Surgical Technique
Conventional
Instrumentation

TIBIAL INSTRUMENTATION - 4T

SCORE® / SCORE® AS primary total knee arthroplasty system

AMPLITUDE®

Overview of instrumentation

This surgical technique describes the use of the conventional instrumentation for primary TKA implants.

The steps below replace the sections on tibial alignment and tibial resection in the SCORE® Surgical Technique documents TO.G.GB.009 and TO.G.GB.021, where the other steps can be found, and replace the sections on tibial resection in Surgical Technique documents TO.G.GB.008, TO.G.GB.012, TO.G.GB.005 and TO.G.GB.015.

The 4T tibial instrumentation allows the surgeon to use four different techniques:

- Intramedullary system
- Combined intramedullary system
- Combined extramedullary system (with tibial bracket)
- Extramedullary system (without tibial bracket)

Pre-operative planning

Radiographs and templates are used to evaluate the following:

- Bone-related elements:

  On the tibia: **Choice between intra- or extra-medullary alignment method.**

  Lateral and A/P position of the entry point for the intramedullary rod.

  Match between the tibial keel and fins and the metaphysis (e.g. following osteotomy).

  Presence of osteophytes.

  Magnitude of wear in each compartment.

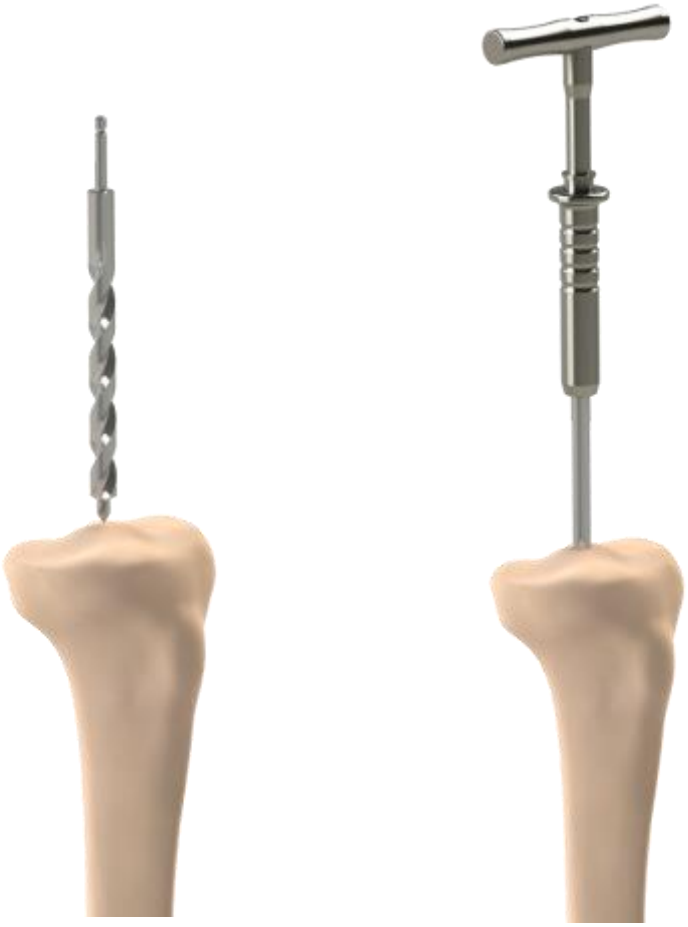
  Potential need for a tibial extension stem.

