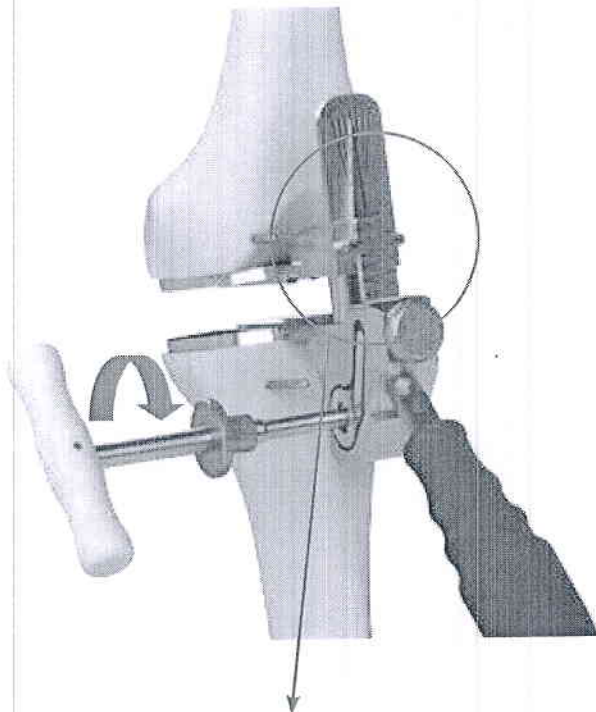


# Tibial cut

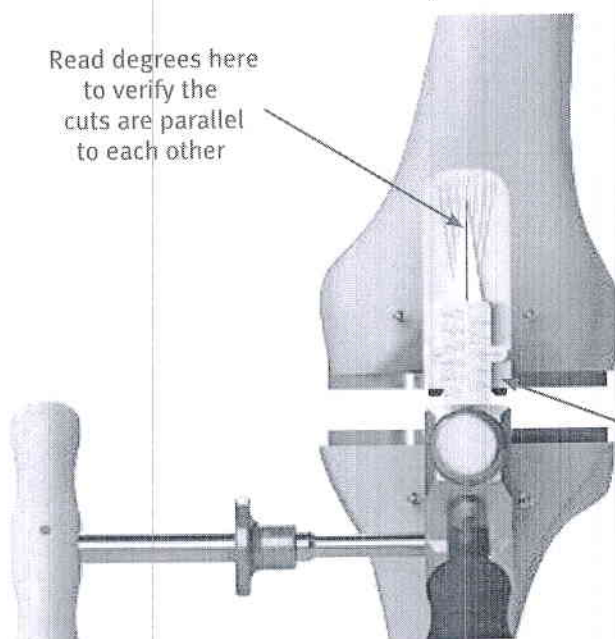
- Loosen the screw in the tibial resection guide.
- Place the «T» end of the slaphammer into the opening on the tibial bracket and then remove the entire intra- or extramedullary assembly.
- Place the resection guide flush with the anterior tibial cortex.
- Use three converging headed pins to stabilise the resection guide.
- Make the tibial cut.
- Remove the headed pins with the pin extractor.
- Slide the resection guide off the pins, by leaving the pins in place in case a recut was necessary (the +2 and +4 holes will be used at that time).

