





### SURGICAL TECHNIQUE

Primary Total Knee System Mobile bearing Cemented or cementless 4-in-1 conventional 4T Instrumentation



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# Introduction

- This surgical technique describes the use of the 4-in-1 conventional instrumentation with common knee instrumentation for SCORE II TKA (Total Knee Arthroplasty).
- Either the tibial cut or the distal femoral cut can be performed first.
- In the following surgical technique description, the distal femoral cut is performed first.
- The instrumentation can be used either:
  - without navigation (conventional method)
  - with navigation (by adding the Universal Knee Navigation Tools)
  - with the customised i.M.A.G.E. instrumentation (by adding the i.M.A.G.E. 4-in-1 tools).

# Implant SCORE II

- The SCORE II TKS (Total Knee System) is a PCL (Posterior Cruciate Ligament)-sacrificing, mobile bearing implant in rotation for primary knee arthroplasty.
- The stability is provided by sagittal and frontal congruency through the extension to the flexion.
- The SCORE II TKS is available in cemented or cementless versions.





# Patellar component

Polyethylene patellar implant available in three versions:



### **Tibial Components** Tibial insert is mobile in rotation :



# **Tibial component**

### **Tibial baseplate**

Anatomical posterior shape



Possibility of using (e.g. in cases of unicompartmental revision, or TKA, or after osteotomy):

### - Tibial extension stems:

- Ø10 to 16 mm
- Length 75 to 200 mm

### - Tibial augments:

- Thickness 5 mm
- Thickness 10 mm
- Thickness 15 mm

### - Offset adapters:

- 2 mm
  - 4 mm
  - 6 mm





### Range

### **Femoral components :**

- Cemented : 9 sizes (0 and 8 are optional)
- Cementless : 9 sizes (0 and 8 are optional)



#### ΔAP: increment between sizes: 2.66 mm

	0	1	2	3	4	5	6	7	8
ΑΡ	44,6	47,1	49,7	52,3	54,9	57,5	60,1	62,6	65,3
ML	56	58,1	60,5	63,1	66	69,1	72,4	76	80

### Patellar components:

- Resurfacing patellar implant cemented: Ø 30, 33 and 36 mm
- Inset patellar implant cemented: Ø 23, 26 and 29 mm

### **Tibial components :**

- Cemented: 9 sizes (0 and 8 are optional)
- Cementless: 9 sizes (0 and 8 are optional)



	0	1	2	3	4	5	6	7	8
ΑΡ	39,2	41,4	43,6	45,9	48,2	50,5	52,8	55	57,2
ML	60	63,5	67	70,5	74	77,5	81	84,5	88

ΔML : 3,5 mm

### Inserts: 9 sizes (0 and 8 are optional) 6 heights (10, 11, 12, 14, 16 and 20 mm)



	0	1	2	3	4	5	6	7	8
ΑΡ	35,6	37,7	39,8	41,9	44	46,1	48,2	50,3	52,4
ML	56	58,1	60,5	63,1	66	69,1	72,4	76	80

Δ**AP** : 2,3 mm

# **Component compatibility**

Taille		Insert / Composant fémoral									
		0	1	2	3	4	5	6	7	8	
	0	•	•	•							
	1	•	•	•	•						
	2	•	•	•	•	•					
	3		•	•	•	•	•				
Embase tibiale	4			•	•	•	•	•			
	5				•	•	•	•	•		
	6					•	•	•	•	•	
	7						•	•	•	•	
	8							•	•	•	

\*The femoral component must be associated with the same tibial insert size

The SCORE II prosthesis is compatible with the following patellar implants:

- Resurfacing patellar implant cemented
- Inset patellar implant cemented

All resurfacing patellar implant cemented and inset patellar implant cemented are compatible with all sizes of SCORE II femoral components.

\* Not all devices presented in this Surgical Technique may be registered in your country. Please contact your Amplitude Sales Representative for availability.



# **Surgical Technique Overview**









# **Surgical Technique Overview**









# **Surgical Technique Overview**









# **Pre-operative planning**

Using X rays and templates, you can determine concerning bone:

#### On the tibia :

- The choice between intramedullary and extramedullary aiming.
- The entry point of the intramedullary rod (coronal and sagittal view).
- The adaptation of the tibial stem to the metaphysis (in case of previous tibial osteotomy).
- The osteophytes.
- The severity of the compartment wear.
- The choice of an extension tibial stem, if required.
- The assessment of the baseplate size and the insert thickness.

#### On the femur :

- The entry point of the intramedullary rod (front and sideways).
- The anatomical femoral valgus angle.
- The posterior osteophytes.
- The size.

### On the patella :

- The wear of the patellofemoral joint.
- The thickness, the width, the global shape, the tilt and the height of the patella.
- The thickness and the orientation of the patellar resection.
- The mediolateral position of the patellar implant.

#### NOTE

The provided templates have a 1:1 scale. Make sure the template scale matches the X-ray scale

#### REMINDER

This surgical technique describes how to use the instrumentation properly. The surgeon is fully responsible for choosing the surgical approach and technique

# <sup>1</sup> Femoral Resection



### Intramedullary femoral alignment:

- Bend the knee at 90°
- Remove any peripheral osteophytes.
- Clear out tissues to access the anterior cortex.
- Based on the pre-operative planning, determine the entry point for the intramedullary (IM) canal and open it with the Intramedullary drill bit.
- Assemble the Intramedullary rod length 400 mm on the T wrench, and insert it into the canal. The landmark located on the Rod must always be visible.

#### NOTE

If the Intramedullary rod length 400 mm cannot be inserted or if there is a pre-existing THA, use the Intramedullary rod length 250 mm.

Valgus alignment Guide

### **Position the Femoral Valgus Alignment Guide:**

• Adjust the femoral valgus (possible adjustment between 3° and 11° every 2°) to match the femoral valgus measured during the pre-operative planning and place it on the operated leg (LEFT/RIGHT).

• Place the Femoral Valgus Alignment Guide 0° (or 3° or 6°) on the intramedullary rod.

• Make sure the barrel rests against a healthy portion of the distal condyle and confirm the femoral valgus reading.



### **Femoral Resection**



### **Distal resection guide positioning:**

Place the distal slide bar and distal resection guide onto the valgus alignment guide.

Adjust the position of the distal resection guide:

 in the mediolateral direction (to prevent patellar impingement),

- in the anteroposterior direction (resection guide touches the bone).

Fully tighten the thumb knob on the distal slide bar to lock the mediolateral position of the resection guide.

Use the screwdriver H3.5 to secure the valgus alignment guide to the distal slide bar.





## **Femoral Resection**



### **Pin insertion:**

- Use the Universal quick release adaptor for pin or the AO Pin driver assemble on a Surgical Power Reamer to insert two Headless pins length 80 mm into the 0 holes.
- Use two other similar pins inserted in the oblic holes to stabilise the resection guide.

#### NOTE

On patients with flexion deformity, the distal cut (initially 8 mm) can be increased by switching the guide in order to have the pins into the +2 or +4 holes.

#### NOTE

Depending on the bone quality, Long Drill bit, Ø 3.2, length 145 mm can be used to prepare the holes for the pins.