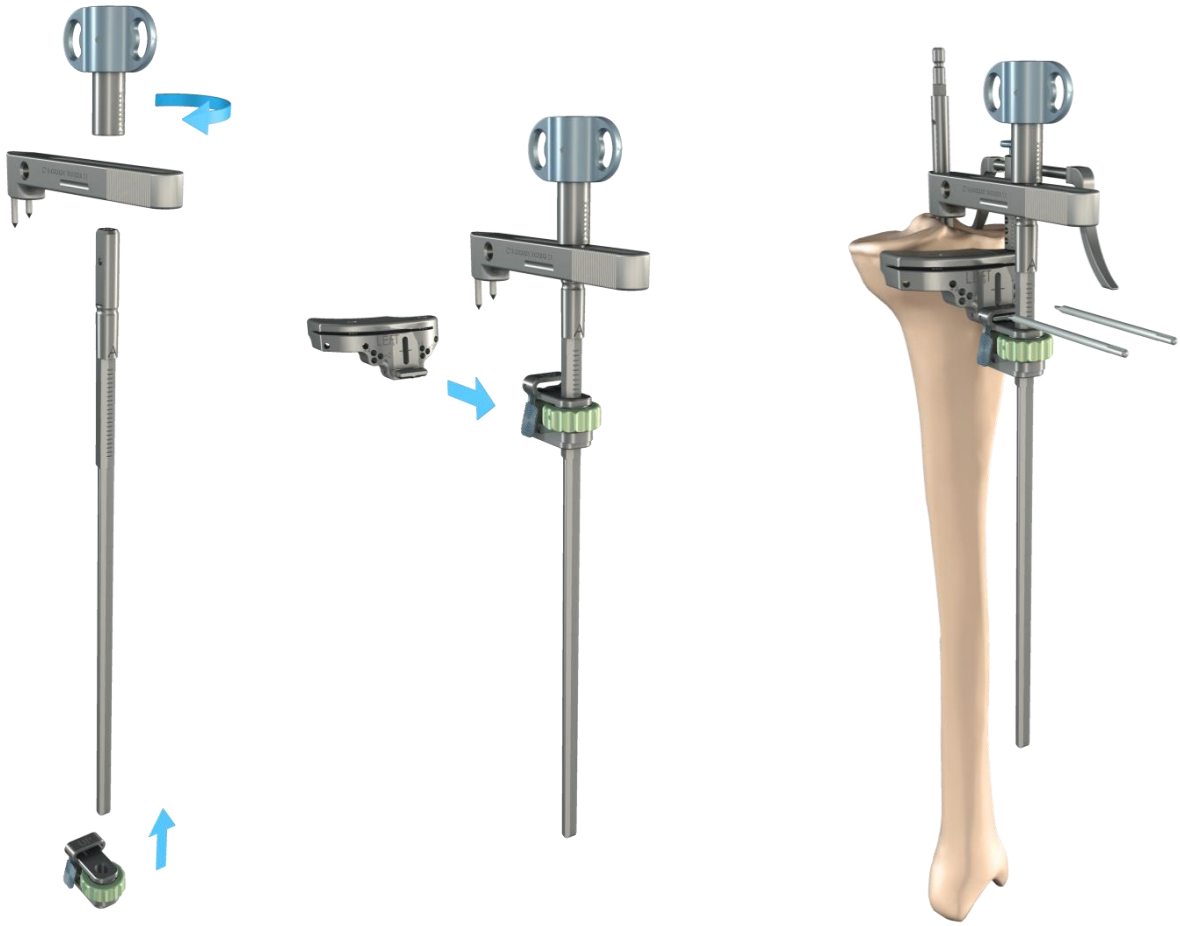
  Estimated tibial baseplate size and insert height.

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

Note: The provided templates have a 1:1 scale.

- Make sure the template scale matches the X-ray scale.





Intramedullary system: landmarks

- Place the knee in hyperflexing position and dislocate the tibia forward.
- Based on the pre-operative planning, make a hole in the middle of the medullary canal using the step drill bit.
- Place the 400 mm long intramedullary rod onto the T wrench and insert it into the canal; the landmark must always be visible.

Note: If the rod cannot be inserted, use the 250 mm intramedullary rod.

Intramedullary System

- Insert the Tibial Bracket on the Aiming Rod with Bracket (the 'A' engraving on the rod must be on the anterior side). Screw on the Proximal AP Wheel.

Note: The instrumentation set contains two rods. Use the longest one with the tibial bracket.

- Assemble the Tibial Resection Guide Support with the Aiming Rod (the 'UP' engraving corresponds to the support's superior side).

