

Operating technique



In the case of a revision



Pre-operative planning

Assess using X-Rays and templates:

- Concerning the bone:

- From a standing AP X-Ray of both knees find the correct position of the joint line.

Tibia: The tibial slope,
The height of the tibial cut,
The size of the tibial plateau,
The need to use tibial half-wedges (5/10/15 mm),
The need for a tibial stem (+10/12/14/16 mm in lengths of 75/100/150/200 mm),
The need to use an off-set connector (2/4/6 mm).

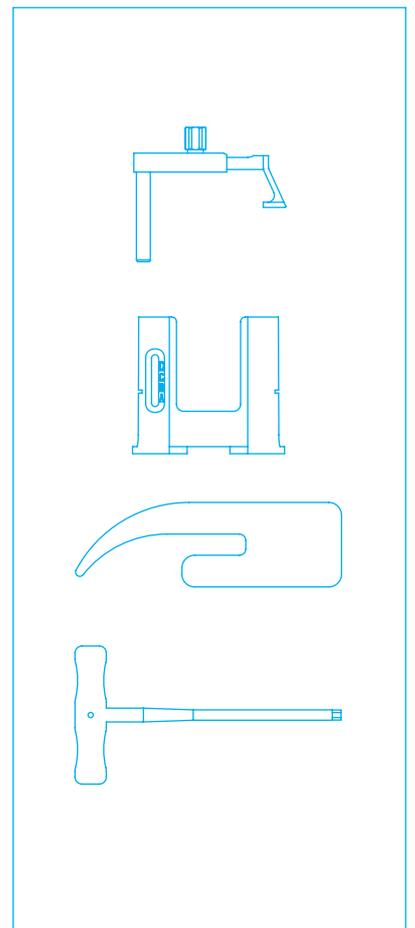
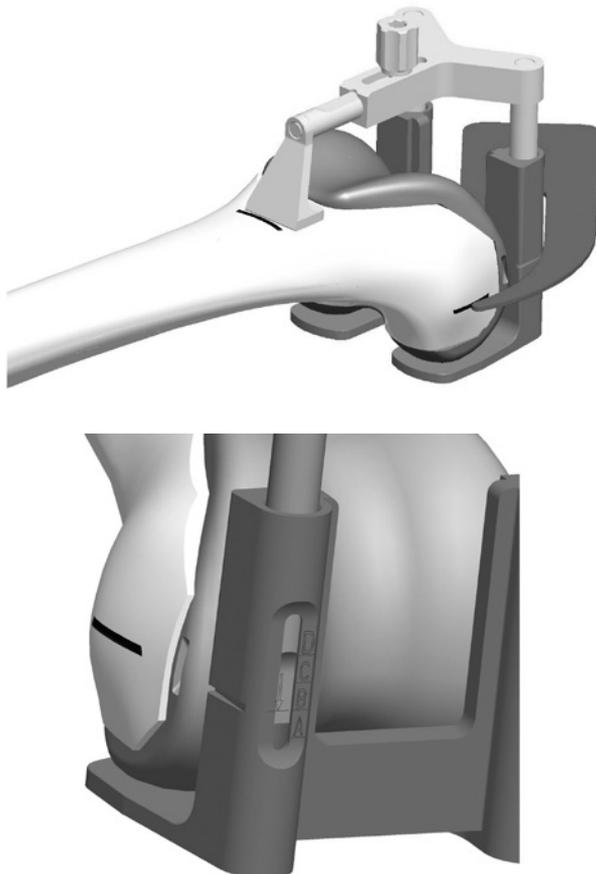
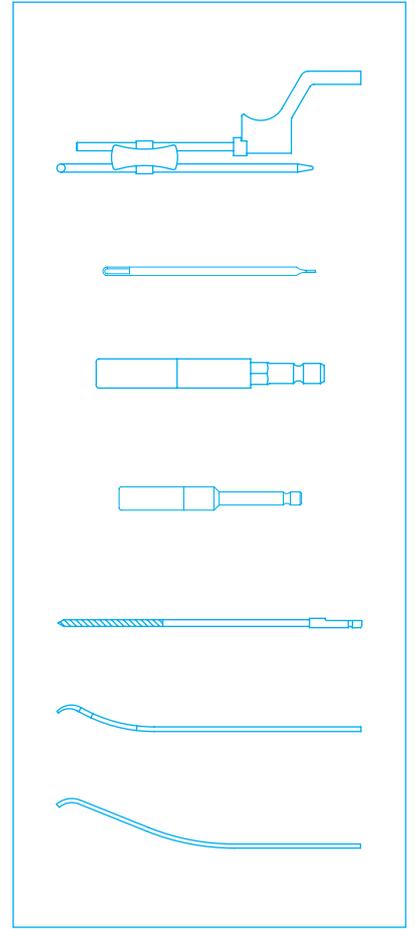
Femur: The size of the condyle (AP and lateral),
The need to use distal and/or posterior wedges (4/8 mm),
The need to use a stem (12/14/16/18/20 mm in lengths of 75/100/150/200 mm),
The need to use an off-set connector (2/4/6 mm).

Patella: The need to resurface it, or not.

- With regard to the ligaments:

- Stress X-Rays will show varus and valgus laxity.

Reminder: The purpose of this guide is the correct use of the instruments.
The surgeon remains responsible for the indications, the surgical approach and the operating technique.



OPERATING TECHNIQUE

Determining the joint line

- It is important to have excellent exposure of the entire tibial plateau. Hohmann retractors are provided.
- A special joint line jig is provided.

The base is fixed to the tibia with two pins. The proximal arm is set to the planned joint line, tightened well and removed from the pins (intact) for use again.

Remove the tibial implant.

Determining the size of the femoral implant

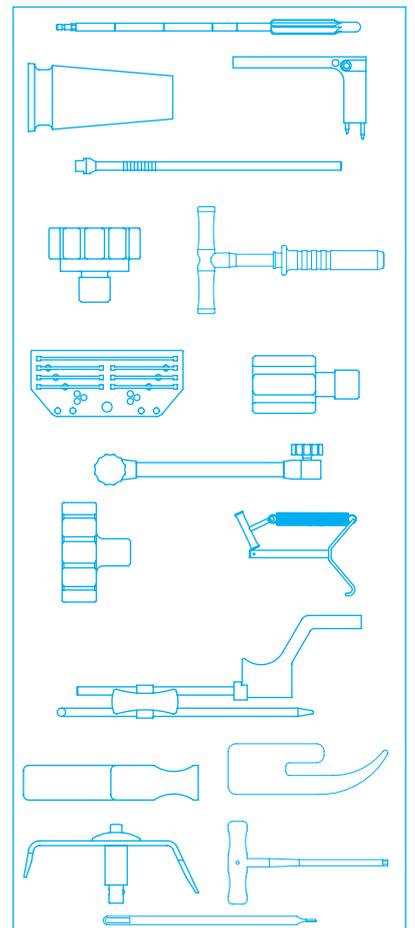
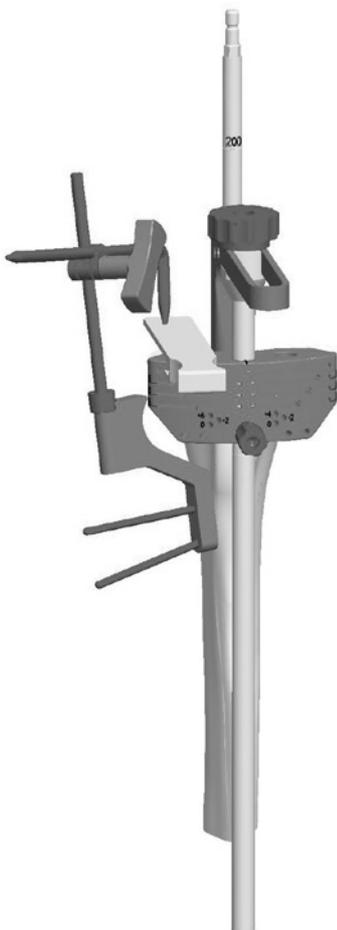
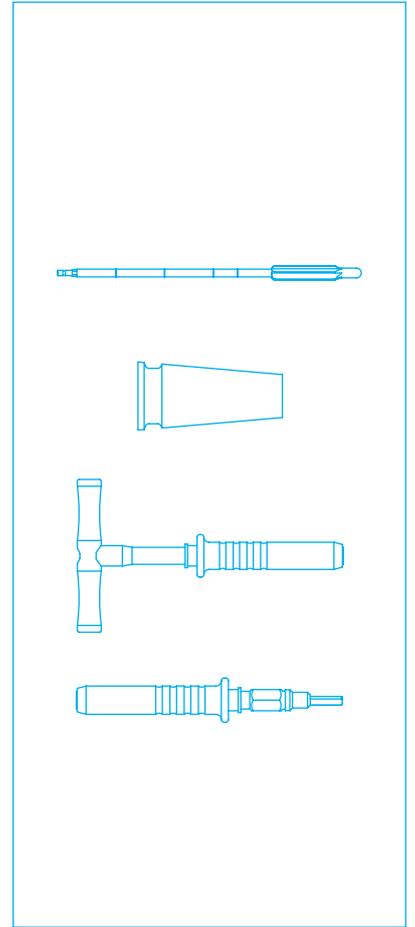
- Assemble the femoral sizing jig.
 - Place on the distal femur, ensuring distal and posterior contact.
 - Tighten the anterior arm, and make a clear mark where the end touches the cortex.

This setting will be the guide to the joint line throughout the procedure.

Check rotation with the finger gauge against the epicondyles.

Record the measured femoral size.

Remove the femoral prosthesis.



Tibial preparation

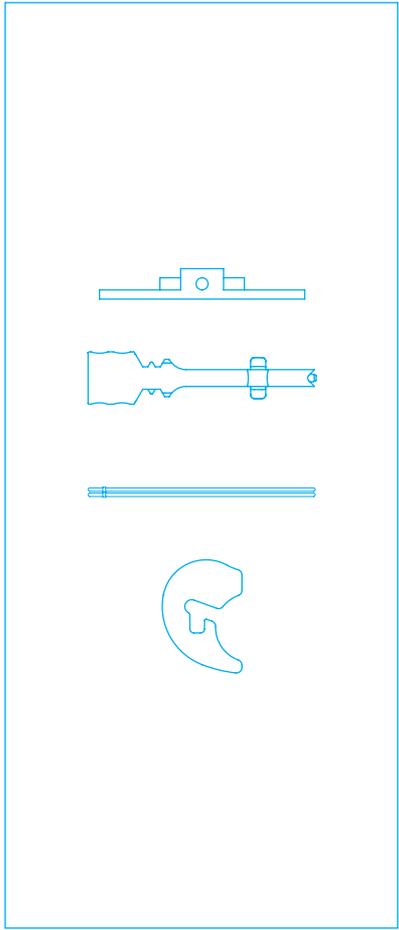
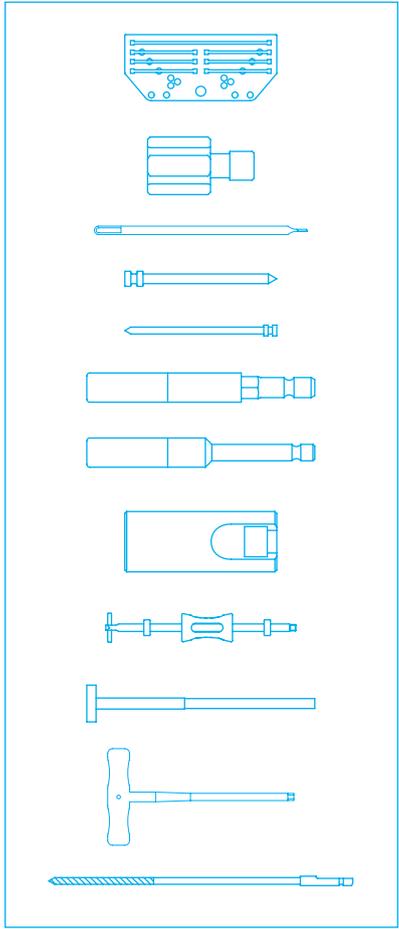
Tibial reaming

- Use the reamers on the T handle to ream the tibial canal.
- Increase the reamer diameter (10/12/14/16 mm) until stable cortical contact is obtained. Choose the correct depth (75, 100, 150, 200 mm) and diameter of the stem required (10, 12, 14, 16 mm).
- Leave the last used reamer in place.

NB : If there is a substantial proximal bone loss between the reamer and the tibia, use sleeves to obtain stability of the reamer in the tibia.

Tibial alignment

- Assemble the intra-medullary cutting guide and tibial cutting block then slide the block over the reamer.
(Combined extra and intra-medullary aiming may be used).
- Reconnect the joint line jig, and with the joint line spacer in the tibial cutting block, choose the correct level for the cutting block, and lock with the allen key.
(This will produce a 10 mm cut below the joint line).
- Assess the necessity of using a tibial half-wedge (5, 10, 15 mm on either side).

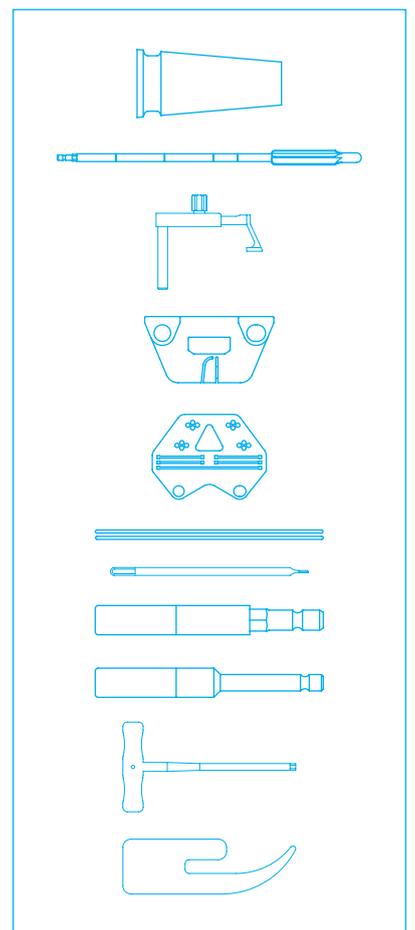
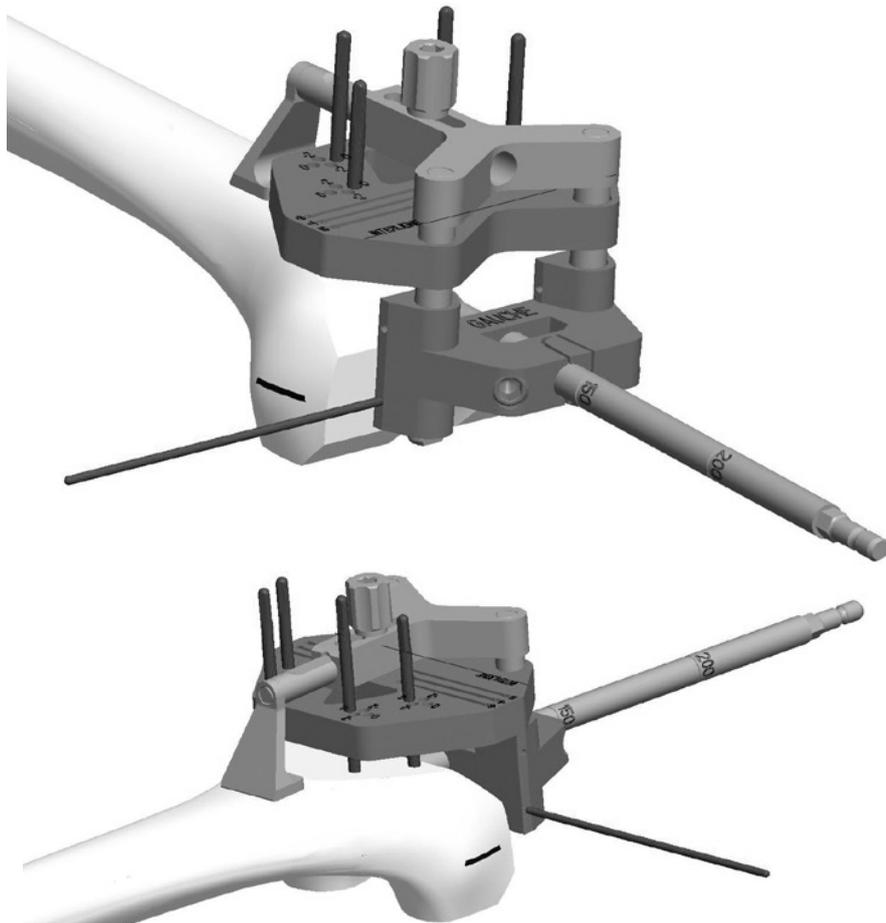
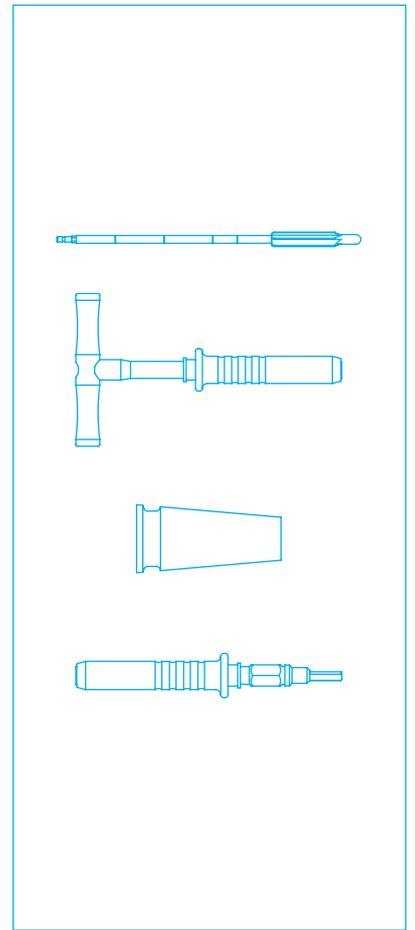
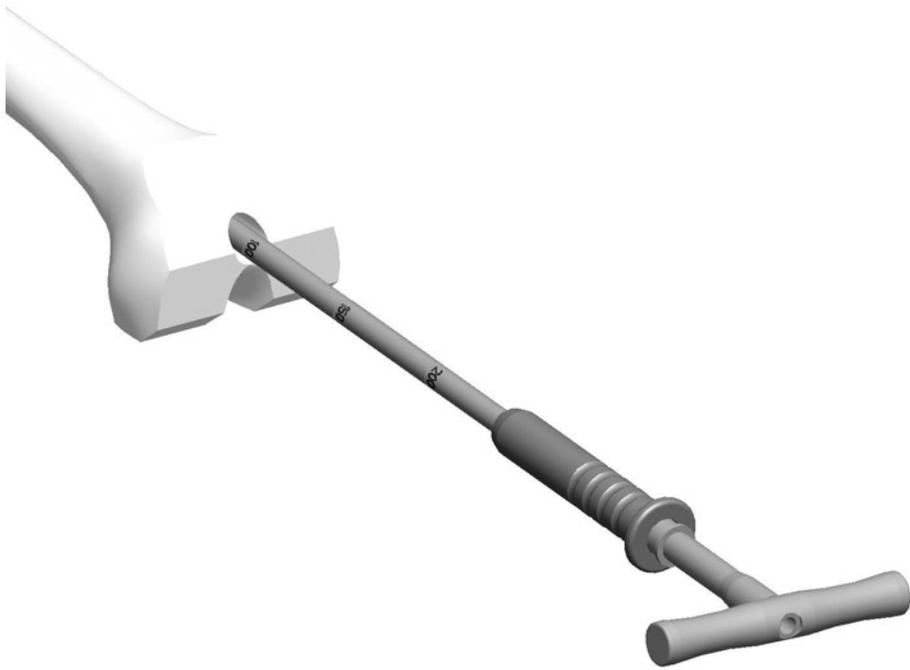


Tibial cut

- Insert two headless pins into the tibial cutting block at the zero mark.
- Release with the allen key, and remove the alignment jig with the slap hammer.
- Slide the cutting block against the tibia.
- Stabilise with three headed pins (pre-drilling with the 3.2 mm drill may be required).
- A narrow blade is used to perform the tibial cut and that of the tibial half-wedges.
- Remove the headed pins.
- Slide the cutting block off the two headless pins, taking care not to withdraw them. They are left in place for potential re-cutting using the +2 or +4 markings on the tibial cutting block.

Verification of the tibial cut

- Determine the size of the tibial base plate using the tibial trials fitted to the universal handle.
- If necessary, use a trial tibial half-wedge.
- Check the tibial preparation using the long alignment pins fitted into the universal handle.



Femoral preparation

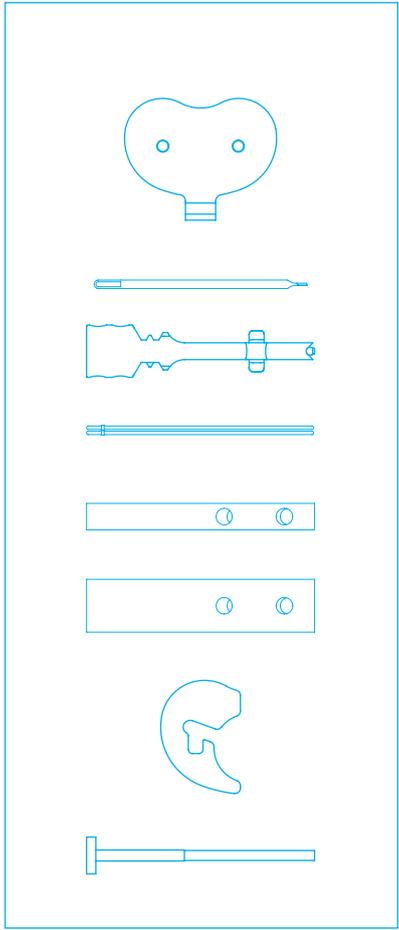
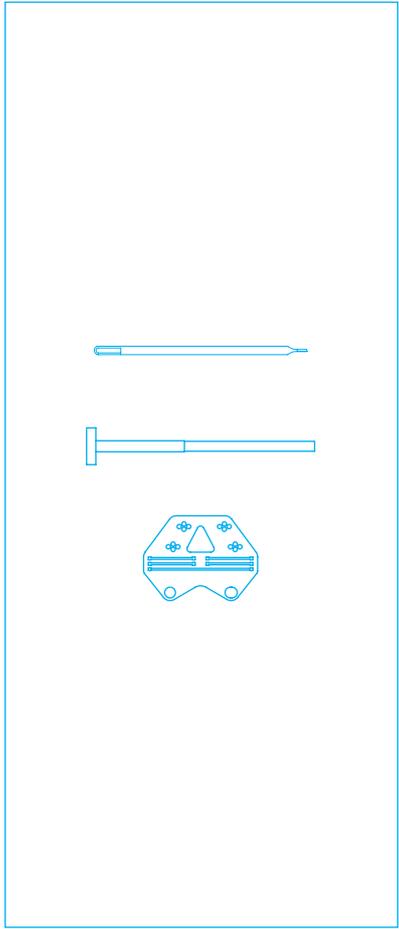
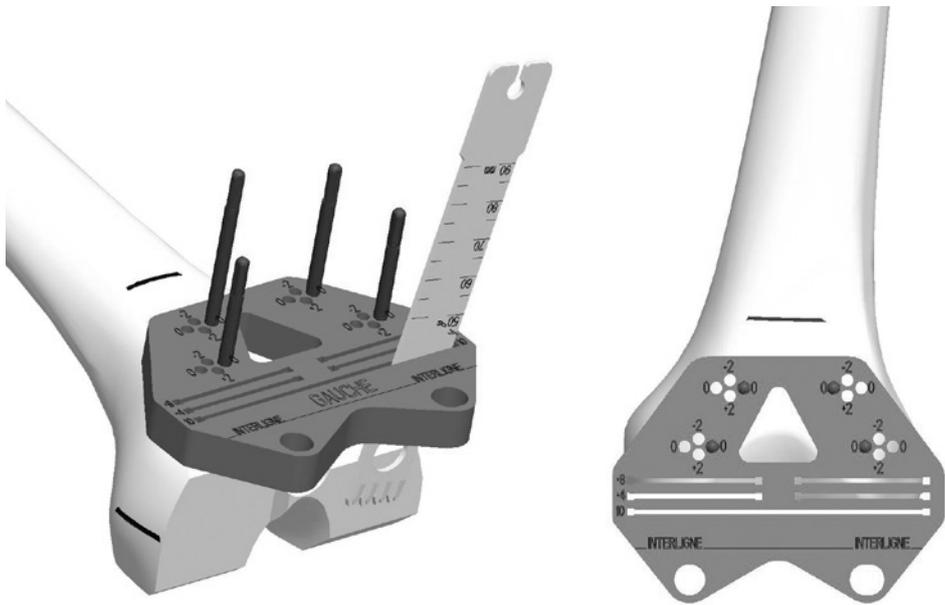
Femoral reaming

- Use the reamers on the T handle and ream the femoral canal.
- Increase the reamer diameter (12/14/16/18/20 mm) until stable cortical contact is obtained. Choose the correct depth (75, 100, 150, 200 mm) and diameter of the stem required.
- Leave the last used reamer in place.