**Note:** Depending on the bone quality, a 145 mm long, Ø 3,2 mm drill bit can be used to make pilot holes for the pins.



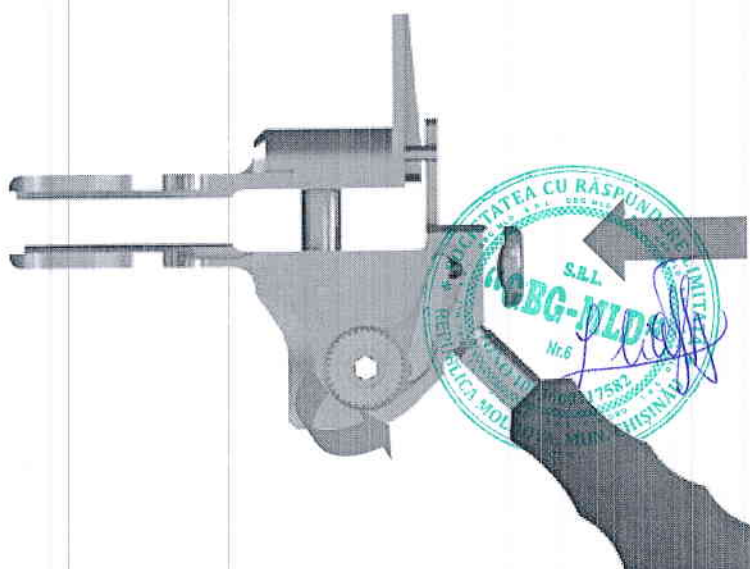


Read degrees here  
to verify the  
cuts are parallel  
to each other



Read extension  
gap here (mm)

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



# Extension gap measurement

## Ligament balancing while in extension:

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.

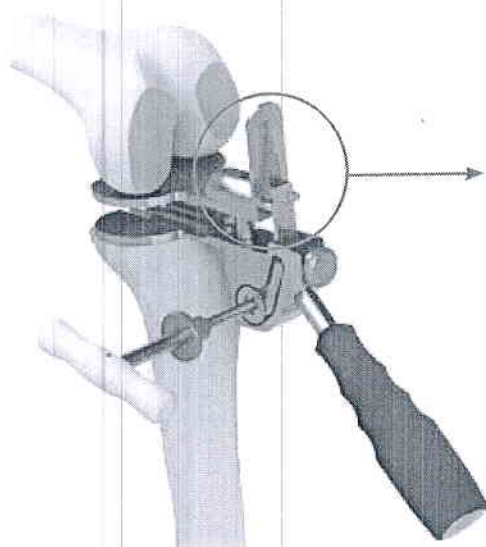
- Insert the ligament balancer into the knee joint with the knee extended.
- Insert the H5 ratcheting screwdriver into the balancer's cog wheel.
- Turn the H5 screwdriver to operate the distraction mechanism and apply the desired amount of tension. Do not apply excessive distraction, otherwise the knee 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.

**Note:** Ligaments can be released to achieve desired ligament balance (value of 0 on balancer).

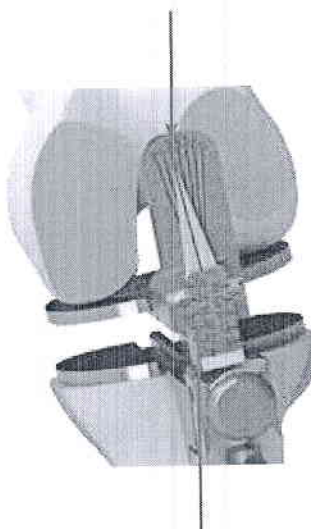
- Press the blue unlock button to remove the balancer from the joint.

**Important:** remove the 2 headless pins left in anterior part



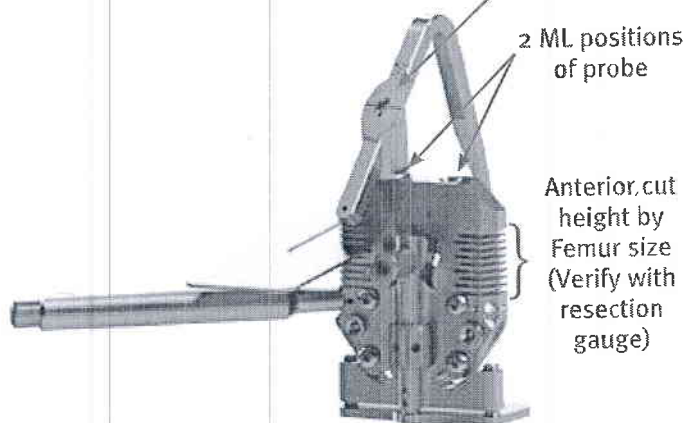


Read femoral rotation here

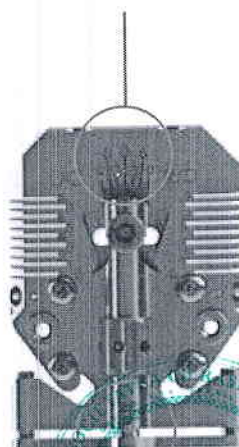


Read flexion gap here  
(Subtract 8 mm from extension gap)

Read femoral component size here



Set femoral rotation here



The distal pin can be offset by +2 mm or -2 mm in the anteroposterior direction





# Transfer of gap into flexion

- 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).