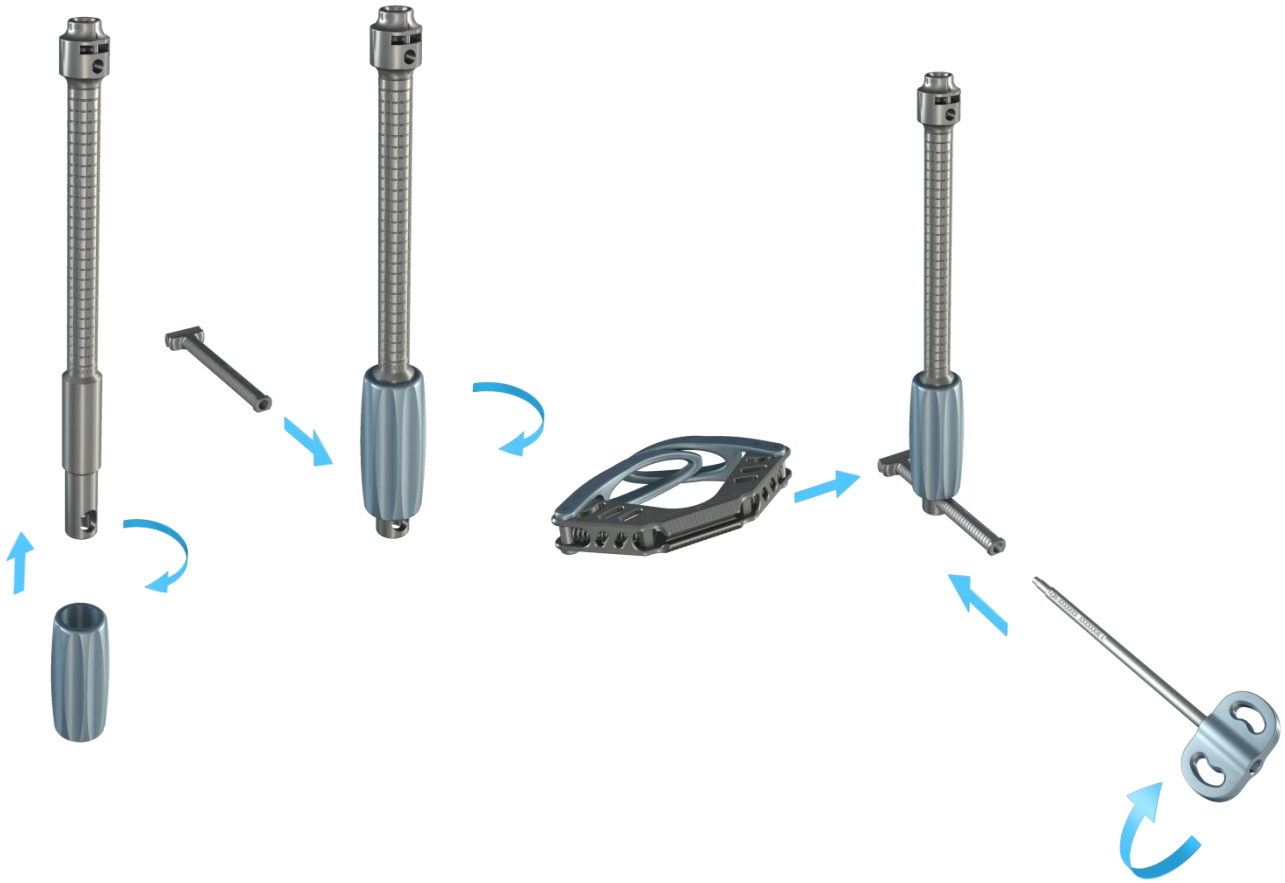
Note: Slide the support from the bottom and press the green wheel to position the support in the graduated area.