NB : If there is a substantial epiphyseal bone defect between the reamer and the femur, use sleeves to obtain stability of the reamer in the femur.
Femoral stems are available in 12, 14, 16, 18, 20 mm.

Distal femoral cutting guide

- Place the 6° valgus block on the reamer, with the correct side facing anterior.
- Fit the anterior arm of the femoral sizing jig into the distal cutting block, and slide into the valgus block.
- Align the anterior arm with the previously made mark on the cortex (joint line mark). The distal femoral block may now be adjusted using the graduated markings on the anterior arm.
- The rotation is then chosen, and locked in position with the allen key onto the reamer handle.
- Fix the distal cutting block with 4 headless pins in the “o” holes.
- With the finger gauge in the o slot, check the bone resection level. This will allow a 10 mm gap from the previous joint line for the thickness of the femoral component. By using the +4 and +8 slots, the need for a distal femoral wedge can be estimated.
- Remove the anterior arm, the valgus block and the reamer.



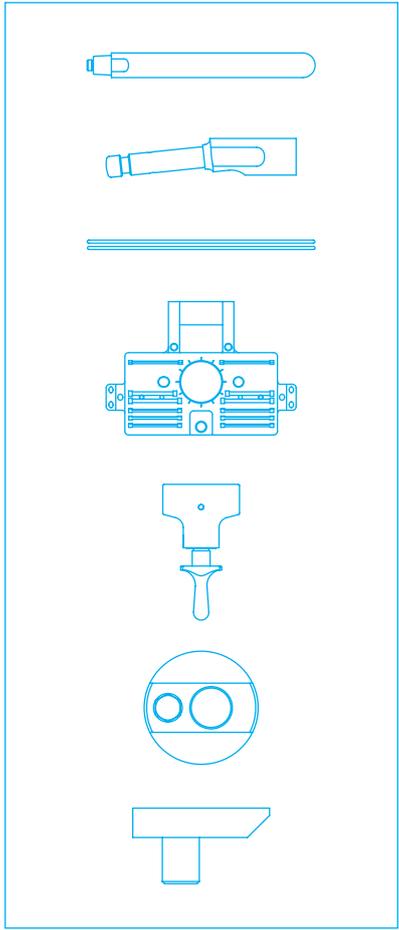
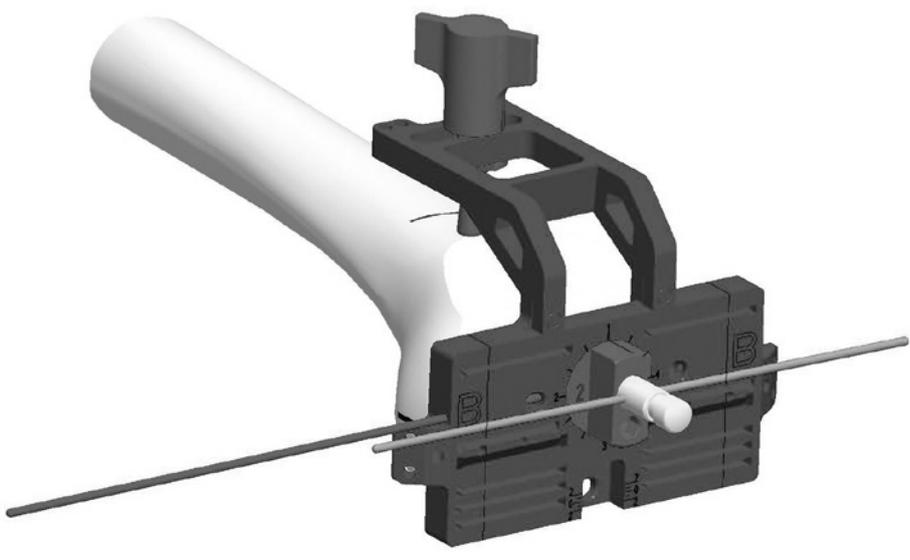
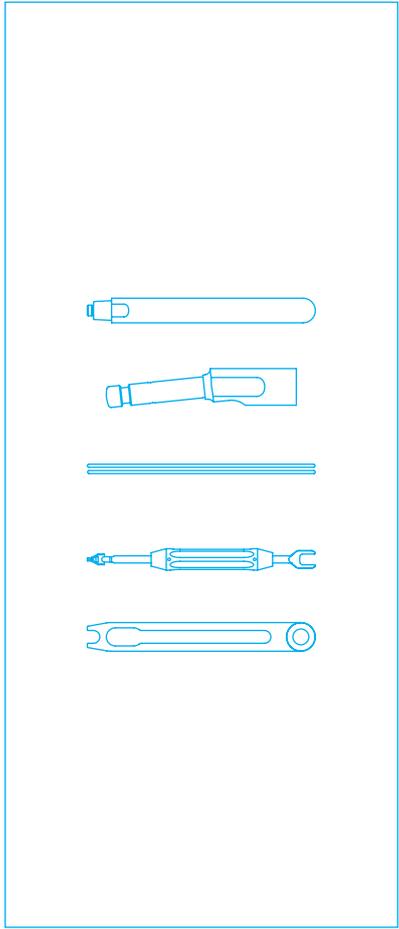
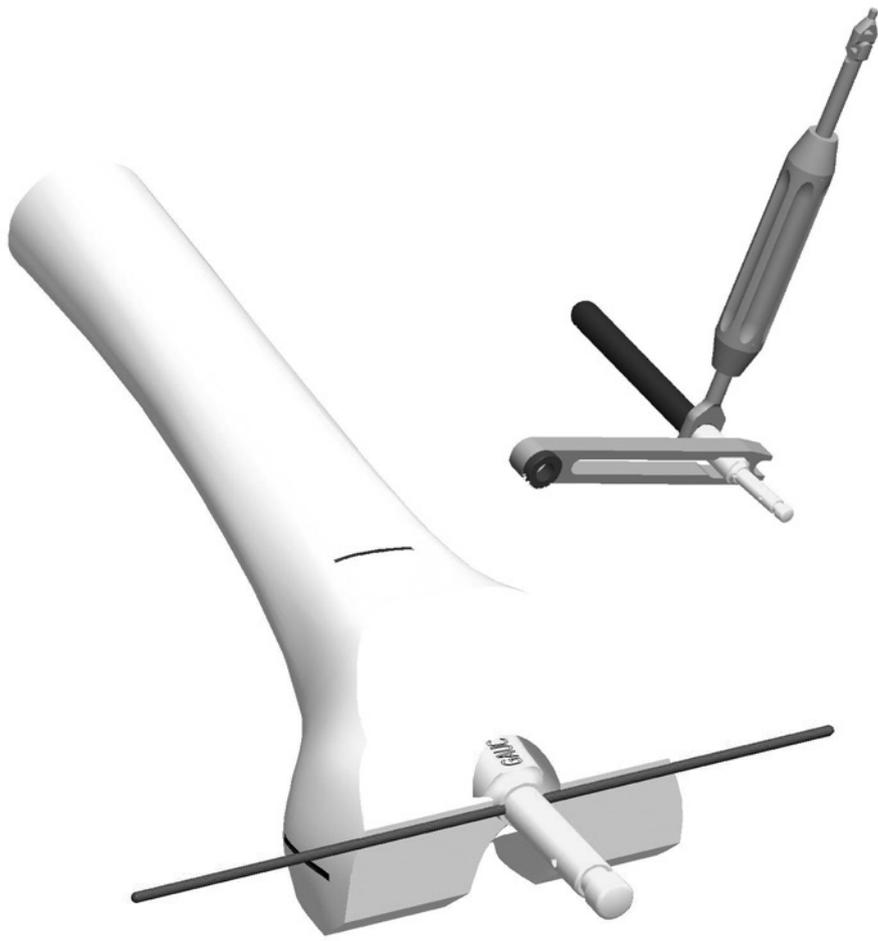
Distal femoral cut

- Hold the distal femoral cutting block firmly against the femur, and make the distal cut.
- 4 mm and 8 mm distal wedges are available.

Using the 20 mm spacer on the handle, plus any required trial wedges, test the knee in full extension.

The two long alignment pins fit into the handle to check overall alignment.

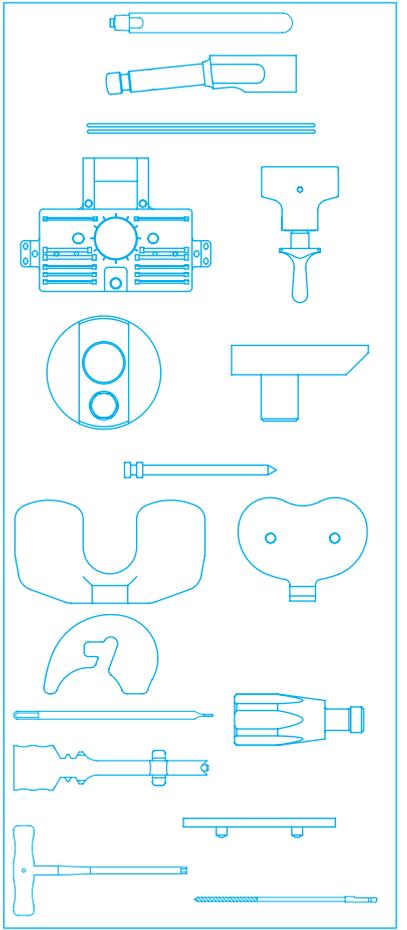
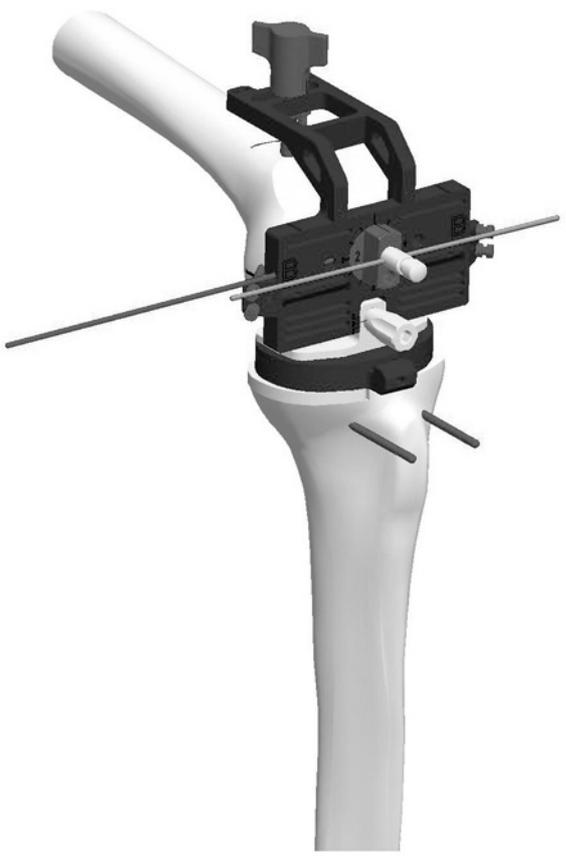
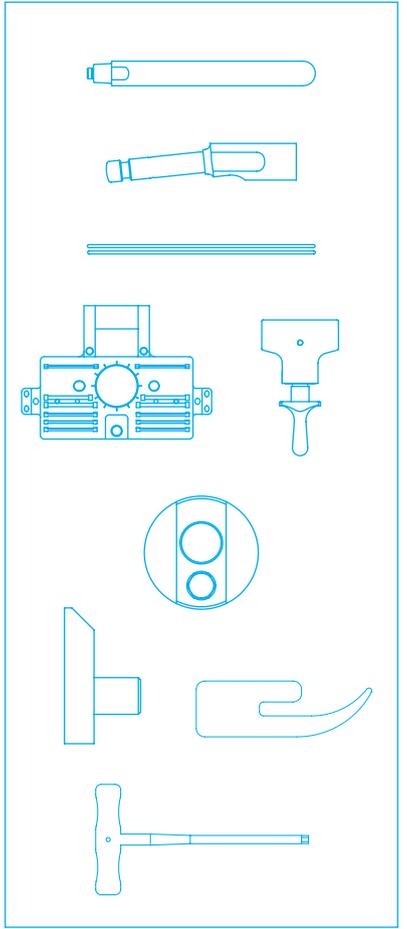
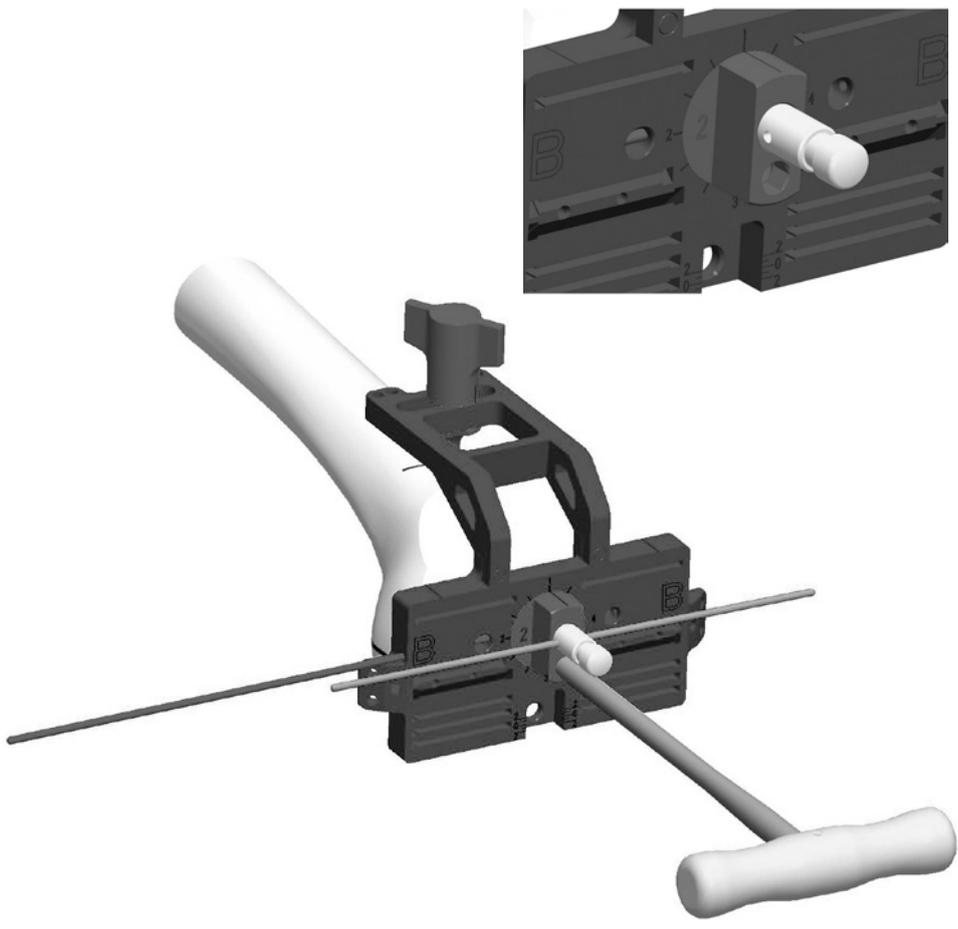
- **A decision is made on the need for any further cuts to the proximal tibia or distal femur.**
- When satisfactory balancing in extension is obtained, remove all the headless pins using the pin puller.



Positioning the “4 in 1” femoral cutting block

- Tighten the chosen trial stem to the 6° angled connector with the spanners.
- If the femoral stem chosen is only 12 mm, then enlarge the distal end of the entry hole to 14 mm.
- Place the thin alignment pin into the most proximal hole in the angled connector.
- Insert the trial stem until the alignment pin is flush with the distal femoral cut, and check rotation.
- Remove the alignment pin.

- Select the chosen size of “4 in 1” cutting block, and fit any distal trial wedges required to the block.
- Using the offset fitted into the cutting block, slide onto the angled connector.
- Place the alignment pin into the most distal hole in the angled connector.
- Insert the anterior referencing probe into the anterior slot.
- Place the extra alignment pins into the sides of the cutting block, and check rotation.



Checking the “4 in 1” femoral cutting block

Check that:

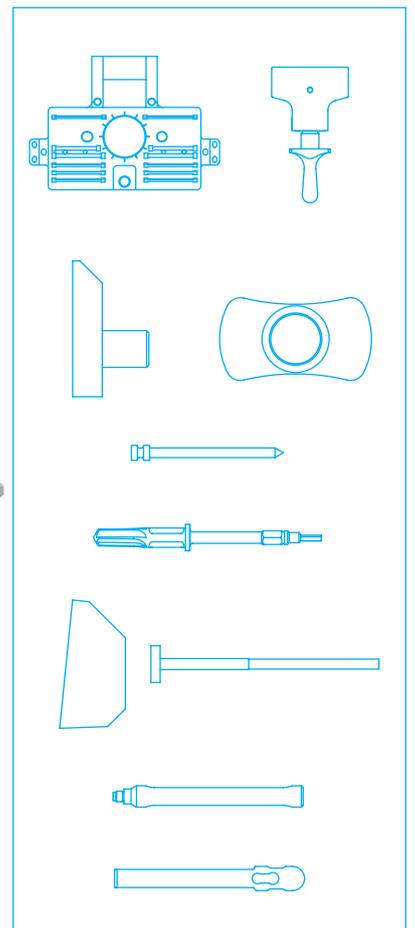
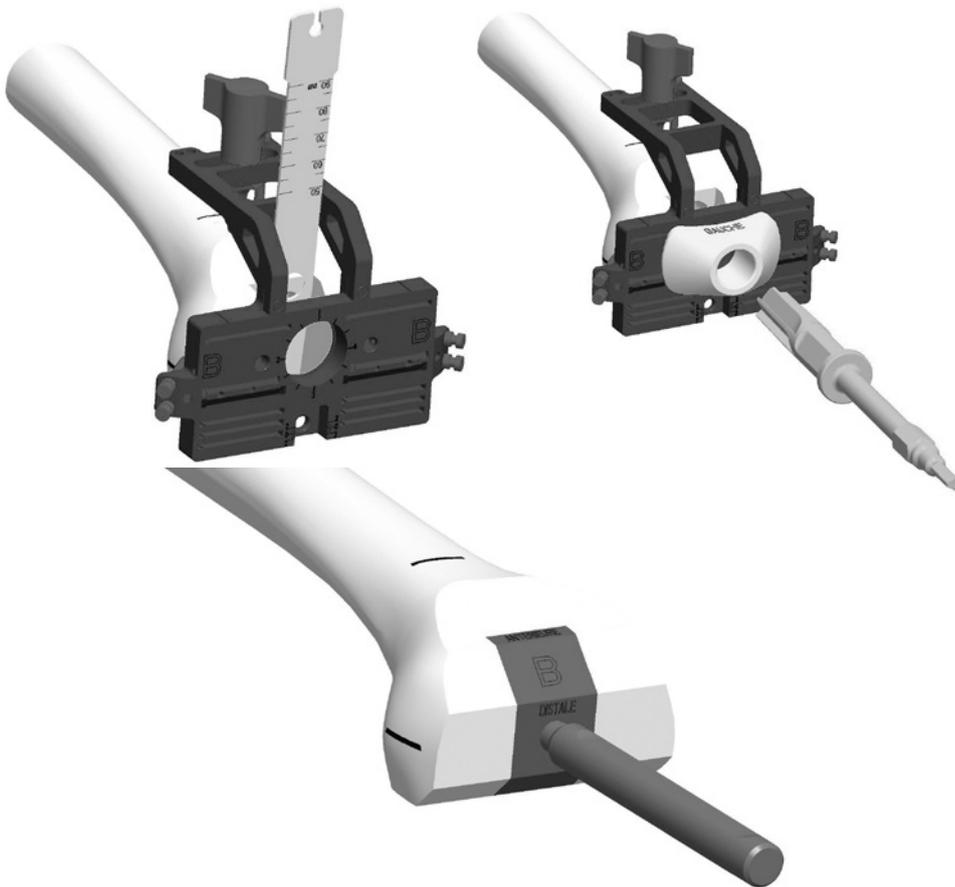
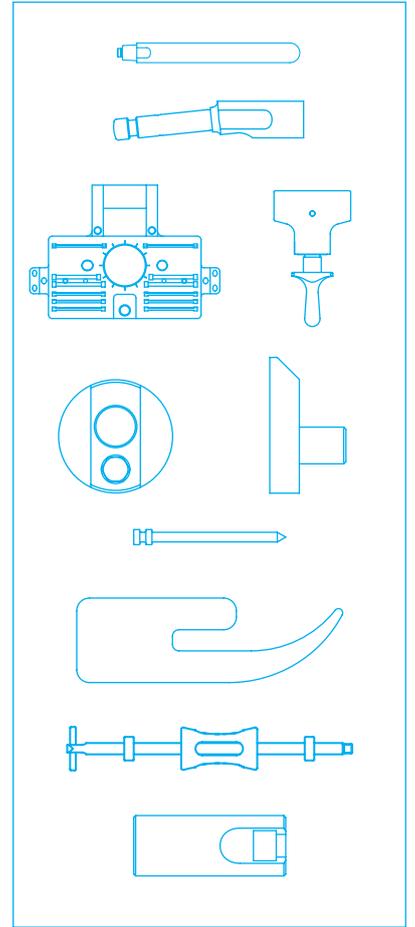
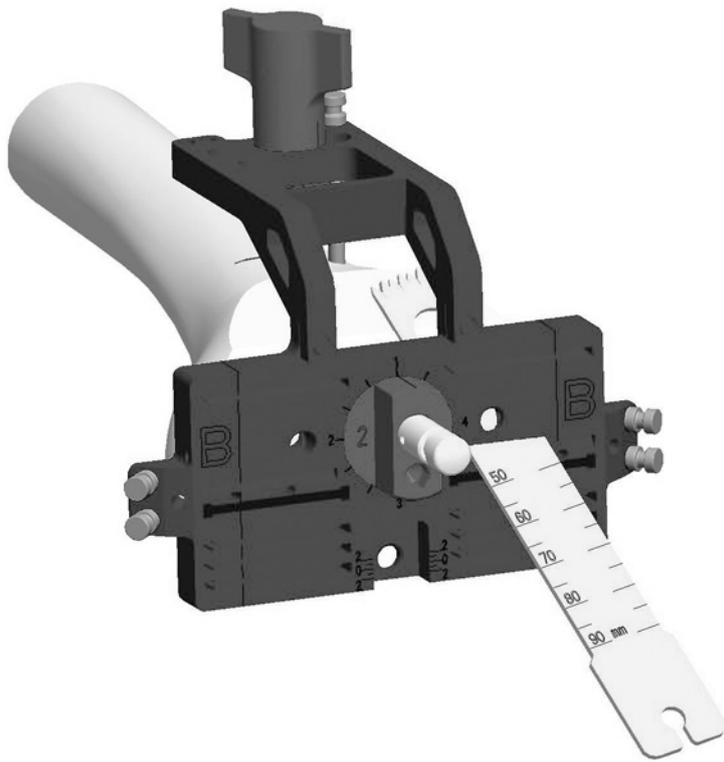
- The anterior referencing probe is in contact with the femoral cortex.
- The cutting block is firmly against the distal femoral cut.
- The cutting block is centred medio-laterally (lines on the block correspond to size).
- The alignment pins are correctly aligned with the epicondyles.

- If these parameters are not all correct, then proceed to trialing with either the 2, 4 or 6 mm offset.
- Rotate the offset on the stem (with the allen key) until the femoral cutting block is in the ideal position.

NB : Record the exact position of the chosen offset in relation to the cutting block.

Checking flexion gap and ligament stability in flexion

- Fit the posterior condylar guide into the cutting block, and set on 0.
(There is a 0° and a 3° rotational condylar guide).
The upper surface gives the position of the posterior condyles of the final implant.
- Place the 7 mm spacer between the posterior condylar guide (3 mm thick) and the tibia, adding any required tibial half-wedges. **(It is important that the same size spacer be used as was chosen during balancing in full extension).**
- Check the balance and stability in flexion.
- If femoral rotation is adjusted, ensure that the two alignment pins are parallel.
- Fix the femoral cutting guide with pins medially, laterally and anteriorly.