### **Distal cut:**

- Remove the intramedullary rod using the T Wrench.
- Loosen the thumb knob on the distal slide bar by moving the upper lever to the « unlock » position and detach the entire distal resection guide.
- Check the cut thickness with the resection gauge.
- Perform the distal cut using a medium AMPLITUDE<sup>®</sup> saw blade.
- Extract the oblic pins with the handpiece or with the pin extractor.
- Slide the resection guide off the pins in the 0 holes, but leave the pins in place in case recutting is necessary.
- If the Tibial resection is achieved first, the Alignment Gauge can be place on the tibial resection to protect the bone.



score II

## 2 Intramedullary tibial system (IM)



### Locating the medullary canal:

- Place the knee in hyperflexing position and dislocate the tibia forward.
- Based on the pre-operative planning, determine the entry point for the intramedullary (IM) canal and open the tibial canal with the Intramedullary Drill Bit.
- Assemble the Intramedullary Rod Length 400 mm on the T Wrench and insert it into the canal, the landmark must always be visible.

### NOTE

If the Intramedullary Rod - Length 400mm cannot be inserted or if there is a pre-existing THA, use the Intramedullary Rod - Length 250mm

### Intramedullary tibial system assembly:

- Assemble the 4T Wheel/Tibial Resection Guide Support with the 4T Aiming with tibial 1 bracket.
- Push the Green wheel until the chosen 2 height.

### NOTE

The 'UP' engraving on the 4T Wheel/Tibial Resection Guide Support corresponds to the support's superior side. The 'A' engraving on the 4T Aiming with Tibial Bracket must be on the anterior side.

- Insert the 4T Tibial Bracket on the assembly
- Screw the 4T Proximal AP Wheel on the top of the rod.
- Insert the 4T Tibial Resection Guide 0° or 3° (right or Left according to the operated side) on the 4T Wheel/Tibial Resection Guide Support. The value of the posterior slope is marked on top of the guide.

### NOTE

Two 4T Aiming are provided in the instrumentation. The one used with the Tibial Bracket is the longest.



### NOTE

Deux visées sont présentes dans l'ancillaire. La visée à utiliser avec la potence tibiale est la plus longue. The 4T Tibial Resection Guide – Right or Left is available on 3° of posterior (recommended) but also on 0° and 6° of posterior slope.

# Intramedullary tibial system



### Intramedullary tibial system:

- Insert the assembly onto the Intramedullary Rod

   Length 400 mm, adjust its rotation relative to
   the anterior tibial tuberosity and then impact the
   tabs.
- Insert the 4T Tibial Stylus 2/10 on the Tibial Cutting Block Light (make sure the clip is fully engaged).
- Set the resection height by using the 4T tibial stylus to palpate either the:
  - healthy side (10 mm cut relative to palpated point)
  - worn side (2 mm cut relative to palpated point/exit of saw blade)

### **IMPORTANT**

For other resection heights :

- A coarse adjustment can be done by pushing the green wheel.

- A fine adjustment can be done by screwing the green wheel.

- Check the height of the bone cut with the Resection gauge inserted into the slot.
- Insert 2 Threaded Non-Headed Pins Lg 80mm in the 0 mm holes with the Pin Driver AO (or Hall).

### NOTE

The 4T tibial stylus can be clipped on the lateral side of the 4T tibial resection guide to palpate the medial plateau (or the reverse) by passing the 4T tibial stylus over the 4T tibial bracket.

# **Combined Intra-medullary guide**



# **Combined Intra-medullary guide**

### Assembly of the Intra-medullary Guide:

- Assemble the Intra-medullary jig as described in the paragraph "Tibial Intramedullary guide" and insert it in the assembly previously described. Screw the 4T Wheel for EM Jig.
- Open the 4T Malleolar Clamp and position it on the ankle (the self-holding in open position of the clamp makes it easier to be placed), close the Clamp and insert the assembly onto the Intramedullary Rod - Length 400 mm,
- Adjust its rotation relative to the anterior tibial tuberosity and then in the sagittal plane by aligning the rod parallel to thE anterior tibial axis. Impact the tabs.
- Insert the 4T Tibial Stylus 2/10 (or 2/8 or 0/10) on the Tibial Resection Guide (make sure the clip is fully engaged).
- Adjust the resection height by using the stylus to palpate either the:
  - Healthy side (10 mm cut relative to the chosen point),
  - Worn side (2 mm cut relative to the chosen point).

### NOTE

For a different cutting height, the adjustment can be :
A fast adjustment can be done by pushing the green wheel on the guide support (disengaging).
A fine adjustment can be done by screwing the green wheel (the guide is graduated every 2mm).



- Check the height of the bone cut with the Resection Gauge inserted into the slot.
- Insert 2 Headless Pins Lg 80mm in the 0 mm holes.

### NOTE

It is possible to insert the Tibial Stylus on the lateral hole of the Tibial Resection Guide to palpate the medial plateau (and the opposite) by over-passing the Tibial bracket.

### **NOTE** All wheels can be tightened with the H5 Screw drive.

# <sup>3</sup> Tibial resection

### Removal of the intra-medullary guide



- Remove the 4T tibial stylus.
- Loosen the 4T proximal AP wheel enough to allow movement of the alignment system along the tibial bracket slot.
- Place the T Wrench on Intramedullary rod length 400 mm and remove it.
- Press the wings on the 4T Wheel/Tibial Resection Guide Support and pull to release the tibial alignment system from the Tibial Cutting Block.
- Place the «T» end of the slaphammer into the opening on the 4T tibial bracket and impact upwards to remove the entire EM tibial assembly.

### **Tibial resection:**

- Ensure the Tibial Cutting Block is flush with the anterior tibial cortex.
- Check the thickness of the bone cut with the Resection gauge. If required, the Tibial Cutting Block can be moved by +2 or +4 mm to increase the tibial cutting height.
- Use a converging Headed pin length 70 mm or a converging Threaded Non-Headed Pin Lg 80mm to stabilise the Tibial Cutting Block.
- It is possible to check the valgus/varus orientation of the Tibial Resection Guide:
  - Insert the Alignment Device for Tibial Cut into the Tibial Resection Guide
  - Insert an Extramedullary Alignment Rod into one of the 2 holes
  - Check the orientation.
- Make the tibial cut with an oscillating saw (see page 74 for available saw blades)
- Remove the converging Headed pin length 70 mm using the Pin extractor or the converging Threaded Non-Headed Pin Lg 80mm using the Pin driver AO (or Hall).
- Slide the Tibial Cutting Block off the two Threaded Non-Headed Pin Lg 80mm. Leave pins in place in case a recut is required.



### NOTE

If the bone cortical is fragile or sclerotic, the holes can be prepared with the Long Drill bit Ø3.2 length 145 mm before to impact the Headed pins.

# 4 Extension and flexion gaps





### **Extension gap measurement:**

This step is carried out after performing the distal femoral and tibial cuts. The goal is to achieve a rectangular gap in extension when the ligaments are under tension. The resulting gap will be measured and should be the same when the knee flexed.

- Insert the Extra- articular Ligament Balancer V2 into the knee joint with the knee extended.
- Insert the Snap Screwdriver H5 into the balancer's cog wheel.
- Turn the Snap Screwdriver H5 to operate the distraction mechanism and apply the desired amount of tension. Do not apply excessive distraction, otherwise the knee will flex. The knee must stay extended during the measurements.
- Make sure the tibial and distal femoral cuts are parallel, and check the height of the tibiofemoral gap.
- If the tibiofemoral gap is less than the 18 mm minimum gap needed (10 mm for the tibial component plus 8 mm for the femoral component), redo the tibial or distal femoral cut.

Minimum gap in extension : 18 mm = 10 mm (tibial component) + 8 mm (femoral component)

### NOTE

Ligament can be released to achieve desired ligament balance (value of 0 on Balancer).

