and X-ray Templating

#### Indications

Unicompartmental knee replacement is indicated for patients with osteoarthritis isolated to the medial or lateral tibio-femoral compartments. In these cases the remaining opposite compartment articular cartilage is physically and biomechanically intact and capable of bearing normal loads.

### Contra-indications

UKR is contraindicated in cases of: active local or systemic infection; loss of musculature, osteoporosis, neuromuscular compromise or vascular deficiency in the affected limb, rendering the procedure unjustifiable.

UKR is also contraindicated in patients with over 30° of fixed varus or valgus deformity.

Anterior Posterior (A/P) Template: Tibia Goal: Use the A/P template to visualise and approximate the level of tibial resection to re–establish the premorbid articular cartilage joint line.

The tibial resection is planned at 90° to the long axis of the tibia with a resection level that allows the desired thickness of tibial components to be used (Figure 1). The thinnest metal-backed tibial implant is 7 mm and the thinnest all-polyethylene tibial implant is 8 mm.

#### Lateral Template

Goal: Template the lateral X-ray to estimate femoral component size (Figure 2).

Position the template in the coronal plane at a right angle to the long axis of the femur. Align the template with the planned distal femoral cut. The template outline should be 2 mm larger than the bony margin of the X-ray to approximate the outline of the articular surface.

The posterior condyle of the prosthesis should not overlap the cartilage contour of the adjacent femoral posterior condyle by more than 2 mm.

Also gauge the posterior slope of the proximal tibia on the lateral X-ray, with the goal to reproduce it during the surgery (Figure 3). The slope has been reported to vary from 0° to greater than 15° and may affect flexion space tightness.

Figure 3: Posterior tibial slope on the lateral X-ray.



Figure 2: Femoral sizing on the lateral X-ray. Note the 105° posterior resection will not be parallel to the

long axis.





### Approach and Exposure

## Goal: Restore the patient's pre-morbid anatomy, alignment and ligament balance.

Achieving the goal may mean leaving the patient in slight varus (medial uni) or slight valgus (lateral uni) as determined by correct ligament tension. Alignment over-correction and over-tightening of the collateral ligament tension should be avoided.

The incision must allow good exposure (Figure 4). There is no advantage in using a small incision which compromises vision or component placement. A longer incision is advised when first starting to use the procedure or if the patient is obese.

After the joint is exposed, make a final assessment of the extent of arthritic damage in all three compartments and the suitability of the joint for this procedure. Ligaments, including the ACL, should also be assessed.

Carefully reflect the deep menisco-tibial layer of the medial or lateral capsule to provide good access to any tibial osteophytes. In order to reliably assess medial/lateral (M/L) alignment and joint stability, it is vital that all osteophytes are removed from the entire medial or lateral edges of the femur and tibia (Figure 5). Exposure can also be improved with excision of patellar osteophytes.

Excise any excess synovium to provide clear sight of the joint. If required, part of the fat pad may also be excised to improve exposure and allow inspection of the opposite compartment. Ligament releases should be avoided.

Clear intracondylar notch osteophyles.



Figure 4



Figure 5. It is vital that all osteophytes are removed from the entire medial or lateral edges of the femur and tibia.

## **Proximal Tibial Resection**



Figure 6



#### Tibial Jig Alignment

Goal: The tibial cutting block correctly positioned to achieve varus/valgus alignment that is perpendicular to the mechanical axis of the tibia and for the tibial slope to match the patient anatomy.

Place the knee in 90° of flexion with the tibia translated anteriorly and stabilised. Place the ankle clamp proximal to the malleoli (Figure 6).

Assemble the tibial cutting block onto the uprod.

Extend the uprod proximally to the approximate height of the intended resection.

Align the proximal central marking on the tibial cutting block with the medial one third of the tibial tuberosity to set rotation.

The tibial resection should be perpendicular to the tibial mechanical axis.

The varus/valgus orientation of the tibial cut is adjusted by shifting the lower assembly of the ankle clamp from side to side. The lower assembly moves by pressing the varus/valgus wings. (Figure 7).

## **Proximal Tibial Resection**

### A/P Slope

Goal: The slope matches the patient's natural tibial slope. Select an unaffected portion of the affected plateau to estimate slope.

The tibial jig uprod and ankle clamp are designed to prevent an adverse reverse slope. On an average size tibia this guide will give approximately a 0° tibial slope when the slope adjustment is translated posteriorly until it hits the stop (Figure 8).

The angle of the tibial slope can be adjusted to the patient's natural slope (Figure 9). First unlock the slide locking position and then translate the tibial slope adjuster anteriorly until the desired angle is reached.