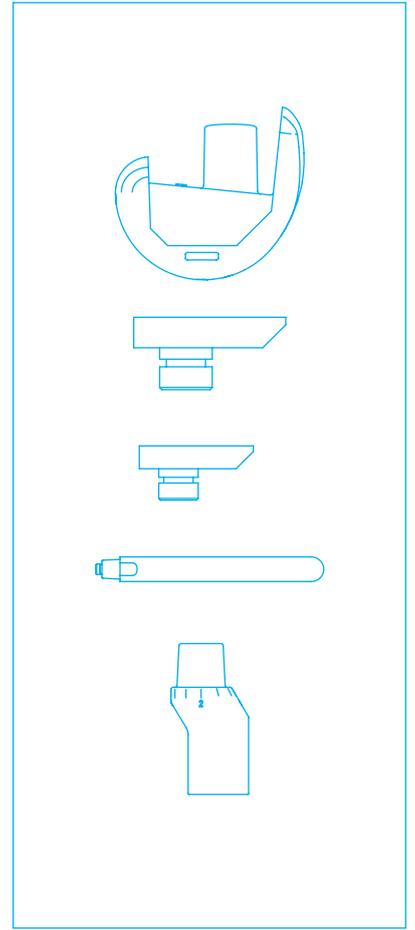
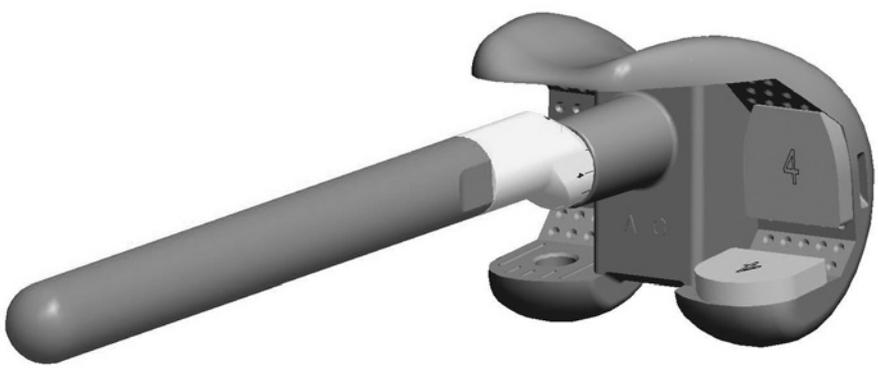
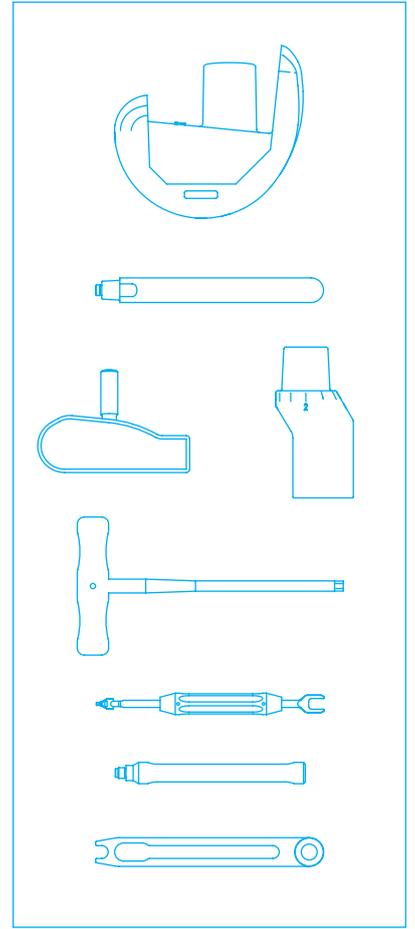
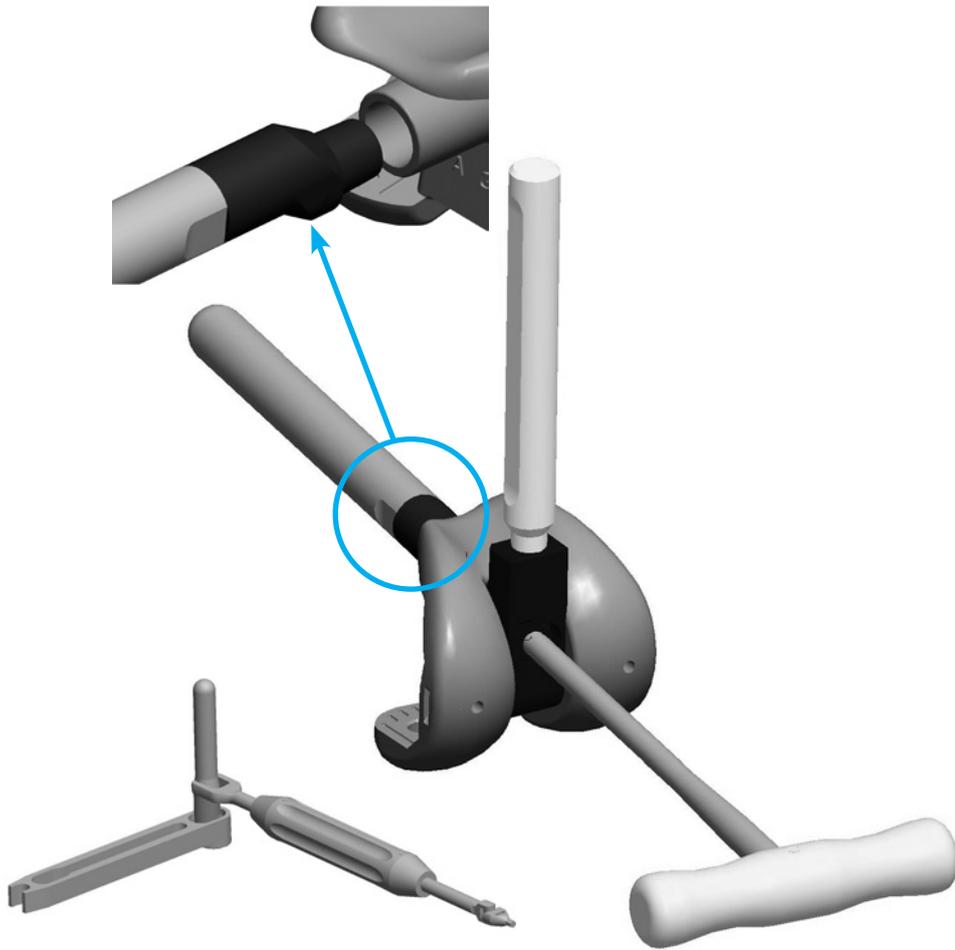
The femoral cuts

- Using the finger gauge, check the need for posterior femoral wedges.
- Protect the tibia using the posterior alignment gauge and perform the 4 cuts:
 - Anterior
 - Posterior
 - Anterior chamfer
 - Posterior chamfer
- Note the exact position and size of offset in relation to the cutting block.
- Remove the offset and the trial stem with the extractor nozzle on the slap hammer.

Preparation of the inter-condylar notch

- Using a narrow saw blade, carefully cut the inter-condylar notch.
- Insert the stem reamer guide with the correct side anterior.
- Drill to the stop on the stem reamer. This is the same size for all femoral implants.
- Remove all the pins, and the cutting block.

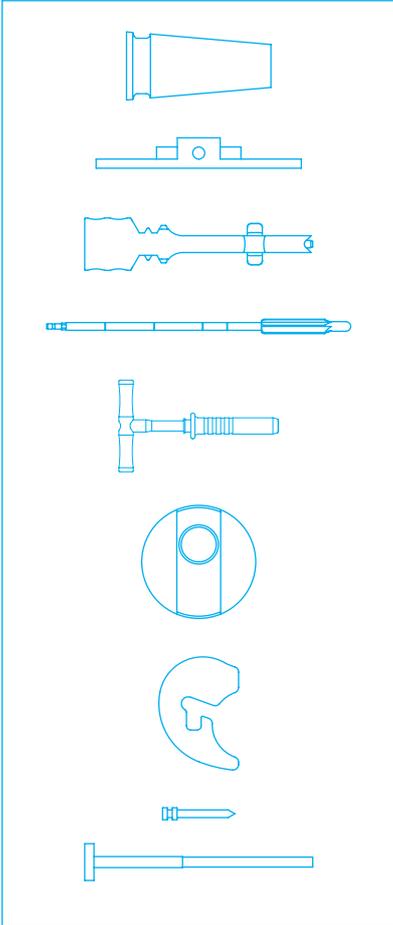
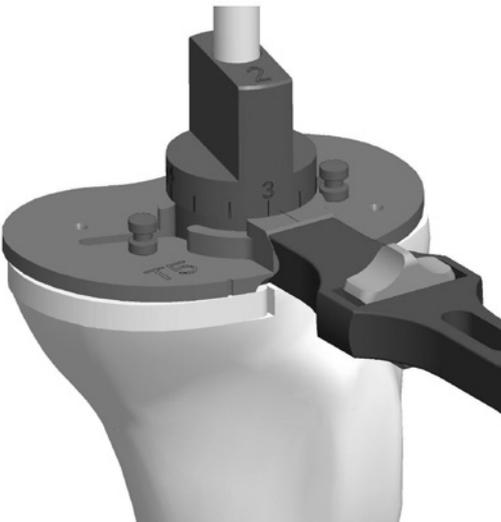
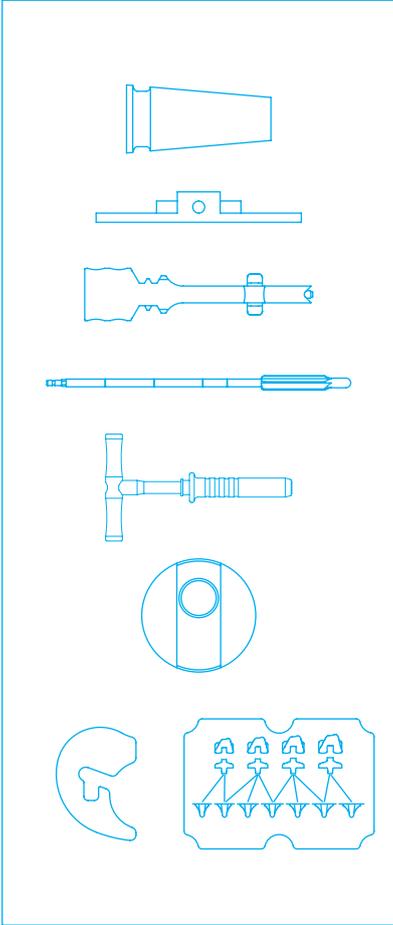
NB: Check the depth and size of the inter-condylar notch with the trial on the handle.



Assembling the femoral trial

- Connect the trial stem to the trial offset with the spanner, and impact the trial offset into the femoral trial, using the special offset impactor and allen key.
It is important to align the offset to the exact position measured off the cutting block.
If no offset is required, then the trial stem is screwed directly into the femoral trial.

- Insert trial posterior and distal wedges (4 & 8 mm) as required.
- Remove any posterior femoral osteophytes with the curved osteotome.



Tibial preparation

- Select the correct size of tibial base plate to give the best bone coverage, with reference to the size already chosen for the femoral implant. (See chart on page 64).
- Reinsert the reamer previously used in the tibia, and insert the o tibial offset into the chosen base plate.

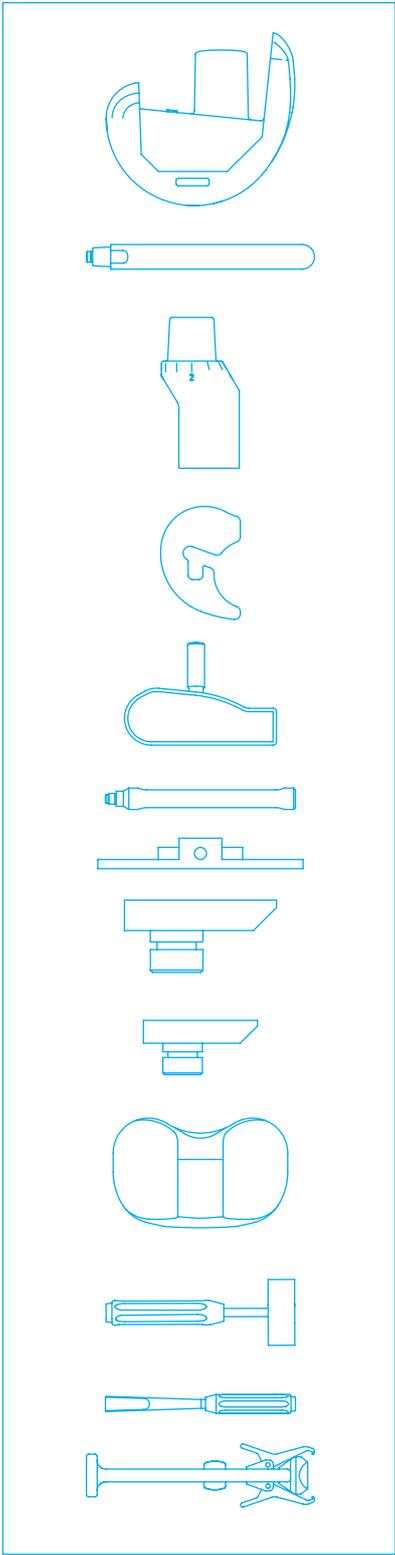
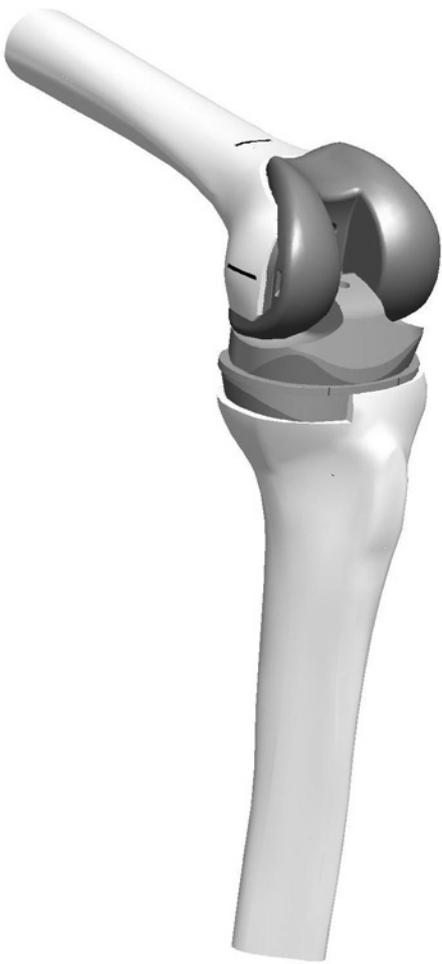
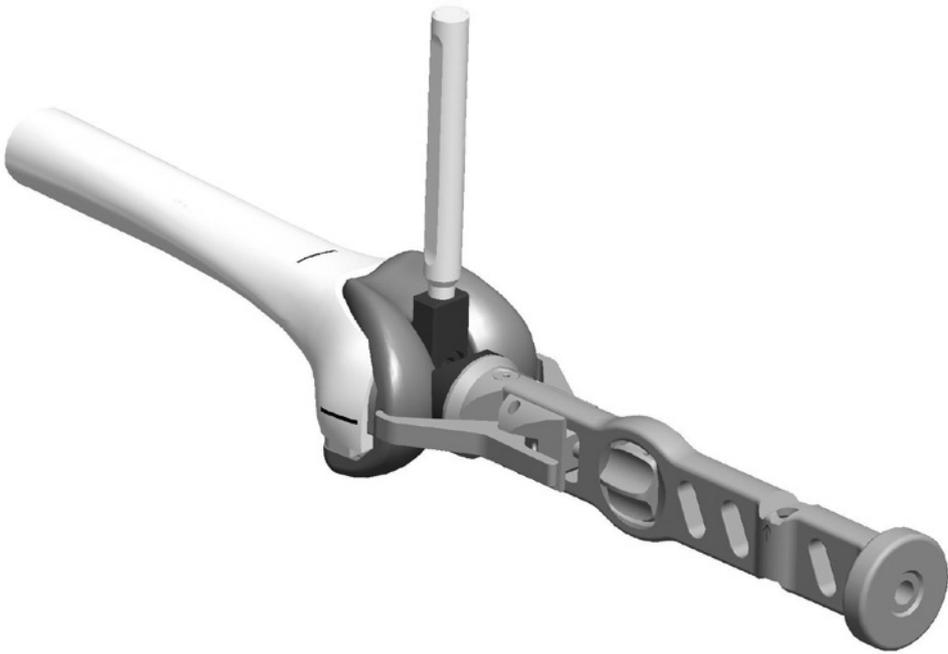
- If the base plate is not correctly aligned on the tibial surface, then choose the correct offset to give the ideal coverage. (2, 4, 6 mm offsets are available).
- Note the size and position of the offset, and pin the base plate to the tibia with two pins, using the required tibial half wedges.
- Remove the reamer and the offset.

Tibial trials

- Place the correct size of tibial milling jig on the base plate, and drill with the tibial drill to the stop.
- Cut for the tibial keels using the correct sized keel cutter.

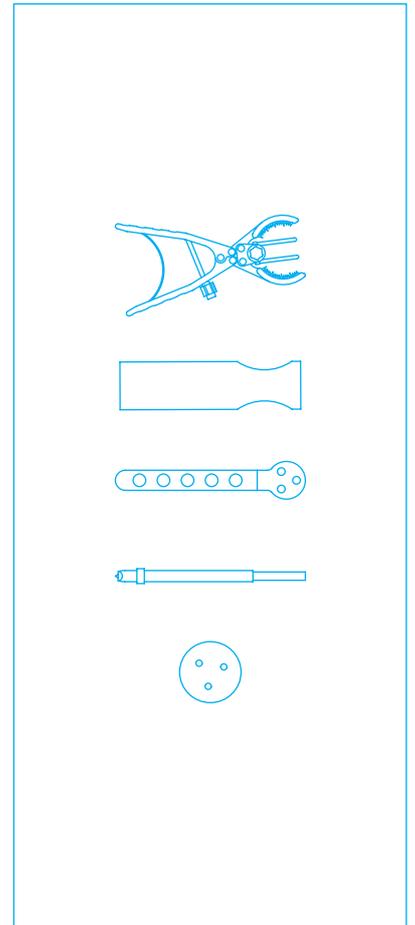
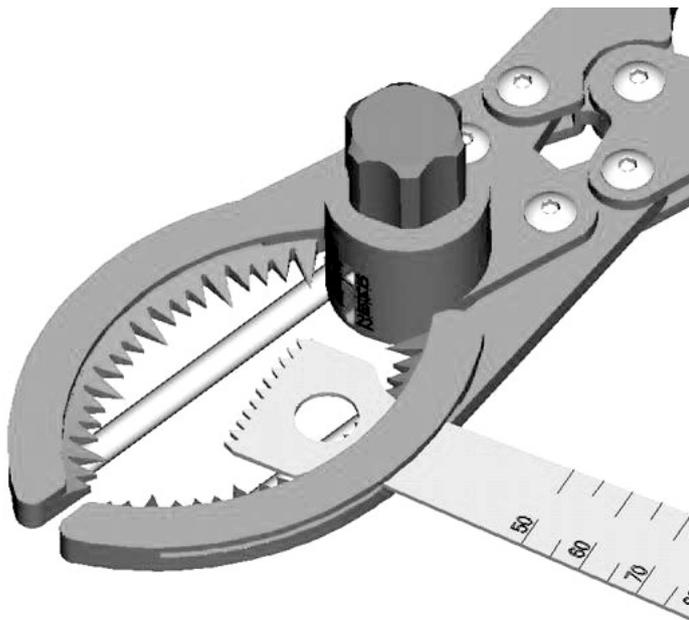
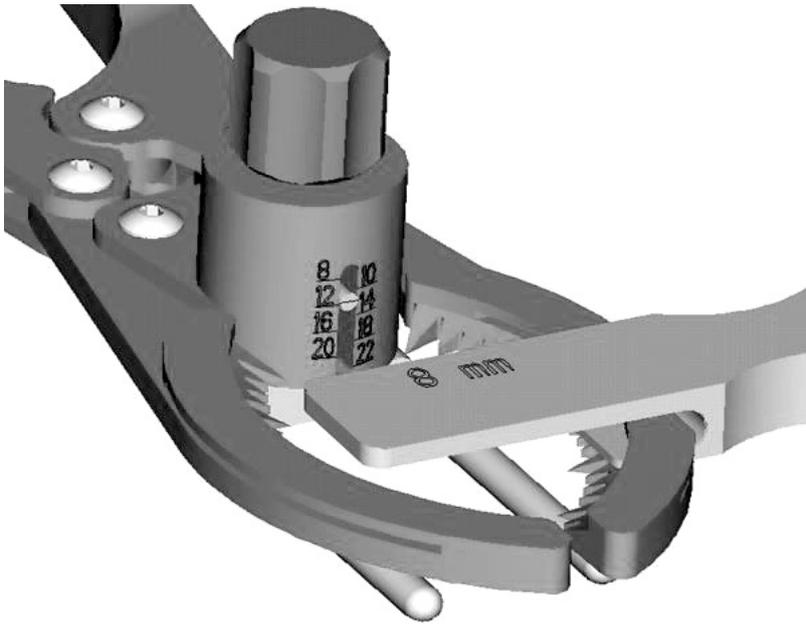
- Assemble the trial stem, trial offset (if required) and the trial keel in the chosen alignment.
- Impact the assembled trials into the base plate with the special trial impactor.

NB : If no offset is required, the trial stem is screwed into the trial keel.



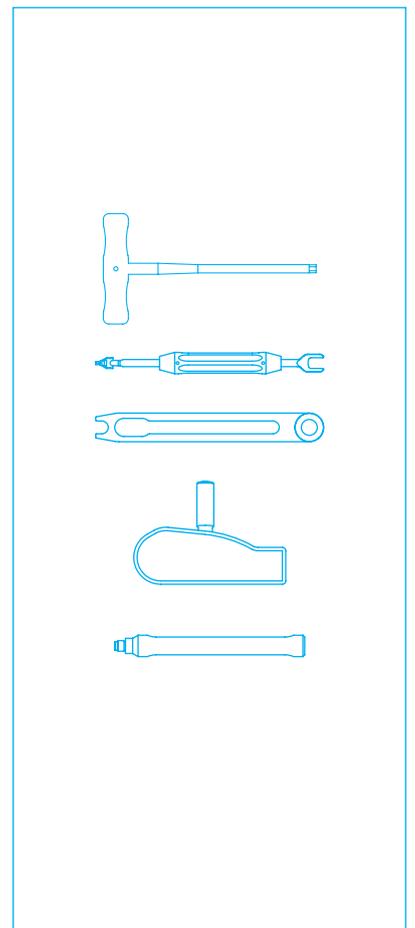
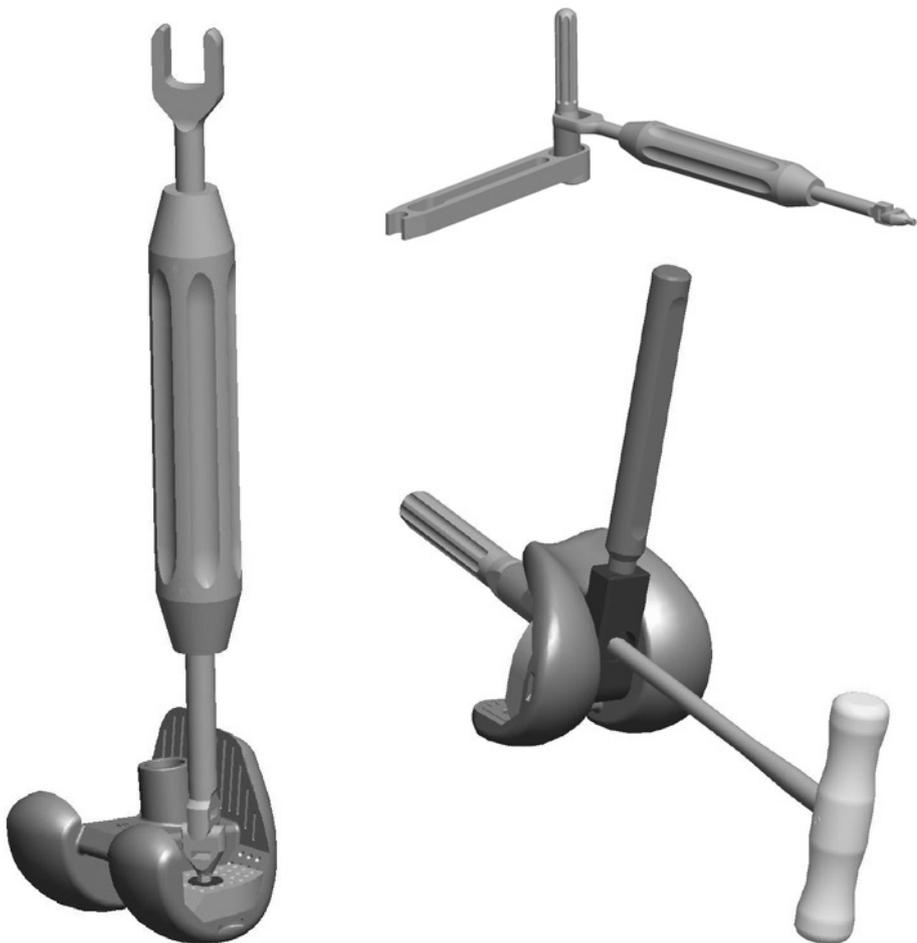
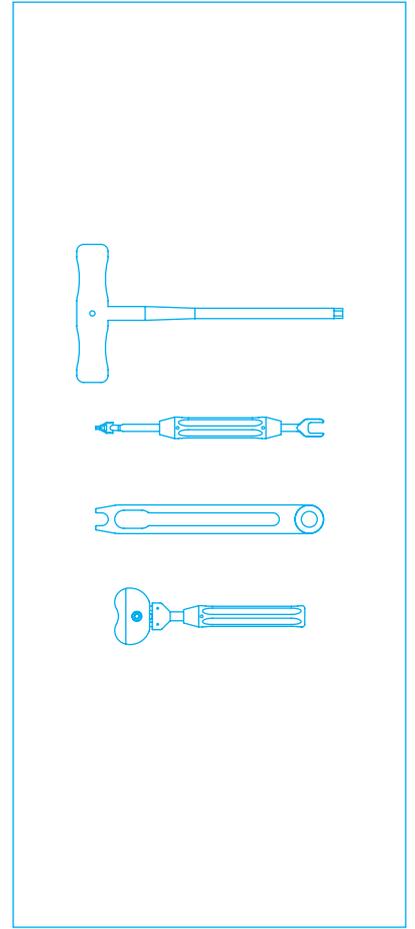
Final trialing

- Fit the femoral trials to the trial handle and insert.
- Insert the chosen tibial trial insert, and test stability through the full range of motion.