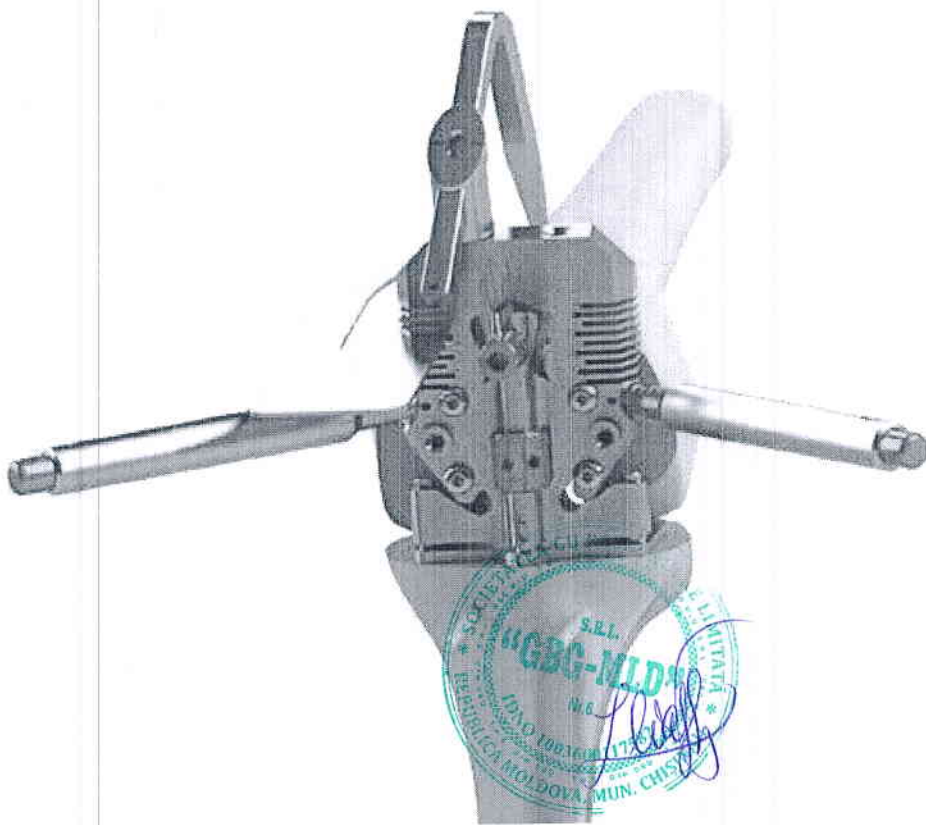
On the back table:

- Set the femoral rotation based on the measurement taken with the 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.



**Note:** The pin positioner uses a posterior reference point.

- Mount the femoral probe.



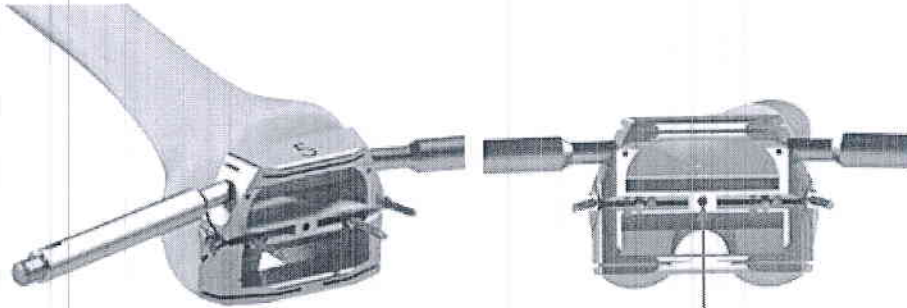
# Distal pin insertion

On the patient:

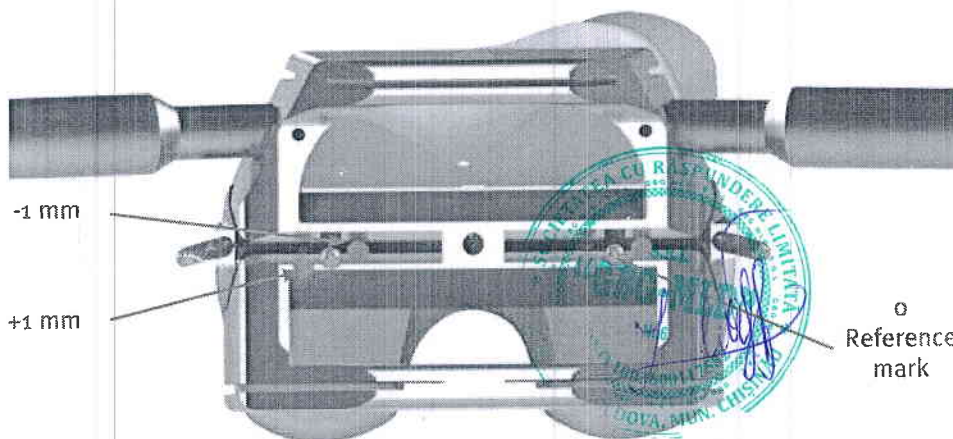
- Remove the balancer and place the pin positioner while making sure:
  - it is flush with the distal cut and
  - it rests against the posterior condyles
- Place the probe tip against the anterior cortex and determine the femoral component size.
- Verify the size by placing the resection gauge into the slots to preview the anterior cut position.
- If the femoral size shown is between two 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 distal pins (diameter 3,2 mm, length 65 mm)
- Remove the pin positioner.







Optional pin into  
intercondylar notch



-1 mm

+1 mm

Reference  
mark

# Femoral cuts using the 4-in-1 instrumentation

- Set the 4-in-1 resection guide that corresponds to the measured size on the distal pins in the middle 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 sides of the resection guide with the pins.
- In patients with osteoporosis, better fixation can be achieved by adding a pin in the intercondylar notch, connect the two 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.





# Femoral preparation guide placement

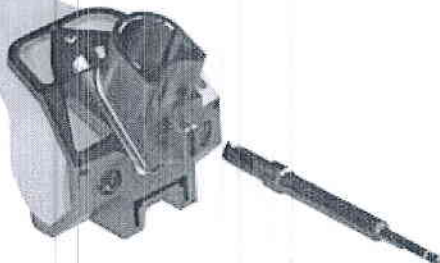
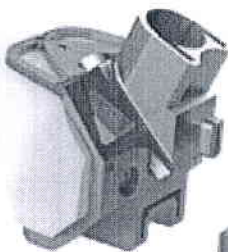
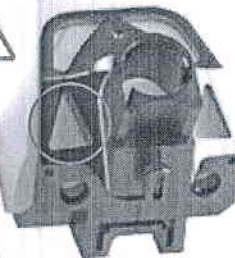
- Choose the same size of femoral preparation guide as the 4-in-1 resection guide used previously.
  - Place the universal handle on the oval clip by simultaneously pushing and turning the handle one-quarter turn.
  - Place the femoral preparation guide onto the femur. This guide has the same mediolateral dimensions as the replacement femoral component. Use the two windows on the anterior face to help position the guide:
    - The outer (lateral) side of the guide corresponds to the outer edge of the replacement femoral component
    - The inner (medial) side of the window corresponds to the inner edge of the replacement femoral component (see figure on opposite page)
  - The guide can be centred in the medio-lateral direction by aligning the line at the centre of the guide over the posterior intercondylar notch.
  - Secure the femoral preparation guide with three headed pins.
  - Remove the universal handle.
- 

## Femoral notch preparation

- Select the same size of notch reamer as the preparation guide.
- Push the reamer into the guide until it stops.