# **Extension and flexion gaps**



• Press the blue unlock button to remove the Ligament balancer from the joint.

**REMARQUE** Remove the 2 Headless pin length 80 mm left in anterior part.

### Flexion gap measurement:

- Flex the knee.
- Insert the balancer and apply the desired tension (same procedure as with knee extended).
- Read the flexion gap value and femur rotation value (induced by ligament laxity) relative to the tibia.
- Make sure the flexion gap is equal to the extension gap (8 mm must be subtracted from the extension gap value).



Femoral rotation in degree

Read flexion gap here (subtract 8 mm from extension gap)

### **Option: Use of Spacers**

- Spacers can be used to check the ligament balancing.
- In extension: assemble the Spacer Thickness 18 mm on the Universal handle. Apply a slight varus and valgus forced to check the balance. If it's too loose, it is possible to add a Spacer Thickness 2 mm for Spacer or a Spacer Thickness 4 mm for Spacer.
- In Flexion: assemble the Spacer Thickness 10 mm on the Universal handle (or a Spacer Thickness 7mm if the joint is too tight). Apply a slight varus and valgus forced to check the balance. If it is too loose, it is possible to add a Spacer Thickness 2 mm for Spacer or a Spacer Thickness 4 mm for Spacer.
- Make sure the flexion gap is equal to the extension gap (8 mm must be subtracted from the extension gap value).

# **Extension and flexion gaps**

### **Transfer gap in Flexion:**

- On the 4-in-1 Pin Positioner, set the femoral rotation based on the measurement taken with the Ligament Balancer.
- If the flexion gap is equal to the extension gap, set the posterior plate position to 0 mm.
- If the flexion gap is larger than the extension gap, set the posterior plate position to -2 mm to reduce the posterior gap by 2 mm.
- If the flexion gap is smaller than the extension gap, set the posterior plate position to +2 mm to increase the posterior gap by 2 mm.
- Insert the 4-in-1 probe.





Adjustment of the femoral rotation

The distal pins can be offset by +2 mm or -2 mm in the antero-posterior direction

# <sup>5</sup> Femoral Resections



### **Distal Pin insertion**

- Remove the Ligament Balancer and place the 4-in-1 Pin Positioner while making sure:
  - it is flush with the distal cut and
  - it rests against the posterior condyles
- Place the 4-in-1 probe tip against the anterior cortex and determine the femoral component size.
- Verify the size by placing the resection gauge into the slots to preview the anterior cut position.
- It is possible to insert an Alignment Pin Ø 2 Length 150 mm\* on each side of the Pin Positioner in order to check the femoral rotation.
- If the femoral size shown is between 2 sizes, the distal pins can be offset:
  - position + 2 mm: femoral component position
     will be offset by 2 mm anteriorly (posterior gap is
     2 mm larger, anterior cut is 2 mm higher)
  - position 2 mm: femoral component position
     will be offset by 2 mm posteriorly (posterior gap
     is 2 mm smaller, anterior cut is 2 mm lower)
- Insert the two Headless Pin, Ø3.2 length 65 mm.
- Remove the 4-in-1 pin positioner.

# **Femoral Resections**



### **Femoral cuts:**

- Set the 4-in-1 Femoral resection guide that corresponds to the measured size on the distal pins in the central holes (neutral position).
- Make sure side of the resection guide is flush with the distal cut.
- Use the resection gauge to check the anterior cut will not notch the femoral cortex is intact.
- If the femoral cuts need to be adjusted in the anteroposterior direction, set the 4-in-1 resection guide on the distal pins in either the lower holes (flexion gap increased by +1mm) or the upper holes (flexion gap decreased by -1 mm).

- Secure the resection guide with Headless pin length 80 mm or with Collared Threaded Pin Ø3.2-L57.
- In patients with osteoporosis, better fixation can be achieved by adding a pin in the intercondylar notch, connect the two removable handles on the cutting guide for better hold while inserting the pins.
- Make the anterior and posterior cuts using a medium AMPLITUDE saw blade that matches the instrumentation set and motorized handpiece.
- Remove the distal pins using the pin extractor.
- Make the 2 chamfer cuts.



# <sup>6</sup> Femoral Preparation



### Mediolateral femoral adjustment:

- Chose the selected trial femoral componant depending on the size and operated size.
- Impact the Femoral Trial component (corresponding to the operated side and to the size of the Femoral Resection Guide) using the Femoral Condyle Holder (trial position), by choosing a mediolateral position.
- Finish impacting the Trial Component using the Femoral Component Impactor.
- Drill the first hole with the Drill for peg holes and insert the Trial peg for trial femoral component.
- Drill the second hole and insert the second Trial peg for trial femoral component.

### **Trochlear groove preparation:**

- Prepare the intercondylar notch using the cutting end of the Femoral Rasp that corresponds to the size of the selected femoral component (size 1/2/3 or size 4/5/6/7).
- The rasp is constrained on two sides. Finalise the preparation with the roughened end.
- Use the Intercondylar Control Gauge to ensure the intercondylar notch has been prepared correctly.
- Resect any posterior osteophytes with the Cutting Gauge.



# 7 Tibial Preparation



### **Trial baseplate positioning:**

- Determine the size of the Trial Tibial Baseplate. The baseplate can be one size larger or smaller than the size of the femoral component.
- Position the Trial Tibial Baseplate onto the tibial cut.
- Fix the baseplate with two Headed Pins length 30 mm.

### NOTE

Depending on the bone quality a Long Drill bit, Ø 3.2, length 145 mm can be used to make the holes for the pins

### Essais

• Mettre en place l'Insert d'essai mde taille correspondant au composant fémoral.

### NOTE

The insert size must always be identical to the femoral size.



### **Preparation:**

- Remove the 2 headless pins in the tibia.
- Tighten the Standard Trial Stem on the Punch Guide for Tibial Baseplate with the Tibial Stem Wrench.
- Position the appropriate size of the Punch guide for tibial baseplate (1/2 or 3/4/5 or 6/7) onto the Trial Tibial Baseplate. If needed Two Removable Handles for Punch Guide can be screwed on the Pun Guide to strongly maintain it.
- Ream using the Reamer for tibial extension stem until the stop (same for all sizes).
- Impact the appropriate sized Punch for Tibial Extension Stem (1/2 or 3/4/5 or 6/7), in case of a sclerotic bone or after osteotomy, prepare first with an osteotome.
- Check the integrity of the 2 instruments (Punch and Trial Stem ) after extraction of the assembly.



### NOTE

Use the Punch Guide Size 1-2 for a size 0 and Size 6-7 for a size 8

# 8 Patella preparation: resection option



### **Patellar preparation:**

• Clear osteophytes.

### Position the patellar Resection Clamp:

- Place the Patellar Resection Clamp, the two lugs are on the anterior side of the patella.
- With the clamp jaws open, bring the Patellar resection gauge in contact with the articular surface using the adjustment knob.
- Lock the clamp.
- Evaluate remaining bone.
- Push the saw blade into the slot to perform the cut.

### **Patellar preparation:**

- Use the Patellar Drilling Guide Ø30 or Ø33 and Ø36 to determine the size of patellar component needed. It is recommended to use the size that allows maximum bone coverage, without presenting a prosthetic overhang.
- Centre and impact the Patellar Drilling Guide.
- Make the 3 holes for the pegs with the Drill Bit for Resurfacing Patella.
- Place the Trial resurfacing patella of the same diameter using the Clamp for Locking Ring.
- Test the articulation in the trochlea.

