

Aesculap[®] Columbus[®]

Knee Arthroplasty

Operating Technique with IQ Instruments



Aesculap Orthopaedics

Aesculap® Columbus®

1. The IQ Instruments

The IQ Columbus® instrumentation has been designed to facilitate the workflow not only for the surgeon, but the operating room (OR) team as a whole, by enhancing ergonomics and operative efficiency. IQ stands for „Intuitive and Quick“. The system offers multiple options covering different implantation philosophies that allow each surgeon to follow his/her preferred surgical technique.

- Precise and less instruments
- Quick couplings
- Ergonomic handles and
- Colour coding

are some aspects that will facilitate the surgical process in the operating room

The instruments as well as the instrument trays are colour coded to ease instrumentation and organization during the complete workflow:

- red = femur
- blue = tibia
- yellow = general instruments
- grey = patella

The IQ Columbus® instruments are stored in the specially developed OrthoTrays. Both together, the IQ instruments plus OrthoTray offer a high end reprocessing solution. The trays not only store the instruments in a secure and safe manner but also clearly facilitate the reprocessing procedure for the CSU (Central Sterilization Unit) as the instruments can remain in the tray during the washing process. This time saving solution generates an economic advantage and eliminates a potential source of error as complete set reassembling is needless.

NOTE: This wash tray system is only approved for the use with the cleaning validated instruments from Aesculap. Complex instruments, e. g. cutting guides or instruments that are introduced in the intramedullary (IM) canal during the procedure as drills and reamers requires a manual pre-cleaning according to standard requirements.

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3. Indications/Patient Selection

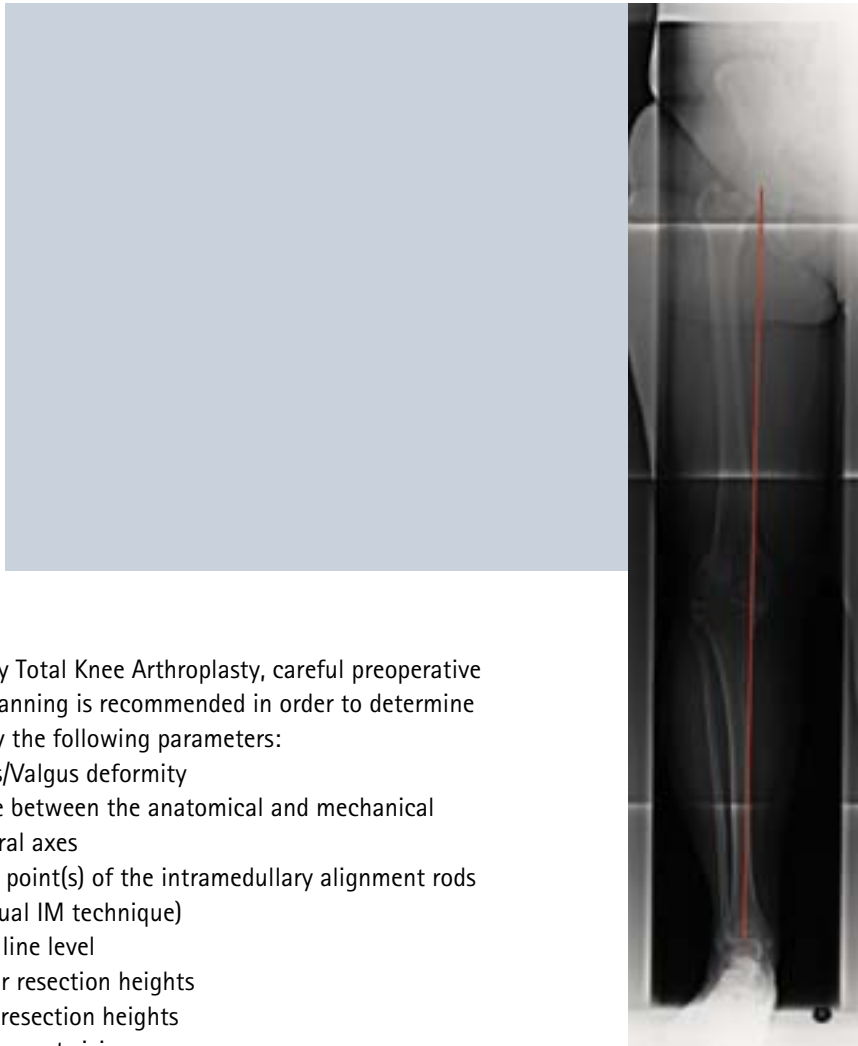


The Columbus® knee system offers a wide implant range which enables the surgeon to choose the right option per case.

Patients presenting with metal sensitivity can be preferred treated with the AS coated Columbus® implants.

For more information about contra-indications, please refer to the instructions for use TA012000.

4. Preoperative Planning



For every Total Knee Arthroplasty, careful preoperative X-ray planning is recommended in order to determine precisely the following parameters:

- Varus/Valgus deformity
- Angle between the anatomical and mechanical femoral axes
- Entry point(s) of the intramedullary alignment rods (manual IM technique)
- Joint line level
- Femur resection heights
- Tibia resection heights
- Component sizing
- Implant positioning
- Potential areas of bone losses and location of osteophytes

The following X-ray images are required to conduct the radiographic analysis:

- Knee joint in A/P projection: knee extended, centered over the distal patella.
- Knee joint in lateral projection: knee in 30° flexion, centered above the distal patella.
- Image of the whole leg (from hip to ankle) in monopodal stance.
- Patella-tangential image (Merchant View) with the knee at 30° flexion.

The angle between the mechanical and anatomical femur axes is measured with the combination template for axis measurements. The center of the joint, the joint

line and the mechanical femur axis can be measured. To determine the tibia resection, the template showing representations of the tibial components is superimposed over and aligned with the X-ray image. The resection height is given at a 10-20 mm graduation. A complete set of radiographic templates is provided for the preoperative determination of the appropriate implant sizes. The localization of the osteophytes facilitates their removal, improving the mobility of the joint.

The Columbus® knee system provides a complete set of radiographic templates in different magnitudes (1.1 and 1.15).

The results of the preoperative planning should be documented in the patient's file and available during the operative procedure for reference.

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5. Approach



The Columbus® IQ instrumentation is designed for use with or without the OrthoPilot® Navigation, for both conventional and less invasive approaches to the knee.

The initial skin incision is a straight midline or slightly oblique parapatellar skin incision starting 2 to 4 cm proximal to the superior pole of the patella and extending distally to the medial aspect of the tibial tubercle. The surgeon should decide on a patient basis which length of an incision is necessary for proper visualization of the knee anatomy. A parapatellar skin incision will be of benefit to patients when attempting to kneel after the operation.

The length range of the incision is generally between 8 and 14 cm symmetrically distributed above and below the joint line. Extension of the skin incision may be necessary during the procedure depending on the patient anatomy, the soft tissues and the skin tension.

Three basic types of arthrotomies are recommended for use to carry out the intra-articular exposure: the medial parapatellar, the mid-vastus or the sub-vastus.

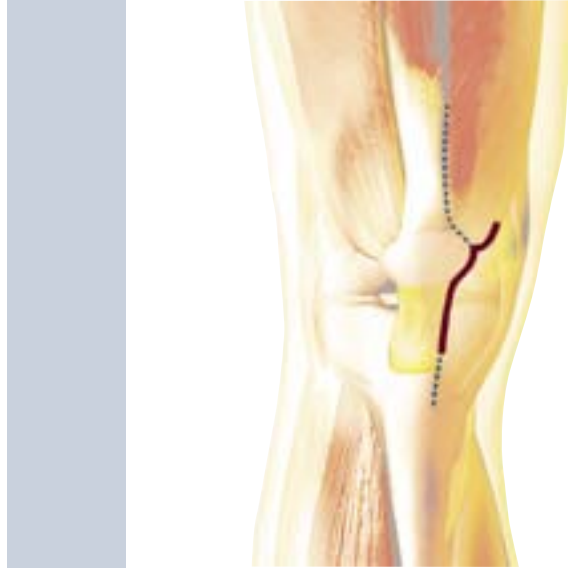
5.1 Medial parapatellar Arthrotomy

With the knee in flexion or extension, the arthrotomy is performed starting proximal to the superior pole of the patella, incising the rectus femoris tendon longitudinally. Continuing the arthrotomy distally around the medial aspect of the patella, and ending medial to the tibial tubercle is then carried out.