Figure 8



## **Tibial Jig Alignment**



A: Non-slotted stylus foot



B: Fine tune adjustment

Figure 10



### Resection Level

Goal: Remove the entire tibial defect with the minimum amount of resection necessary to restore the joint line.

When using the cutting slot, position the foot of the tibial stylus marked "slotted" into the slot of the tibial cutting block (Figure 10). When resecting on top of the cutting block, place the foot marked "open" into the cutting slot (Figure 10, A). Bring the tip of the stylus to rest on the tibial plateau and set depth accordingly.

The final resection level can be dialed in by rotating the fine-tune mechanism clockwise (upward adjustment) or counterclockwise (downward adjustment) (Figure 10, B). Care should be taken with severe valgus deformity not to over-resect the tibia.

After the height has been set, stabilise the block with one pin.

Note: When the resection level is in question, under-resect. A second tibial cut is preferable to an overly aggressive first cut.

Pin placement is per surgeon preference, but typically one pin is for alignment, one pin for stabilisation after the resection level is determined and one pin for the L-cut. (Figure 11).

## **Tibial Jig Alignment**

### Resection

Make the sagittal or "L" cut using a reciprocating saw, using anatomic landmarks as reference points (Figure 12). Make the cut just central to the central border of the femoral condyle. Align the cut in the sagittal plane using the midpoint of the lateral border of the insertion of the ACL as a landmark.

*Tip: It may be advantageous to use a threaded pin if the L-cut slot is used, to avoid pin motion.* 

Care must be taken to avoid making the "L" cut too deep and extending beyond the level of the proposed transverse cut (Figure 13).



Figure 12





Figure 14

Make the transverse cut through the slot in the tibial cutting guide using a 1.47 mm thick saw blade or on the open cutting surface as determined prior to jig placement (Figure 14).

Note: There is a 4.5 mm difference in depth of resection from the top surface of the cutting block to the slot.

*Tip: Leaving the ankle clamp in place during resection aids stability.* 

Tip: Use retractors to protect all ligaments.

Remove the resected bone. The resected bone can be assessed to confirm reproduction of slope and compared with the tibial trial to confirm component size (Figure 15).

*Tip: Check the cut depth by flexing the knee to* 90°. *The tibial trial should slip in and out without undue tension.* 



## **Tibial Sizing**

# Goal: Maximise tibial cortical coverage with no overhang.

Flex the knee to 90°. Select a tibial trial corresponding to the thickness determined previously. Assess cortical bone coverage when placed on the tibia. The tibial sizing arm can also be used to confirm sizing the anterior/posterior dimension of the tibial plateau (Figure 16). This arm should be used along the L-cut surface. Markings on the arm correspond to the maximum A/P dimension.

Note: The system allows for any sizing mismatch between the femur and the tibia, to ensure the best coverage available.



### Balancing



Figure 17



Figure 18

Goal: Determine amount of femoral distal resection and tibial insert thickness, to achieve equal extension and flexion gaps.

Check the flexion and extension gaps using the tibial trial of the desired size and thickness. Use the D-shaped end as the "spacer block". The D-shaped end has the same dimensions as the tibial implants. (The opposite end is used to introduce the Metal-Backed Tibial Tray into the joint space during cementing.) Composite thicknesses of the metal-backed tray and insert are 7 mm to 11 mm in one millimetre increments. All-polyethylene insert thicknesses are 8 mm to 11 mm in one millimetre increments. Flexion Gap Evaluation

Flex the knee to 90° and check the flexion gap using the tibial trial of the desired thickness (Figure 17). If the flexion gap is tight, use caution before consideration of additional tibial resection. Evaluate the slope to ensure lack of slope is not contributing to a tight flexion gap. **Do not resect** additional tibial bone unless the extension space is also tight.

#### Extension Gap Evaluation

Place the knee in extension and assess the extension gap with the tibial trial (Figure 18). The extension gap can be filled 1, 2 or 3 mm distally with use of a femoral defect shim. If extension laxity exists relative to flexion, use a thicker trial in extension to get an idea of which femoral defect shim should be used.

If both the femoral and tibial gaps are loose, a thicker tibial component should be used.

At this stage the tibial implant thickness, extension gap, stability of the collateral ligaments, limb alignment and ability to achieve full extension can be verified.

### Balancing

Note: It may be desirable to leave up to 2 mm of laxity when subject to lateral stress at 20° flexion.