### Patellar implantation:

- Clean and dry the bone surface.
- Apply cement onto the implant.
- Position the implant on the cut.
- Tighten the implant using the Patellar Impaction clamp.
- Remove the excess of cement.
- Keep the clamp until the cement is dry.

### NOTE

The thickness of the patellar implant is 8 mm for all the diameters and it is advisable to leave a remnant of 12 mm of residual bone.



# Patella preparation: resection option





### **Patellar preparation:**

• Clear osteophytes.

### **Position the Patella Reamer Clamp:**

- Centre the Trial inset patellar cemented Ø 23 mm Plastic (or Ø 26, or Ø 29) on the articular surface of the native patella by centering it on the patellar crest.
- The appropriate size (Ø 23, 26 or 29 mm) is determined based on the following criteria:
  - Superior-to-inferior length of the articular surface
  - Width of the patella's medial articular facet
- The size must be as large as possible being slightly smaller (by about 2 mm) than the superior-to-inferior length of the articular surface and must be slightly inside the medial edge of the medial articular facet.
- Assemble the Patella Reamer Surfacing Guide corresponding to the chosen patellar implant size onto the Patella Reamer Clamp and lock it.
- Position the clamp. The inferior jaw on the Patella Reamer Clamp must rest against the anterior side of the patella. The clamp must rest against at least one of the patella's two articular facets.
- Use the thumb knob to tighten the Patella Reamer Clamp.
- Assemble the Reamer for inset cementless patellar of the same size as the chosen clamp onto the power tool.
- Ream the patella until the stop is reached.

### **Trials:**

- Assemble the Patellar Reamer Impaction Clamp onto the Patella Reamer Clamp and lock it.
- Use it to place the Trial inset patellar cemented Plastic of the selected size into the native patella.
- Test the patella tracking.

### **Patellar implantation:**

- Clean and dry the bone surface.
- Use the Patellar Reamer Impaction Clamp assemble on the Patella Reamer Clamp to insert the chosen patellar component.



# Definitive implants



### Insertion of chosen tibial baseplate:

- On the selected tibial baseplate (with or without cement), tighten the Standard stem using the Tibial Stem Wrench.
- Wash and dry bone surfaces and the joint space.
- For the cemented version, apply a layer of cement to the bone, the implant surface or to both.
- Position the tibial baseplate and impact it using the Baseplate impactor.
- For the cemented version, remove any excess cement taking care to limit the movement of the components while the cement is curing.

### **Insertion of chosen insert:**

 Place the polyethylene insert with the size corresponding to the femur and the thickness validated during testing.

### Insertion of chosen femoral component:

- Assemble the femoral implant (with or without cement) of the selected size on the Femoral condyle Holder (anterior position).
- If a cemented femoral implant is used, it is recommended to apply little cement on the posterior condyles and no cement on the posterior area of the notch, due to the implant design.
- Place the femoral component onto the femoral cuts, make sure it is aligned precisely, and then impact it so that the Femoral condyle holder can be removed.
- Finish impacting the component using the Femoral component impactor.
- For the cemented version, remove any excess cement taking care to limit the movement of the components while the cement is curing.



### **Tibial Extraction:**

• Remove the tibial insert

### NOTE

The slaphammer can be assembled with the modular handle for easy extraction.

### **Femoral extraction:**

- Assemble the femoral impactor/extractor on the handle.
- Attach to femoral component.Gradually extract the component by tapping under the anvil.



### The SCORE II conventional 4T instrumentation consist of 5 trays:

- Instrumentation set for SCORE : Common Set
- Instrumentation set for SCORE : 4T Resection Tibial Set
- Instrumentation set for SCORE : Trial Tibial Set
- Instrumentation set for 4in1 with pin positioner
- Instrumentation set for SCORE II : Trial Femoral Set

### And either of:

- Instrumentation set for SCORE II de 1ère Intention : Set Coupe Rotulienne (Mécanique)
- Instrumentation set for SCORE II Set de Rotule : Version Fraisage Rotulien

### In addition:

- Instrumentation set for SCORE II : Optionnal Set Size 0 4 in 1
- Instrumentation set for SCORE II : Optionnal Set Size 8 4 in 1
- Instrumentation set for SCORE Tibial Revision
- Sterile large saw blades
- Sterile medium saw blades

### Instrumentation SCORE : Common Set



ltem	Name	Product N°	Qty
1	Pin Extractor	2-0201500	1
2	Tibial Stem Wrench	2-0205500	1
3	Universal quick release adaptor for pin	2-0201100	1
4	Pin Driver AO	2-0201200	1
5	Flat Rasp	2-0206800	1
6	Slaphammer	2-0206900	1
7	Intramedullary Drill Bit	2-0200100	1
8	Spacer thickness 2 mm for spacer	2-0207002	1
9	Spacer thickness 4 mm for spacer	2-0207004	1
10	Spacer Thickness 7 mm	2-0200707	1
11	Spacer Thickness 10 mm	2-0200710	1
12	Spacer Thickness 18 mm	2-0200718	1
13	Resection Gauge	2-0204500	1
14	Alignment Gauge	2-0206300	2
15	Alignment Pin Ø 2 Length 150 mm	2-0103000	1
16	Long Drill bit, Ø 3.2, length 145 mm	2-0102400	1
17	Universal Handle	2-0216400	1
18	H5 Screwdriver	2-0200800	1
19	Intramedullary Rod length 250 mm	2-0200200	1
20	Intramedullary Rod length 400 mm	2-0200300	1
21	Extramedullary Alignment Rod	2-0200600	1
22	T Wrench	2-0200400	1

### **Instrumentation** SCORE : Tibial Resection Set



ltem	Name	Product N°	Qty
1	4T malleolar clamp	2-0237500	1
2	4T Rod for bimalleolar clamp	2-0237300	1
2	4T ML wheel for malleolar clamp	2-0237400	1
3	4T Aiming without tibial bracket	2-0239000	1
4	4T Aiming with tibial bracket	2-0236900	1
5	4T EM Jig	2-0237100	1
6	4T Distal AP wheel	2-0237200	1
7	4T Wheel/Tibial Resection guide Support	2-0236700	1
8	4T Wheel for EM JIG	2-0237000	1
9	4T Proximal AP Wheel	2-0236800	1
10	4T tibial resection guide left - 0°	2-0236400	1
10	4T tibial resection guide right - 0°	2-0236401	1
10	4T tibial resection guide left - 3°	2-0237600	1
10	4T tibial resection guide right - 3°	2-0237700	1
11	4T tibial stylus – 2/10	2-0236502	1
12	4T tibial bracket	2-0236600	1
13	Punch for tibial extension stem - size 0/1/2	2-0202812	1
13	Punch for tibial extension stem - size 3/4/5	2-0202835	1
13	Punch for tibial extension stem - size 6/7/8	2-0202667	1

### **Instrumentation** SCORE : Tibial Resection Set



Item	Name	Product N°	Qty
13	Standard trial stem	2-0208900	3
14	Punch guide for tibial baseplate - size 0/1/2	2-0202612	1
14	Punch guide for tibial baseplate - size 3/4/5	2-0202635	1
14	Punch guide for tibial baseplate - size 6/7/8	2-0202667	1
15	Removable handle for punch guide	2-0206200	2
16	Reamer for tibial extension stem	2-0202700	1
17	Headless pin length 80 mm	2-0201400	3
18	Headless pin length 30 mm	2-0201301	3
19	Headless pin length 70 mm	2-0201302	3
Instruments	in options:		
20	Pin Driver - Zimmer / Hall	2-0246300	1
20	Pin Driver AO - Magnetic	2-0246200	1
	4T Tibial Stylus - 0/10	2-0236500	1
	4T Tibial Stylus - 2/8	2-0236501	1
	4T tibial resection guide left – 6°	2-0237800	1
	4T right tibial resection guide – 6°	2-0237900	1