5.2 Mid-vastus Arthrotomy

With the knee in flexion, the arthrotomy is performed starting by a split of the fibers from the vastus medialis oblique (VMO), continuing distally around the medial aspect of the patella, and ending medial to the tibial tubercle.



5.3 Sub-vastus Arthrotomy

With the knee in flexion, the arthrotomy is performed starting with a 4 to 6 cm incision of the fascia at the inferior border of the VMO, running horizontal to the medial aspect of the patella, continuing and ending distally medial to the medial tubercle.

5.4 Final exposure

A fat pad excision is performed in order to facilitate the exposure and to improve the patella mobility. Perform the necessary medial release at this time that corresponds to the deformity. The patella can then be everted or sub-luxated laterally.

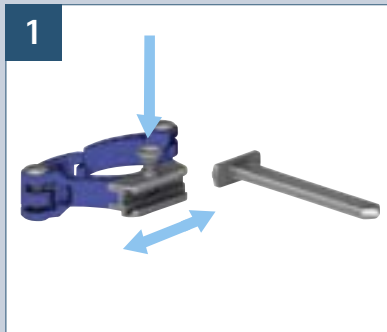
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6. Assembly Instructions and Instrument Handling

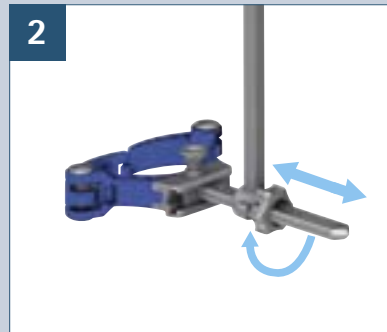
A – Tibia Extra-Medullary Alignment	page 9
B – Tibia Intra-Medullary Alignment	page 10
C – Femur Intra-Medullary Alignment	page 10
D – A/P and Rotation Alignment Block	page 11
E – Tibial-Distal Cutting Guide	page 13



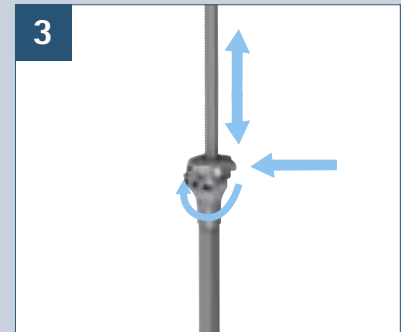
A – Tibia Extra-Medullary Alignment – Assembly Instructions



- press the upper button on the bimalleolar clamp
- engage the support in the groove
- when the neutral position is reached, release the button



- turn the wheel of the tibial alignment handle to the open position, OP-EN will be displayed
- engage the handle onto the bimalleolar support
- adjust to the neutral position



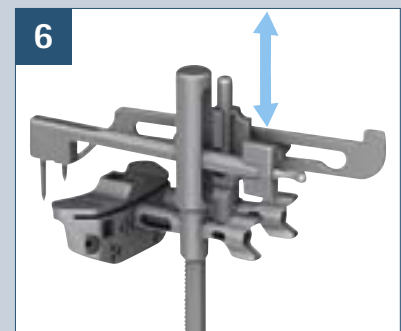
- push on the handle adjusting wheel to release the locking mechanism
- engage the holding rod in the handle
- release the wheel when the desired level is reached
- turning the wheel will allow a fine adjustment on the height



- engage the holding rod in one of the connection squares of the tibial cutting guide
- lock the assembly by turning the frontal wheel



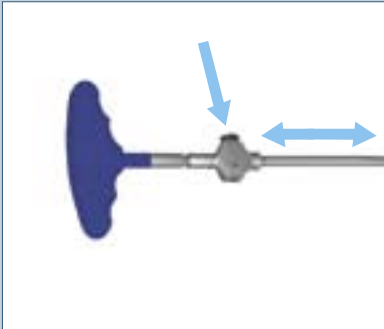
- the proximal fixation is set through the proximal opening of the holding rod
- turn the tab into a horizontal position to fix the assembly



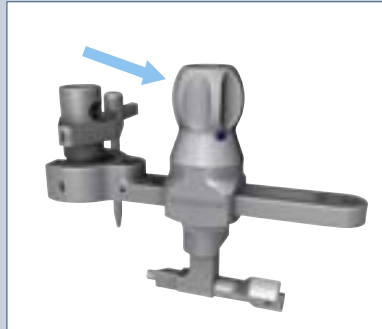
- the connection square of the stylus is engaged in one of the connection squares of the tibial cutting guide
- the connection is fixed by locking the wheel on the stylus
- the resection height is adjusted to the desired bone cut level
- the stylus can be placed over the proximal fixation

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B – Tibia Intra-Medullary Alignment



- push on the button of the T-handle to release the locking mechanism
- couple the T-handle to the IM rod
- release the button to lock the assembly

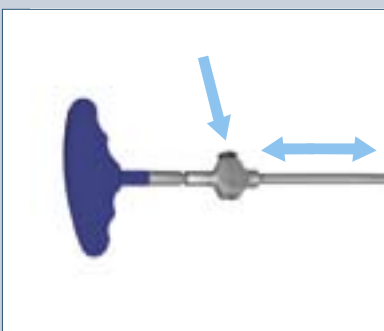


- choose the IM orientation sleeve corresponding to the desired posterior slope resection of the tibia (default is 0° sleeve; sleeves with 3°, 5° and 7° posterior slope are optionally available)
- connect the sleeve to the IM alignment system



- mount the assembly into the alignment block
- connect the alignment system to the tibia cutting guide in one of its connection squares
- fix the connection by locking the wheel

C – Femur Intra-Medullary Alignment



- push on the button of the T-handle to release the locking mechanism
- couple the T-handle to the IM rod
- release the button to lock the assembly

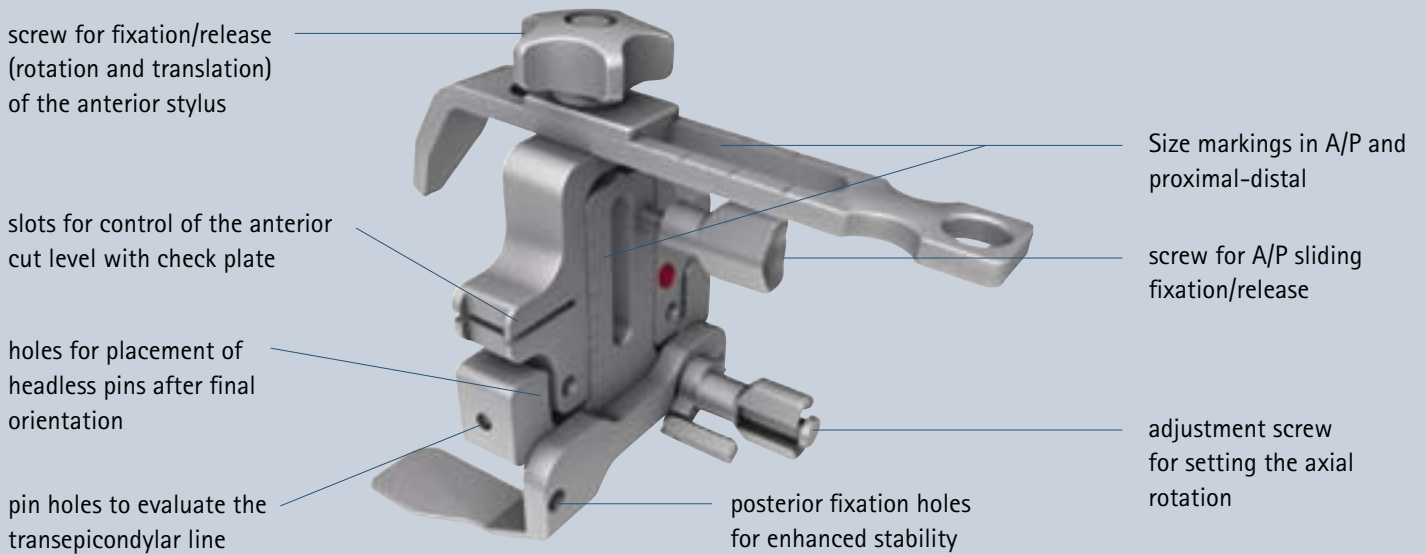


- choose the IM orientation sleeve corresponding to the desired valgus alignment (standard 5°, 6° or 7°; optionally available 8° and 9°).
- connect the sleeve to the IM alignment system
- connect a distal femur contact plate, standard: large (small optionally available)