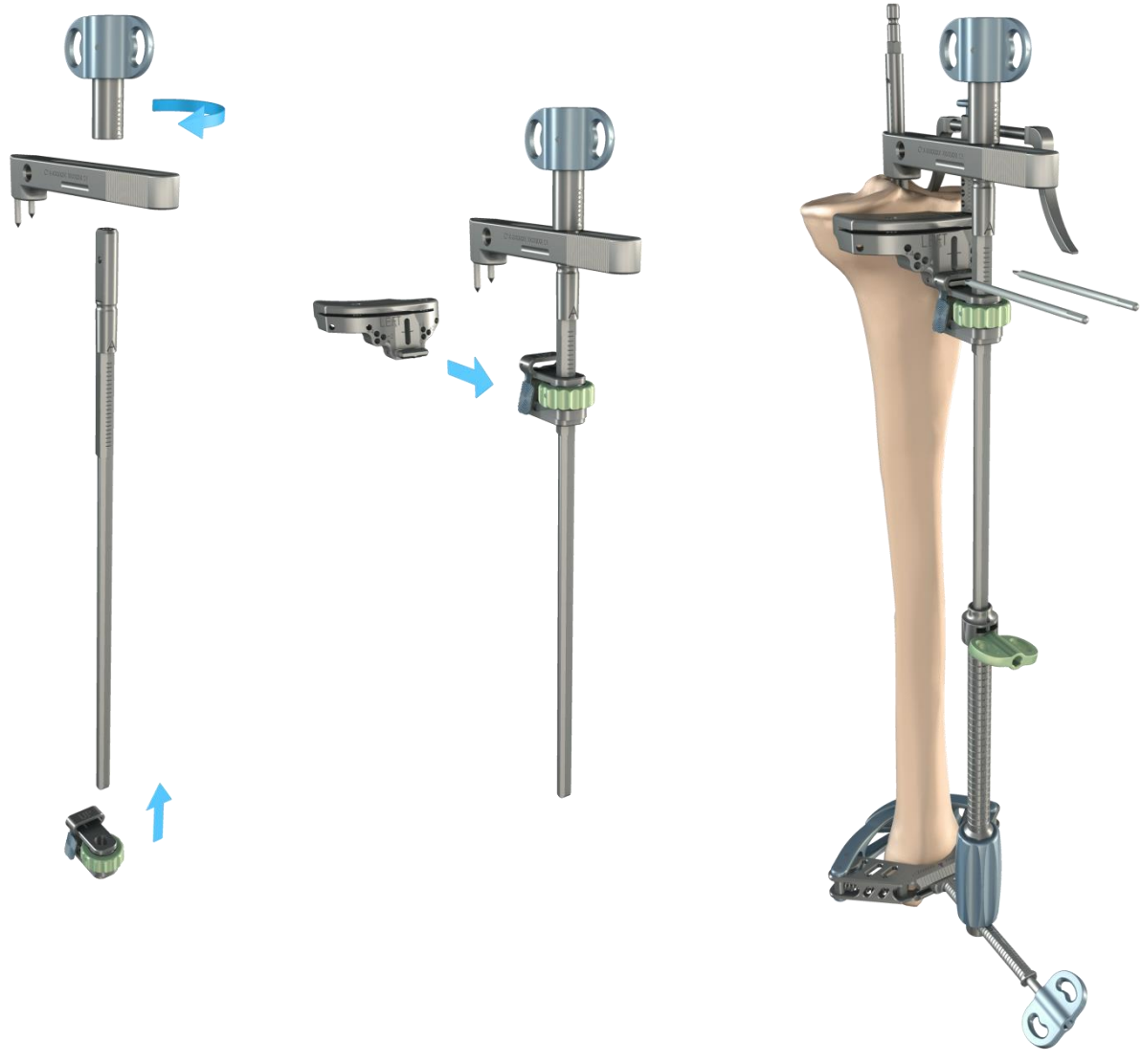
- Assemble the right or left 0° or 3° posterior slope Tibial Resection Guide with the Support.
- Place this entire unit on the Intramedullary Rod; adjust its rotation relative to the tibial tuberosity and then impact the tabs.
- Clip the Tibial Stylus on the Resection Guide (make sure the clip is fully engaged).
- Set the resection height by using the 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, the adjustment can be made

- quickly by pressing on the green wheel on the guide support (release)
- gradually by turning the green wheel (the aiming rod has marking every 2 mm).

- Verify the height of the bone cut with the Resection Gauge.
- Place the pins in the 0 mm holes.





Combined intramedullary System

- Screw the Distal AP Wheel on the EM Aiming Column.
- Insert the rod for the Malleolar Clamp into the EM Aiming Column. Lock it in place with the Distal AP Wheel.
- Assemble the Malleolar Clamp on the rod for Malleolar Clamp. Lock it in place with the ML Wheel for Malleolar Clamp.
- Place the tibial bracket on the aiming rod with bracket (the 'A' engraving on the rod must be on the anterior side). Screw on the proximal AP wheel.

Note: The instrumentation set contains two rods. Use the longest one with the tibial bracket.

- Assemble the Tibial Resection Guide Support with the Aiming Rod (the 'UP' engraving corresponds to the support's superior side).

Note: Slide the Guide Support from the bottom until it reaches the graduated area on the aiming rod: press on the support's green wheel to position it midway in the graduated area.

- Assemble the right or left 0° or 3° posterior slope Tibial Resection Guide with the support.
- Place all components on the EM Aiming Column. Lock them in place with the Wheel for EM Aiming Column.
- Place the Malleolar Clamp around the ankle (the clamp has a self-opening feature that makes it easier to set up . Position the 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.
- Clip the tibial stylus on the resection guide (make sure the clip is fully engaged).