### **Instrumentation** SCORE : Tibial trial set



ltem	Name	Product N°	Qty
1	Trial insert Size 1 thickness 10 mm	2-0202911	1
1	Trial insert Size 1 thickness 12 mm	2-0202921	1
1	Trial insert Size 1 thickness 14 mm	2-0202931	1
1	Trial insert Size 1 thickness 16 mm	2-0202941	1
1	Trial insert Size 1 thickness 20 mm	2-0202951	1
2	Trial insert Size 2 thickness 10 mm	2-0202912	1
2	Trial insert Size 2 thickness 12 mm	2-0202922	1
2	Trial insert Size 2 thickness 14 mm	2-0202932	1
2	Trial insert Size 2 thickness 16 mm	2-0202942	1
2	Trial insert Size 2 thickness 20 mm	2-0202952	1
3	Trial insert Size 3 thickness 10 mm	2-0202913	1
3	Trial insert Size 3 thickness 12 mm	2-0202923	1
3	Trial insert Size 3 thickness 14 mm	2-0202933	1
3	Trial insert Size 3 thickness 16 mm	2-0202943	1
3	Trial insert Size 3 thickness 20 mm	2-0202953	1
4	Trial insert Size 4 thickness 10 mm	2-0202914	1
4	Trial insert Size 4 thickness 12 mm	2-0202924	1
4	Trial insert Size 4 thickness 14 mm	2-0202934	1
4	Trial insert Size 4 thickness 16 mm	2-0202944	1
4	Trial insert Size 4 thickness 20 mm	2-0202954	1
5	Trial insert Size 5 thickness 10 mm	2-0202915	1
5	Trial insert Size 5 thickness 12 mm	2-0202925	1
5	Trial insert Size 5 thickness 14 mm	2-0202935	1
5	Trial insert Size 5 thickness 16 mm	2-0202945	1
5	Trial insert Size 5 thickness 20 mm	2-0202955	1

### **Instrumentation** SCORE : Tibial trial set



ltem	Name	Product N°	Qty
6	Trial insert Size 6 thickness 10 mm	2-0202916	1
6	Trial insert Size 6 thickness 12 mm	2-0202926	1
6	Trial insert Size 6 thickness 14 mm	2-0202936	1
6	Trial insert Size 6 thickness 16 mm	2-0202946	1
6	Trial insert Size 6 thickness 20 mm	2-0202956	1
7	Trial insert Size 7 thickness 10 mm	2-0202917	1
7	Trial insert Size 7 thickness 12 mm	2-0202927	1
7	Trial insert Size 7 thickness 14 mm	2-0202937	1
7	Trial insert Size 7 thickness 16 mm	2-0202947	1
7	Trial insert Size 7 thickness 20 mm	2-0202957	1
8	Baseplate impactor	2-0203000	1
9	Trial Tibial Baseplate Size 1	2-0208601	1
10	Trial Tibial Baseplate Size 2	2-0208602	1
11	Trial Tibial Baseplate Size 3	2-0208603	1
12	Trial Tibial Baseplate Size 4	2-0208604	1
13	Trial Tibial Baseplate Size 5	2-0208605	1
14	Trial Tibial Baseplate Size 6	2-0208606	1
15	Trial Tibial Baseplate Size 7	2-0208607	1

### Instrumentation 4 in 1 with pin positioner 2-0299941



Item	Name	Product N°	Qty
1	4-in-1 femoral resection guide Size 1	2-0226401	1
1	4-in-1 femoral resection guide Size 2	2-0226402	1
1	4-in-1 femoral resection guide Size 3	2-0226403	1
1	4-in-1 femoral resection guide Size 4	2-0226404	1
1	4-in-1 femoral resection guide Size 5	2-0226405	1
1	4-in-1 femoral resection guide Size 6	2-0226406	1
1	4-in-1 femoral resection guide Size 7	2-0226407	1
2	Removable hand holds	2-0226500	2
3	Extra-articular ligament balancer V2	2-0233200	1
4	Screwdriver H3.5	2-0225500	1
5	Headless pin Ø3.2 Length 65 mm	2-0201402	6
6	4-in-1 probe	2-0229900	1
7	4-in-1 pin positioner	2-0229800	1
8	Distal Resection Guide 8 mm	2-0226900	1
8	Distal Resection guide 10 mm	2-0228900	1
9	Distal Slide bar	2-0226800	1
10	Femoral Valgus Alignement Guide 0°	2-0226600	1
10	Femoral Valgus Alignement Guide 3° *	2-0226603	1
10	Femoral Valgus Alignement Guide 6° *	2-0226606	1
11	H2.5 Wrench	2-0228200	1
12	Snap screwdriver H5	2-0233100	1
13	Threaded Non-Headed Pin Lg 65mm	2-0255401	2

\* option

### **Instrumentation** SCORE II Femoral trial set



ltem	Name	Product N°	Qty
1	SCORE II Femoral Trial Nav. S1 Right	2-0254421	1
2	SCORE II Femoral Trial Nav. S2 Right	2-0254422	1
3	SCORE II Femoral Trial Nav. S3 Right	2-0254423	1
4	SCORE II Femoral Trial Nav. S4 Right	2-0254424	1
5	SCORE II Femoral Trial Nav. S5 Right	2-0254425	1
6	SCORE II Femoral Trial Nav. S6 Right	2-0254426	1
7	SCORE II Femoral Trial Nav. S7 Right	2-0254427	1
8	SCORE II Femoral Trial Nav. S1 Left	2-0254411	1
9	SCORE II Femoral Trial Nav. S2 Left	2-0254412	1
10	SCORE II Femoral Trial Nav. S3 Left	2-0254413	1
11	SCORE II Femoral Trial Nav. S4 Left	2-0254414	1
12	SCORE II Femoral Trial Nav. S5 Left	2-0254415	1
13	SCORE II Femoral Trial Nav. S6 Left	2-0254416	1
14	SCORE II Femoral Trial Nav. S7 Left	2-0254417	1
15	Trial peg for trial femoral component	2-0233300	2
16	Cutting gauge	2-0206500	1
17	Drill for peg holes	2-0204000	1
18	Femoral component impactor	2-0204300	1
19	SCORE II Femoral Rasp S0-3	2-0254503	1
20	SCORE II Femoral Rasp S4-8	2-0254548	1
21	SCORE II Femoral condyle holder	2-0254800	1
22	SCORE II Intercondylar control gauge	2-0254600	1

### SCORE Primary : Patellar resection set (conventional)



ltem	Name	Product N°	Qty
1	Patellar Resection Clamp	2-0206700	1
2	Patellar resection gauge	2-0208400	1
3	Patellar Drilling Guide Ø30	2-0204900	1
4	Patellar Drilling Guide Ø33 and Ø36	2-0205000	1
5	Drill Bit for Resurfacing Patella	2-0205100	1
6	Trial resurfacing patella Ø30	2-0205330	1
7	Trial resurfacing patella Ø33	2-0205333	1
8	Trial resurfacing patella Ø36	2-0205336	1
9	Clamp for Locking ring	2-0104600	1
10	Patellar Impaction Clamp	2-0206100	1