- mount the assembly into the alignment system
- connect the alignment system to the tibia cutting guide in the central connection square
- fix the connection by locking the wheel

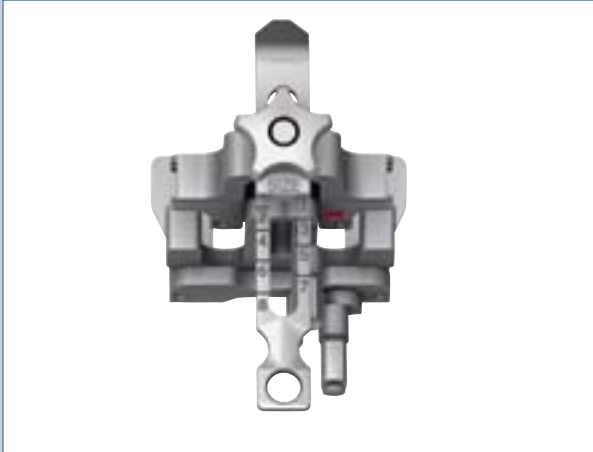
D – A/P and Rotation Alignment Block



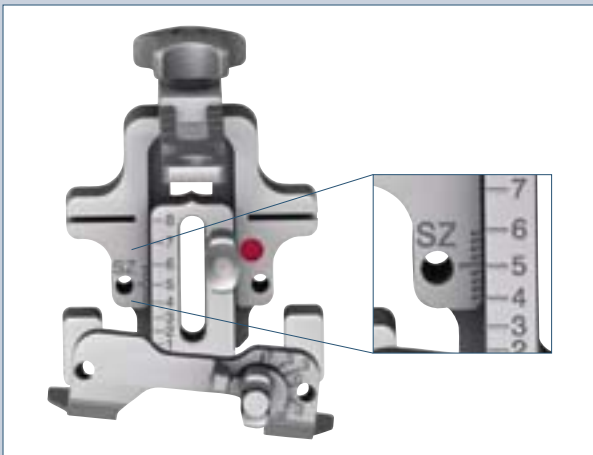
- **Option 1:** the rotation is pre-fixed to a desired value before the block is put in place.
- **Option 2:** the rotation is free and the block is placed in contact with the distal femur and the posterior condyles; the rotation can be tuned by turning the posterior wheel, checking the alignment of the A/P window with the femur A/P plane (Whiteside line).
- Due to the fixed distance between the pin placement holes and the anterior cortex stylus, the placed pins can be used for any femoral size chosen by the surgeon. Oversizing or downsizing the femur is achieved simply by choosing a different 4-in-1 cutting block size and placing on the same previously placed pins.

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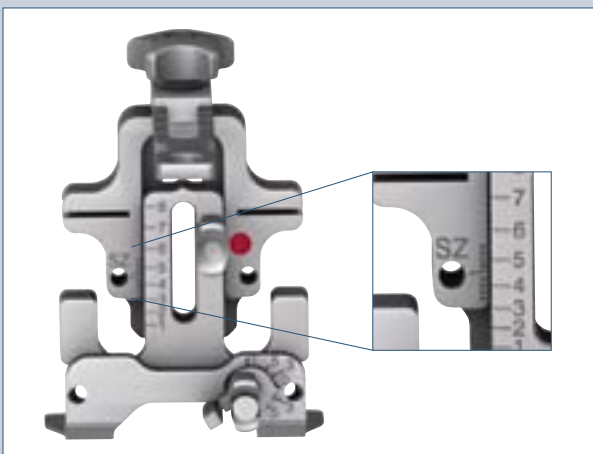
D – A/P and Rotation Alignment Block



- The anterior point to be palpated is located on the lateral anterior cortex, avoiding the risk of anterior notching.
- If the palpation is done at the middle of the anterior femur, the grand piano sign will be bigger providing a larger surface of contact.
- The stylus can be adjusted in the caudo-cranial direction in order to get a congruence between the A/P sizing and the proximo-distal sizing determined by the scale on the upper part of the stylus.



- After defining the right axial rotation of the block, if an exact femoral size is measured like in the example on the left, fix the A/P sliding by tightening the corresponding screw, place 2 headless pins in the placement holes.
- By loosening the screws, and, if used, removing the posterior enhanced fixation pins, remove the orientation block.



- After defining the right axial rotation of the block, if the measured size is in between two exact sizes like in the example on the left, fix the A/P sliding by tightening the corresponding screw, place 2 headless pins in the placement holes.
- By loosening the screws, and, if used, removing the posterior enhanced fixation pins, remove the orientation block.
- In this case, choose the direct upsize or downsize based on the assessment of the medio-lateral dimension and the flexion-extension gap situation. A smaller size will enlarge the flexion gaps; a bigger size will reduce the flexion gaps.

E – Tibial-Distal Cutting Guide



Distal resection or tibial resection with a standard approach

- The connection to the alignment system to be used is the central one marked „C”, denoted by the green square in the left picture.
- The fixation holes for the headless pins to be used correspond to the groups marked „C”, shown by the red circles on the left picture.
- Enhanced fixation is achieved with one or two converging pins in the holes marked with the blue circles.



Right knee tibial resection with a less invasive approach

- The connection to the alignment system to be used is the one marked „R”, shown by the green square in the left picture.
- The fixation holes for the headless pins to be used correspond to the groups marked „R”, shown by the red circles in the left picture.
- Enhanced fixation is achieved with one converging pin in the hole marked with the blue circle.



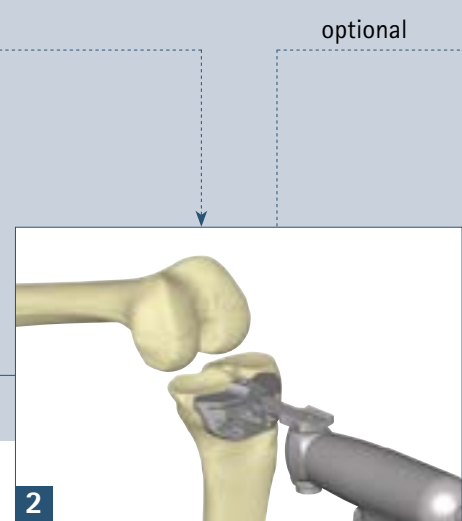
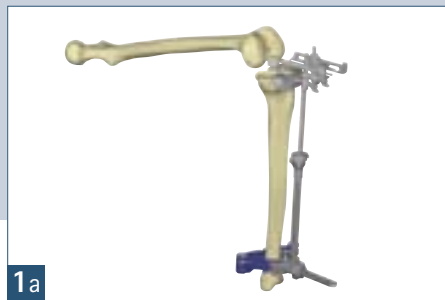
Left knee tibial resection with a less invasive approach

- The connection to the alignment system to be used is the one marked „L”, shown by the green square in the left picture.
- The fixation holes for the headless pins to be used correspond to the groups marked „L”, shown by the red circles in the left picture.
- Enhanced fixation is achieved with one converging pin in the hole marked with the blue circle.

NOTE: For minimal invasive approach or less space in the operation field, medialised cutting guides are optionally available (see optional instruments on page 62).