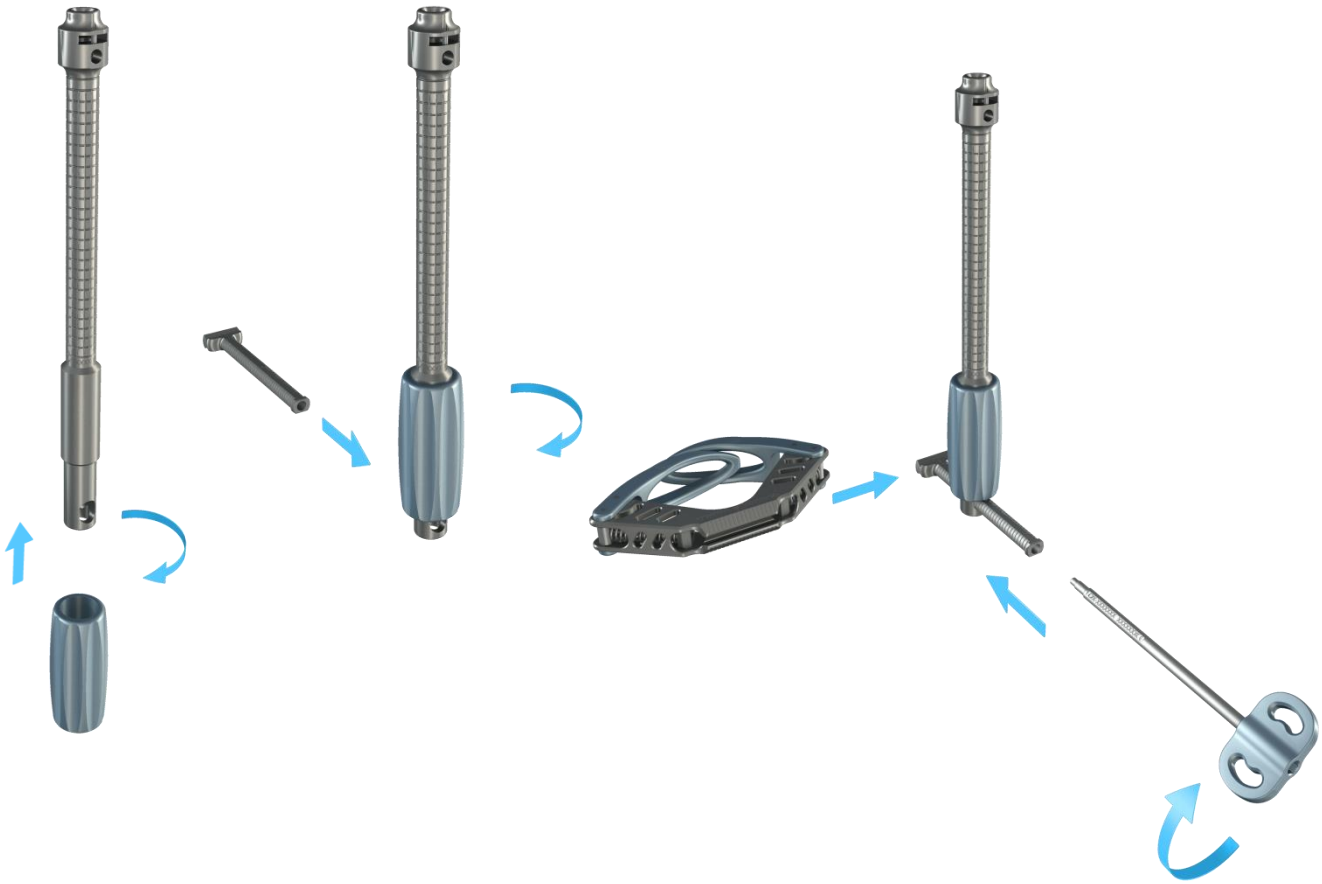
Note: The stylus can be clipped on the lateral side of the resection guide to palpate the medial plateau (or the reverse) by passing the stylus over the bracket.

- Set the resection height by using the 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, the adjustment can be made

- quickly by pressing on the green wheel on the guide support (release)
- gradually by turning the green wheel (the aiming rod has marking every 2 mm).

- Verify the height of the bone cut with the resection gauge.
- Place the pins in the 0 mm holes.



Combined extramedullary tibial system

(with tibial bracket)

- Based on the preoperative plan, make a hole in the middle of the medullary canal using the step drill bit.
- Place the 400-mm Long Intramedullary Rod on the T-Handle and insert it into the canal; the landmark must always be visible.

Note: If this rod cannot be inserted, use the 250-mm Long Intramedullary Rod instead.

- Screw the Distal AP Wheel on the EM Aiming Column.
- Insert the rod for the Malleolar Clamp into the EM Aiming Column. Lock it in place with the Distal AP Wheel.
- Assemble the Malleolar Clamp on the rod for Malleolar Clamp. Lock it in place with the ML Wheel for Malleolar Clamp.
- Place the Tibial Bracket on the Aiming Rod with bracket (the 'A' engraving on the rod must be on the anterior side). Screw on the proximal AP wheel.