*Tip: Sizing and rotation of the femoral component can be enhanced with use of the tibial trial to create landmarks on the femur.* 

Place the knee in extension and seat the tibial trial on the resected tibia. With a marking pen or electrocautery, make a vertical mark on the distal femur directly above the midpoint of the tibial trial to later help set the rotational alignment and anterior extent of the femoral component (the more anterior, the larger the femoral component) (Figure 19). By later aligning the tip of the femoral cutting block to this line, the proper relationship between the femur and tibia in extension will be established.

A transverse mark along the anterior border of the tibial trial is made. The femoral component should not extend anterior to this to avoid component impingement on the patellofemoral (PF) joint, whereas undersizing should also be avoided to prevent the tibial component from articulating with articular cartilage.



### **Distal Femoral Resection**



Figure 20



Figure 21: Femoral shim added due to femoral defect.



Figure 22: Tibial shim added for appropriate tibial insert thickness.

Goal: Distal femoral resection parallel to the tibial resection, using shims where appropriate.

#### Shims

Use shims in the following scenarios where appropriate with the distal cutting block (Figure 20).

Femoral defect shims (1 mm, 2 mm or 3 mm): use if excessive extension laxity exists relative to flexion. Use of these femoral defect shims will effectively under-resect the distal femur (removing less bone than is replaced by component thickness), tightening the extension gap in cases where distal femoral loss has occurred (Figure 21).

Tibial shims (8 mm, 9 mm, 10 mm or 11 mm): Use if the 7 mm tibial trial was used in balancing, do not add a tibial shim to the tibial side of the distal cutting block. If a thicker tibial trial was used, add the appropriate tibial shim to the tibial side of the distal cutting block (Figure 22).

## **Distal Femoral Resection**

### Placement and Alignment

With the knee in extension, introduce the distal cutting block with any attached shims into the joint space using the system handle.

With the leg in full extension, assemble the alignment guide and extramedullary alignment rod into the slot of the distal femoral cutting block to check local alignment, both varus/valgus and flexion/extension. To achieve proper femoral component position in the sagittal plane, flex the tibia until the alignment rod is parallel to the intramedullary axis of the femur. The guide is used to confirm:

- 1. Varus/valgus of the tibial cut
- 2. Overall alignment
- 3. Flexion/extension of the femoral cut

Use drill pins or pre-drill Steinmann pins to fix the distal cutting block in place, confirming proper position of the cutting block relative to the distal femur and proximal tibia. Resect the distal femoral bone using a 1.47 mm thick saw blade (Figure 23).

Note: Without any femoral defect shims in place, the distal cutting block will resect 6.7 mm, the same thickness as the distal portion of the implant. Lack of distal femoral cartilage loss is rare medially but common laterally.



## Femoral Sizing and Rotation

Using the Femoral Finishing Block



Figure 24

# Goal: Establish appropriate femoral size and rotation.

Use the femoral finishing blocks to establish the appropriate femoral size. The A/P size of the finishing block is the same as the final prosthesis, as is the M/L width posteriorly.

Place the leg in 90° of flexion. Position the block size selected during templating under the posterior condyle to be flush with the resected distal femoral surface. Exchange a smaller or larger size to find the best fit.

Position the appropriately sized femoral finishing block using the system handle. The block may be rotated to ensure that the femoral component articulates over the centre point of the tibial component throughout the range of motion. Use the marks previously made on the condyle to confirm appropriate rotation and A/P size. It is essential that the sulcus between the apexes of the block is aligned with the vertical line, and it should not extend superior to the horizontal line (Figure 24).

This will increase the likelihood that the tibial component will properly track with the femur in extension and prevent patellofemoral impingement. The medial/lateral position of the block is also established at this point.

*Tip: If between sizes, the smaller of the two is generally chosen.* 

Tip: Draw a line from the vertical anterior mark to the midline of the cut surface posteriorly. This line should be visible through the holes in the jig and match the jig sulcus anteriorly. It is likely the block will be nearly parallel to the border of the medial condyle.

# Femoral Sizing and Rotation

Using the Femoral Finishing Block

A tibial trial or the femoral spacer may be placed on the tibia to stabilise the block on the posterior condyle (Figure 25).



## Femoral Sizing and Rotation

Using the Femoral Finishing Block



Figure 26



Figure 27



Fix the femoral finishing block into place with pins.

Use the curved gouge to cut the profile of the proximal tip of the femoral prosthesis. Apply the gouge over the tip of the femoral finishing guide that is nearest the centre line of the joint and tap, creating a limit to the proximal cut. This will mark the extent of the anterior chamfer cut (Figure 26).