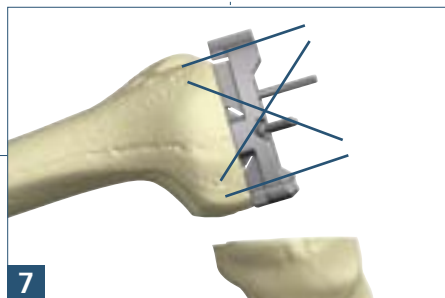
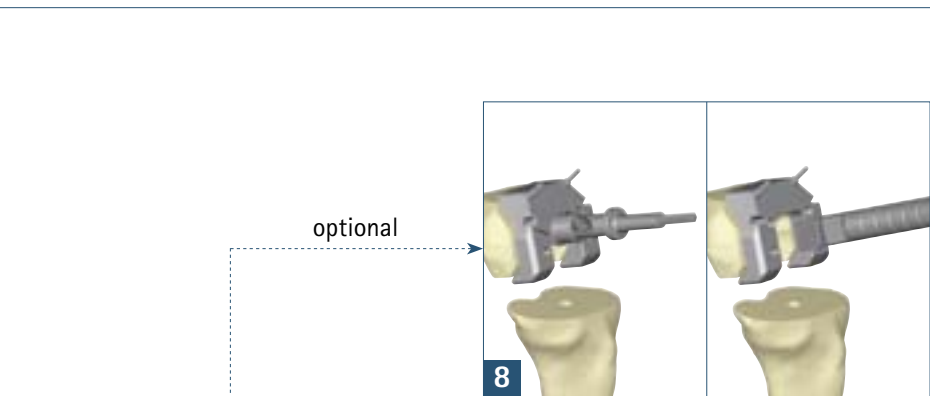
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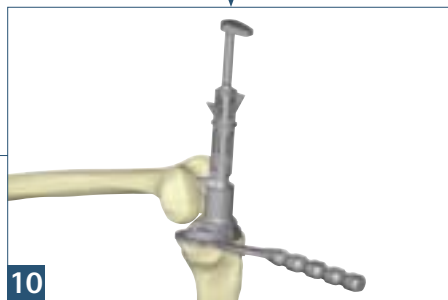
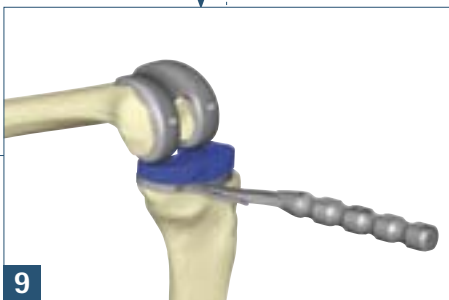
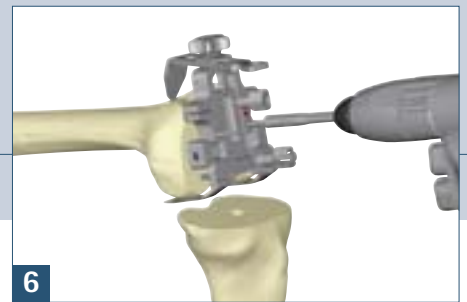
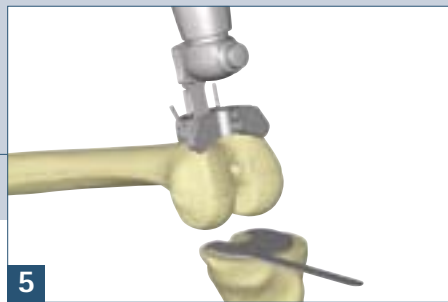
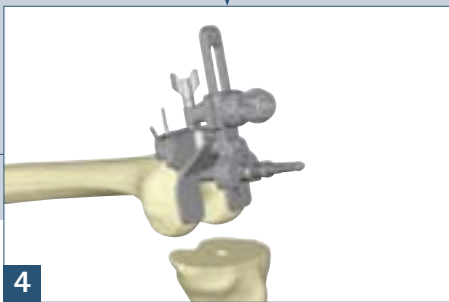
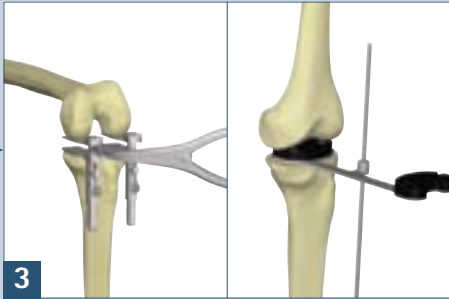
7. Workflow Synopsis



Tibia First

1. Tibia IM or EM Alignment
2. Tibia Resection
3. Gap Balancing (optional)
4. Femur IM Alignment
5. Distal Resection
6. Femur A/P Sizing and Rotation
7. Femur APC Resections
8. PS Box Preparation (optional)
9. Trial Reduction
10. Tibia Keel and/or Stem Preparation
11. Patella Preparation (optional)
12. Component Implantation





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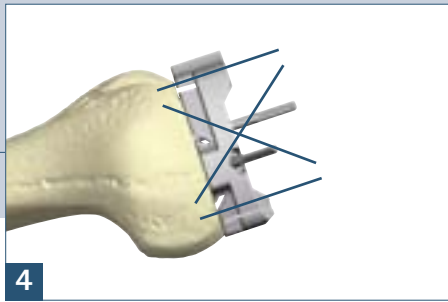
7. Workflow Synopsis



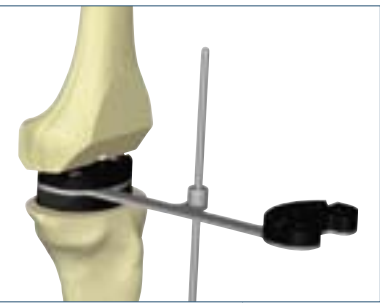
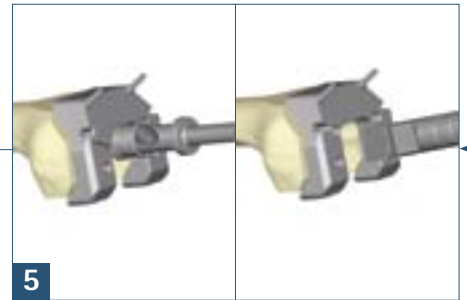
Femur First

1. Femur IM Alignment
2. Distal Resection
3. Femur A/P Sizing and Rotation
4. Femur APC Resections
5. PS Box Preparation (optional)
6. Tibia IM or EM Alignment
7. Tibia Resection
8. Gap Balancing (optional)
9. Trial Reduction
10. Tibia Keel and/or Stem Preparation
11. Patella Preparation (optional)
12. Component Implantation

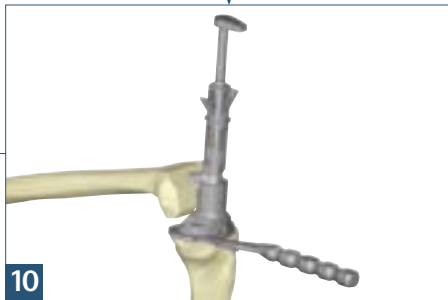
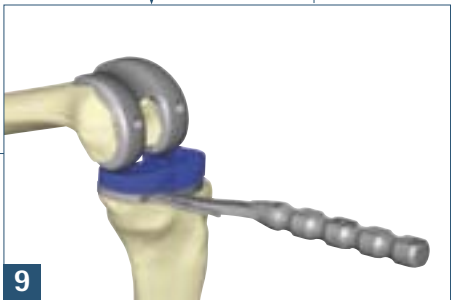
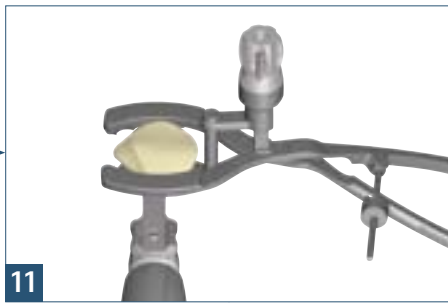




optional

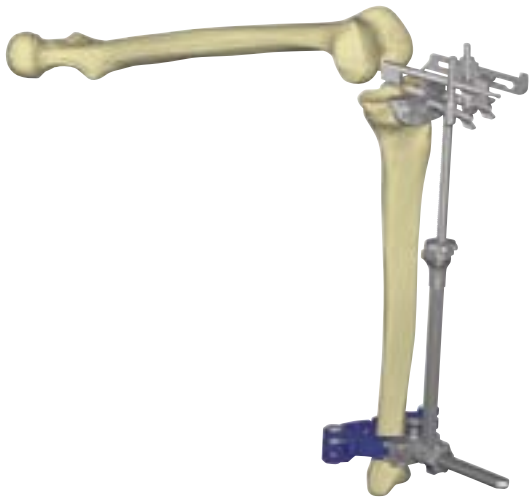


optional



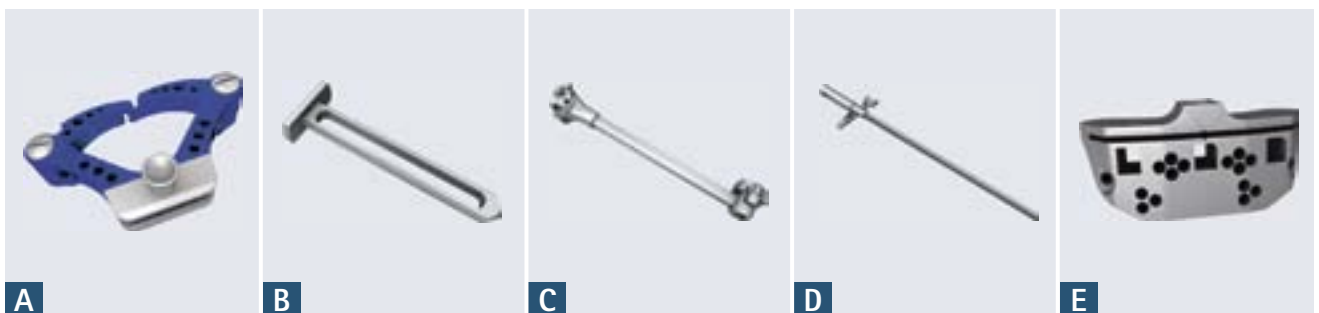
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8. Tibia Preparation