Note: The instrumentation set contains two Aiming Rods. Use the longest one with the tibial bracket.

- Assemble the Tibial Resection Guide Support with the Aiming Rod (the 'UP' engraving corresponds to the support's superior side).

Note: Slide the Guide Support from the bottom until it reaches the graduated area on the aiming Rod: press on the support's green wheel to position it midway in the graduated area.

- Assemble the right or left 0° or 3° posterior slope Tibial Resection Guide with the support.
- Place all components on the EM Aiming Column. Lock them in place with the Wheel for EM Aiming Column.
- Place the Malleolar Clamp around the ankle (the clamp has a self-opening feature that makes it easier to set up. Position the bracket on the Intramedullary Rod.
- Adjust the rotational and then sagittal alignment by setting the rod parallel to the anterior tibial axis. Impact the tabs.
- Clip the Tibial Stylus on the resection guide (make sure the clip is fully engaged).

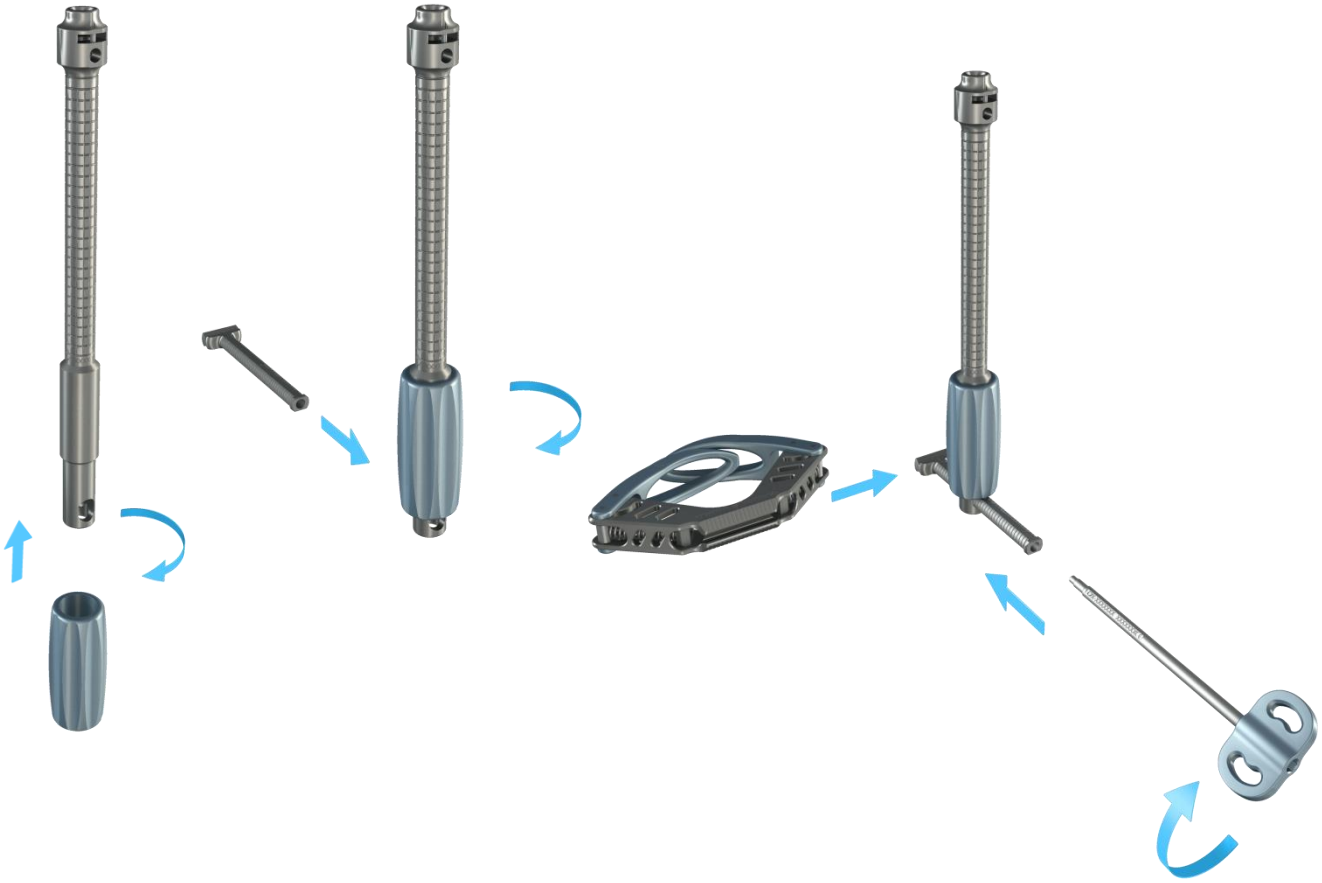
Note: The stylus can be clipped on the lateral side of the resection guide to palpate the medial plateau (or the reverse) by passing the stylus over the bracket.