Patella preparation for resurfacing patella

- If there is a patellar prosthesis in situ, check that it is at least 30 mm, otherwise it may get trapped within the femoral inter-condylar notch.
- Assess the need for patellar resurfacing based on:
 - thickness of bone remaining (12 mm of bone is required after removal)
 - bone quality
 - patellar tracking
 - the fixation of existing implant.
- If required, remove the implant and all residual cement.
- Place the patellar forceps with the two pins on the anterior patellar surface.
- Tighten, and prepare a fresh cut of the patella.
- Select the patella size, 30, 33 or 36 mm.
- Centre and impact the drill guide, and drill the three holes.
- Fit the trial patella.
- Test the tracking in the trochlear groove.



Assembly of the definitive implants

Assembly of the tibial implant

- Attach the tibial stem to the offset connector using the spanners.
If no offset connector is used, the tibial stem is inserted directly into the tibial base plate.
- Place the tibial stem impactor onto the tibial base plate, and impact the stem with the allen key.
During impaction onto the base plate, choose the exact alignment used during trialing.

Assembly of the femoral implant

- Attach the femoral stem to the offset connector using the spanners.
If no offset connector is used, the femoral stem is inserted directly into the femoral prosthesis.
- Impact onto the femoral prosthesis and tighten, using the femoral offset connector impactor, and the allen key.
During impaction onto the femoral prosthesis, choose the exact alignment used during trialing.
- Add any distal or posterior wedges using the screw driver.

Fitting the definitive implants

Fitting the tibial implant

- Prepare the tibia for cementing, and apply a thin layer of cement between any half wedges and the base plate.
- Impact the assembly into the tibia using the impactor, and position the tibial half wedges.
- Re-tighten the stem impactor one last time before removing it.

Fitting the femoral implant

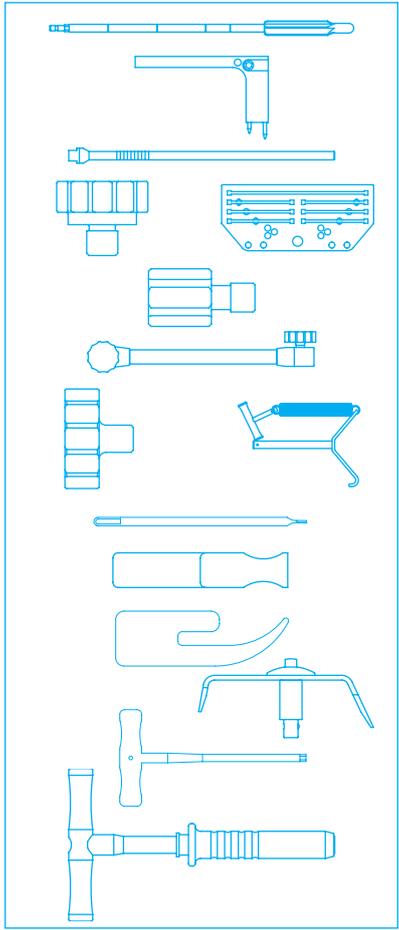
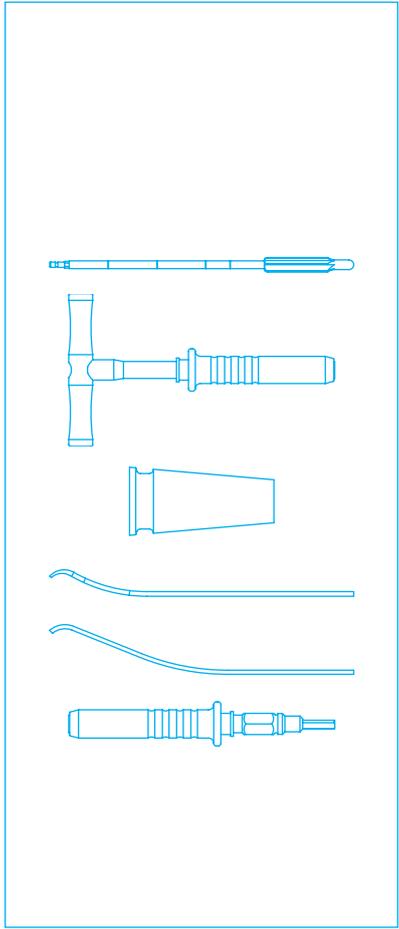
- Fit the femoral prosthesis to the femoral holder.
- Prepare the femur for cementing, and insert the assembly with the knee fully flexed.
- Remove the femoral holder and impact with the femoral impactor.
- Re-tighten the stem impactor one last time before removing.
- Fit the chosen tibial insert (corresponding in size to the femur).
- The knee is placed in complete extension until the cement has set.

Fitting the patellar implant

- Cement the resurfacing patella using the patellar clamp.

Surgical Technique for Primary Knee





Tibial preparation (intra-medullary)

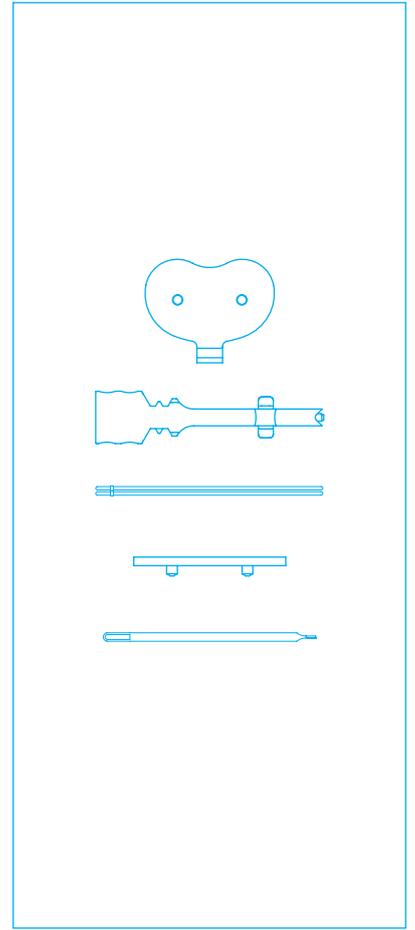
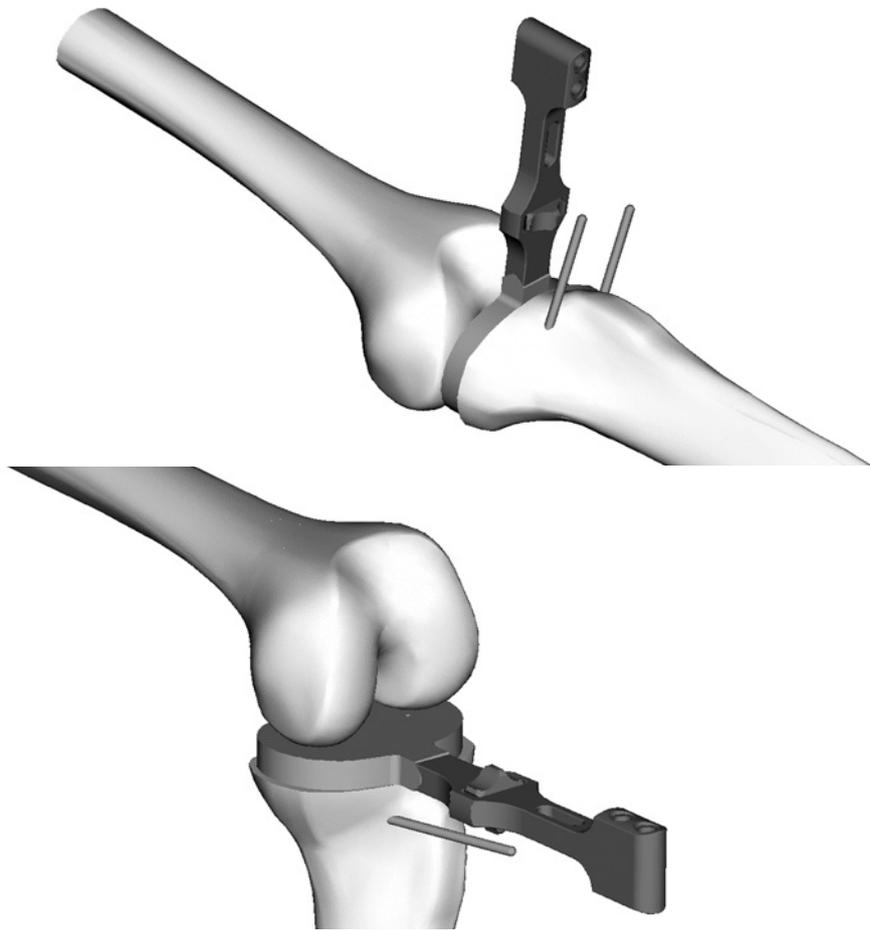
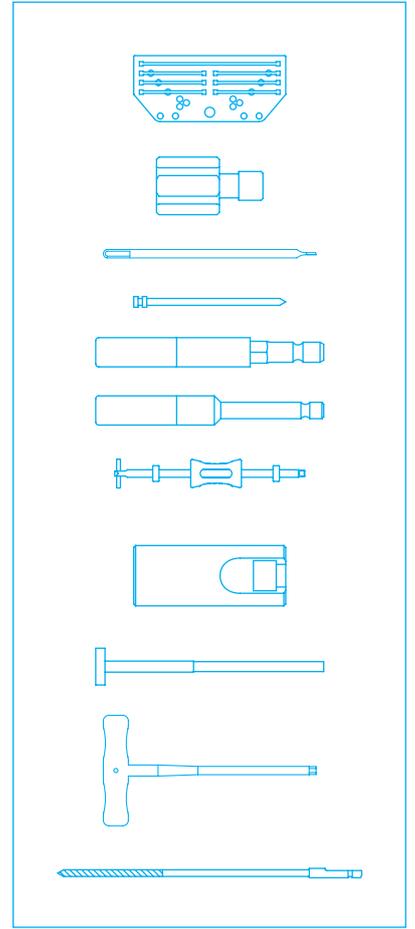
Tibial reaming

- Drill a central entry point in the tibial plateau.
- Use the reamers on the T handle to ream the tibial canal.
- Increase the reamer diameter (10/12/14/16 mm) until stable cortical contact is obtained. Choose the correct depth (75, 100, 150, 200 mm) and diameter of the stem required (10, 12, 14, 16 mm).
- Leave the last used reamer in place.
Tibial stems are available in 10, 12, 14, 16 mm.

NB : If a tibial stem is not required, place the intra-medullary rod down the medullary canal, or use the extra-medullary aiming device.
(Combined extra and intra-medullary aiming may be used).

Assemble the intra-medullary aiming device

- Fit the cutting block onto the tibial slide and rod, and place over the reamer.
- Clip the stylus into the cutting block, and set the resection level.
A minimum of 10 mm is required for the implant and insert.
The finger gauge is placed in the cutting slot to check the level of resection.
- Assess the need for a tibial half-wedge (5, 10, 15 mm).

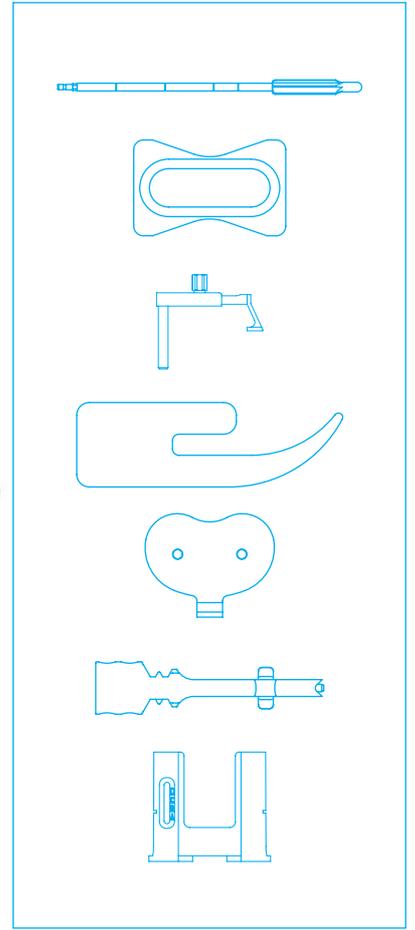
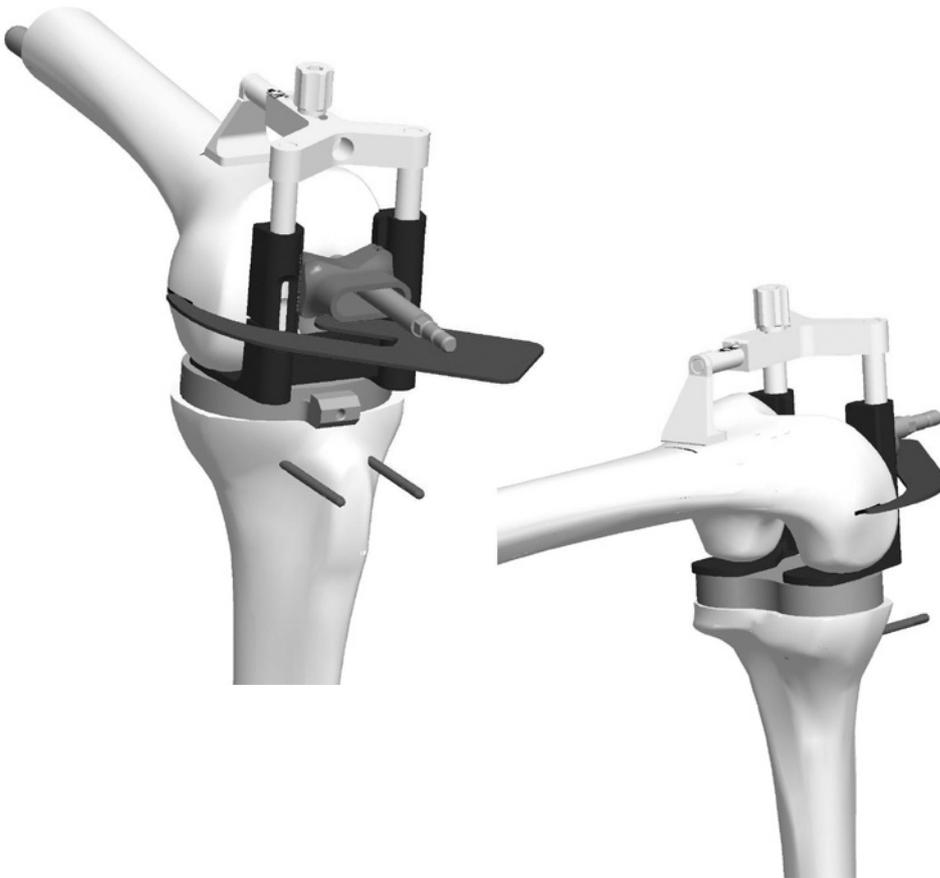
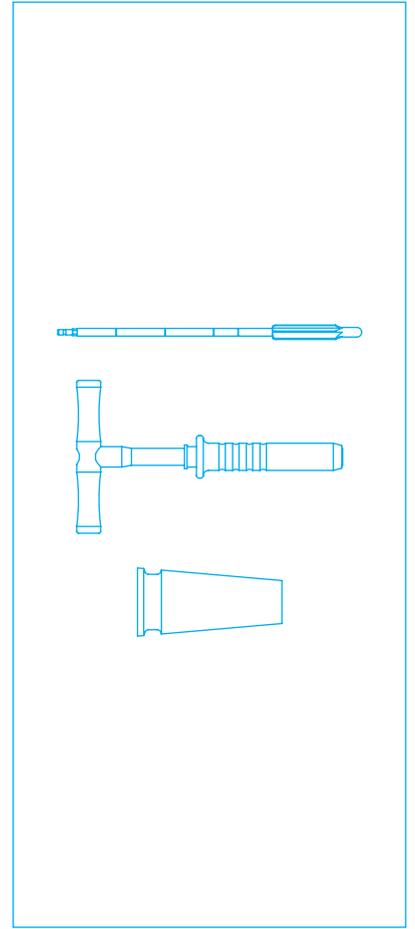


Tibial cut

- Insert two headless pins into the tibial cutting block at the zero mark.
- Release with the allen key, and remove the alignment jig with the slap hammer.
- Slide the cutting block against the tibia.
- Stabilise with three headed pins (pre-drilling with the 3.2 mm drill may be required).
- A narrow blade is used to perform the tibial cut and that of the tibial half-wedges.
- Remove the headed pins.
- Slide the cutting block off the two headless pins, taking care not to withdraw them. They are left in place for potential re-cutting using the +2 or +4 markings on the tibial cutting block.

Checking tibial cut in flexion and extension

- Using the 10 mm spacer (and half-wedges as required) assess stability in flexion and extension. 2, 4 and 6 mm spacers can be superimposed on the 10 mm spacer.
- Check the overall alignment using the long alignment pins fitted into the universal handle.



Femoral Preparation

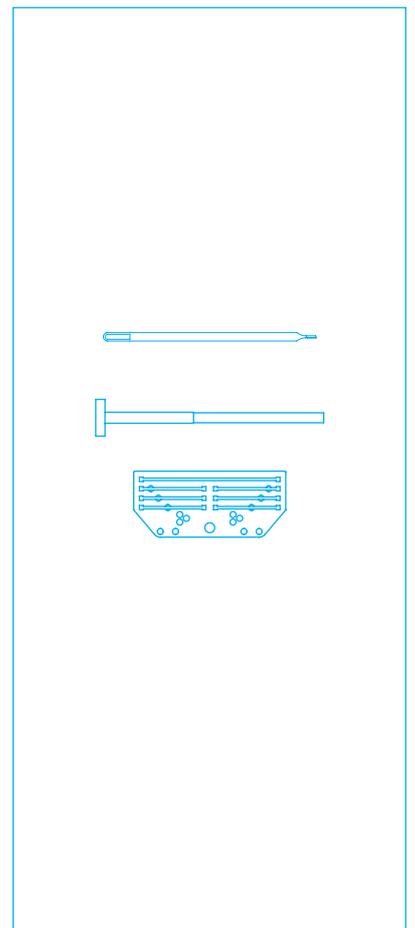
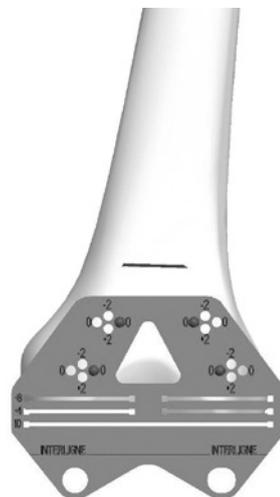
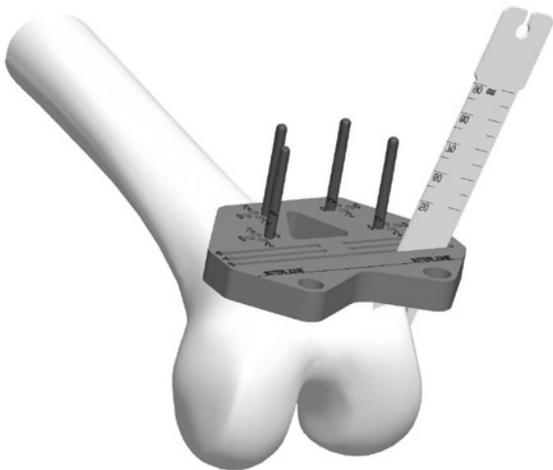
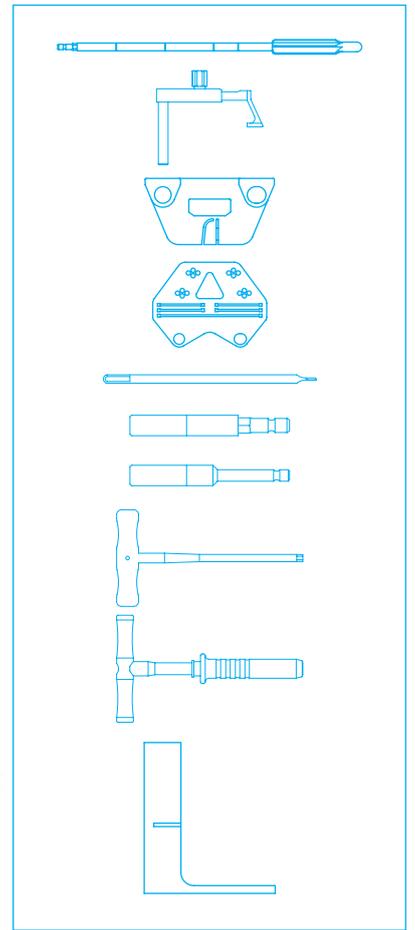
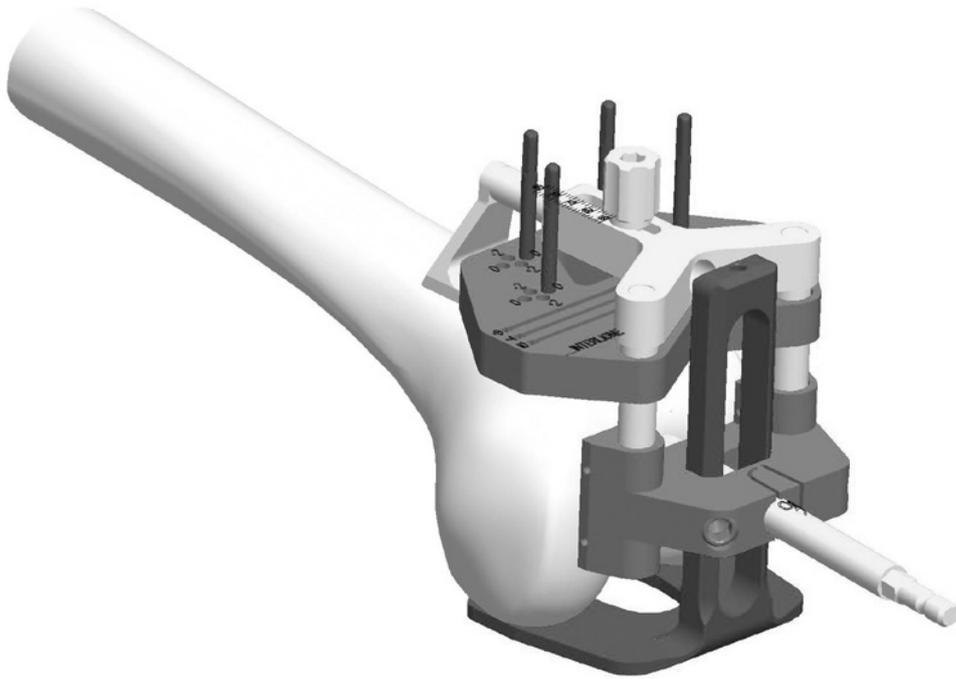
Femoral reaming

- With the drill, open the medullary canal.
- Use the reamers on the T handle and ream the femoral canal.
- Increase the reamer diameter (12/14/16/18/20 mm) until stable cortical contact is obtained. Choose the correct depth (75, 100, 150, 200 mm) and diameter of the stem required.
- Leave the last used reamer in place.
Femoral stems are available in 12, 14, 16, 18, 20 mm.

Assemble femoral sizing jig

- Place the central slide into the posterior fork, and add the anterior slide.
- Place over the reamer.
- Check that there is contact with at least one of the distal condyles.
- Check that the posterior fork is in contact with both of the posterior condyles.
- Set the anterior slide to make contact with the anterior cortex.
- Read the femoral size.

If necessary, assess femoral rotation from the epicondyles, using the finger gauge placed in the grooves on the sides of the posterior fork.