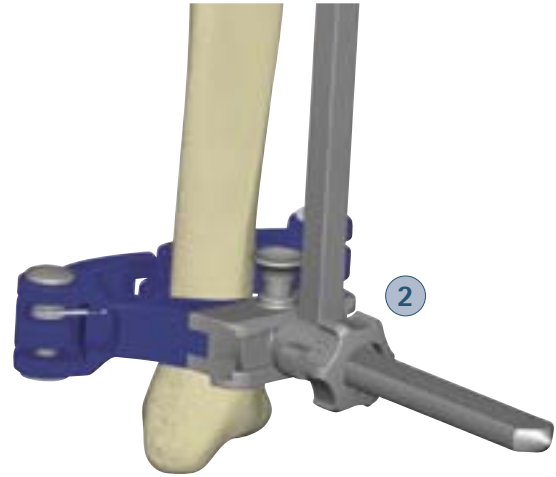
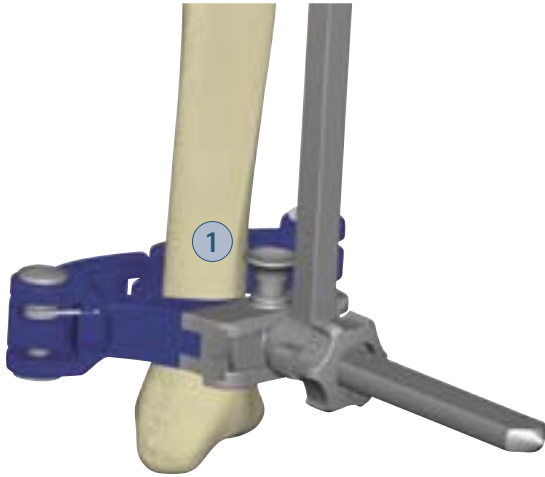


8.1 Extramedullary (EM) Referencing

- The EM alignment system assembly is placed in a parallel fashion with the frontal tibia with the leg positioned in flexion.
- The bimalleolar clamp, previously set in a neutral position, is fixed around the lower limb just above the ankle joint and centered on the tibio-tarsian joint.
- Proximally, the EM alignment system can be stabilized with the proximal fixation first by engaging the longest spike between the tibia spines.
- When the rotation has been adjusted to the mid-third of the tibial tuberosity and the second toe axis (or according to the patients individual anatomy since these landmarks may not be in line with the mechanical axis of the tibia), the second spike can be impacted defining the final tibia rotation.



A: Bimalleolar clamp NS345R, B: Bimalleolar clamp support NS344R, C: Alignment system handle NS342R, D: Holding rod for cutting guide NS341R, E: Tibia cutting guide NS334R



Varus-Valgus Alignment

Pushing the knob (1) at the bimalleolar clamp, and sliding the alignment system medially or laterally allows to adjust the varus/valgus of the proximal tibia resection. The distance between the laser marked lines on the scale corresponds to a 1° adjustment for a 40 cm long tibia.

Tibia Slope Alignment

Releasing the fixation wheel (2) at the bottom part of the alignment system (by aligning OP-EN), the alignment system can be shifted anteriorly in order to increase the slope of proximal tibia resection. The distance between the laser marked lines on the scale corresponds to a 1° adjustment for a 40 cm long tibia.



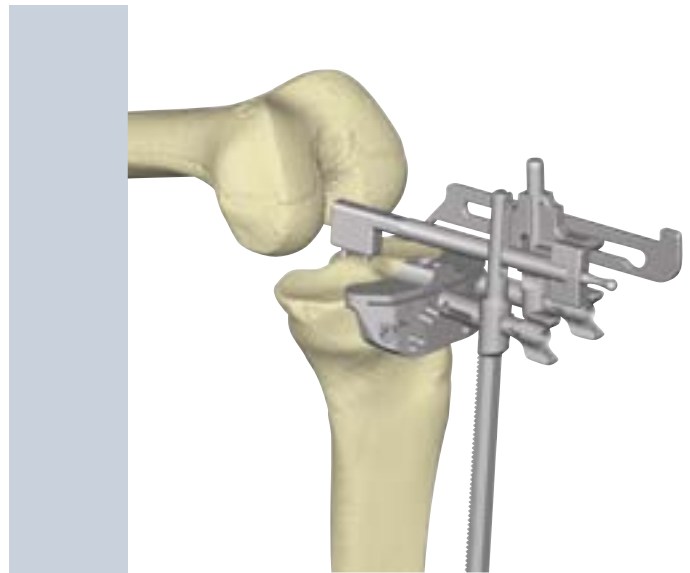
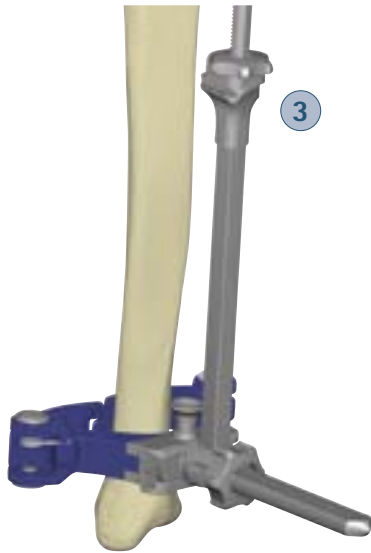
F

G

F: Proximal fixation NS343R, G: Tibia stylus NS347R

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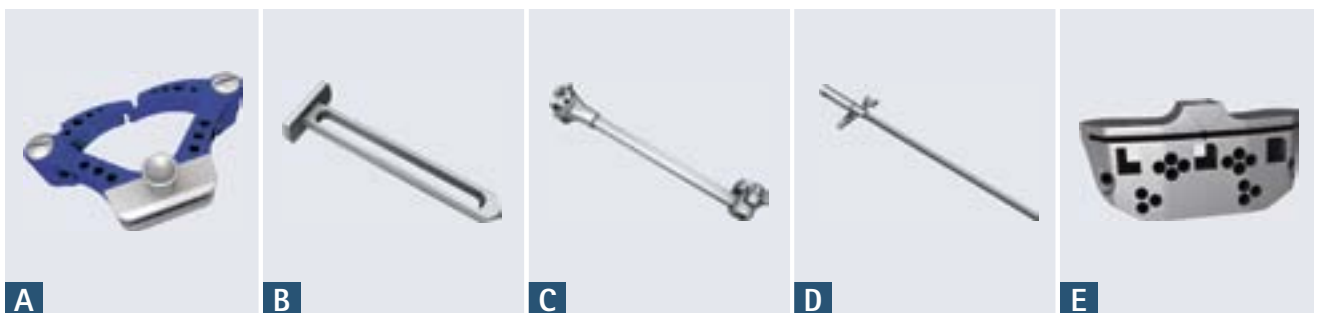
8. Tibia Preparation



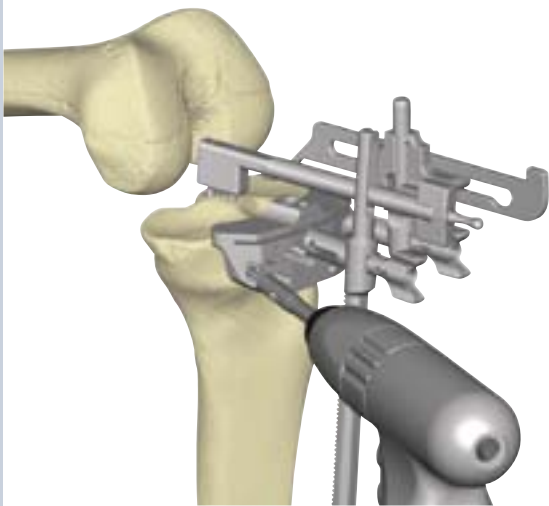
Height Adjustment (3)

- The resection height is determined in preoperative planning. The aim is to remove any defect on the tibial joint surface as completely as possible in order to create a bed for the tibia plateau on intact bone for optimal support of the implant.