# Femoral trochlea preparation

- Select the trochlear box chisel corresponding to the operated side and assemble it with the universal handle.
- Prepare the trochlea by inserting the box chisel into the guide.

**Important:** Make sure the box chisel is properly oriented top to bottom.

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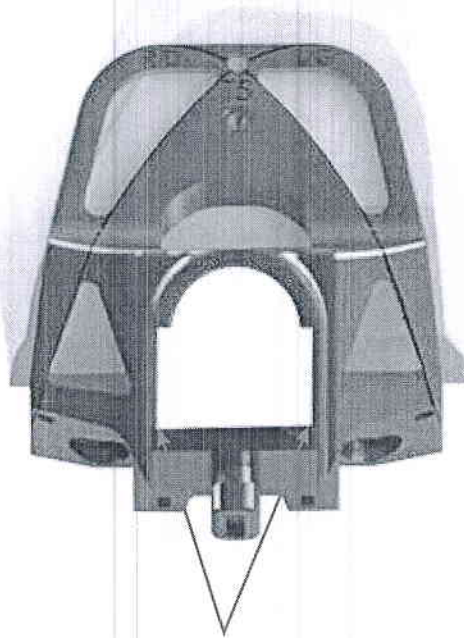
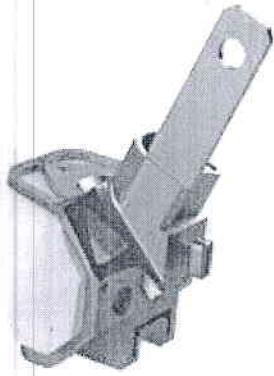
## Postero-stabilisation cam preparation

- Assemble the L-shaped chisel with the universal handle.
- Prepare the postero-stabilisation cam space by pushing the L-shaped chisel into each side of the guide area. Impact the chisel until it reaches the line corresponding to the size of the guide being used (guide entrance).
- Mark the entry point for the two pegs with the drill bit with stop while making sure the bit is well-aligned with the pegs.

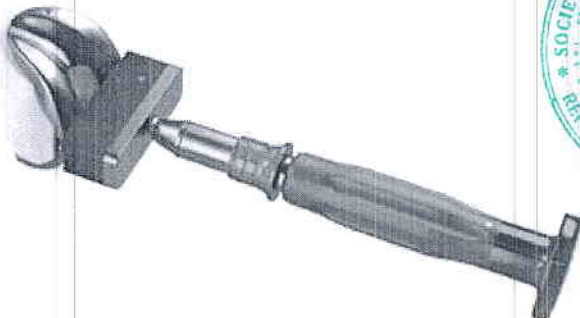
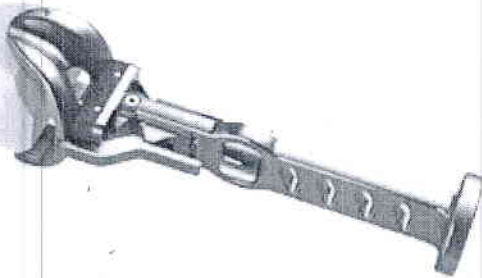
**Note:** The pegs can be prepared on the trial femoral component.







Site for osteotome



# Final femoral preparation

- To remove the bone ridge between the distal cut and reamed notch:
  - Select an osteotome of the same size as the preparation guide
  - Push the osteotome into each of the two slots on the outside of the reamer hole until it stops, make sure the «NOTCH SIDE» label faces the notch when pushing in the osteotome

**Note:** If the osteotome is difficult to pull out, place the T end of the slap-hammer into the hole.

- Remove the 3 headed pins using the pin extractor and extract the preparation guide using the universal handle.