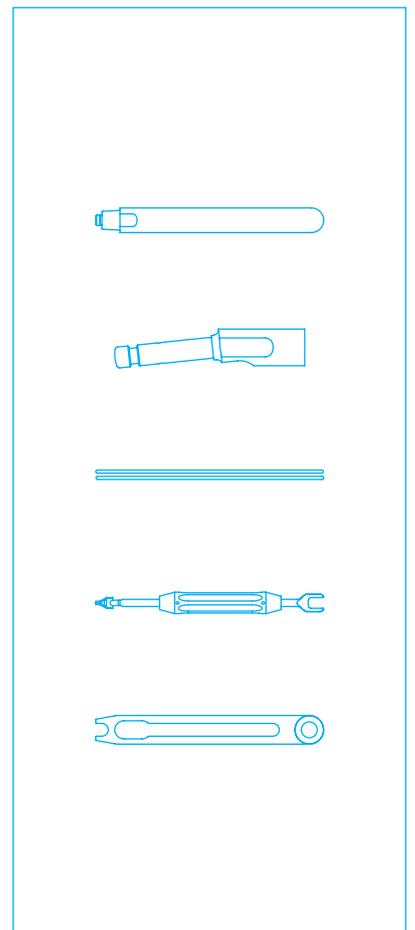
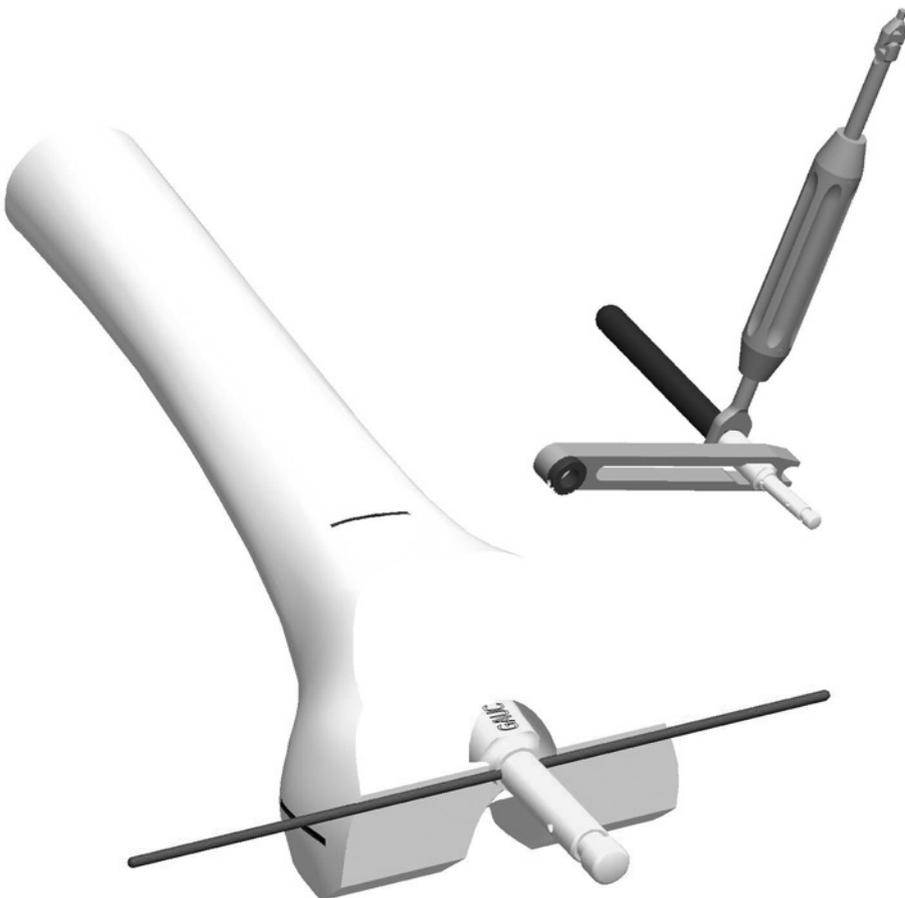
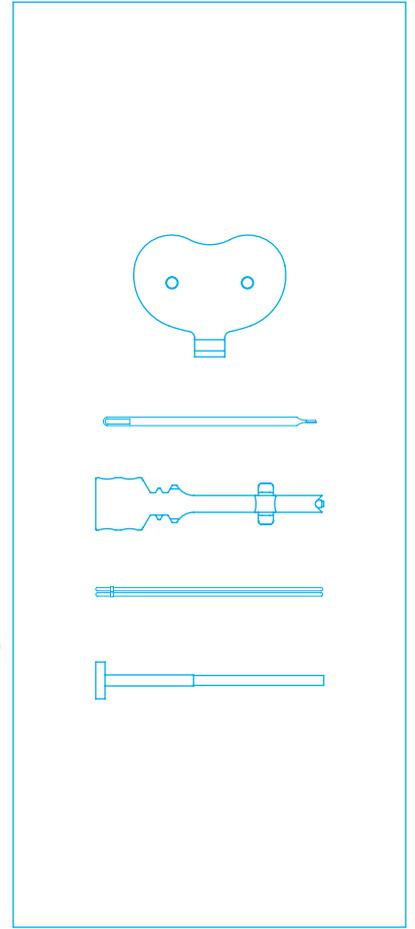
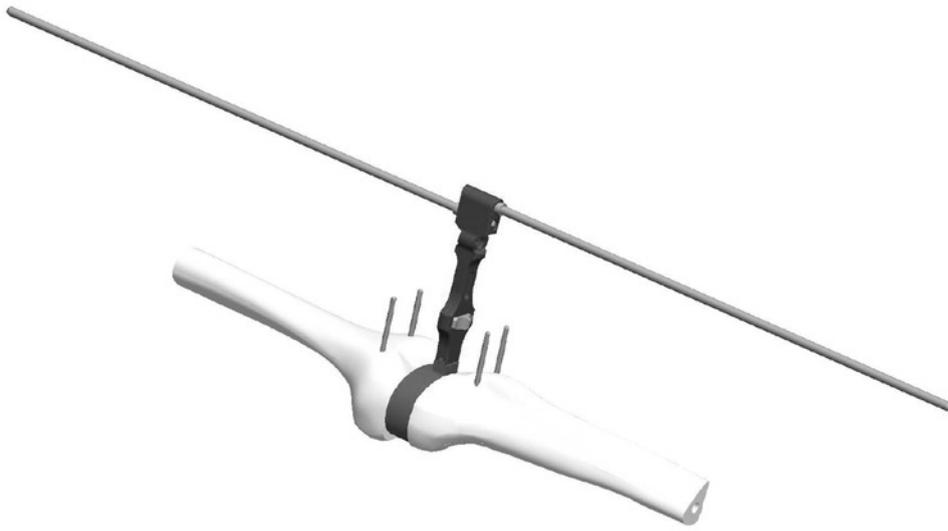


Fitting the distal femoral cutting block

- Place the anterior arm into the distal cutting block.
- Place the 6° valgus block (correct side anterior) onto the posterior slide.
- Place the anterior assembly into the valgus block, and slide onto the reamer.
- The valgus block must be in contact with one of the distal condyles.
- Set the femoral rotation with reference to either:
 - **the posterior condyles:** The posterior slide must be in contact with both the posterior condyles
 - **the epicondyles:** Remove the posterior slide, and place an alignment pin into the valgus block, and align it with the epicondyles.
- Tighten the assembly with the allen key.
- Insert 4 headless pins into the o holes in the cutting block.
- With the finger gauge in the o slot, check the bone resection level.
This will allow a 10 mm cut for the prosthesis.
By using the +4 and +8 slots, the need for a distal femoral wedge can be estimated.
- Remove the assembly, leaving the distal cutting block in position.

Distal femoral cut

- Hold the distal femoral cutting block firmly against the femur, and make the distal cut.
(By using the +2 mm or -2 mm holes, the distal cut may be increased or decreased as required).
- 4 mm and 8 mm distal wedges are available.
- Remove the cutting block, but leave two pins in case the cut needs to be revised.

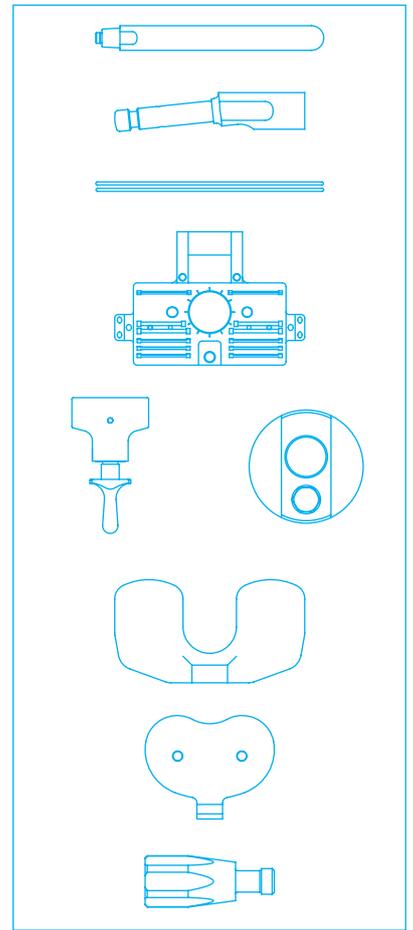
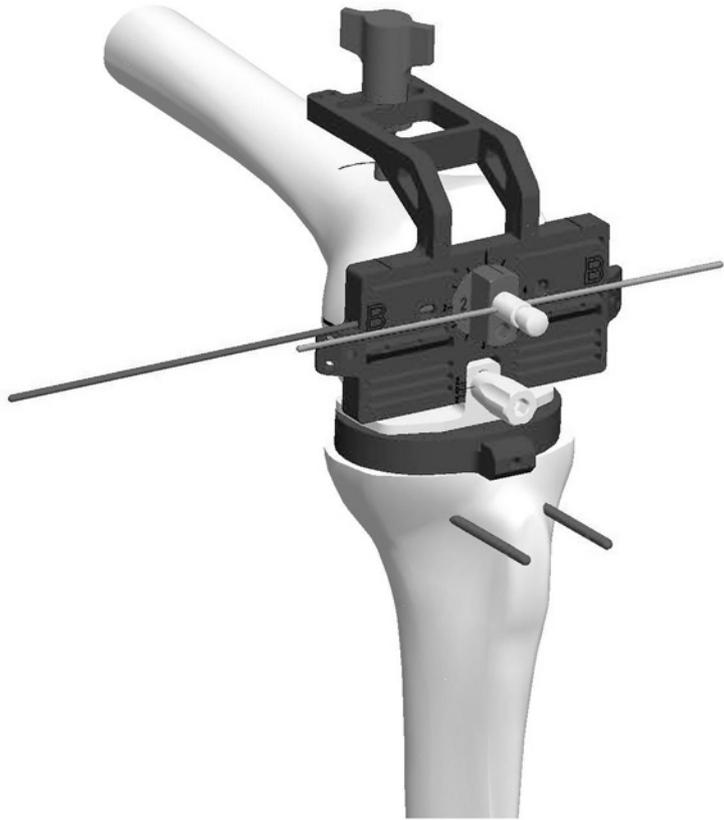


Checking stability in extension

- **Using the 20 mm spacer on the handle, plus any required trial wedges, test the knee in full extension.**
The two long alignment pins fit into the handle to check overall alignment.
- **A decision is made on the need for any further cuts to the proximal tibia or distal femur.**
- When satisfactory balancing in extension is obtained, remove all the headless pins using the pin puller.
- The flexion gap can be checked using a 10 mm spacer.

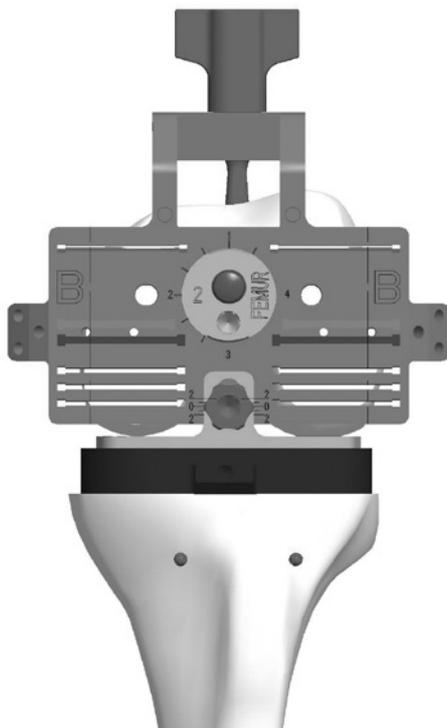
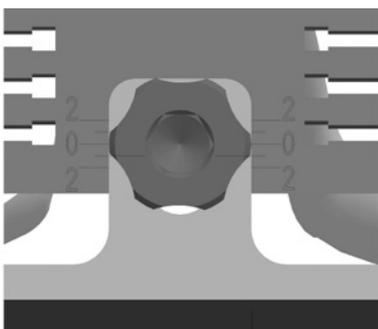
Positioning of the femoral “4 in 1” cutting block

- Tighten the chosen trial stem to the 6° angled connector with the spanners.
- If the femoral stem chosen is only 12 mm, then enlarge the distal end of the entry hole to 14 mm.
- Place the thin alignment pin into the most proximal hole in the angled connector.
- Insert the trial stem until the alignment pin is flush with the distal femoral cut, and check rotation.
- Remove the alignment pin.

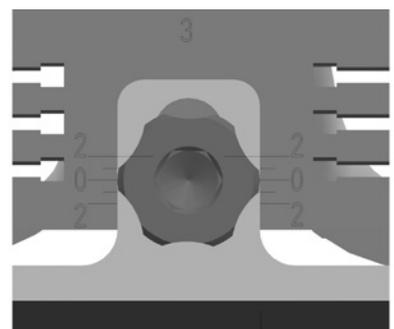


Anterior referencing

Position 1: + 1 mm



Position 2: - 2 mm



Positioning of the femoral “4 in 1” cutting block

- Select the chosen size of “4 in 1” cutting block, and fit any distal trial wedges required to the block.
- Using the 0 offset fitted into the cutting block, slide onto the angled connector.
- Replace the alignment pin into the most distal hole in the angled connector.
- Insert the anterior referencing probe into the anterior slot.
- Place the extra alignment pins into the sides of the cutting block, and check rotation.

Check that:

- The anterior referencing probe is in contact with the femoral cortex.
 - The cutting block is firmly against the distal femoral cut.
 - The cutting block is centred medio-laterally (lines on the block correspond to size).
 - The alignment pins are correctly aligned with the epicondyles.
- If these parameters are not all correct, then proceed to trialing with either the 2, 4 or 6 mm offset.
 - Rotate the offset on the stem (with the allen key) until the femoral cutting block is in the ideal position.

NB: Record the exact position of the chosen offset in relation to the cutting block.

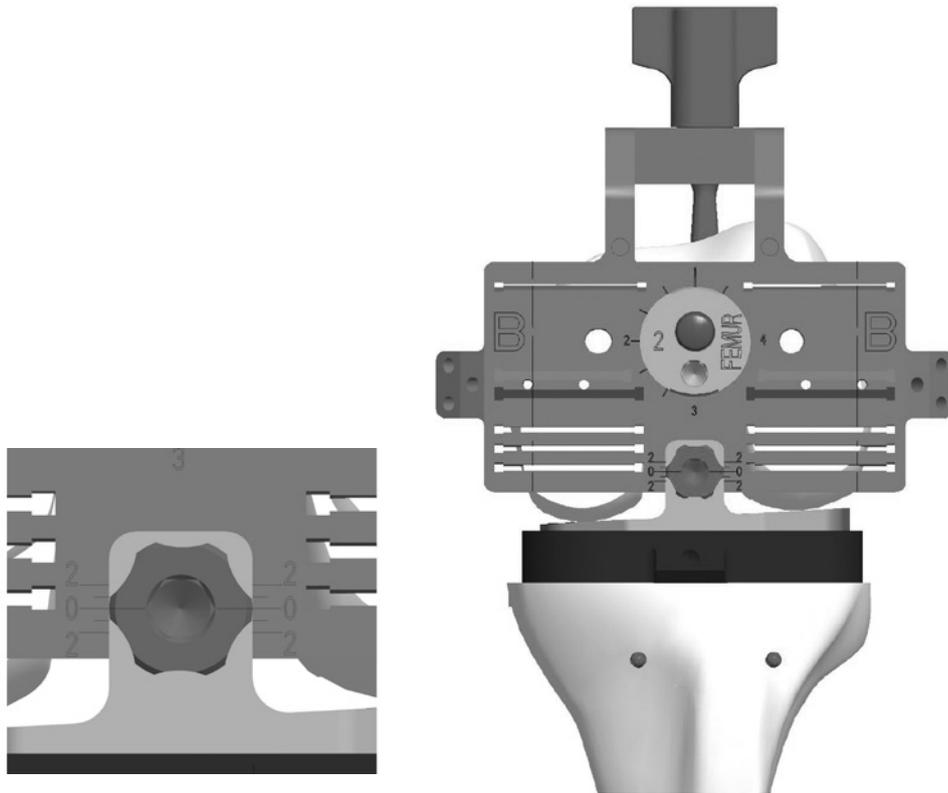
Fit the 0° posterior condylar guide into the cutting block and slide up against the posterior condyles.

- Place the 7 mm spacer between the posterior condylar guide (3 mm thick) and the tibia, adding any required tibial half-wedges.

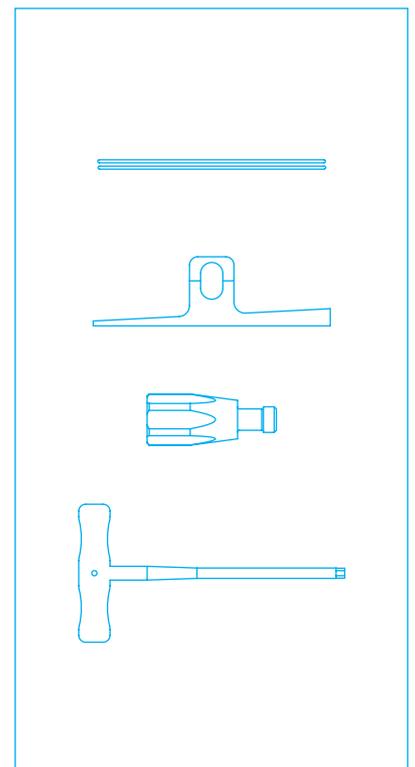
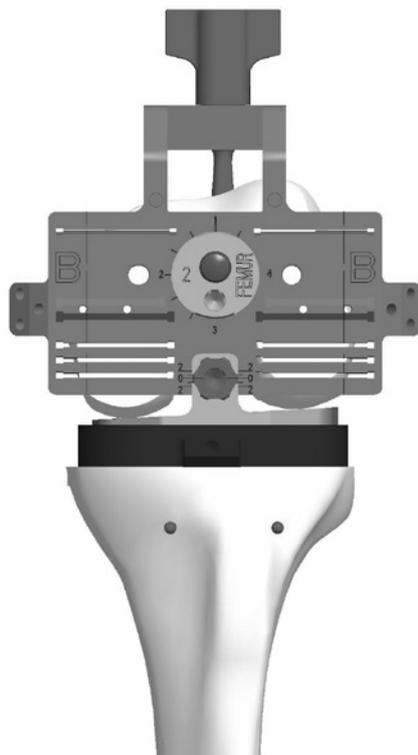
The reading on the gauge will give the depth of the posterior cut.

-
- There are two possibilities:
 - 1 - If the reading is at zero, the posterior resection will be the thickness of the prosthesis (10 mm).
 - 2 - The reading is between two sizes: One may change the size of the femoral prosthesis, or one can adjust the cuts with either anterior or posterior referencing, or use mixed referencing.
 - **Anterior referencing:**
 - **in the case of position 1:** The posterior resection will be $10 + 1 \text{ mm} = 11 \text{ mm}$.
A decrease in the flexion gap of 1 mm.
 - **in the case of position 2:** The posterior resection will be $10 - 2 \text{ mm} = 8 \text{ mm}$.
An increase in the flexion gap of 2 mm.

Posterior referencing



Ligament balancing using the 3° rotational condylar guide



- **Posterior referencing:**

- Remove the anterior reference probe.
- Set the position of the posterior condylar guide to 0. The posterior cut is set at 10 mm.
- The adjustment in the size will be reflected in the anterior cut:

- **in the case of position 1:** 1 mm more will be removed anteriorly.

- **in the case of position 2:** 2 mm less will be removed anteriorly (tightening patellar tracking).

Adjusting femoral rotation

- This may be determined using ligament balancing, and anatomical references:

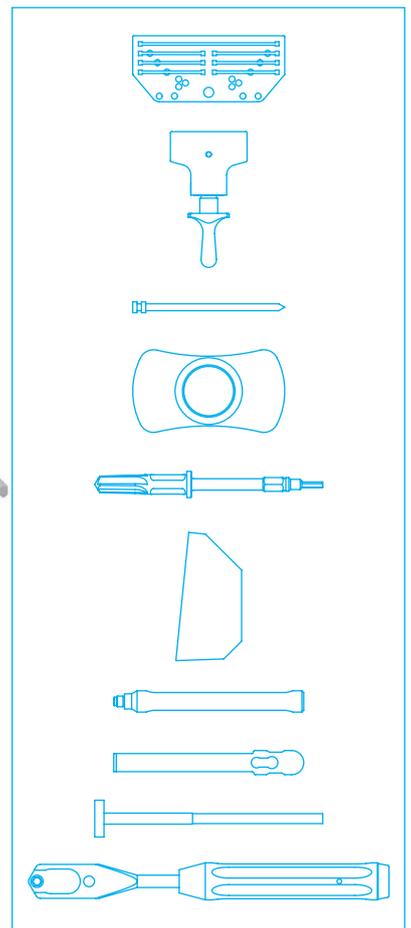
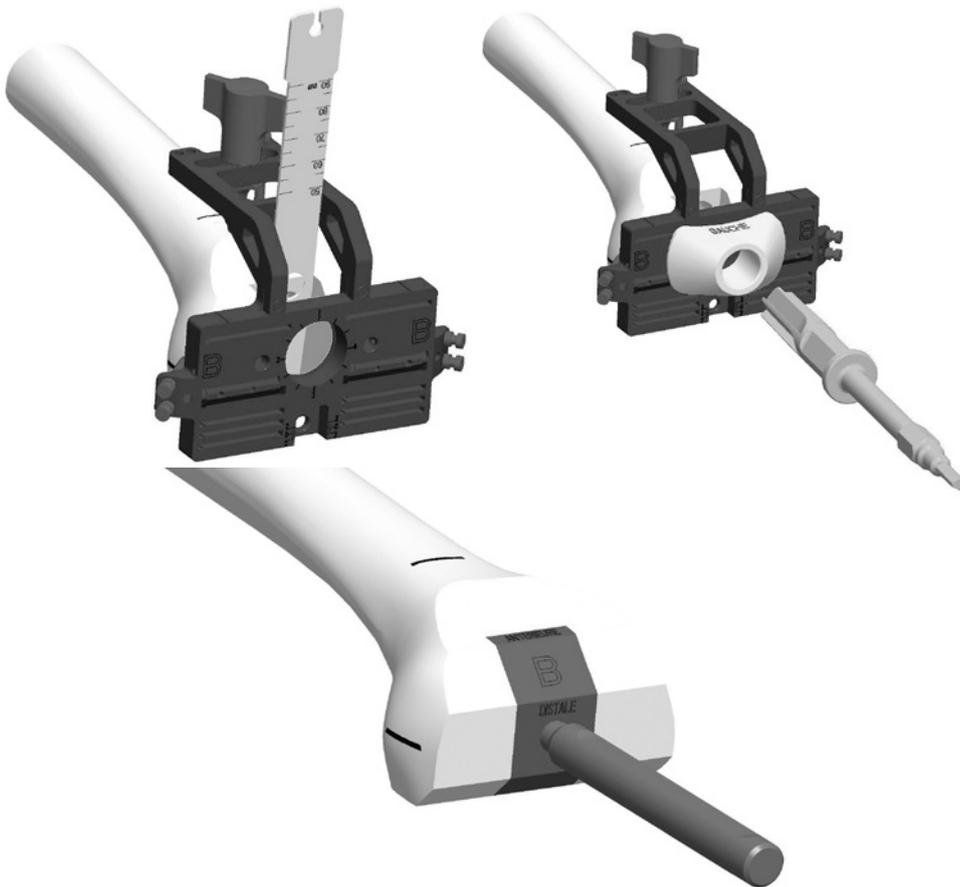
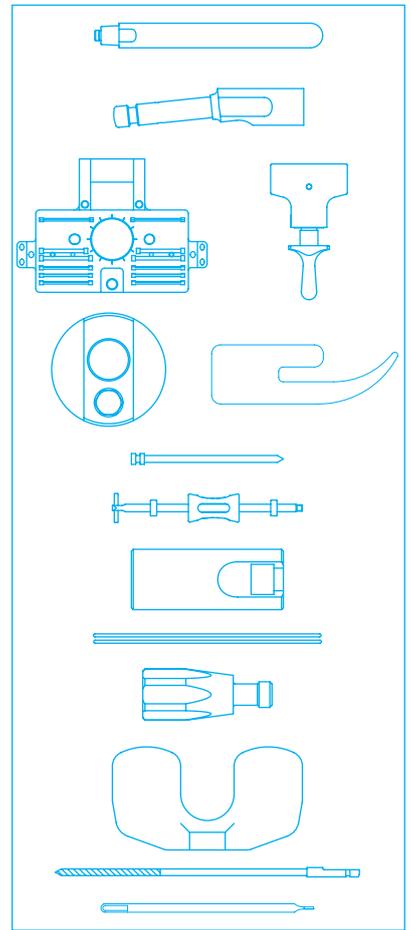
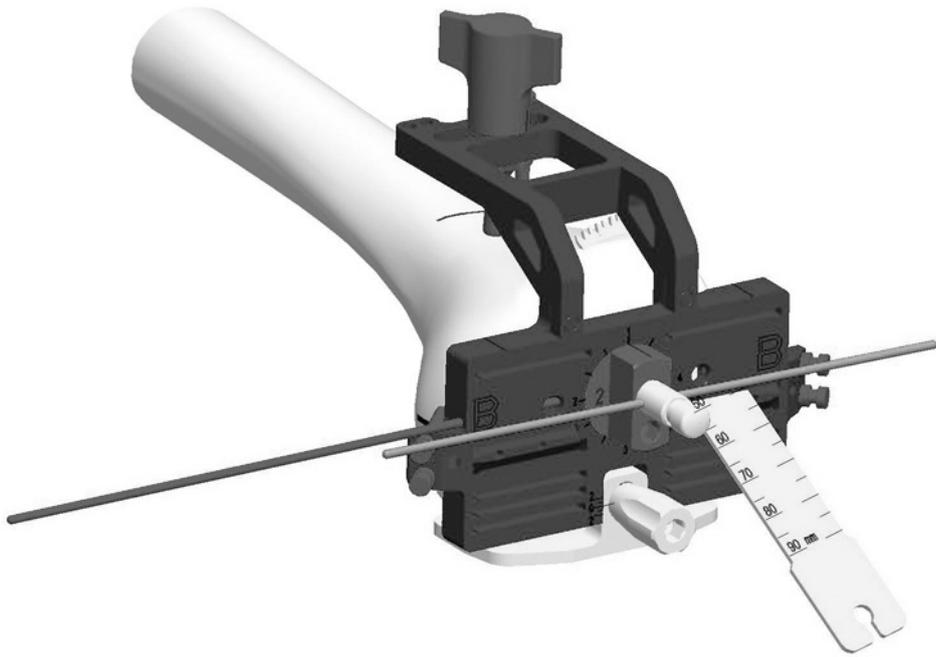
- The 3 anatomical references are:**

- The epicondylar line.
 - The posterior condylar line.
 - The trochlear groove (Whiteside's line).