### SCORE Patella set: Patella reaming



Item	Name	Product N°	Qty
1	Patella Reamer Clamp	2-0216600	1
2	Reamer for inset cementless patellar Ø23	2-0216523	1
3	Reamer for inset cementless patellar Ø26	2-0216526	1
4	Reamer for inset cementless patellar Ø29	2-0216529	1
5	Patellar Reamer Impaction Clamp	2-0216800	1
6	Patella Reamer Surfacing Guides Ø23	2-0216723	1
7	Patella Reamer Surfacing Guides Ø26	2-0216726	1
8	Patella Reamer Surfacing Guides Ø29	2-0216729	1
9	Trial Inset Patellar - Cemented Ø23 - plastic	2-0205223	1
10	Trial Inset Patellar - Cemented Ø26 - plastic	2-0205226	1
11	Trial Inset Patellar - Cemented Ø29 - plastic	2-0205229	1
12	Clamp for Locking ring	2-0104600	1
13	Trial Inset Patellar - Cementless Ø29 - Plastic	2-0216929	1
14	Trial Inset Patellar - Cementless Ø26 - Plastic	2-0216926	1
15	Trial Inset Patellar - Cementless Ø23 - Plastic	2-0216923	1

### **Instrumentation** Optionnal Set: 4-in-1 Size 0



Item	Name	Product N°	Qty
1	Trial insert Size 0 thickness 10 mm	2-0202910	1
2	Trial insert Size 0 thickness 12 mm	2-0202920	1
3	Trial insert Size 0 thickness 14 mm	2-0202930	1
4	Trial Baseplate Size 0	2-0208600	1
5	Femoral 4in1 cutting guide Size 0	2-0226400	1
6	SCORE II Trial femoral componant Size 0 Left	2-0254410	1
7	SCORE II Trial femoral componant Size 0 Right	2-0254420	1

### **Instrumentation** Optionnal Set: 4-in-1 Size 8



ltem	Name	Product N°	Qty
1	Trial insert Size 8 thickness 10 mm	2-0202918	1
2	Trial insert Size 8 thickness 12 mm	2-0202928	1
3	Trial insert Size 8 thickness 14 mm	2-0202938	1
4	Trial Baseplate Size 8	2-0208608	1
5	Femoral 4in1 cutting guide Size 8	2-0226408	1
6	SCORE II Trial femoral componant Size 8 Left	2-0254418	1
7	SCORE II Trial femoral componant Size 8 Right	2-0254428	1

### **Score: Tibial revision**



Item	Name	Product No.	Qty
1	Reamer Ø10	2-0210510	1
1	Reamer Ø12	2-0210512	1
1	Reamer Ø14	2-0210514	1
1	Reamer Ø16	2-0210516	1
2	Sleeve 10/15	2-0211400	1
2	Sleeve 12/19	2-0211401	1
2	Sleeve 14/21	2-0211402	1
2	Sleeve 16/23	2-0211403	1
3	Revision Tibial Bracket	2-0211000	1
4	Revision Tibial Resection Guide	2-0210600	1
5	Wheel for Resection Guide	2-0203800	1
6	Trial Tibial Half-Wedge - Size 1/2 thickness 5 mm	2-0210311	2
6	Trial tibial half-wedge - Size 1/2 thickness 10 mm MED.R / LAT.L	2-0210321	1
6	Trial tibial half-wedge - Size 1/2 thickness 15 mm MED.R / LAT.L	2-0210331	1
6	Trial tibial half-wedge - Size 1/2 thickness 10 mm LAT.R./. MED.L	2-0210341	1
6	Trial tibial half-wedge - Size 1/2 thickness 15 mm LAT.R./. MED.L	2-0210351	1
6	Trial Tibial Half-Wedge - Size 3/4/5 thickness 5 mm	2-0210313	2
6	Trial tibial half-wedge - Size 3/4/5 thickness 10 mm MED.R / LAT.L	2-0210323	1
6	Trial tibial half-wedge - Size 3/4/5 thickness 15 mm MED.R / LAT.L	2-0210333	1
6	Trial tibial half-wedge - Size 3/4/5 thickness 10 mm LAT.R./. MED.L	2-0210343	1
6	Trial tibial half-wedge - Size 3/4/5 thickness 15 mm LAT.R./. MED.L	2-0210353	1
6	Trial tibial half-wedge - Size 6/7 thickness 5 mm	2-0210316	2
6	Trial tibial half-wedge - Size 6/7 thickness 10 mm MED.R / LAT.L	2-0210326	1
6	Trial tibial half-wedge - Size 6/7 thickness 15 mm MED.R / LAT.L	2-0210336	1
6	Trial tibial half-wedge - Size 6/7 thickness 10 mm LAT.R./. MED.L	2-0210346	1
6	Trial tibial half-wedge - Size 6/7 thickness 15 mm LAT.R./. MED.L	2-0210356	1

### **Score: Tibial revision**



ltem	Name	Product No.	Qty
7	Offset Positioner for Trial Tibial Baseplate - 0 mm	2-0213300	1
7	Offset Positioner for Trial Tibial Baseplate - 2 mm	2-0213302	1
7	Offset Positioner for Trial Tibial Baseplate - 4 mm	2-0213304	1
7	Offset Positioner for Trial Tibial Baseplate - 6 mm	2-0213306	1
8	Trial extension stem Ø 12 length 75 mm	2-0209021	1
8	Trial extension stem Ø 12 length 75 mm	2-0209022	1
8	Trial extension stem Ø 14 length 75 mm	2-0209023	1
8	Trial extension stem Ø 10 length 100 mm	2-0209013	1
8	Trial extension stem Ø 12 length 100 mm	2-0209001	1
8	Trial extension stem Ø 14 length 100 mm	2-0209004	1
8	Trial extension stem Ø 16 length 100 mm	2-0209007	1
8	Trial extension stem Ø 10 length 150 mm	2-0209014	1
8	Trial extension stem Ø 12 length 150 mm	2-0209002	1
8	Trial extension stem Ø 14 length 150 mm	2-0209005	1
8	Trial extension stem Ø 16 length 150 mm	2-0209008	1
8	Trial extension stem Ø 12 length 200 mm	2-0209003	1
8	Trial extension stem Ø 14 length 200 mm	2-0209006	1
8	Trial extension stem Ø 16 length 200 mm	2-0209009	1
9	Trial Offset Connector 2 mm	2-0214102	1
9	Trial Offset Connector 4 mm	2-0214104	1
9	Trial Offset Connector 6 mm	2-0214106	1
10	Wrench for Offset Connector	2-0213500	1
11	Delta Wing for Tibial Trials	2-0213401	1
12	Thumb Knob to Connect Baseplate / Delta Wing	2-0215400	1
13	Tibial Impactor with Offset Connector	2-0213700	1
14	Extractor for Offset Connector	2-0214300	1
15	Headed Pin length 50 mm	2-0201303	4
16	Tibial cutting guide 4T revision	2-0253300	1

### Large saw blades

Synthes AO / SODEM large sawblade Sterile product No. 2-0227901



**STRYKER large sawblade** Sterile product No. 2-0227902



ZIMMER / HALL / LINVATEC large sawblade Sterile product No. 2-0227903



### **Medium saw blades**

Synthes AO / SODEM medium sawblade Sterile product No. 2-0228001



**STRYKER medium sawblade** Sterile product No. 2-0228002

**ZIMMER / HALL / LINVATEC medium sawblade** Sterile product No. 2-0228003







### **Extra-medullary system**

### **Extramedullary tibial system assembly**

- Screw the 4T Distal AP wheel on the 4T EM Jig.
- Insert the 4T Rod for bimalleolar clamp for the Malleolar Clamp into the EM 4T EM Jig. Lock it in place with the 4T Distal AP wheel.