- Set the resection height by using the 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, the adjustment can be made

  - quickly by pressing on the green wheel on the guide support (release)
  - gradually by turning the green wheel (the aiming rod has marking every 2 mm).

- Check the bone cut height with the resection gauge.
- Place the pins in the 0 mm holes.




LEFT
LEFT

Extramedullary tibial system

(without tibial bracket)

- Screw the Distal AP Wheel on the EM Aiming Column.
- Insert the rod for the Malleolar Clamp into the EM Aiming Column. Lock it in place with the Distal AP Wheel.
- Assemble the Malleolar Clamp on the rod for Malleolar Clamp. Lock it in place with the ML Wheel for Malleolar Clamp.
- Assemble the Tibial Resection Guide Support with the Aiming Rod without bracket by pressing on the support's green wheel (the 'UP' engraving corresponds to the support's superior side and the 'A' engraving must be on the anterior side).

Note: The instrumentation set contains two Aiming Rods. Use the shortest one without the tibial bracket.

- Assemble the right or left 0° or 3° posterior slope Tibial Resection Guide with the support.
- Place all components on the EM Aiming Column. Lock them in place with the Wheel for EM Aiming Column.
- Place the Malleolar Clamp around the ankle (the clamp has a self-opening feature that makes it easier to put into place). Set the rotational and sagittal alignment and then insert a pin to secure it in the elongated hole on the tibial resection guide.
- Clip the tibial stylus on the resection guide (make sure the clip is fully engaged).

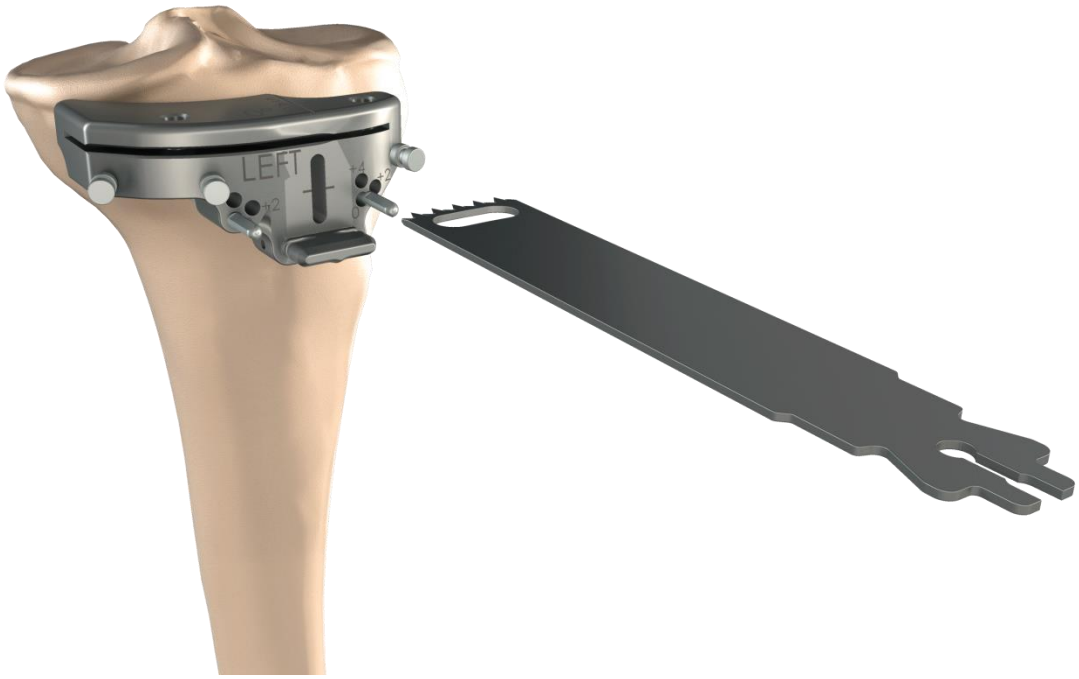
Note: The stylus can be clipped on the lateral side of the resection guide to palpate the medial plateau (or the reverse) by passing the stylus over the bracket.