Resect the femoral bone using a size 1.47 mm thick saw blade in the following recommended order as shown in (Figure 27):

- 1. Posterior 105°
- 2. Anterior cut (see tip below)
- 3. Posterior chamfer cut (see tip below)
- 4. Drill the anterior and posterior peg holes with the femoral peg drill

*Tip: Before each cut, check that the block is flush to the distal femoral cut.* 

The system handle can be used to help stabilise the block during chamfer resection. Remove the spacer block after the femoral finishing block is pinned.

Note: For knees that do not achieve adequate fixation with the two outbound pins or in softer bone, an additional pin can be placed anteriorly. Choose the hole that is opposite to the side being replaced (when replacing the left medial compartment, pin the right medial hole). When this pin is used, use the anterior chisel to resect the anterior chamfer. The anterior chisel is guided by the track (Figure 28).

Figure 28

## **Trial Reduction**

Goal: Assess soft tissue balance, range of motion and component to component relationship in flexion and extension.

Insert the selected sized femoral trial and tibial trial on the bone (Figure 29).

Move the knee through a full range of motion (Figure 30). Properly fitted and seated components will track smoothly throughout the entire range.

Confirm with the tibial trial that the L–cut is truly vertical. An L–cut inclined away from the midline may impede placement of the polyethylene insert or all-polyethylene tibial component.



Figure 29



## **Tibial Preparation**



Figure 31

# Goal: Prepare tibia for keel and peg on posterior of tibial component.

Using the system handle, insert the tibial template that matches the selected tibial trial (Figure 31). Tap this into place, ensuring proper position and orientation on the tibial plateau. Recheck sizing.

Use the lamina spreader to distract the joint to ease exposure and bone preparation (Figure 32).



## **Tibial Preparation**

Use the tibial osteotome to gently remove the bone from the keel slot (Figure 33). Do not impact forcefully as this can cause a fracture of the posterior tibia.

Note: The keel on metal-backed components is 2.5 mm wide and on all-polyethylene components is 5 mm (Figure 34). Ensure the correct osteotome is used to create the keel slot.

Tip: In sclerotic bone, use a reciprocating saw to prepare the keel in advance. Use caution not to cut too deep as the tibial component keel has a depth of 6 mm.



Figure 33





Insert the tibial keel trial through the slot into the cavity to confirm adequate bone has been removed (Figure 35).

Note: Due to the differences in keel width, there are separate tibial keel trials for metal-backed and all-polyethylene (Figure 36). Ensure the correct trial is used to assess bone removal.

Use the tibial peg drill to prepare the tibial peg hole. The peg hole should be drilled as close to perpendicular as possible (Figure 37).





Metal-backed keel trial

All-polyethylene backed keel trial



Figure 37

## **Component Implantation**

When using a metal-backed tibial component the order of implantation is:

- 1. Metal-backed tray
- 2. Femoral component
- 3. Tibial insert

When using an all-polyethylene tibial component the order of implantation is:

- 1. All-polyethylene tibia
- 2. Femoral component

### Preparation for cementation

- The tibial surface should be fully washed using pulse lavage or similar technique, ensuring that no residual particles of bone are present in the joint space.
- Tibial surface should be fully dried using surgical sponges or similar material, ensuring the prepared surface is as dry as possible prior to cementing.
- A sponge may be placed in the posterior aspect of the tibia prior to cementing to simplify cement removal.

Tip: If sclerotic bone is encountered, drill several small holes and fill with cement before placing the femoral and/or tibial component.

#### Cement Technique – Tibia

Apply cement to the prepared bone surface and pressurise digitally or with a flat instrument.

Insert a small cylindrically shaped piece of cement into the tibial keel slot and pressurise using the same technique.

Excess cement is cleared to leave approximately 1 mm of cement on the prepared bone surface.

## **Cement Technique**

Metal-backed tibial component



Figure 38



Figure 39

Engage the rounded end of the tibial trial of appropriate size and thickness with the tibial tray. Apply a layer of cement to the backside of the tray.

Stabilising the trial and tray with a finger, introduce the tibial prosthesis at a 45° angle, engaging the most posterior aspect of the tibial keel to the prepared channel first (Figure 38). Lower the anterior of the prosthesis into position. This sequence promotes the flow of cement from posterior to anterior as the prosthesis is seated.

Use a mallet and the C–arm to complete the tibial insertion (Figure 39).

Clear residual cement with a sponge or cement removal tool such as a bent arthroscopy probe or nerve hook. Pay particular attention to the rim of the tibial tray.

It is essential to remove all residual cement to prevent third body wear.

If a sponge was used posteriorly, remove the sponge.

### **Cement Technique** All polyethylene tibial component

Apply a layer of cement to the backside of the tibial prosthesis.

Introduce the prosthesis at a 45° angle, engaging the most posterior aspect of the tibial keel to the prepared channel first. Lower the anterior of the prosthesis into position. This sequence promotes the flow of cement from posterior to anterior as the prosthesis is seated.