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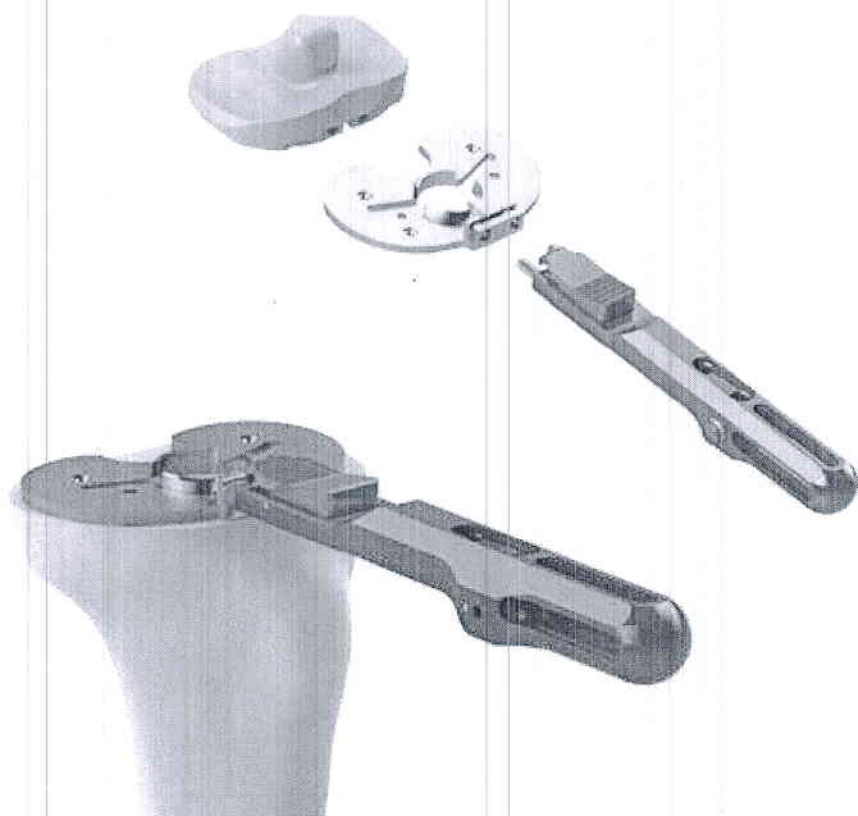
## Placement of trial femoral component

- Select the appropriate side and size of trial femoral component.
- Impact the trial femoral component using the holder, adjusting the medio-lateral position as needed.

**Note:** If all the femoral peg holes have already been made, place the trial pegs into the trial femoral component before connecting it to the holder. This will make it easier to achieve the correct medio-lateral position during impaction.

- Finish impacting the trial component using the femoral component impactor and universal handle.
- If the peg holes were not prepared using the femoral preparation guide:
  - Use the drill bit with stop to make first peg pilot hole
  - Insert the trial peg
  - Make the second peg pilot hole
  - Insert the second trial peg
- Any posterior osteophytes can be removed using the osteotome that matches the trial femoral component size.





# Placement of trial tibial baseplate

- Determine the size of the tibial baseplate needed. The baseplate can be the same, or one size larger or smaller than the size for the femoral component.
- Position the trial tibial baseplate onto the tibial cut. The tibial baseplate handle can be used.
- Once the size has been selected, remove the baseplate handle, place the same size of insert and reattach the baseplate handle. The lugs on the handle help secure the insert to the trial baseplate. In addition, the handle can be used with an extramedullary alignment rod to verify the rotation, slope and perpendicular alignment of the tibial cut.

**Important:** remove the 2 headless pins left in the tibia.

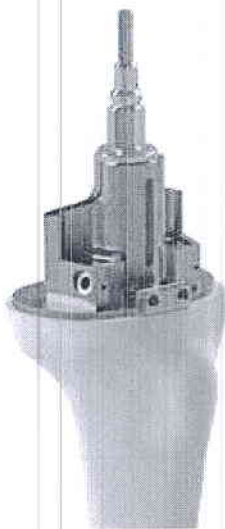
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## Preparation of tibial anchoring points

- Put the assembled femoral and tibial trial components through a flexion / extension cycle to assess joint balance and allow the baseplate to seat itself in the appropriate rotation (the handle can be removed).
- Pick a different insert height if needed.
- Use electrocautery to mark the baseplate position on the tibia using the two lines on the baseplate.
- Remove the assembled tibial components and replace the baseplate (without the insert) using the marks made on the tibia as a guide.
- Secure the baseplate with two 30 mm headed pins.