- Set the resection height by using the stylus to palpate either the
  - healthy side (10 mm cut relative to this reference)
  - worn side (2 mm cut relative to exit of saw blade)

IMPORTANT: For other resection heights, the adjustment can be made
- quickly by pressing on the green wheel on the guide support (release)
- gradually by turning the green wheel (the aiming rod has marking every 2 mm).

- Verify the height of the bone cut with the resection gauge.

Place the pins in the 0 mm holes.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Tibial cut

If using the intramedullary, combined extramedullary or combined intramedullary system (aiming rod with bracket):

- Loosen the Proximal AP Wheel.
- Place the 'T' end of the Slap Hammer into the opening on the tibial bracket and then remove the entire assembly.

If using the extramedullary system (without tibial bracket):

- Remove the central pin

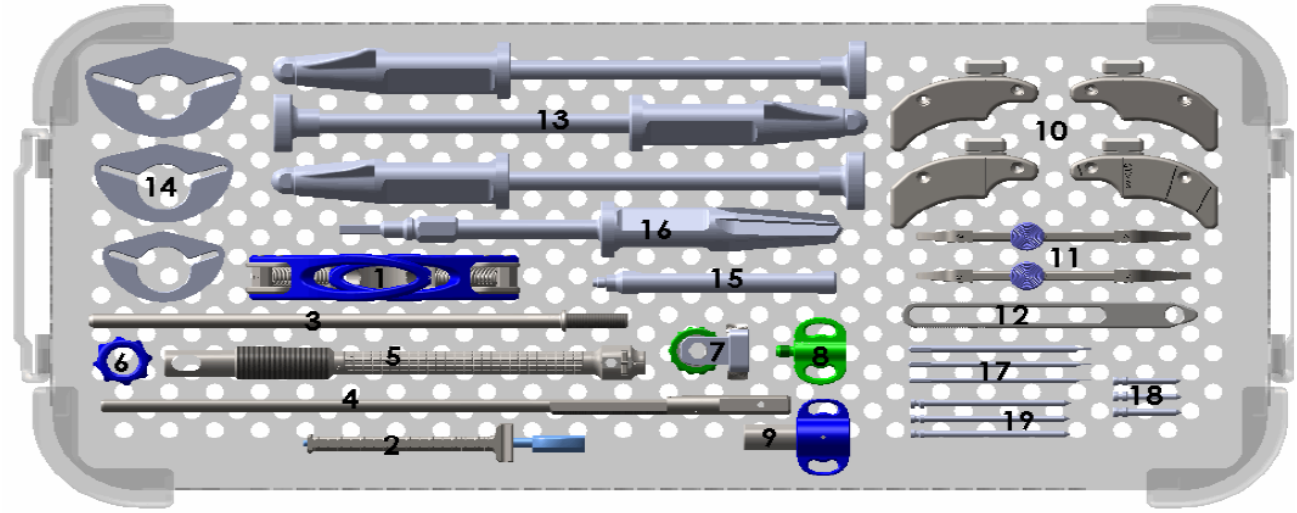
Note: When using the extramedullary system rod without bracket, the cut can be made with the alignment frame in place.

For all aiming methods:

- Remove the Tibial Stylus.
- Remove the intramedullary or extramedullary assembly by pressing on the two blue buttons on the wheel/tibial resection guide support.
- 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 using the pin extractor.
- Slide the resection guide off the pins, but leave the pins in place in case recutting is required (the +2 and +4 holes will be used at that time).

Note: If the cortex is fragile or sclerotic, a 145-mm long, Ø3.2 mm drill bit can be used to make pilot holes for the pins.

SCORE® Instrumentation: the 4T tibial resection set replaces the tibial resection set in the SCORE® instrumentation.



Item	Name	Product No.	Qty
1	4T Malleolar Clamp	2-0237500	1
2	4T Rod for Malleolar 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 Aiming Column	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 Aiming Column	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 - 2/8	2-0236501	1
11	4T Tibial Stylus - 2/10	2-0236502	1
12	4T Tibial Bracket	2-0236600	1
13	Punch for tibial extension stem - size 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	2-0202867	1
13	Standard trial stem	2-0208900	3
14	Punch guide for tibial baseplate size 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	2-0202667	1
15	Removable handle for punch guide	2-0206200	2
16	Reamer for tibial extension stem	2-0202700	1
17	Headless pin lenght 80 mm	2-0201400	3
18	Headed pin lenght 30 mm	2-0201301	3
19	Headed pin lenght 70 mm	2-0201302	3

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