- Ligament balancing:**

- Fit the correct 3° rotational condylar guide into the cutting block.
 - Check the position of the cutting block.
 - Insert the 7 mm spacer and assess ligament stability.

- After determining femoral rotation, lock the condylar guide with the allen key.



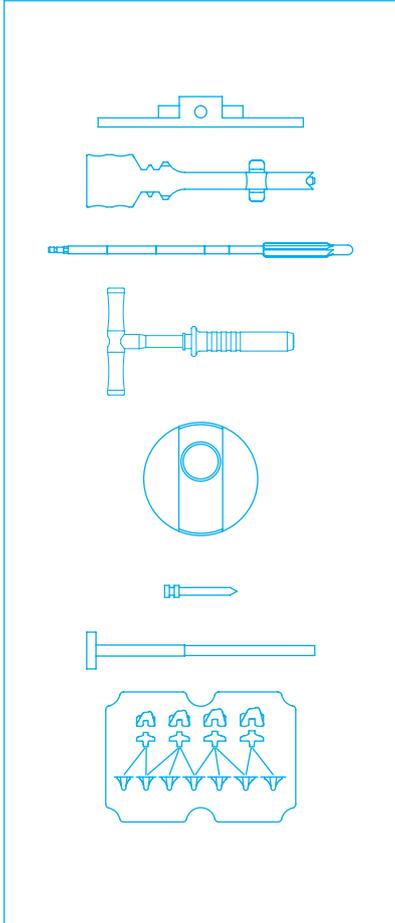
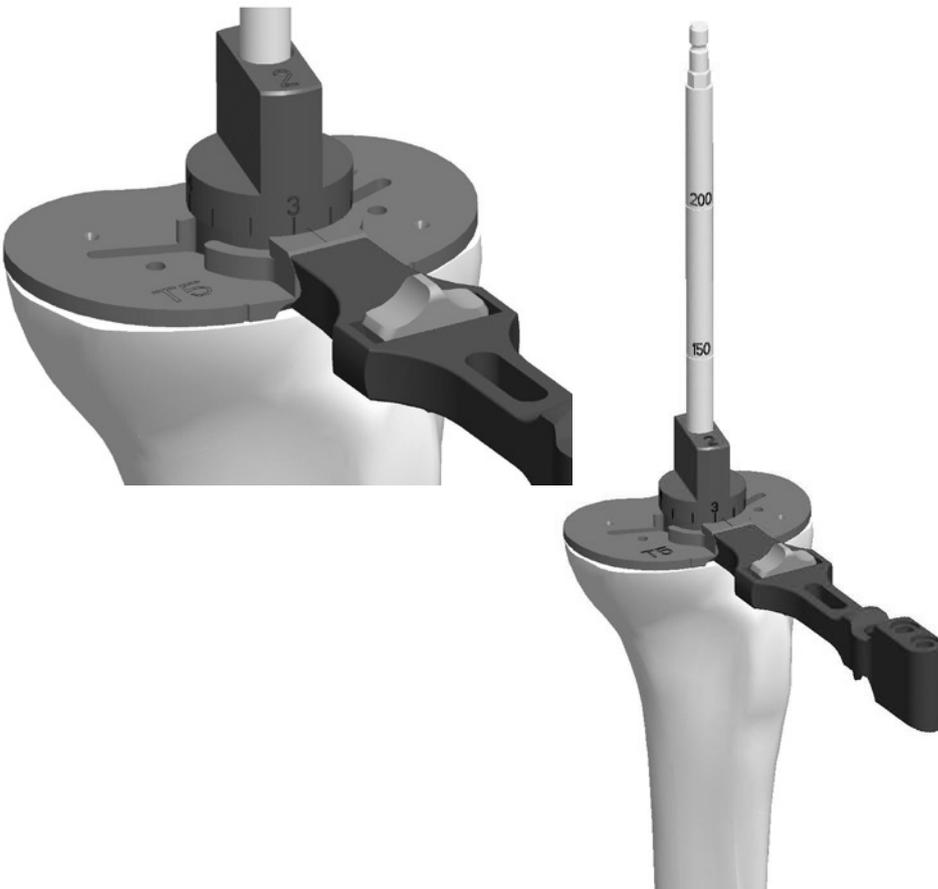
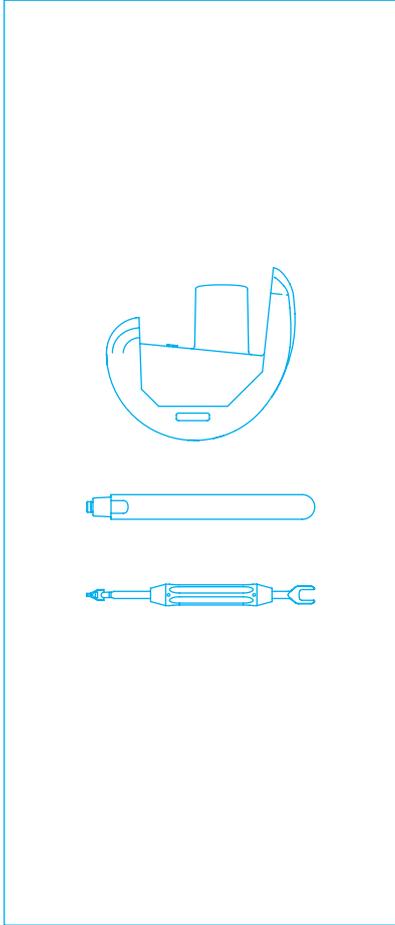
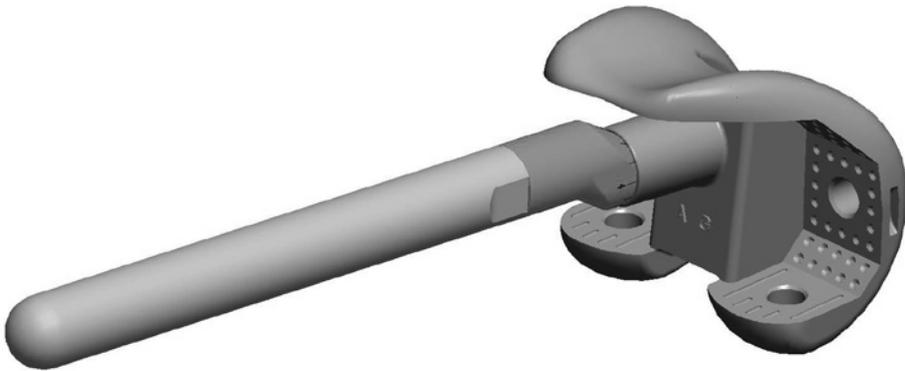
The femoral cuts

- Do a final check that the thin alignment pins in the angled connector and in the cutting block are parallel.
- Fix the femoral cutting block in position with headed pins anteriorly, medially and laterally.
- Perform the 4 cuts:
 - Anterior
 - Posterior
 - Anterior chamfering
 - Posterior chamfering
- Note the exact position and size of offset in relation to the cutting block.
- Remove the offset and the trial stem with the extractor nozzle on the slap hammer.

Preparation of the inter-condylar notch

- Using a narrow saw blade, carefully cut the inter-condylar notch.
- Insert the stem reamer guide with the correct side anterior.
- Drill to the stop on the stem reamer. This is the same size for all femoral implants.
- Remove all the pins, and the cutting block.

NB: Check the depth and size of the inter-condylar notch with the trial on the handle.

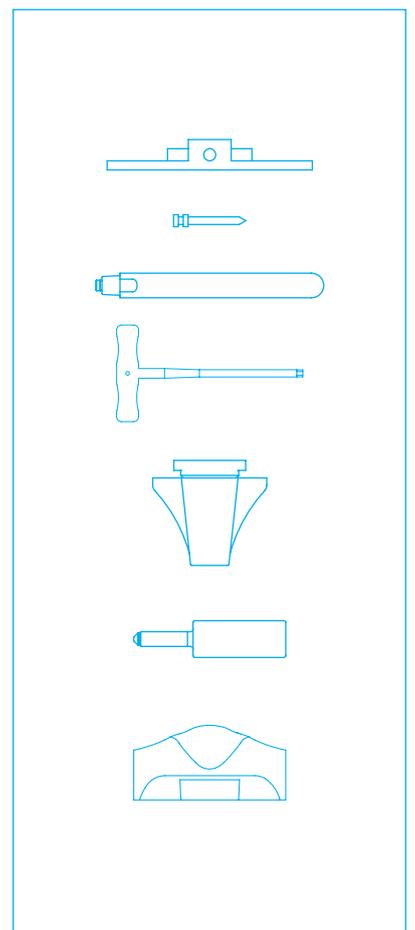
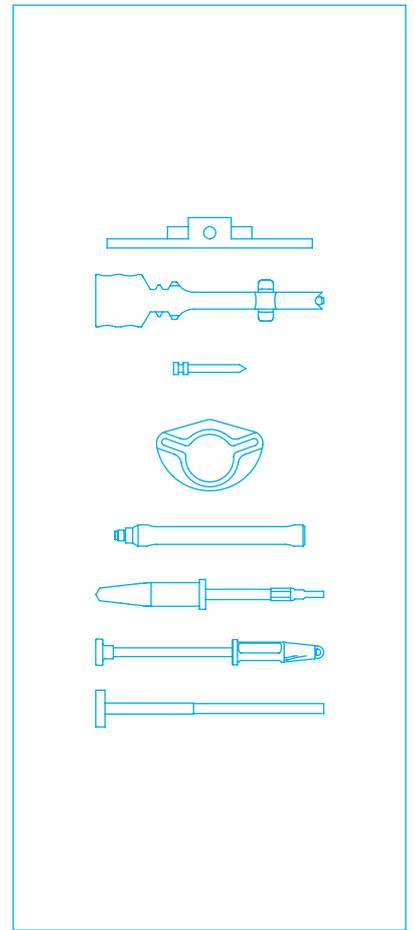


Assembling the femoral trial

- Connect the trial stem to the trial offset with the spanner, and impact the trial offset into the femoral trial, using the special offset impactor and allen key.
It is important to align the offset to the exact position measured off the cutting block.
If no offset is required, then the trial stem is screwed directly into the femoral trial.
- Insert trial posterior and distal wedges (4 & 8 mm) as required.
- Remove any posterior femoral osteophytes with the curved chisel.

Positioning the tibial base plate

- Important: Remove the two pins remaining in the tibia (after the tibial cut).
- Select the correct size of tibial base plate to give the best bone coverage, with reference to the size already chosen for the femoral implant. (See chart on page 64).
- Reinsert the reamer previously used in the tibia, and insert the o tibial offset into the chosen base plate.
- If the base plate is not correctly aligned on the tibial cut, then choose the correct offset to give the ideal coverage. (2, 4, 6 mm offsets are available).
- Note the size and position of the offset, and pin the base plate to the tibia with two pins, using the required tibial half wedges.
- Remove the reamer and the offset.

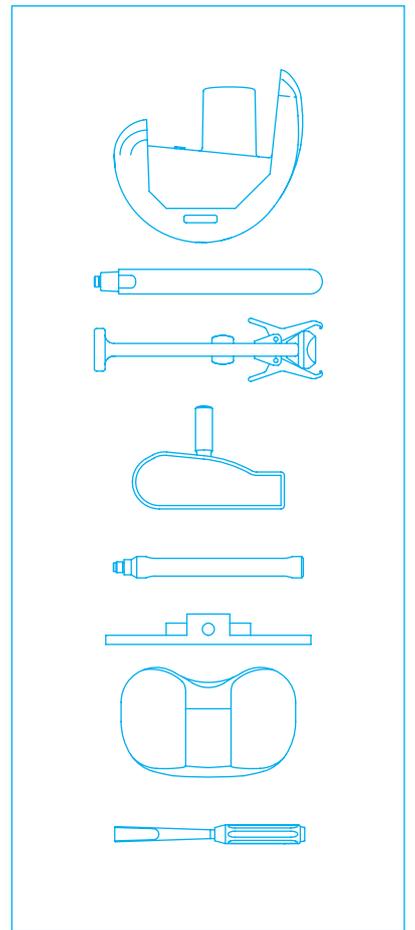
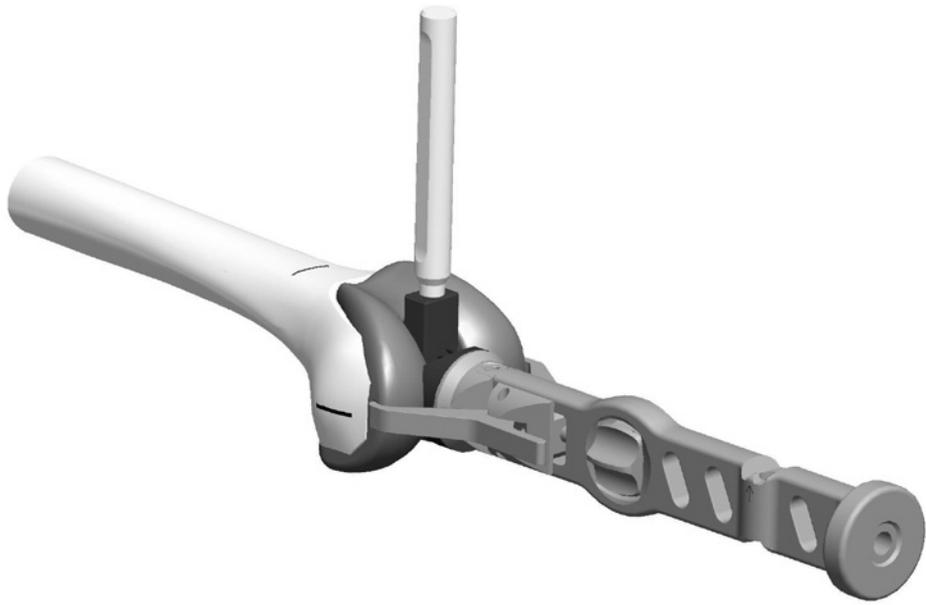


Tibial Preparation

- Place the correct size of tibial milling jig on the base plate, and drill with the tibial drill to the stop.
- Cut for the tibial keels using the correct sized keel cutter.

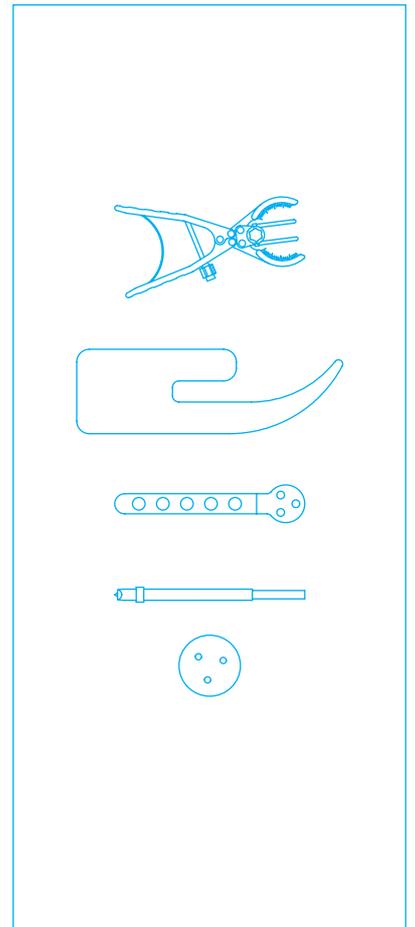
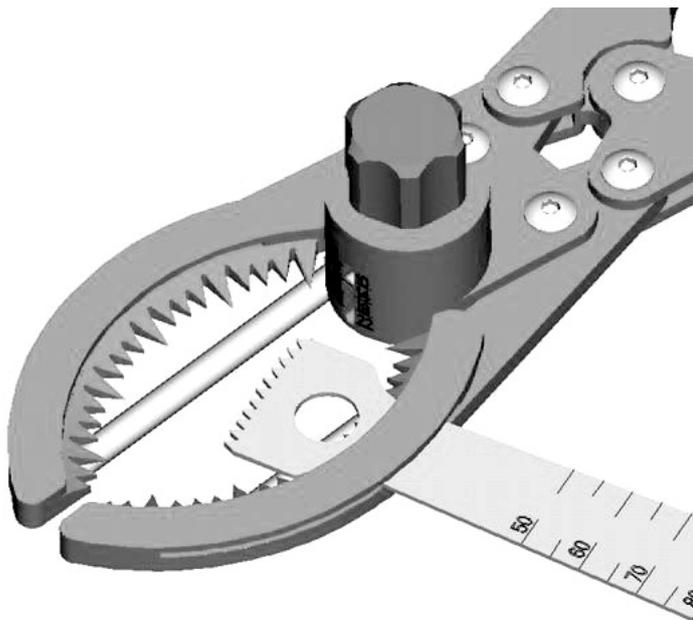
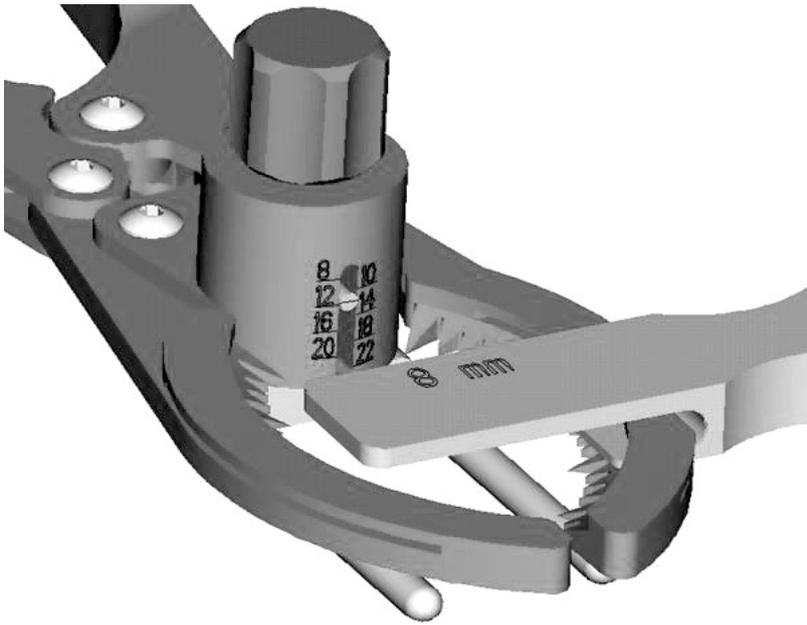
- Assemble the trial stem, trial offset (if required) and the trial keel in the chosen alignment.
- Impact the assembled trials into the base plate with the special trial impactor.

NB: If no offset is required, the trial stem is screwed into the trial keel.



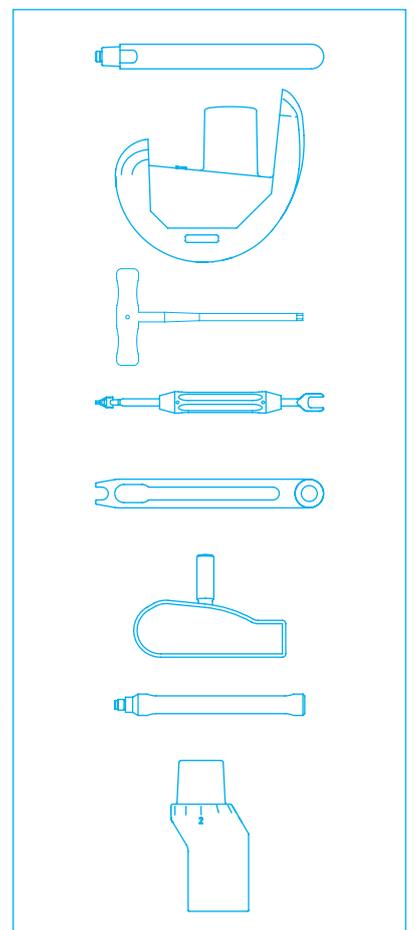
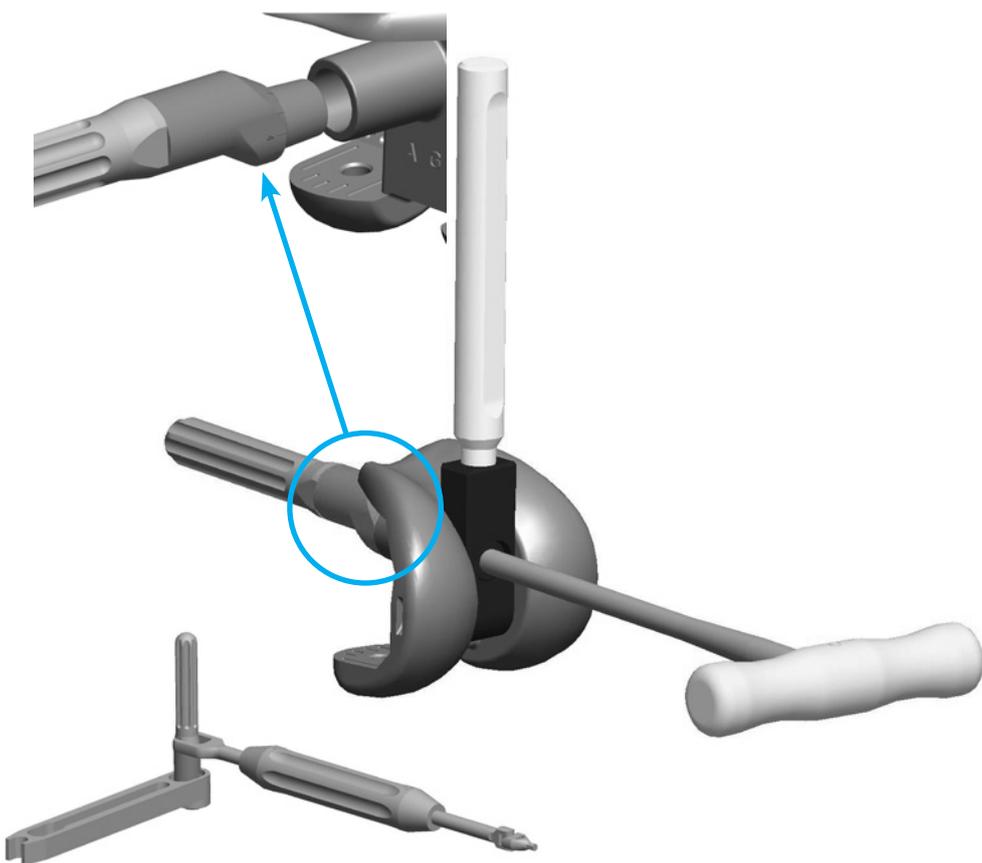
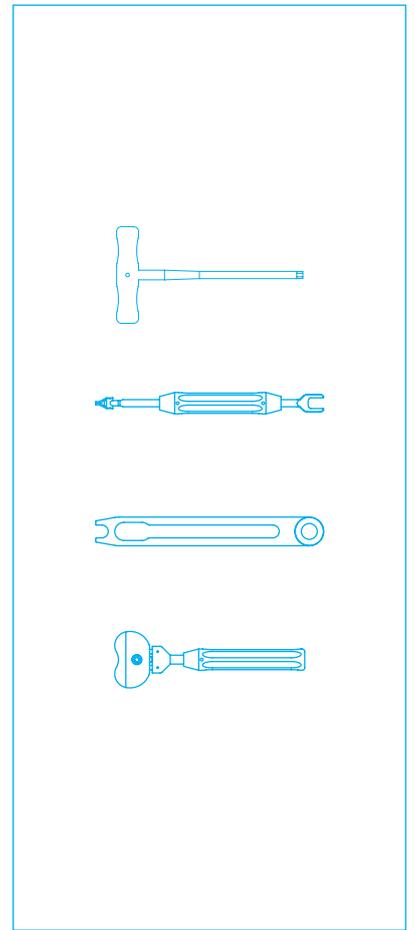
Final trialing

- Fit the femoral trials to the trial handle and insert.
- Insert the chosen tibial trial insert, and test stability through the full range of motion.