- The planned value is set on the stylus, which is then mounted into the tibia cutting guide. The extra-medullary alignment instrument is then lowered until the stylus comes into contact with the chosen point.
- Referencing the healthy tibia plateau is helpful to determine the level of the joint line. Referencing the deepest point of the worn side of the tibia helps to reduce the cut by resecting only 2 mm. Preoperative planning and surgeon preference are used to determine which reference to use.

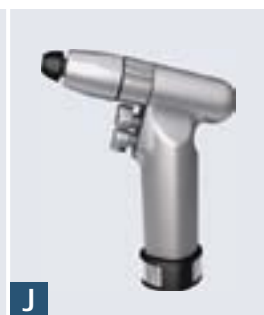
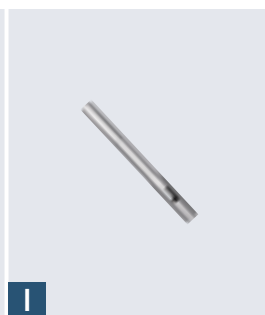


A: Bimalleolar clamp NS345R, B: Bimalleolar clamp support NS344R, C: Alignment system handle NS342R, D: Holding rod for cutting guide NS341R, E: Tibia cutting guide NS334R



■ The cutting block is fixed with two headless pins in position „0“. The +/-2 mm pinholes are available on the resection blocks to further adjust the resection level if needed. To avoid movements during the resection, additional pins are set in convergent holes as marked.

■ The EM tibia alignment system is then disconnected from the tibia cutting guide by turning the connecting wheel counterclockwise. The proximal fixation can be removed by disengaging the spike from the tibial spine.



F

G

H

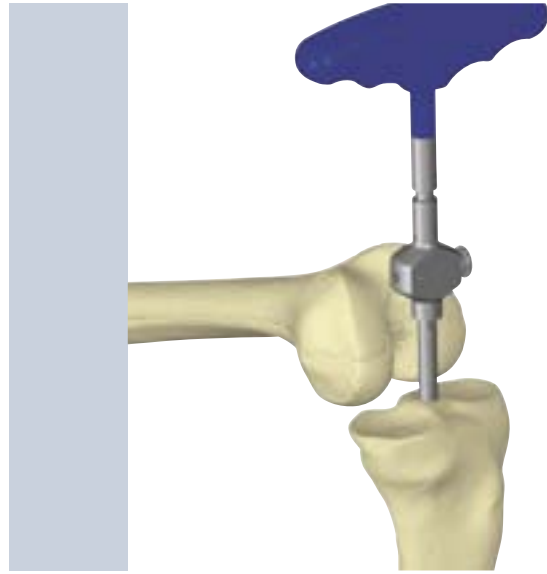
I

J

F: Proximal fixation NS343R, G: Tibia stylus NS347R, H: Headless pins 63 mm NP583R, I: Pin driver NP613R, J: Acculan drill

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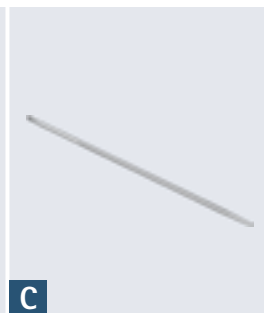
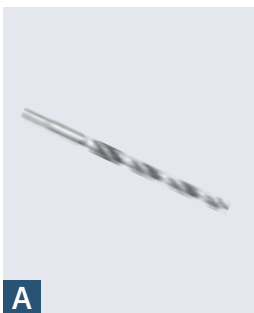
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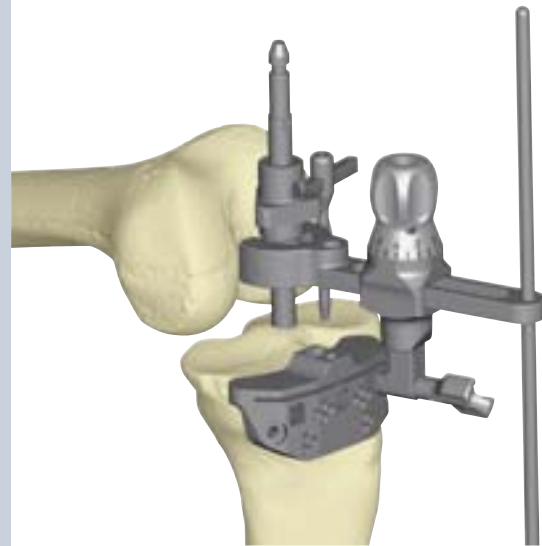
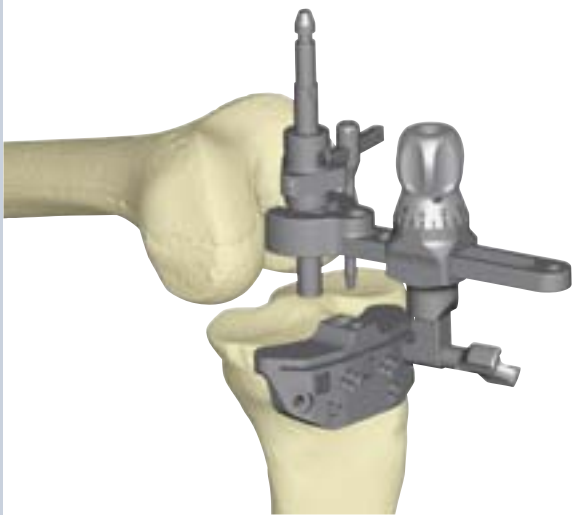
8.2 Intramedullary Referencing

■ The medullary canal of the tibia is opened with the Ø 9 mm starting drill bit. The surgeon has to pay close attention of the drilling direction in order to avoid cortical violation of the posterior metaphysis.

■ The intramedullary rod is inserted into the prepared canal, after the contents are irrigated and suctioned, with the help of the T-handle. Once the T-handle is removed, the intramedullary alignment system is mounted on the rod with the chosen posterior slope angle sleeve (0° standard, 3°, 5°, or 7° optional) and the cutting guide.



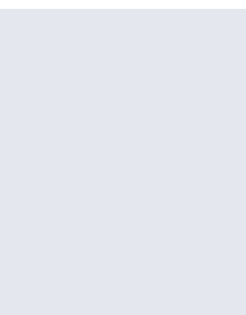
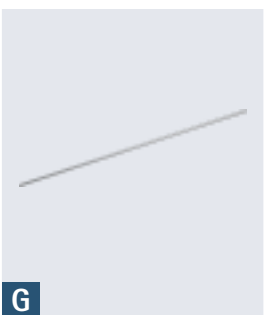
A: Drill Ø 9 mm NS330R, B: T-handle NE198R, C: IM alignment rod NS331R, D: IM alignment system NS332R



■ The stylus is set on the deepest point of the tibia plateau to define the 0-level cut. The height of the cut is then adjusted by turning the tuning wheel to the desired amount of resection in millimeters.

■ The alignment of the cutting block can be checked with the alignment rod.

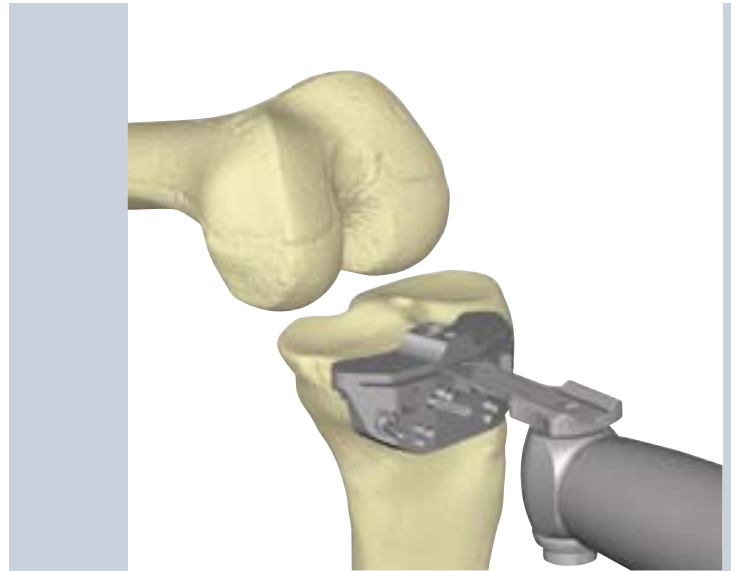
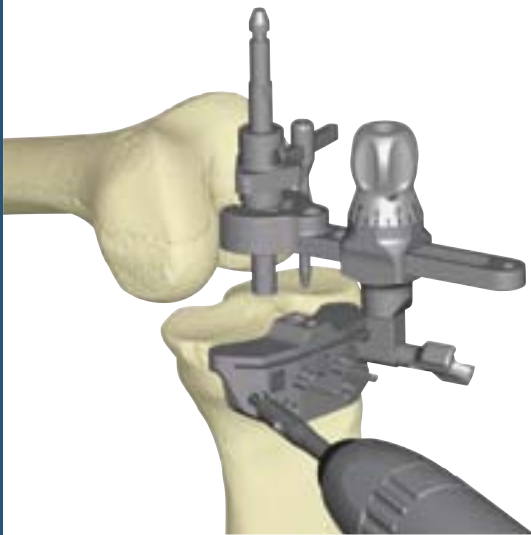
NOTE: The surgeon should realize that the matched implant resection for the tibia is 10 mm.