# Tibial preparation

- Place the tibial fins punch guide onto the trial baseplate and verify that the sizes are compatible.
- Handles can be secured to the sides of the tibial fins punch guide to stabilise the entire assembly during the various preparation steps.
- With the power tool, drive the tibial keel drill bit into the guide until it stops.
- Prepare the fins by pushing the appropriately sized tibial fin punch (assembled with the universal handle) until it stops.
- Remove all the instruments using the baseplate handle and the pin extractor.







# Patellar preparation

## Patellar resection option

After clearing the area around the patella

- Place the clamp so the two lugs are on the anterior side of the patella.
- With the clamp jaws open, bring the 8 mm probe into 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.
- Use the drilling templates to determine the size of patellar component needed: 30, 33 or 36 mm.
- Centre and impact the drilling template.
- Make the pilot holes for the three pegs.
- Set the trial patellar component into place using the patellar clamping forceps.
- Test the articulation in the trochlea.

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# Patellar preparation

## Patellar reaming option

- Trim away any peripheral osteophytes.
- Centre the trial inset patella on the central ridge of the articular surface of the native patella. 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 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 clamp corresponding to the chosen patellar implant size onto the locking patellar reaming forceps and lock it into place.
- Position the forceps. The inferior jaw on the reaming forceps 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 reaming forceps.
- Assemble the reamer for inset patella of the same size as the chosen clamp onto the power tool.
- Ream the patella until the stop is reached.
- Use the clamp for trial patella to place the trial cemented patellar implant of the selected size into the native patella.
- Test the articulation of the patella in the trochlea.
- Assemble the patella binding clamp onto the locking patellar reaming forceps and lock it into place.
- Insert the chosen patellar component.





# Insertion of chosen tibial baseplate

- Use the keel wrench to screw the distal peg into the tibial baseplate (cemented or cementless).
- Position the tibial baseplate and impact it using the tibial impactor mounted on the universal handle.

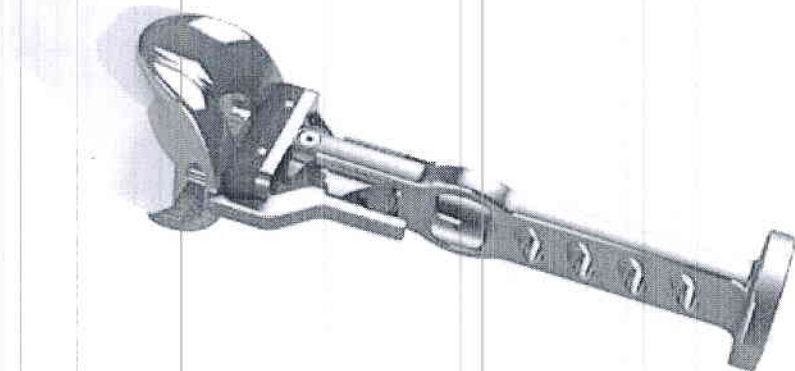
**Note:** If the final insert thickness has not been determined, a trial insert can be placed onto the chosen tibial baseplate for the trials.

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## Insertion of chosen insert

- At this point in the procedure, trials can still be performed with a trial insert and the chosen tibial baseplate.
- Hyperflex the knee.
- Slide the insert onto the lateral baseplate rails, and then impact its anterior edge using the tibial impactor.
- Reduce the femoral component onto the insert.







# Insertion of chosen femoral component

- Assemble the chosen femoral component (cemented or cementless) with the femoral component holder.
- Place the femoral component onto the femoral cuts, make sure it is aligned precisely, and then impact it. Remove the femoral component holder.
- Finish impacting the component using the femoral component impactor and universal handle.







# Tibial baseplate extraction

## Revision cases

- To remove the tibial insert, wedge a Lambotte osteotome or bone chisel between the insert and baseplate.
- Assemble the baseplate extractor with the universal handle.
- Screw them into the tibial baseplate.
- Gradually extract the component by tapping under the anvil.

**Note:** The slap-hammer can be assembled with the universal handle to make the extraction easier.