Use the C–arm to complete the tibial insertion (Figure 40).

Clear residual cement with a sponge or cement removal tool such as a bent arthroscopy probe or nerve hook.

It is essential to remove all residual cement to prevent third body wear.

If a sponge was used posteriorly, remove the sponge.



## **Cement Technique**

Femoral component



Figure 41



Figure 42

Apply an even layer of cement on the femoral prosthesis including the pegs, minimising the amount applied posteriorly (Figure 41). Pressurise cement into the cut bone surface digitally or with a stiff flat surface with sufficient cement to pressurise cement into the femoral lug holes and any supplemental drill holes made in sclerotic bone.

Attach the femoral prosthesis to the femoral introducer. With the knee flexed to 100° – 110°, seat the femoral prosthesis. The patella may need to be retracted to facilitate insertion. With a mallet, firmly tap the introducer onto the femur (Figure 42). Release the introducer from the femoral prosthesis and carefully remove all excess cement.

### When using a metal-backed tibial component

As the tibial and femoral cement cures, re-engage the tibial trial with the tray and put the leg into extension. This will maintain compression and component position until the cement hardens. After the cement hardens, remove the tibial trial and introduce the final tibial insert.

## Closure

Ensure all excess cement has been removed prior to closure. The incision is closed in layers.

## Lateral Replacement Considerations

## Goal: Restore the patient's premorbid anatomy and alignment.

This may mean:

- Patella retraction is more difficult than medial UKA because of the tuberosity position.
- Patellar tendon will typically be in line with the L-cut.
- As the patella tracks laterally in the intercondylar notch, care must be taken to avoid impingement of the femoral component with the patella.
- Ligament balancing is obviously different laterally than medially. As the lateral ligament complex is slightly more lax than medially in the normal knee and the lateral complex is easier to stretch, it is very important NOT to overstuff the lateral compartment.
- Plan retraction to avoid injury to the popliteus on the posterior chamfer cut. Use the 1.5 mm shim on femoral finishing block if the posterior condyle is worn (Figure 43).
- Internal rotation of the tibial component at 90° flexion may appear excessive at first, but this is a result of femoral roll-back and the lateral position of the tibial turberosity/patellar tendon. The cut is typically in line with the meniscal remnant horn attachment sites. The cut should be rechecked in extension.
- Femoral component is often perpendicular to tibia.
- L-cut will be different at 90° than on medial. Check the cut in extension and recut in extension if not central enough.



Implants

## Sigma<sup>®</sup> High Performance Partial Knee

oni cementeu	remoral components
1024-07-100	Left Medial / Right Lateral Size 1
1024-07-200	Left Medial / Right Lateral Size 2
1024-07-300	Left Medial / Right Lateral Size 3
1024-07-400	Left Medial / Right Lateral Size 4
1024-07-500	Left Medial / Right Lateral Size 5
1024-07-600	Left Medial / Right Lateral Size 6
1024-08-100	Right Medial / Left Lateral Size 1
1024-08-200	Right Medial / Left Lateral Size 2
1024-08-300	Right Medial / Left Lateral Size 3
1024-08-400	Right Medial / Left Lateral Size 4
1024-08-500	Right Medial / Left Lateral Size 5
1024-08-600	Right Medial / Left Lateral Size 6

### Sigma<sup>®</sup> High Performance Partial Knee Uni Fixed-bearing Tibial Trav

1024-51-100	Left Medial / Right Lateral Size 1
1024-51-200	Left Medial / Right Lateral Size 2
1024-51-300	Left Medial / Right Lateral Size 3
1024-51-400	Left Medial / Right Lateral Size 4
1024-51-500	Left Medial / Right Lateral Size 5
1024-51-600	Left Medial / Right Lateral Size 6
1024-52-100	Right Medial / Left Lateral Size 1
1024-52-200	Right Medial / Left Lateral Size 2
1024-52-300	Right Medial / Left Lateral Size 3
1024-52-400	Right Medial / Left Lateral Size 4
1024-52-500	Right Medial / Left Lateral Size 5
1024-52-600	Right Medial / Left Lateral Size 6

Implants

### Sigma<sup>®</sup> High Performance Partial Knee Uni Fixed-bearing Tibial Inserts

Left Medial / Right Lateral Size 1

-
Left Medial / Right Lateral Size 1 7 mm
Left Medial / Right Lateral Size 1 8 mm
Left Medial / Right Lateral Size 1 9 mm
Left Medial / Right Lateral Size 1 10 mm
Left Medial / Right Lateral Size 1 11 mm