- Assemble the 4T Tibial resection guide right or left – 0° or 3° with the 4T Wheel/Tibial Resection Guide Support.
- Assemble the 4T Wheel/Tibial Resection Guide Support with the 4T Aiming without tibial bracket by pressing on the support's green wheel.
- Place the assembly on the 4T EM Jig. Lock them using the 4T Wheel for EM Jig.

### NOTE

The 'UP' engraving corresponds to the 4T Wheel/Tibial Resection Guide Support's superior side



Assemble the 4T malleolar clamp on the 4T Rod for bimalleolar clamp. Lock it in place with the 4T ML wheel for malleolar clamp.



### NOTE

The instrumentation set contains two rods. Use the shortest one without the tibial bracket.

### **Extra-medullary system**

- Open the 4T Malleolar Clamp and position it on the ankle (the self-holding in open position of the clamp makes it easier to be placed), close the Clamp.
- Adjust its rotation relative to the anterior tibial tuberosity and then in the sagittal plane by aligning the rod parallel to the anterior tibial axis.
- Insert the 4T Tibial Stylus 2/10 (or 2/8) on the Tibial Resection Guide (make sure the clip is fully engaged).
- Adjust the resection height by using the stylus to palpate either the:
- Healthy side (10 mm cut relative to the chosen point),
- Worn side (2 mm cut relative to the chosen point (exit

### NOTE

For a different cutting height, the adjustment can be:
A fast adjustment can be done by pushing the green wheel on the guide support (disengaging).
A fine adjustment can be done by screwing the green wheel (the guide is graduated every 2mm).

- Check the height of the bone cut with the Resection Gauge inserted into the slot.
- Insert 2 Headless Pins Lg 80mm in the 0 mm holes.
- Remove the Tibial Stylus.
- Remove the all Tibial Jig by pressing the two blue buttons of the 4T Wheel/Tibial Resection Guide Support.



### **Combined Extra-medullary Guide:**

- For the combined extra-medullary jig, all the steps are identical to the combined intra-medullary guide, except that the 4T Tibial Bracket is directly impacted on the tibial eminence.
- Adjust its rotation relative to the anterior tibial tuberosity and then in the sagittal plane by aligning the rod parallel to the anterior tibial axis. Impact the tabs.
- Insert the 4T Tibial Stylus 2/10 (or 2/8 or 0/10) on the Tibial Resection Guide (make sure the clip is fully engaged).
- Adjust the resection height by using the stylus to palpate either the:
  - Healthy side (10 mm cut relative to the chosen point),
  - - Worn side (2 mm cut relative to the chosen point (exit level of the sawblade)).



### NOTE

For a different cutting height, the adjustment can be :
A fast adjustment can be done by pushing the green wheel on the guide support (disengaging).
A fine adjustment can be done by screwing the green wheel (the guide is graduated every 2mm).

Check the height of the bone cut with the Resection Gauge inserted into the slot.

Insert 2 Headless Pins Lg 80mm in the 0 mm holes.

### NOTE

It is possible to insert the Tibial Stylus on the lateral hole of the Tibial Resection Guide to palpate the medial plateau (and the opposite) by over-passing the Tibial bracket.

### NOTE

Two 4T Aiming are provided in the instrumentation. The one used with the Tibial Bracket is the longest.

### Removal of the tibial guide

- Remove the Tibial Stylus.
- Unscrew and remove the 4T AP Proximal Wheel.
- For the Combined intra-medullary Guide, assemble the T Wrench on the IM Rod and remove the IM Rod.
- Position the "T" part of the slaphammer in the Tibial Bracket and remove it.
- Remove the all Tibial Jig by pressing the two blue buttons of the 4T Wheel/Tibial Resection Guide Support.



### **4T Tibial Revision**



### Intramedullary tibial system

- Make a hole in the intramedullary canal with the Intramedullary drill bit.
- Gradually ream the intramedullary canal using Reamers mounted on the T wrench.
- The graduated Reamers are used to estimate the most appropriate extension stem length.
- Use progressively larger Reamers (Ø10/12/14/16 mm) until contact is made with the bone cortex.

### Intramedullary tibial system assembly

- Insert the 4T tibial bracket on the 4T Aiming with tibial bracket (the 'A' engraving on the 4T Aiming with tibial bracket must be on the anterior side).
   Screw on the 4T Proximal AP Wheel.
- Assemble the 4T Wheel/Tibial Resection Guide Support with the 4T Aiming with tibial bracket (the 'UP' engraving corresponds to the 4T Wheel/Tibial Resection Guide Support's superior side).
- Assemble the 4T Tibial Resection Guide Revision with the 4T Wheel/Tibial Resection Guide Support.



### NOTE

The instrumentation set contains two rods. Use the longest one with the 4T tibial bracket .

### NOTE

Slide the 4T Wheel/Tibial Resection Guide Support from the bottom and press the green wheel to position the support in the graduated area

### **4T Tibial Revision**



### **Resection height adjustment**

- Put the entire unit onto the Reamer or Intramedullary rod left in the tibia.
- Clip the 4T tibial stylus on the 4T Tibial Resection Guide - Revision (make sure the clip is fully engaged).
- Set the resection height by using the 4T tibial stylus to palpate either the:
  - healthy side (10 mm cut relative to palpated point)
  - worn side (2 mm cut relative to palpated point/exit of saw blade)
- Determine if a tibial augment is needed (Resection gauge place in the half-slots labelled 5/10/15).

### NOTE

- For other resection heights, the adjustment can be made:
  - quickly by pressing on the green wheel on the 4T Wheel/Tibial Resection Guide Support (release)
  - gradually by turning the green wheel (the 4T aiming has marking every 2 mm).

### NOTE

The 4T tibial stylus can be clipped on the lateral side of the 4T Tibial Resection Guide - Revision to palpate the medial plateau (or the reverse) by passing the 4T tibial stylus over the 4T tibial bracket.

### **4T Tibial Revision**



### Locating the medullary canal:

• See page 56.

### **Combined Intramedullary System assembly:**

- Screw the 4T Distal AP Wheel on the 4T EM Jig.
- Insert the 4T Rod for bimalleolar clamp into the 4T EM Jig. Lock it in place with the 4T Distal AP Wheel.
- Assemble the 4T malleolar clamp on the 4T Rod for bimalleolar clamp. Lock it in place with the 4T ML wheel for malleolar clamp.

- Insert the 4T tibial bracket on the 4T Aiming with tibial bracket (the 'A' engraving on the 4T Aiming with tibial bracket must be on the anterior side).
   Screw on the 4T Proximal AP Wheel.
- Assemble the 4T Wheel/Tibial Resection Guide Support with the 4T Aiming with tibial bracket (the 'UP' engraving corresponds to the 4T Wheel/Tibial Resection Guide Support's superior side).
- Assemble the 4T Tibial Resection Guide -Revision with the 4T Wheel/Tibial Resection Guide Support.
- Place all components on the 4T EM Jig. Lock them in place with the 4T Wheel for EM Jig.

### NOTE

The instrumentation set contains two rods. Use the longest one with the 4T tibial bracket .