E Tibia cutting guide NS334R, **F** Tibia IM stylus for orientation sleeves NS847R, **G** Alignment rod long NP471R, **H** Tibia orientation sleeve NS843R-NS846R

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8. Tibia Preparation



- The cutting block is fixed with two headless pins in position „0“. The +/-2 mm pinholes are available on the resection blocks to further adjust the resection level if needed. In order to avoid movements during the resection, additional pins are set in convergent holes.
- The IM tibia alignment system is removed in one step with the T-handle after unlocking the cutting block from the alignment system by turning the locking wheel in a counterclockwise direction.

8.3 Tibia Resection

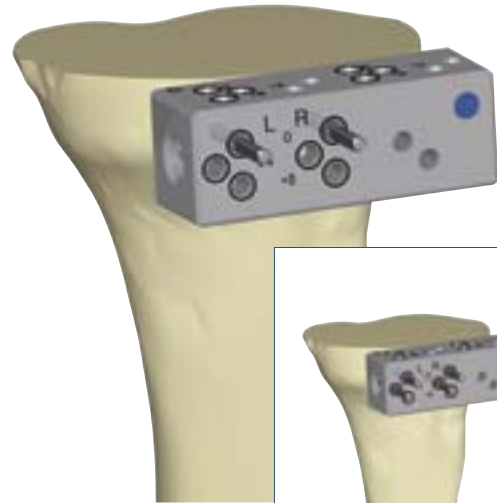
- Once the cutting block is positioned and fixed, the proximal tibial resection is performed. (See NOTE)
- After performing the proximal tibial resection the block is removed and the resected bone taken away. A careful inspection of the peripheral resection is mandatory in order to check that no remaining bone stock is present. Further removal of meniscal remnants and osteophytes that affect the posterior capsule is then performed.

NOTE: The protection of the surrounding soft tissue sleeve of the knee joint is paramount. A special attention has to be paid: use of Hohmann retractors, collaterals retractors, PCL retractor is recommended in order to protect them during the resection.



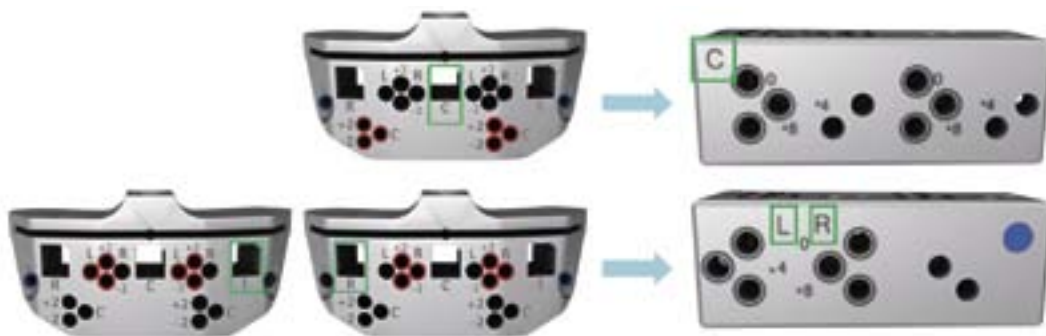
A: IM alignment system NS332R, B: Tibia IM stylus for orientation sleeves NS847R, C: Tibia cutting guide NS334R, D: Headless pins 63 mm NP583R, E: Tibia Orientation Sleeve NS843R-NS846R, F: IM alignment rod NS331R

8. Tibia Preparation – OPTION: Hemi Spacer For Tibia Augmentation



- For small defects of the tibia plateau the Columbus® knee system offers hemi spacers in heights of 4 mm and 8 mm.
- After the standard resection the tibia cutting guide is removed. Depending on the used holes of the tibia cutting guide, the tibia move block is placed over the two headless pins with frontal side „C“ or „L R“

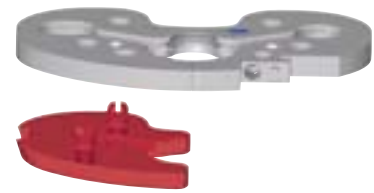
(see picture below). Two additional headless pins are inserted in the requested depth. After removing the move block and the first two parallel pins, the tibia cutting guide can be placed over the new drilled pins. When the cutting guide is fixed with two convergent pins, the hemi spacer resection can be performed.



A: Tibia cutting guide NS334R, B: Headless pins 63 mm NP583R, C: Tibia move block NQ1078R, D: Acculan drill, E: Pin driver NP613R

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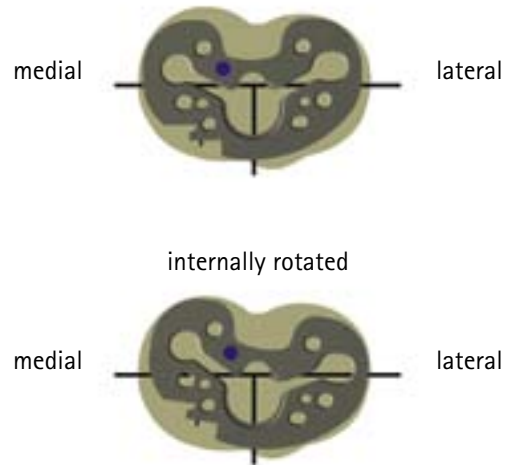
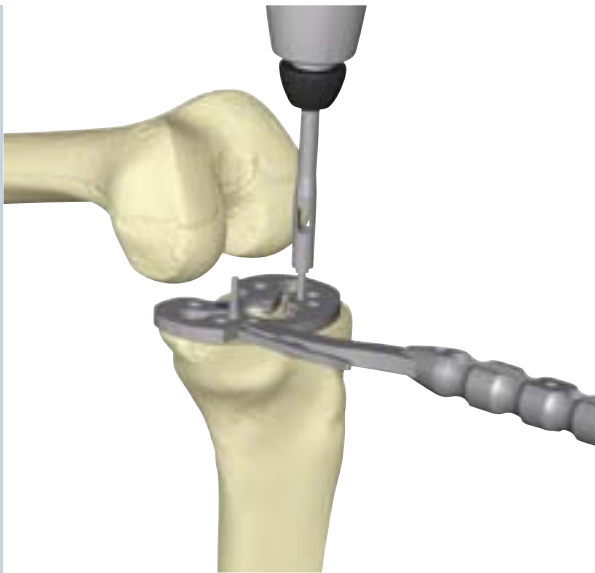
8. Tibia Preparation – OPTION: Hemi Spacer For Tibia Augmentation



■ Please note: For tests with the trial implants the correct hemi spacer has to be clicked under the trial tibia plateau. During measuring of extension and flexion gap the height of the hemi spacer is added at the cut tibia side. A Columbus® CRA/PSA tibia plateau which offers the possibility to screw hemi spacer has to be used for definitive implantation (see picture on right).