### Left Medial / Right Lateral Size 2

1024-53-207Left Medial / Right Lateral Size 2 7 mm1024-53-208Left Medial / Right Lateral Size 2 8 mm1024-53-209Left Medial / Right Lateral Size 2 9 mm1024-53-210Left Medial / Right Lateral Size 2 10 mm1024-53-211Left Medial / Right Lateral Size 2 11 mm

### Left Medial / Right Lateral Size 3

1024-53-307	Left Medial / Right Lateral Size 3 7 mm
1024-53-308	Left Medial / Right Lateral Size 3 8 mm
1024-53-309	Left Medial / Right Lateral Size 3 9 mm
1024-53-310	Left Medial / Right Lateral Size 3 10 mm
1024-53-311	Left Medial / Right Lateral Size 3 11 mm

### Left Medial / Right Lateral Size 4

1024-53-407Left Medial / Right Lateral Size 4 7 mm1024-53-408Left Medial / Right Lateral Size 4 8 mm1024-53-409Left Medial / Right Lateral Size 4 9 mm1024-53-410Left Medial / Right Lateral Size 4 10 mm1024-53-411Left Medial / Right Lateral Size 4 11 mm

### Left Medial / Right Lateral Size 5

Left Medial / Right Lateral Size 5 7 mm
Left Medial / Right Lateral Size 5 8 mm
Left Medial / Right Lateral Size 5 9 mm
Left Medial / Right Lateral Size 5 10 mm
Left Medial / Right Lateral Size 5 11 mm

### Left Medial / Right Lateral Size 6

1024-53-607	Left Medial / Right Lateral Size 6 7 mm
1024-53-608	Left Medial / Right Lateral Size 6 8 mm
1024-53-609	Left Medial / Right Lateral Size 6 9 mm
1024-53-610	Left Medial / Right Lateral Size 6 10 mm
1024-53-611	Left Medial / Right Lateral Size 6 11 mm

### Sigma<sup>®</sup> High Performance Partial Knee Uni Fixed-bearing Tibial Inserts

Right Medial / Left Lateral Size 1

1024-54-107	Right Medial / Left Lateral Size 1 7 mm
1024-54-108	Right Medial / Left Lateral Size 1 8 mm
1024-54-109	Right Medial / Left Lateral Size 1 9 mm
1024-54-110	Right Medial / Left Lateral Size 1 10 mm
1024-54-111	Right Medial / Left Lateral Size 1 11 mm

### Right Medial / Left Lateral Size 2

1024-54-207	Right Medial / Left Lateral Size 2 7 mm
1024-54-208	Right Medial / Left Lateral Size 2 8 mm
1024-54-209	Right Medial / Left Lateral Size 2 9 mm
1024-54-210	Right Medial / Left Lateral Size 2 10 mm
1024-54-211	Right Medial / Left Lateral Size 2 11 mm

### Right Medial / Left Lateral Size 3

1024-54-307	Right Medial / Left Lateral Size 3 7 mm
1024-54-308	Right Medial / Left Lateral Size 3 8 mm
1024-54-309	Right Medial / Left Lateral Size 3 9 mm
1024-54-310	Right Medial / Left Lateral Size 3 10 mm
1024-54-311	Right Medial / Left Lateral Size 3 11 mm

### Right Medial / Left Lateral Size 4

1024-54-407	Right Medial / Left Lateral Size 4 7 mm
1024-54-408	Right Medial / Left Lateral Size 4 8 mm
1024-54-409	Right Medial / Left Lateral Size 4 9 mm
1024-54-410	Right Medial / Left Lateral Size 4 10 mm
1024-54-411	Right Medial / Left Lateral Size 4 11 mm

### Right Medial / Left Lateral Size 5

1024-54-507	Right Medial / Left Lateral Size 5 7 mm
1024-54-508	Right Medial / Left Lateral Size 5 8 mm
1024-54-509	Right Medial / Left Lateral Size 5 9 mm
1024-54-510	Right Medial / Left Lateral Size 5 10 mm
1024-54-511	Right Medial / Left Lateral Size 5 11 mm

### Right Medial / Left Lateral Size 6

1024-54-607	Right Medial / Left Lateral Size 6 7 mm
1024-54-608	Right Medial / Left Lateral Size 6 8 mm
1024-54-609	Right Medial / Left Lateral Size 6 9 mm
1024-54-610	Right Medial / Left Lateral Size 6 10 mm
1024-54-611	Right Medial / Left Lateral Size 6 11 mm

Implants

### Sigma<sup>®</sup> High Performance Partial Knee Uni All Polyethylene Tibial Inserts Left Medial / Right Lateral Size 1