Patella preparation

- Assess the need for patellar resurfacing based on:
 - thickness of bone remaining (12 mm of bone is required after removal),
 - bone quality,
 - patellar tracking,
 - the fixation of existing implant.
- If required, remove the implant and all residual cement.
- Place the patellar forceps with the two pins on the anterior patellar surface.
- Tighten, and prepare a fresh cut of the patella.
- Select the patella size, 30, 33 or 36 mm.
- Centre and impact the drill guide, and drill the three holes.
- Fit the trial patella.
- Test the tracking in the trochlear groove.



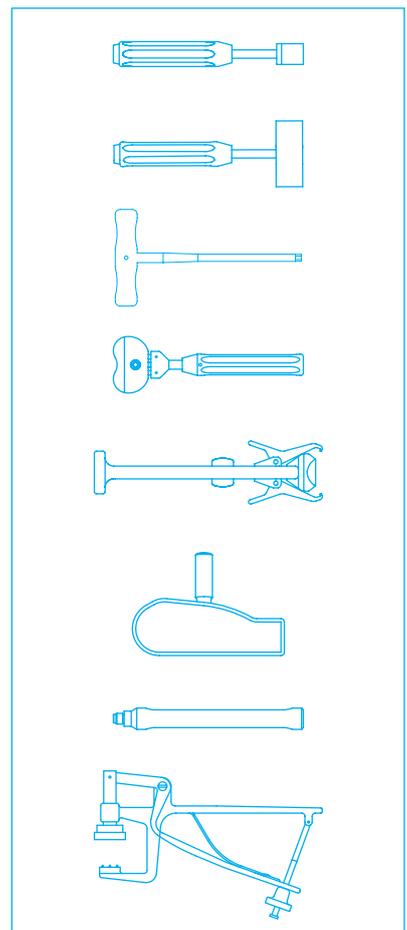
Assembly of the definitive implants

Assembly of the tibial implant

- Attach the tibial stem to the offset connector using the spanners.
If no offset connector is used, the tibial stem is inserted directly into the tibial base plate.
- Place the tibial stem impactor onto the tibial base plate, and impact the stem with the allen key.
During impaction onto the base plate, choose the exact alignment used during trialing.

Assembly of the femoral implant

- Attach the femoral stem to the offset connector using the spanners.
If no offset connector is used, the femoral stem is inserted directly into the femoral prosthesis.
- Impact onto the femoral prosthesis and tighten, using the femoral offset connector impactor, and the allen key.
During impaction onto the femoral prosthesis, choose the exact alignment used during trialing.
- add any distal or posterior wedges using the screw driver.



Fitting the definitive implants

Fitting the tibial implant

- Prepare the tibia for cementing, and apply a thin layer of cement between any half wedges and the base plate.
- Impact the assembly into the tibia using the impactor, and position the tibial half wedges.
- Re-tighten the stem impactor one last time before removing it.

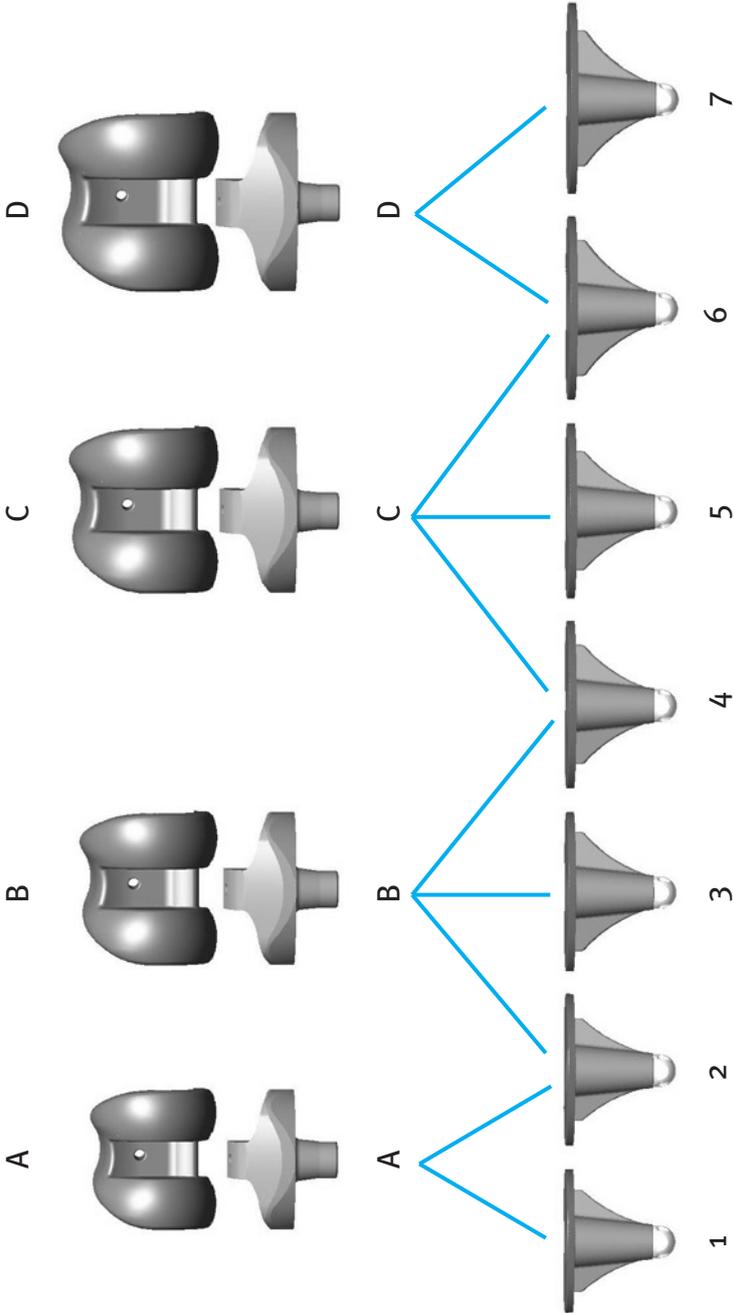
Fitting the femoral implant

- Fit the femoral prosthesis to the femoral holder.
- Prepare the femur for cementing, and insert the assembly with the knee fully flexed.
- Remove the femoral holder and impact with the femoral impactor.
- Re-tighten the stem impactor one last time before removing.
- Fit the chosen tibial insert (corresponding in size to the femur).
- The knee is placed in complete extension until the cement has set.

Fitting the patellar implant

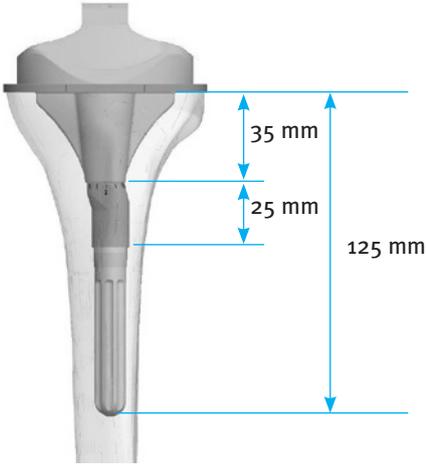
- Cement the resurfacing patella using the patellar clamp.

Compatibility chart of Prostheses

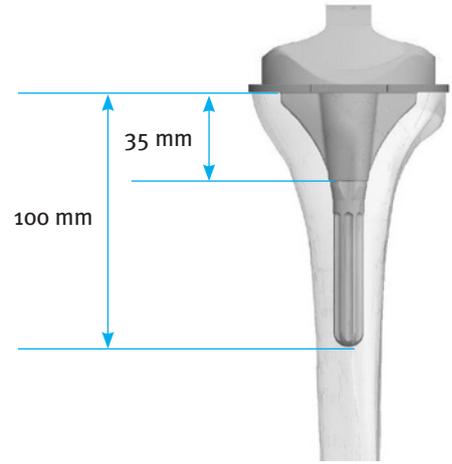


Femoral and tibial Stems

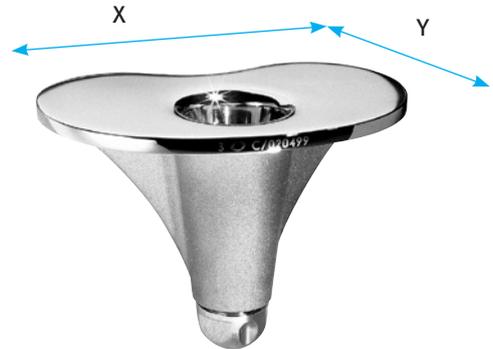
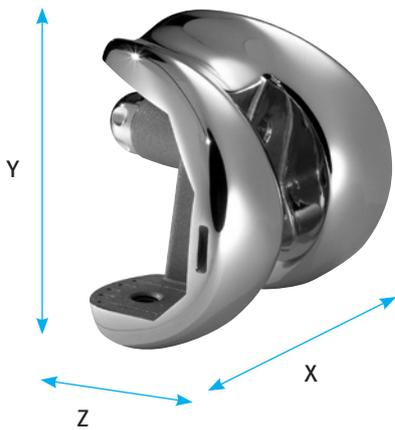
| Lengths | Diameters | | | | | |
|---------|-----------|--------------------|-------|-------|---------|-------|
| | 10 mm | 12 mm | 14 mm | 16 mm | 18 mm | 20 mm |
| 75 mm | 10 mm | 12 mm | 14 mm | | | |
| 100 mm | 10 mm | 12 mm | 14 mm | 16 mm | 18 mm | 20 mm |
| 150 mm | 10 mm | 12 mm | 14 mm | 16 mm | 18 mm | 20 mm |
| 200 mm | | 12 mm | 14 mm | 16 mm | 18 mm | 20 mm |
| | Tibial | Tibial and Femoral | | | Femoral | |



Examples using a 100 mm stem with and without a connector

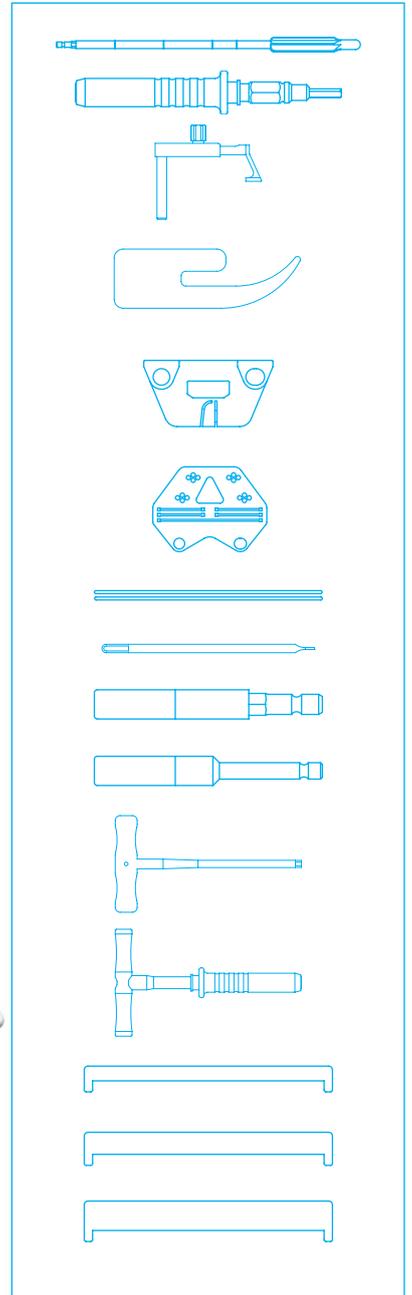
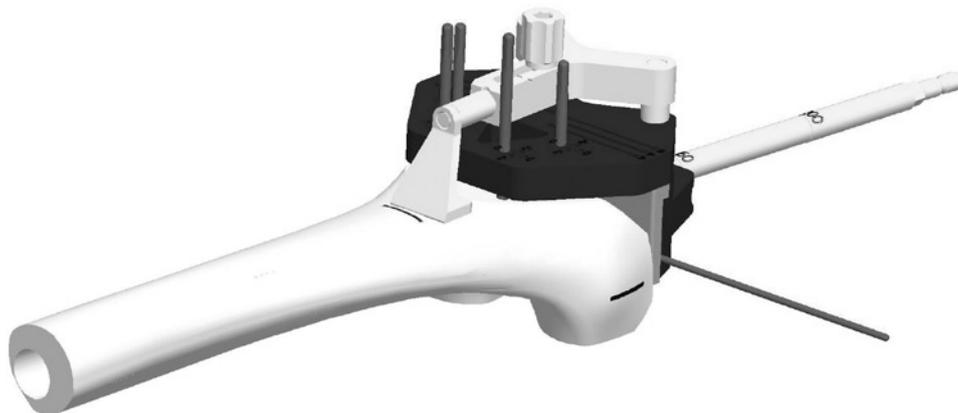
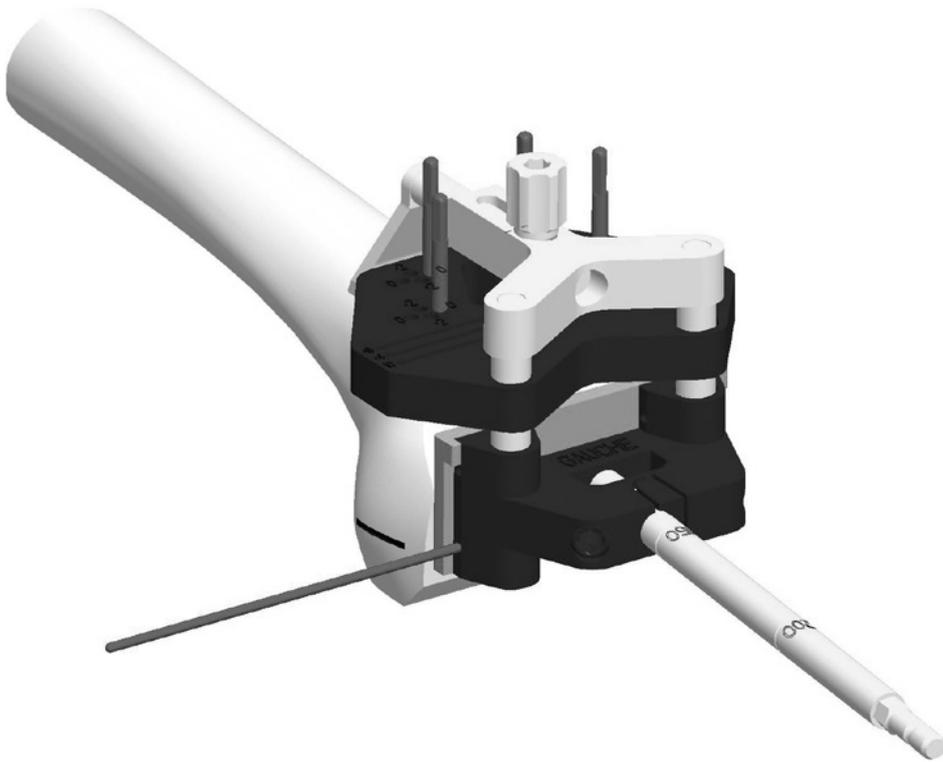


Implant Specifications



| Size | M/L (X) | A/P (Y) | (Z) |
|------|---------|---------|------|
| A | 61.6 | 54.8 | 50.6 |
| B | 67.2 | 59.8 | 55.2 |
| C | 72.8 | 64.8 | 59.8 |
| D | 78.4 | 69.8 | 64.4 |

| Size | M/L (X) | A/P (Y) |
|------|---------|---------|
| 1 | 63.5 | 41.4 |
| 2 | 67 | 43.6 |
| 3 | 70.5 | 45.9 |
| 4 | 74 | 48.2 |
| 5 | 77.5 | 50.5 |
| 6 | 81 | 52.8 |
| 7 | 84.5 | 55 |



Options: Re-cutting the distal femoral cut

- Replace the femoral reamer.
- Place the 6° valgus block on the reamer, with the correct side facing anterior.
- Place the required valgus block wedge between the valgus block and the distal cut:
 - 4 mm thick wedge: re-cut of 6 mm
 - 6 mm thick wedge: re-cut of 4 mm
 - 8 mm thick wedge: re-cut of 2 mm
- Fit the anterior arm of the femoral sizing jig into the distal cutting block, and slide into the valgus block.
- Slide the jig against the distal cut, set the previous rotation and fix to the reamer using the allen key.
- Pin the distal cutting block with 4 headless pins. Check the position with the finger gauge.
- Remove the anterior arm, the valgus block and the reamer.
- Make the new cuts.

Score instrumentation

- The SCORE® Revision instrument set consists of 7 trays:
 - A common set (tray 1)
 - A tibial cutting set (tray 2)
 - A tibia trial set (tray 3)
 - A femoral cutting set (tray 4)
 - A femoral trial set (tray 5)
 - A trial stem set (tray 6)
 - A patella set (tray 7)

Narrow saw blades

Narrow SYNTHES AO SODEM
STERILE Ref: 2-0212901

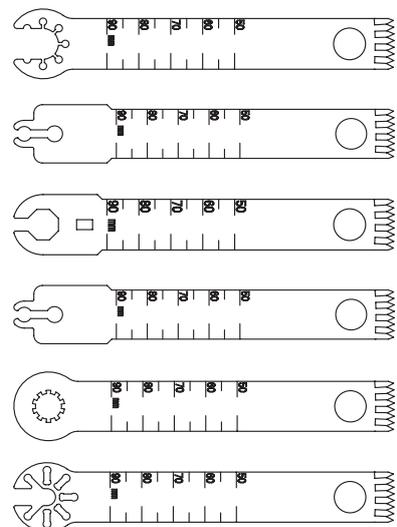
Narrow STRYKER 2000
STERILE Ref: 2-0212902

Narrow 3M MAXI DRIVER
STERILE Ref: 2-0212903

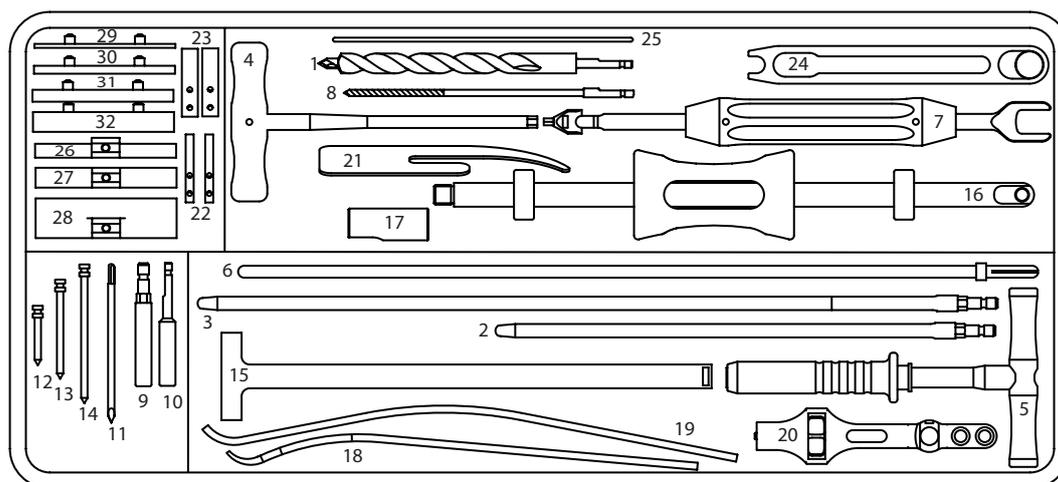
Narrow STRYKER B
STERILE Ref: 2-0212904

Narrow AESCULAP
STERILE Ref: 2-0212905

Narrow ZIMMER HALL
STERILE Ref: 2-0212906

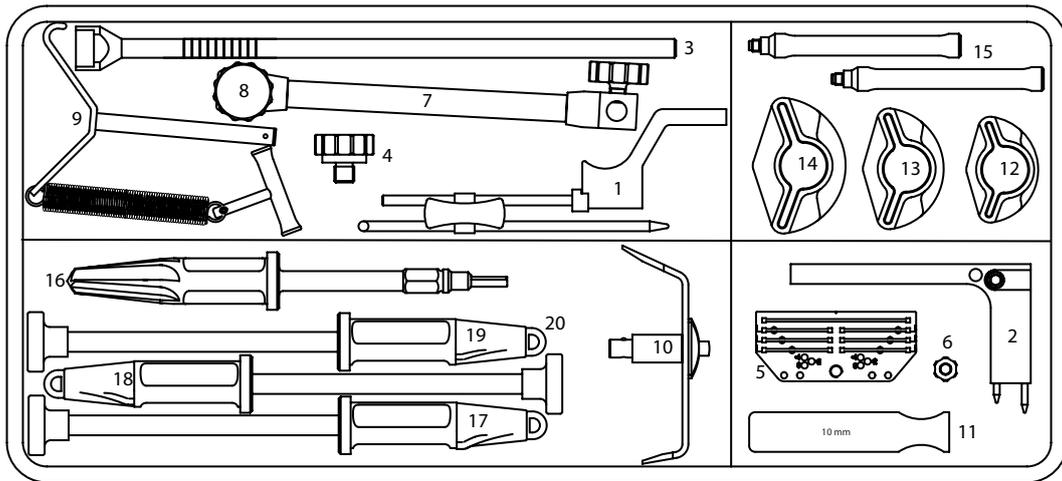


Common set (tray 1)



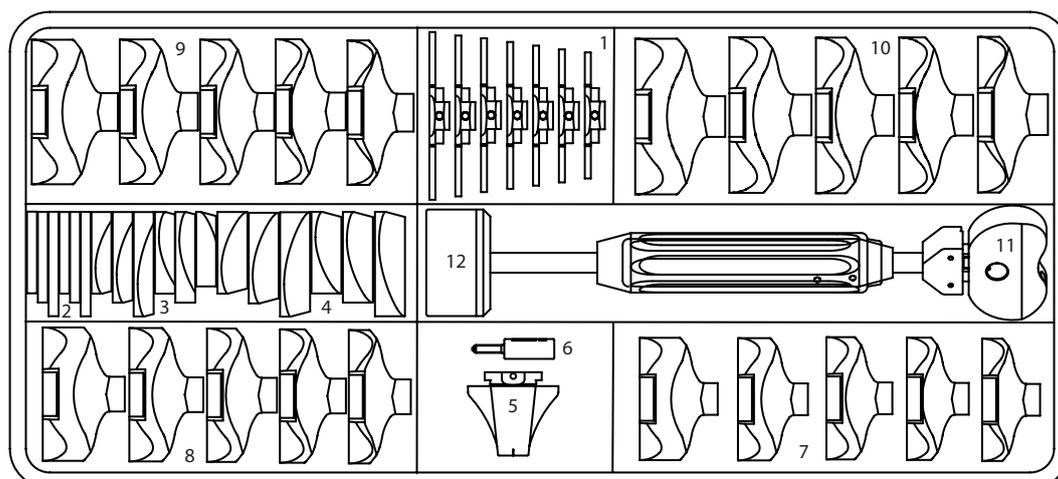
| Rep | Description | Ref | Qty |
|-----|--|-----------|-----|
| 1 | Intra-medullar drill | 2-0200100 | 1 |
| 2 | Intra-medullar rod - 250 mm | 2-0200200 | 1 |
| 3 | Intra-medullar rod - 400 mm | 2-0200300 | 1 |
| 4 | Allen key | 2-0200800 | 1 |
| 5 | Universal T handle | 2-0200400 | 1 |
| 6 | Extra-medullar alignment rod | 2-0200600 | 2 |
| 7 | Stem spanner and universal joint screwdriver | 2-0215100 | 1 |
| 8 | Drill bit 3.2 mm | 2-0102400 | 1 |
| 9 | Universal adaptor for pins | 2-0201100 | 1 |
| 10 | AO adaptor for pins | 2-0201200 | 1 |
| 11 | Headless pins | 2-0201400 | 4 |
| 12 | Headed pins - 30 mm | 2-0201301 | 3 |
| 13 | Headed pins - 50 mm | 2-0201303 | 6 |
| 14 | Headed pins - 70 mm | 2-0201302 | 6 |
| 15 | Pin extractor | 2-0201500 | 1 |
| 16 | Slap hammer | 2-0206900 | 1 |
| 17 | Slap hammer nozzle | 2-0214800 | 1 |
| 18 | Hohmann retractor 240 mm | 2-0207100 | 2 |
| 19 | Hohmann retractor 265 mm | 2-0207200 | 1 |
| 20 | Universal handle | 2-0200500 | 1 |
| 21 | Joint-line spacer | 2-0204500 | 1 |
| 22 | Femoral half-wedge - 4 mm | 2-0212304 | 2 |
| 23 | Femoral half-wedge - 8 mm | 2-0212308 | 2 |
| 24 | Offset spanner | 2-0213500 | 1 |
| 25 | Alignment pins | 2-0103000 | 3 |
| 26 | Spacer - 7 mm | 2-0200707 | 1 |
| 27 | Spacer - 10 mm | 2-0200710 | 1 |
| 28 | Spacer - 20 mm | 2-0200720 | 1 |
| 29 | Wedge for spacer - 2 mm | 2-0207002 | 1 |
| 30 | Wedge for spacer - 4 mm | 2-0207004 | 1 |
| 31 | Wedge for spacer - 6 mm | 2-0207006 | 1 |
| 32 | Wedge for spacer - 10 mm | 2-0207010 | 1 |