### NOTE

Slide the 4T Wheel/Tibial Resection Guide Support from the bottom and press the green wheel to position the support in the graduated area

### 4T Tibial Revision Combined Intramedullary tibial system



### **Resection height adjustment**

- Place the 4T malleolar clamp around the ankle (the clamp has a self-opening feature that makes it easier to set up). Position the 4T tibial bracket on the intercondylar eminence.
- Adjust the rotational and then sagittal alignment by setting the rod parallel to the anterior tibial axis. Impact the tabs.
- Set the resection height by using the 4T tibial stylus to palpate either the:
  - healthy side (10 mm cut relative to palpated point)
  - worn side (2 mm cut relative to palpated point/exit of saw blade)
- Determine if a tibial half-block is needed (Resection gauge place in the half-slots labelled 5/10/15).

### NOTE

For other resection heights, the adjustment can be made:

- quickly by pressing on the green wheel on the 4T Wheel/Tibial Resection Guide Support (release)
  - gradually by turning the green wheel (the 4T aiming has marking every 2 mm).

### NOTE

The 4T tibial stylus can be clipped on the lateral side of the 4T Tibial Resection Guide - Revision to palpate the medial plateau (or the reverse) by passing the 4T tibial stylus over the 4T tibial bracket.

### 4T Tibial Revision Tibial cut



### IMPORTANT

When using the Computer Assisted Surgery (CAS) system or the i.M.A.G.E. PSI system, the 4T Tibial Resection Guide - Revision has to be positioned on the 2 holes identified ONAV.

### NOTE

Headless pins length 80 mm have to be positioned closed to the main resection slot. In case of a resection for a halfblocks, choose the holes just below for the Headless pins length 80 mm.

### NOTE

Use a medium saw blade AMPLITUDE to make the tibial cuts and those of the tibial half-blocks (slots at 5/10/15 mm) if needed.

- Use a motorised handpiece and the Pin Driver – Zimmer / Hall or Pin Driver AO - Magnetic to drive 2 Headless pins length 80 mm into the 0 landmarks on the 4T Tibial Resection Guide -Revision.
- Loosen the 4T Proximal AP Wheel.
- Place the 'T' end of the Slap hammer into the opening on the 4T tibial bracket and then remove the entire assembly.
- Remove the 4T tibial stylus.
- Remove the intramedullary or extramedullary assembly by pressing on the two blue buttons on the 4T Wheel/Tibial Resection Guide Support.
- Place the 4T Tibial Resection Guide Revision flush with the anterior tibial cortex.
- Stabilize the 4T Tibial Resection Guide Revision with 3 Headed pins length 70 mm; the pin holes can be predrilled with the Long Drill bit Ø3.2 length 145 mm.
- Perform the tibial cut(s).
- Remove the Headed pins length 70 mm using the Pin extractor.
- Slide the 4T Tibial Resection Guide Revision off the Headless pins length 80 mm, but leave the Headless pin length 80 mm in place in case recutting is required (the +2 and +4 holes will be used at that time).
- Assess the gaps and ligament tension with the knee flexed and extended.

### 4T Tibial Revision Positionning of the trial Baseplate



- Remove the two Headless pins that were left in the tibia (after the tibial cut is completed).
- Select the trial tibial baseplate that provides the best possible bone coverage.
- Reposition the Reamer selected during the tibial resection onto the T Wrench.
- Assemble the Offset Positioner for Trial Tibial Baseplate 0 mm onto the trial tibial baseplate.
- Insert these two components onto the reamer and on the tibial cut.
- If needed, a Trial Tibial Half-Wedge Size 1/2 (or 3/4/5 or 6/7) thickness 5 mm or a Trial tibial half-wedge - Size 1/2 (or 3/4/5 or 6/7) thickness 10 mm (or 15mm) LAT.R./.MED.L (or MED.R / LAT.L) of the same size of the baseplate can be placed between the Trial Tibial Baseplate and the resection done for the augment.

- If the trial baseplate does not fully cover the tibial cut surface when it is centred on the reamer, use the 2, 4 or 6 mm Offset Positioner for Trial Tibial Baseplate instead.
- Turn the offset positioner until the trial tibial baseplate covers the cut surface completely.
- Make note of the connector size and its position using the graduations on the connector and the mark on the trial baseplate. This information will be used when the trial and final components are assembled.
- Secure the unit with 2 headed pins; the appropriate pin length 30, 50 or 70 mm depends on the thickness of any tibial augment that is used.
- Remove the reamer and offset positioner.
- Finalise the tibial preparation (see page 30).



### 4T Tibial Revision Tibial trials



- Screw the Trial Extension Stem (length and diameter correspond to final reamer used) to the Trial Offset Connector corresponding to the selected tibial offset positioner. These components are assembled using the Wrench for Offset Connector and Tibial Stem Wrench.
- With the H5 screwdriver, tightly screw this unit to the Delta Wing for Tibial Trials while making sure the position of the Trial Offset Connector previously determined from the trial tibial baseplate is maintained.
- Impact the delta wing/connector (if used)/ extension stem unit through the tibial baseplate into the tibia until it stops.
- Secure the entire unit to the trial baseplate using the Thumb Knob to Connect Baseplate / Delta Wing. Tests can now be carried out in the same configuration as the final implants.

### NOTE

If no adapter is used, screw the trial extension stem directly into the delta wing for tibial trials.

Lenght	Diameters			
75	10	12	14	
100	10	12	14	16
150	10	12	14	16
200		12	14	16



extension stem

### 4T Tibial Revision Assembly of definitive tibial implants



- Screw the tibial extension stem to the offset adapter that corresponds to the validated tibial offset positioner. These components are assembled using the Wrench for Offset Connector, extension stem wrench and the H5 Screwdriver. If no offset adapter is used, screw the extension stem directly into the tibial baseplate using the Tibial Stem Wrench and the H5 Screwdriver.
- Impact the whole unit into the tibial baseplate while matching the position determined during tibial preparation (laser markings can be found on the edge of the delta wing).
- Place the Tibial Impactor with Offset Connector into the female side of the baseplate taper.
- Finish impacting by firmly tightening the screw in the Tibial Impactor with Offset Connector with the H5 screwdriver.
- In case of modification of the adjustment of the Offset adapter, the whole assembly can be disassembly with the Extractor for Offset Connector. Change the adjustment of the assembly and tighten the assembly.

### **Placement of tibial implants**

- Carefully lavage the implantation site to clean it out.
- Prepare the bone cement and apply it to the tibial cut surface or under the tibial baseplate.
- If using a tibial augment, apply a thin layer of cement between the augment and tibial baseplate.
- Impact the final components into the tibia using the trial baseplate impactor and make sure the augment is perfectly positioned relative to the tibial baseplate and tibial cut.
- Tighten the tibial impactor with offset connector one last time before removing it completely
- Remove any excess cement.
- Place a tibial insert of the size corresponding to the femur and thickness validated during the trials.

# **Appendix A**

### Assembly and disassembly of the ligament balancer



### Assembly of Balancer:

- 1 Screw the removable handle onto the tibial housing.
- Place the gear wheel into the lateral opening on the tibial housing.
- Press the blue button and insert the femoral housing on top of the tibial housing

### Dissassembly of the Balancer:

Repeat the above steps in the reverse order.

# **Appendix B**

### Assembly and disassembly of the 4-in1 pin positioner



### **Disassembly of Pin Positioner:**

- 1 Unscrew the indexing thumb knob.
- 2 Remove the dowel.
- 3 Unscrew the pan-head screw with the H2.5 wrench.
- 4 Remove the saw blade guide.

### Assembly of Pin Positioner:

Repeat the above steps in the reverse order.

# NOTES





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