1024-11-108Left Medial / Right Lateral Size 1 8 mm1024-11-109Left Medial / Right Lateral Size 1 9 mm1024-11-110Left Medial / Right Lateral Size 1 10 mm1024-11-111Left Medial / Right Lateral Size 1 11 mm

### Left Medial / Right Lateral Size 2

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1024-11-209 Left Medial / Right Lateral Size 2 9 mm
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### Left Medial / Right Lateral Size 3

1024-11-308 Left Medial / Right Lateral Size 3 8 mm
1024-11-309 Left Medial / Right Lateral Size 3 9 mm
1024-11-310 Left Medial / Right Lateral Size 3 10 mm
1024-11-311 Left Medial / Right Lateral Size 3 11 mm

### Left Medial / Right Lateral Size 4

1024-11-408	Left Medial / Right Lateral Size 4 8 mm
1024-11-409	Left Medial / Right Lateral Size 4 9 mm
1024-11-410	Left Medial / Right Lateral Size 4 10 mm
1024-11-411	Left Medial / Right Lateral Size 4 11 mm

### Left Medial / Right Lateral Size 5

1024-11-508 Left Medial / Right Lateral Size 5 8 mm
1024-11-509 Left Medial / Right Lateral Size 5 9 mm
1024-11-510 Left Medial / Right Lateral Size 5 10 mm
1024-11-511 Left Medial / Right Lateral Size 5 11 mm

### Left Medial / Right Lateral Size 6

1024-11-608	Left Medial / Right Lateral Size 6 8 mm
1024-11-609	Left Medial / Right Lateral Size 6 9 mm
1024-11-610	Left Medial / Right Lateral Size 6 10 mm
1024-11-611	Left Medial / Right Lateral Size 6 11 mm

### Sigma<sup>®</sup> High Performance Partial Knee Uni All Polyethylene Tibial Inserts

Right Medial / Left Lateral Size 1

1024-12-108	Right Medial / Left Lateral Size 1 8 mm
1024-12-109	Right Medial / Left Lateral Size 1 9 mm
1024-12-110	Right Medial / Left Lateral Size 1 10 mm
1024-12-111	Right Medial / Left Lateral Size 1 11 mm

### Right Medial / Left Lateral Size 2

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1024-12-210	Right Medial / Left Lateral Size 2 10 mm
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024-12-309	Right Medial / Left Lateral Size 3 9 mm
1024-12-310	Right Medial / Left Lateral Size 3 10 mm
1024-12-311	Right Medial / Left Lateral Size 3 11 mm

### Right Medial / Left Lateral Size 4

1024-12-408	Right Medial / Left Lateral Size 4 8 mm
1024-12-409	Right Medial / Left Lateral Size 4 9 mm
1024-12-410	Right Medial / Left Lateral Size 4 10 mm
1024-12-411	Right Medial / Left Lateral Size 4 11 mm

### Right Medial / Left Lateral Size 5

1024-12-508	Right Medial / Left Lateral Size 5 8 mm
1024-12-509	Right Medial / Left Lateral Size 5 9 mm
1024-12-510	Right Medial / Left Lateral Size 5 10 mm
1024-12-511	Right Medial / Left Lateral Size 5 11 mm

### Right Medial / Left Lateral Size 6

1024-12-608	Right Medial / Left Lateral Size 6 8 mm
1024-12-609	Right Medial / Left Lateral Size 6 9 mm
1024-12-610	Right Medial / Left Lateral Size 6 10 mm
1024-12-611	Right Medial / Left Lateral Size 6 11 mm

Instruments Case 1 – Tibial



### Case 1 Top Tray

0	2024-44-010
2	2024-47-506
3	2024-47-304
4	2024-47-102
5	2024-43-102
6	2024-43-304
7	2024-43-506
8	96-6515

Tray Pressure Arm Metal-backed Keel Trial Size 5-6 Metal-backed Keel Trial Size 3-4 Metal-backed Keel Trial Size 1-2 All-polyethylene Keel Trial Size 3-4 All-polyethylene Keel Trial Size 5-6 Pin Puller

9	9505-02-072
10	9505-02-089
1	86-9117
12	9505-02-071
13	2024-46-020
14	2024-45-111
15	2024-85-999

Sigma® HP Drill Pins Sigma® HP Threaded Pins Headed Steinman Pins Sigma® HP Power Pin Driver Tibial Peg Drill Tibial Sizing Arm Tibial L-cut Pin



### Case 1 Bottom Tray

0	2024-41-100
2	2024-41-200
3	2024-41-300
4	2024-41-400
6	2024-41-500
6	2024-41-600
0	2024-40-400
8	2024-43-000