Tibial cutting set (box 2)



| Rep | Description | Ref | Qty |
|-----|--------------------------------------|-----------|-----|
| 1 | Joint-line jig | 2-0210800 | 1 |
| 2 | tibial slide | 2-0211000 | 1 |
| 3 | Extra-medullary rod | 2-0201900 | 1 |
| 4 | Tibial slide screw | 2-0202100 | 1 |
| 5 | Tibial cutting block | 2-0210600 | 1 |
| 6 | Tibial cutting block screw | 2-0203800 | 1 |
| 7 | Extra-medullar connector | 2-0201700 | 1 |
| 8 | Screws for extra-medullary connector | 2-0201800 | 2 |
| 9 | Ankle strap | 2-0201600 | 1 |
| 10 | Tibial stylus | 2-0202400 | 1 |
| 11 | Joint-line spacer | 2-0210700 | 1 |
| 12 | Tibial milling jig - size 1/2 | 2-0202612 | 1 |
| 13 | Tibial milling jig - size 3/4/5 | 2-0202635 | 1 |
| 14 | Tibial milling jig - size 6/7 | 2-0202667 | 1 |
| 15 | Milling jig handles | 2-0206200 | 2 |
| 16 | Tibial drill | 2-0202700 | 1 |
| 17 | Tibial keel cutter - size 1/2 | 2-0202812 | 1 |
| 18 | Tibial keel cutter - size 3/4/5 | 2-0202835 | 1 |
| 19 | Tibial keel cutter - size 6/7 | 2-0202867 | 1 |
| 20 | Removable tips for keel cutters | 2-0208900 | 3 |

Tibia trial set (box 3)

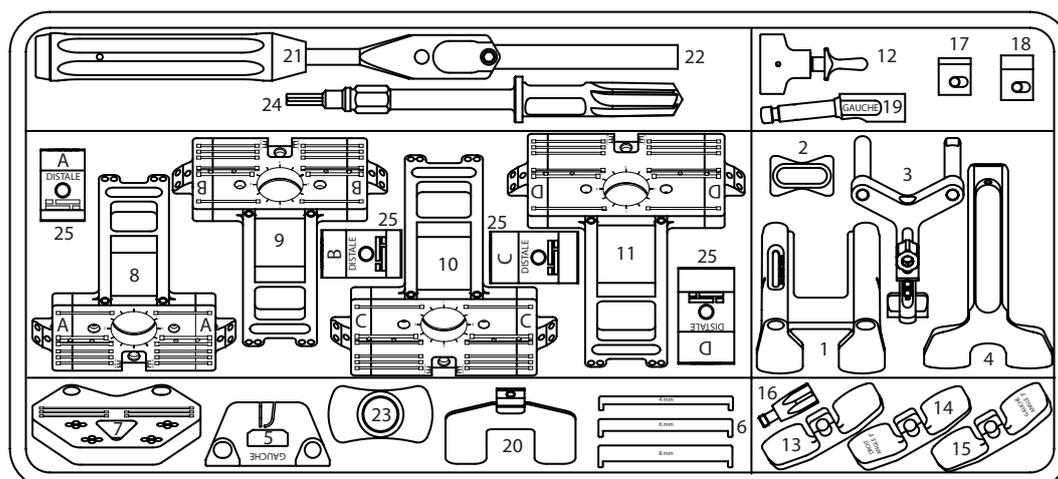


| Rep | Description | Ref | Qty |
|-----|--|-----------|-----|
| 1 | Tibial trial base plate size 1 | 2-0208601 | 1 |
| 1 | Tibial trial base plate size 2 | 2-0208602 | 1 |
| 1 | Tibial trial base plate size 3 | 2-0208603 | 1 |
| 1 | Tibial trial base plate size 4 | 2-0208604 | 1 |
| 1 | Tibial trial base plate size 5 | 2-0208605 | 1 |
| 1 | Tibial trial base plate size 6 | 2-0208606 | 1 |
| 1 | Tibial trial base plate size 7 | 2-0208607 | 1 |
| 2 | Tibial trial half-wedge T1/2 5 mm | 2-0210311 | 2 |
| 2 | Tibial trial half-wedge T1/2 10 mm Int R/Ext L | 2-0210321 | 1 |
| 2 | Tibial trial half-wedge T1/2 15 mm Int R/Ext L | 2-0210331 | 1 |
| 2 | Tibial trial half-wedge T1/2 10 mm Ext R/Int L | 2-0210341 | 1 |
| 2 | Tibial trial half-wedge T1/2 15 mm Ext R/Int L | 2-0210351 | 1 |
| 3 | Tibial trial half-wedge T3/4/5 5 mm | 2-0210313 | 2 |
| 3 | Tibial trial half-wedge T3/4/5 10 mm Int R/Ext L | 2-0210323 | 1 |
| 3 | Tibial trial half-wedge T3/4/5 15 mm Int R/Ext L | 2-0210333 | 1 |
| 3 | Tibial trial half-wedge T3/4/5 10 mm Ext R/Int L | 2-0210343 | 1 |
| 3 | Tibial trial half-wedge T3/4/5 15 mm Ext R/Int L | 2-0210353 | 1 |
| 4 | Tibial trial half-wedge T6/7 5 mm | 2-0210316 | 2 |
| 4 | Tibial trial half-wedge T6/7 10 mm Int R/Ext L | 2-0210326 | 1 |
| 4 | Tibial trial half-wedge T6/7 15 mm Int R/Ext L | 2-0210336 | 1 |
| 4 | Tibial trial half-wedge T6/7 10 mm Ext R/Int L | 2-0210346 | 1 |
| 4 | Tibial trial half-wedge T6/7 15 mm Ext R/Int L | 2-0210356 | 1 |
| 5 | Trial keel | 2-0213401 | 1 |
| 6 | Trial keel locking screw | 2-0215400 | 1 |

Tibia trial set (box 3)

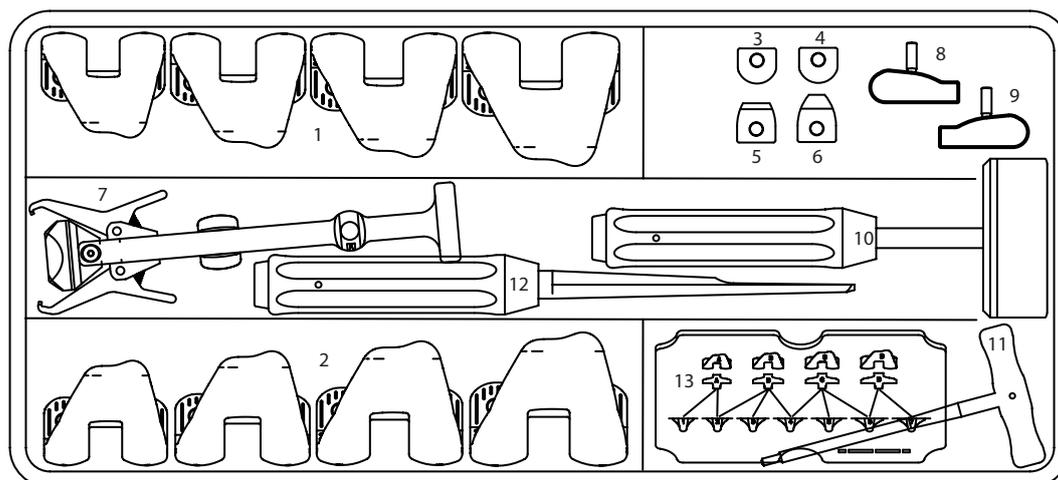
| Rep | Description | Ref | Qty |
|-----|----------------------------------|-----------|-----|
| 7 | Trial insert Size A 10 mm | 2-021421A | 1 |
| 7 | Trial insert Size A 12 mm | 2-021422A | 1 |
| 7 | Trial insert Size A 14 mm | 2-021423A | 1 |
| 7 | Trial insert Size A 16 mm | 2-021424A | 1 |
| 7 | Trial insert Size A 20 mm | 2-021425A | 1 |
| 8 | Trial insert Size B 10 mm | 2-021421B | 1 |
| 8 | Trial insert Size B 12 mm | 2-021422B | 1 |
| 8 | Trial insert Size B 14 mm | 2-021423B | 1 |
| 8 | Trial insert Size B 16 mm | 2-021424B | 1 |
| 8 | Trial insert Size B 20 mm | 2-021425B | 1 |
| 9 | Trial insert Size C 10 mm | 2-021421C | 1 |
| 9 | Trial insert Size C 12 mm | 2-021422C | 1 |
| 9 | Trial insert Size C 14 mm | 2-021423C | 1 |
| 9 | Trial insert Size C 16 mm | 2-021424C | 1 |
| 9 | Trial insert Size C 20 mm | 2-021425C | 1 |
| 10 | Trial insert Size D 10 mm | 2-021421D | 1 |
| 10 | Trial insert Size D 12 mm | 2-021422D | 1 |
| 10 | Trial insert Size D 14 mm | 2-021423D | 1 |
| 10 | Trial insert Size D 16 mm | 2-021424D | 1 |
| 10 | Trial insert Size D 20 mm | 2-021425D | 1 |
| 11 | Tibial offset connector impactor | 2-0213700 | 1 |
| 12 | Tibial base plate impactor | 2-0203000 | 1 |

Femoral cutting & Tibial trial set (box 4)



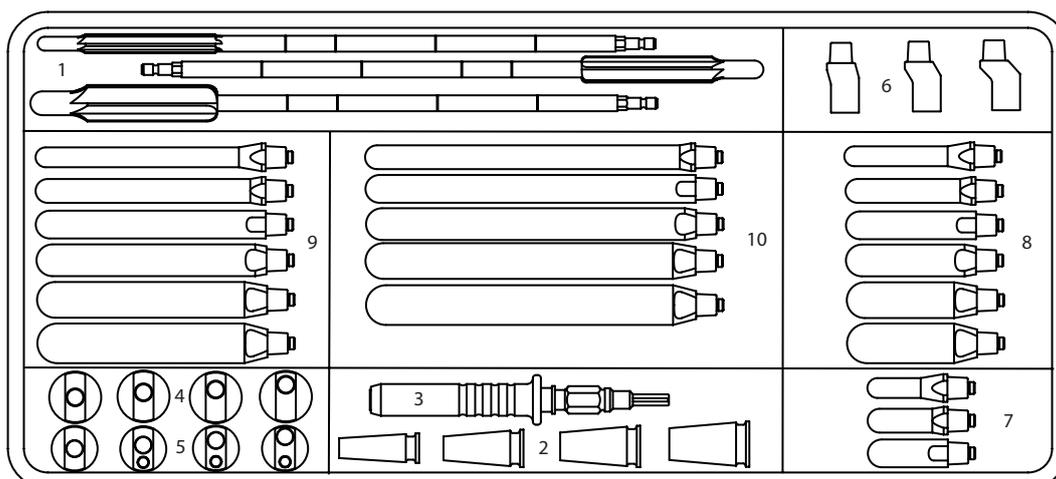
| Rep | Description | Ref | Qty |
|-----|---|-----------|-----|
| 1 | Femoral sizing jig | 2-0211800 | 1 |
| 2 | Central slide for sizing jig | 2-0215600 | 1 |
| 3 | Anterior slide and anterior arm | 2-0211900 | 1 |
| 4 | Posterior fork for valgus block | 2-0211600 | 1 |
| 5 | Valgus block | 2-0212100 | 1 |
| 6 | 4 mm wedge for valgus block | 2-0212204 | 1 |
| 6 | 6 mm wedge for valgus block | 2-0212206 | 1 |
| 6 | 8 mm wedge for valgus block | 2-0212208 | 1 |
| 7 | Distal cutting guide | 2-0211500 | 1 |
| 8 | Femoral cutting Block Size A | 2-021270A | 1 |
| 9 | Femoral cutting Block Size B | 2-021270B | 1 |
| 10 | Femoral cutting Block Size C | 2-021270C | 1 |
| 11 | Femoral cutting Block Size D | 2-021270D | 1 |
| 12 | Anterior referencing probe | 2-0203400 | 1 |
| 13 | 0° rotational condylar guide | 2-0213100 | 1 |
| 14 | Right 3° rotational condylar guide | 2-02131D3 | 1 |
| 15 | Left 3° rotational condylar guide | 2-02131G3 | 1 |
| 16 | Screw for condylar guide | 2-0213200 | 1 |
| 17 | 4 mm distal wedge for femoral cutting guide | 2-0212404 | 2 |
| 18 | 8 mm distal wedge for femoral cutting guide | 2-0212408 | 2 |
| 19 | 6° angled connector | 2-0212600 | 1 |
| 20 | Posterior alignment guide | 2-0212500 | 1 |
| 21 | Flexible blade holder | 2-0214600 | 1 |
| 22 | Flexible blade | 2-0214500 | 1 |
| 23 | Stem reamer guide | 2-0214900 | 1 |
| 24 | Stem reamer | 2-0215000 | 1 |
| 25 | Inter-condylar notch trial size A | 2-021530A | 1 |
| 25 | Inter-condylar notch trial size B | 2-021530B | 1 |
| 25 | Inter-condylar notch trial size C | 2-021530C | 1 |
| 25 | Inter-condylar notch trial size D | 2-021530D | 1 |

Femoral & Tibial trial set (box 5)



| Rep | Description | Ref | Qty |
|-----|---|-----------|-----|
| 1 | Femoral trial Size A Right | 2-02232DA | 1 |
| 1 | Femoral trial Size B Right | 2-02232DB | 1 |
| 1 | Femoral trial Size C Right | 2-02232DC | 1 |
| 1 | Femoral trial Size D Right | 2-02232DD | 1 |
| 2 | Femoral trial Size A Left | 2-02232GA | 1 |
| 2 | Femoral trial Size B Left | 2-02232GB | 1 |
| 2 | Femoral trial Size C Left | 2-02232GC | 1 |
| 2 | Femoral trial Size D Left | 2-02232GD | 1 |
| 3 | Trial posterior femoral wedge 4 mm | 2-0214004 | 2 |
| 4 | Trial posterior femoral wedge 8 mm | 2-0214008 | 2 |
| 5 | Trial distal femoral wedge 4 mm | 2-0213904 | 2 |
| 6 | Trial distal femoral wedge 8 mm | 2-0213908 | 2 |
| 7 | Femoral condylar holder | 2-0204400 | 1 |
| 8 | Offset connector left femoral impactor | 2-021360G | 1 |
| 9 | Offset connector right femoral impactor | 2-021360D | 1 |
| 10 | Femoral condyle impactor | 2-0204300 | 1 |
| 11 | Offset connector extractor | 2-0214300 | 1 |
| 12 | Curved gouge | 2-0206500 | 1 |
| 13 | Implant compatability guide | 2-0217500 | 1 |

Stem set Tibia trial set (box 6)

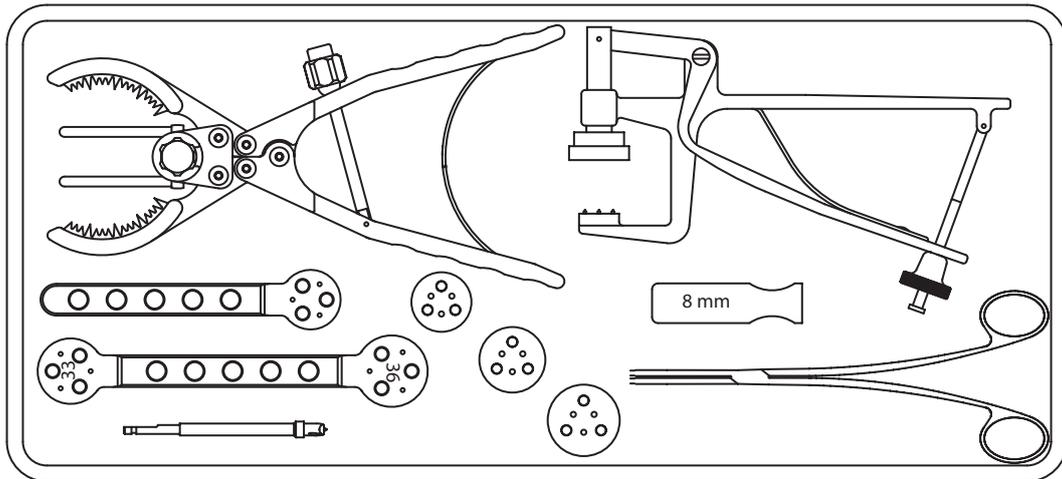


| Rep | Description | Ref | Qty |
|-----|--|-----------|-----|
| 1 | Reamer 10 mm | 2-0210510 | 1 |
| 1 | Reamer 12 mm | 2-0210512 | 1 |
| 1 | Reamer 14 mm | 2-0210514 | 1 |
| 1 | Reamer 16 mm | 2-0210516 | 1 |
| 1 | Reamer 18 mm | 2-0210518 | 1 |
| 1 | Reamer 20 mm | 2-0210520 | 1 |
| 2 | Sleeve 10/15 mm | 2-0211400 | 1 |
| 2 | Sleeve 12/19 mm | 2-0211401 | 1 |
| 2 | Sleeve 14/21 mm | 2-0211402 | 1 |
| 2 | Sleeve 16/23 mm | 2-0211403 | 1 |
| 3 | Universal AO connector | 2-0211700 | 1 |
| 4 | 0 mm off-set for tibial trial base plate | 2-0213300 | 1 |
| 4 | 2 mm off-set for tibial trial base plate | 2-0213302 | 1 |
| 4 | 4 mm off-set for tibial trial base plate | 2-0213304 | 1 |
| 4 | 6 mm off-set for tibial trial base plate | 2-0213306 | 1 |
| 5 | 0 mm femoral off-set guide | 2-0213000 | 1 |
| 5 | 2 mm femoral off-set guide | 2-0213002 | 1 |
| 5 | 4 mm femoral off-set guide | 2-0213004 | 1 |
| 5 | 6 mm femoral off-set guide | 2-0213006 | 1 |
| 6 | 2 mm trial offset connector | 2-0214102 | 2 |
| 6 | 4 mm trial offset connector | 2-0214104 | 2 |
| 6 | 6 mm trial offset connector | 2-0214106 | 2 |
| 7 | Trial stem 10 x 75 mm | 2-0209021 | 1 |
| 7 | Trial stem 12 x 75 mm | 2-0209022 | 2 |
| 7 | Trial stem 14 x 75 mm | 2-0209023 | 2 |
| 8 | Trial stem 10 x 100 mm | 2-0209013 | 1 |
| 8 | Trial stem 12 x 100 mm | 2-0209001 | 2 |
| 8 | Trial stem 14 x 100 mm | 2-0209004 | 2 |
| 8 | Trial stem 16 x 100 mm | 2-0209007 | 2 |
| 8 | Trial stem 18 x 100 mm | 2-0209010 | 1 |
| 8 | Trial stem 20 x 100 mm | 2-0209015 | 1 |

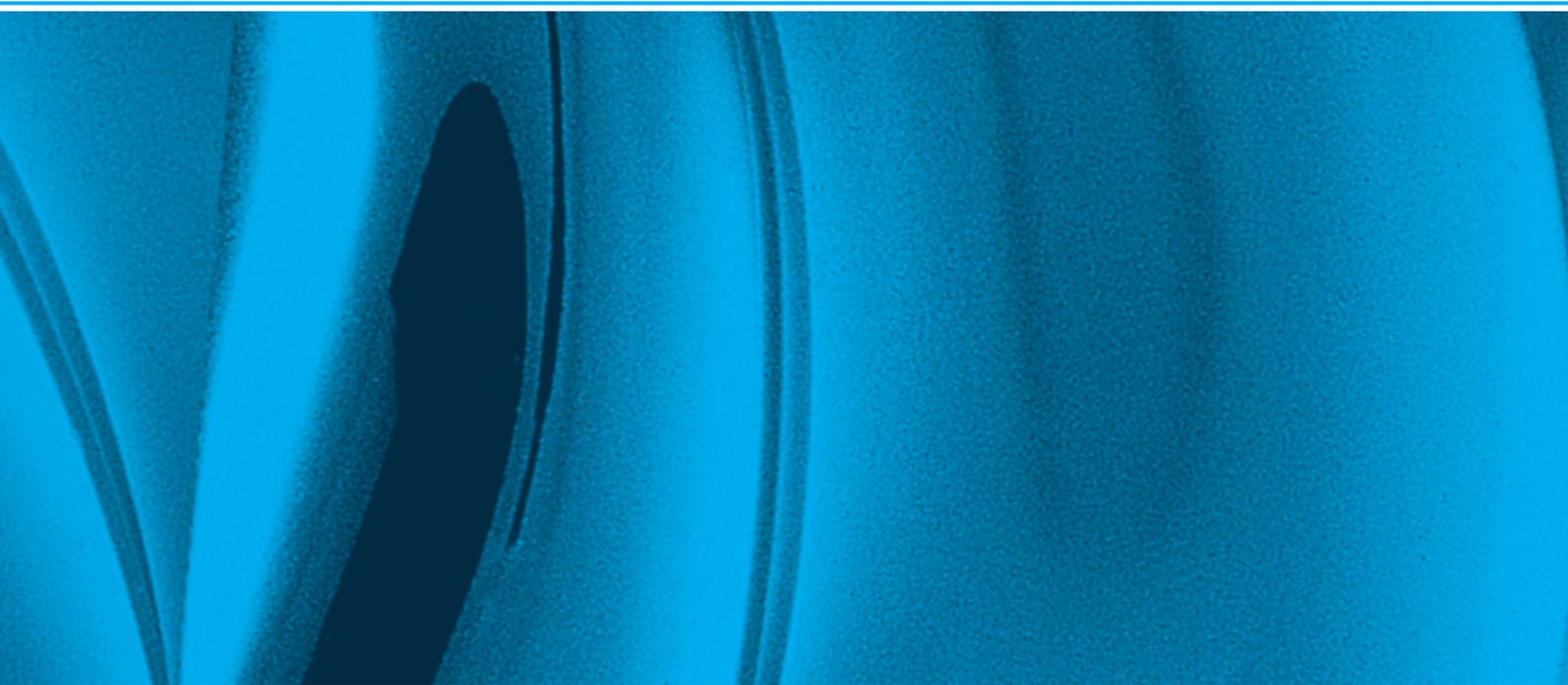
Stem set Tibia trial set (box 6)

| Rep | Description | Ref | Qty |
|-----|------------------------|-----------|-----|
| 9 | Trial stem 10 x 150 mm | 2-0209014 | 1 |
| 9 | Trial stem 12 x 150 mm | 2-0209002 | 2 |
| 9 | Trial stem 14 x 150 mm | 2-0209005 | 2 |
| 9 | Trial stem 16 x 150 mm | 2-0209008 | 2 |
| 9 | Trial stem 18 x 150 mm | 2-0209011 | 1 |
| 9 | Trial stem 20 x 150 mm | 2-0209016 | 1 |
| 10 | Trial stem 12 x 200 mm | 2-0209003 | 2 |
| 10 | Trial stem 14 x 200 mm | 2-0209006 | 2 |
| 10 | Trial stem 16 x 200 mm | 2-0209009 | 2 |
| 10 | Trial stem 18 x 200 mm | 2-0209012 | 1 |
| 10 | Trial stem 20 x 200 mm | 2-0209017 | 1 |

Patella set (box 7)



| Rep | Description | Ref | Qty |
|-----|---|-----------|-----|
| 1 | Patella holding forceps | 2-0206700 | 1 |
| 2 | Patella cutting gauge | 2-0208400 | 1 |
| 3 | Drilling template 30 mm | 2-0204900 | 1 |
| 4 | Drilling template 33 mm and 36 mm | 2-0205000 | 1 |
| 5 | Resurfacing patella drill bit | 2-0205100 | 1 |
| 6 | Resurfacing trial patella 30 mm | 2-0205330 | 1 |
| 7 | Resurfacing trial patella 33 mm | 2-0205333 | 1 |
| 8 | Resurfacing trial patella 36 mm | 2-0205336 | 1 |
| 9 | Pliers for trial patella | 2-0104600 | 1 |
| 10 | Patella tightening bone holding forceps | 2-0206100 | 1 |



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