Tibial Template Size 1 Tibial Template Size 2 Tibial Template Size 3 Tibial Template Size 5 Tibial Template Size 6 Adjustable Tibial Stylus Lamina Spreader



All-polyethylene Keel Osteotome Metal-backed Keel Osteotome Tibial Jig Ankle Clamp Tibial Jig Uprod Tibial Cutting Block LM/RL Tibial Cutting Block RM/LL Reference Guide

Instruments Case 2 - Femoral



#### Case 2 Top Tray

1 2024-07-100	Femoral Trial Size 1 LM/RI
2024-07-200	Femoral Trial Size 2 LM/RI
3 2024-07-300	Femoral Trial Size 3 LM/RI
4 2024-07-400	Femoral Trial Size 4 LM/RI
5 2024-07-500	Femoral Trial Size 5 LM/RI
6 2024-07-600	Femoral Trial Size 6 LM/RI
7 2024-08-100	Femoral Trial Size 1 RM/LI
8 2024-08-200	Femoral Trial Size 2 RM/LI
9 2024-08-300	Femoral Trial Size 3 RM/LI
0 2024-08-400	Femoral Trial Size 4 RM/LI
2024-08-500	Femoral Trial Size 5 RM/LI
2024-08-600	Femoral Trial Size 6 RM/LI
3 2024-11-107	Tibial Trial Size 1 7mm
4 2024-11-108	Tibial Trial Size 1 8mm
5 2024-11-109	Tibial Trial Size 1 9mm
6 2024-11-110	Tibial Trial Size 1 10mm
02024-11-111	Tibial Trial Size 1 11mm
8 2024-11-207	Tibial Trial Size 2 7mm
9 2024-11-208	Tibial Trial Size 2 8mm
2024-11-209	Tibial Trial Size 2 9mm
2024-11-210	Tibial Trial Size 2 10mm

22	2024-11-211
23	2024-11-307
24	2024-11-308
25	2024-11-309
26	2024-11-310
27	2024-11-311
28	2024-11-407
29	2024-11-408
30	2024-11-409
31	2024-11-410
32	2024-11-411
33	2024-11-507
34	2024-11-508
35	2024-11-509
36	2024-11-510
37	2024-11-511
38	2024-11-607
39	2024-11-608
40	2024-11-609
41	2024-11-610
42	2024-11-611

Tibial Trial Size 2 11mm
Tibial Trial Size 3 7mm
Tibial Trial Size 3 8mm
Tibial Trial Size 3 9mm
Tibial Trial Size 3 10mm
Tibial Trial Size 3 11mm
Tibial Trial Size 4 7mm
Tibial Trial Size 4 8mm
Tibial Trial Size 4 9mm
Tibial Trial Size 4 10mm
Tibial Trial Size 4 11mm
Tibial Trial Size 5 7mm
Tibial Trial Size 5 8mm
Tibial Trial Size 5 9mm
Tibial Trial Size 5 10mm
Tibial Trial Size 5 11mm
Tibial Trial Size 6 7mm
Tibial Trial Size 6 8mm
Tibial Trial Size 6 9mm
Tibial Trial Size 6 10mm
Tibial Trial Size 6 11mm



### Case 2 Bottom Tray

1	9505-01-207
2	2024-85-001
3	2024-85-002
4	2024-85-003
5	2024-50-008
6	2024-50-009
1	2024-50-010
8	2024-50-011
9	2024-56-100
10	2024-56-200
1	2024-56-300
12	2024-56-400
13	2024-56-500

Alignment Rod Femoral Defect Shim 1mm Femoral Defect Shim 2mm Femoral Defect Shim 3mm Distal Femoral Shim 8mm Distal Femoral Shim 9mm Distal Femoral Shim 10mm Distal Femoral Shim 10mm Femoral Finishing Block Size 1 Femoral Finishing Block Size 2 Femoral Finishing Block Size 3 Femoral Finishing Block Size 4 Femoral Finishing Block Size 5

1 2024-56-600
15 2024-85-006
16 2024-85-007
1 2024-50-007
18 2024-50-001
19 2024-52-000
2024-56-111
2024-85-000
2024-70-111
2024-57-111
2024-57-000
<b>2024-56-000</b>

Femoral Finishing Block Size 6 Femoral Posterior Lateral Shim Size 1-3 Femoral Posterior Lateral Shim Size 4-6 Distal Cutting Block Femoral Alignment Guide Femoral Peg Dril Femoral Spacer Anterior Chisel System Handle Femoral Impactor Femoral Tip Gouge Femoral Introducer

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