A: Tibia cutting guide NS334R, B: Headless pins 63 mm NP583R, C: Acculan saw, D: Screw driver NQ1070R, E: Tibia trial/preparation plateau NQ1079R-NQ1089R, F: Trial hemi spacer NQ1160-NQ1196, G: Plug remover for final CRA/PSA tibia plateau NP744R

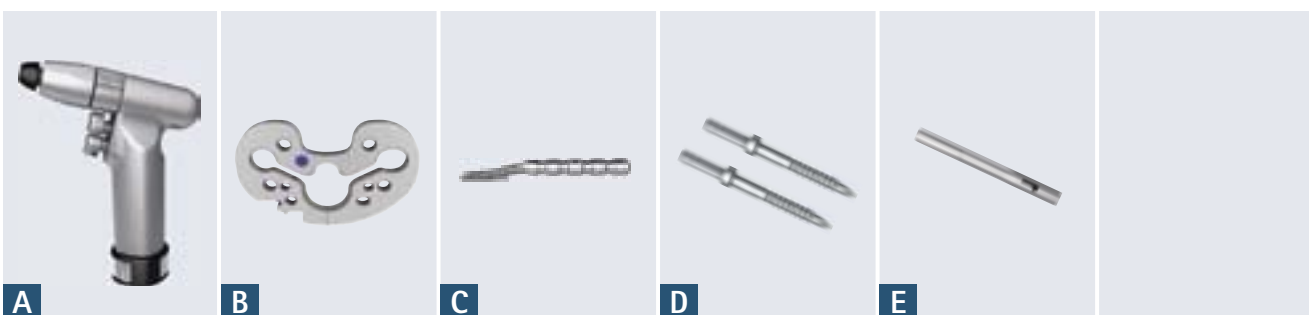


8.4 Tibia Keel Preparation

- The size of the tibia is determined by superposing the different tibia preparation plateau sizes onto the created surface trying to reach a proper transverse rotational alignment of the trial baseplate while avoiding ML and A/P overhang.
- The chosen tibia trial preparation is placed flush onto the tibia resection and the rotation is assessed with the help of the EM rod placed through the holder. References for the rotation are the mid-third of the anterior tuberosity and the second toe axis of the leg. These two landmarks are often not coincident with mechanical axis of the tibia and the surgeon should consider the rotation with respect to the tubercle to maintain extensor mechanism alignment. The plateau is fixed by the short headed pins in the marked holes.
- Another option consists in building the tibia and

femur trial implant with the adequate trial gliding surface. By exercising flexion extension movements combined with slight rotational stresses, the tibia plateau will find a natural position under the femur trial. This position is marked anteriorly using the electric cautery right where the plateau has a central anterior laser marking. Care should be taken to assess the stability of the extensor mechanism before accepting this "free float" alignment of the tibial baseplate.

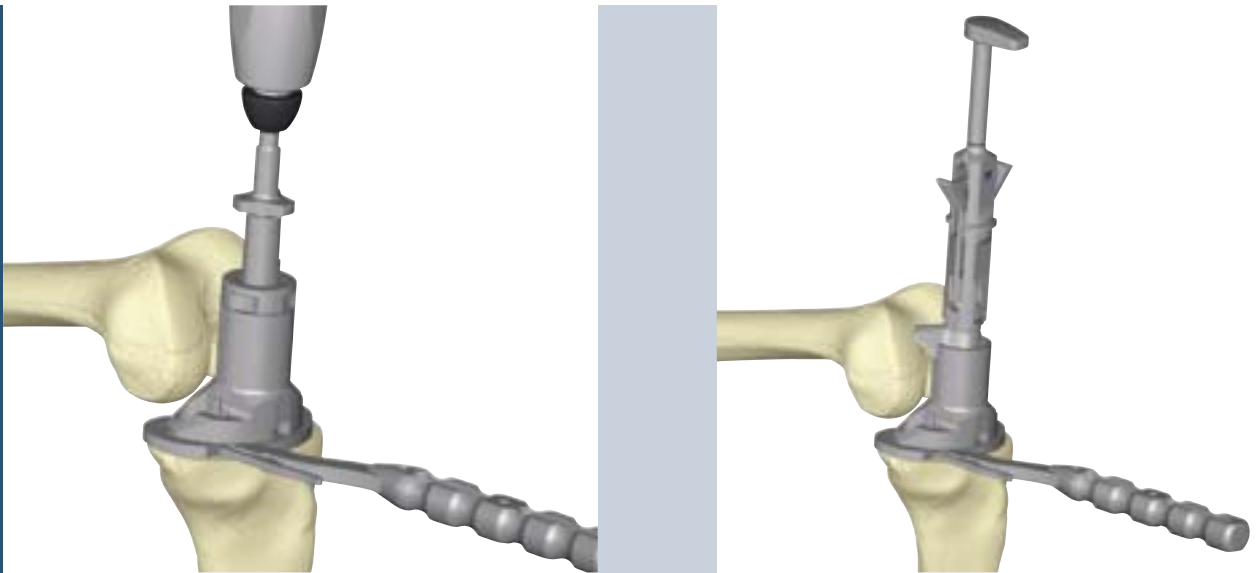
NOTE: Columbus® implants have a symmetric tibia plateau. Therefore it is essential to reach a good transverse rotational alignment. A perfect bony coverage is not aspired (see picture above).



A: Acculan drill, B: Tibia trial/preparation plateau NQ1079R-NQ1089R, C: Tibia trial/prep. plateau holder NQ378R, D: Headed pins 30 mm NP585R, E: Pin driver NP613R

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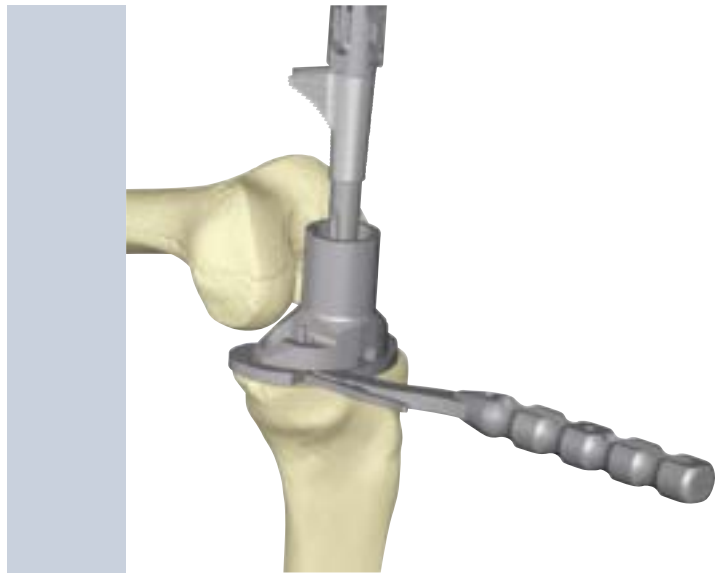
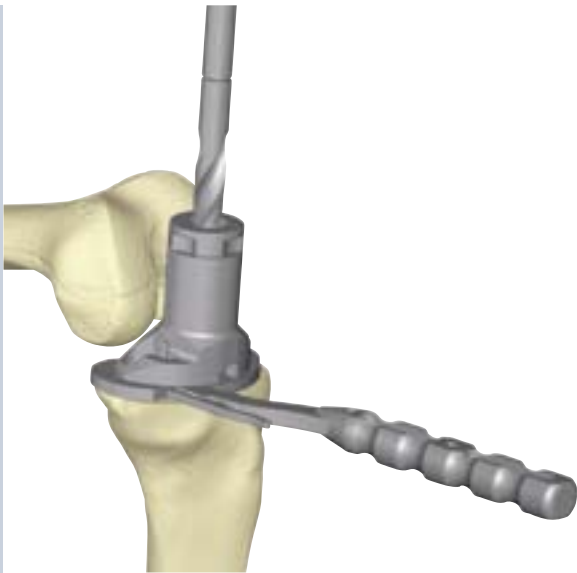
8. Tibia Preparation



- The holder is removed. The guiding tower is placed on the tibia plateau by engaging the posterior teeth first. The anterior part can be maintained steady by replacing and locking the holder back in place.
- According to the planned tibia size, the corresponding tibia drill sleeve is placed on the guiding tower.
- The drill with stop is first used to prepare the bone for the winglet chisel. The drill is available in 12 mm as standard for sizes T1-T3+, in 14 mm as standard for sizes T4-T5.
- The wing stem preparation is performed by using the winglet chisel connected to its handle through the guiding tower down to the stop. If necessary, it is removed using the slap hammer or if no stem preparation is utilized the handle is removed.
- For every tibia size there is an own winglet chisel, as the tibia wing stem of the final implant is growing by size.



A: Tibia trial/preparation plateau NQ1079R-NQ1089R, B: Headed pins 30 mm NP585R, C: Guide for winglet chisel NQ1096R, D: Drill with stop NQ1116R, NQ1126R, E: Acculan drill, F: Tibia drill sleeve NQ1111R-NQ1113R, NQ1124R-NQ1125R, G: Tibia trial/prep. plateau holder NQ378R



8.5 Tibia Stem Preparation

In case of poor bone quality, the primary fixation can be enhanced by using a stem extension. According to the surgeon's philosophy, a cemented stem or a cementless stem can be chosen.

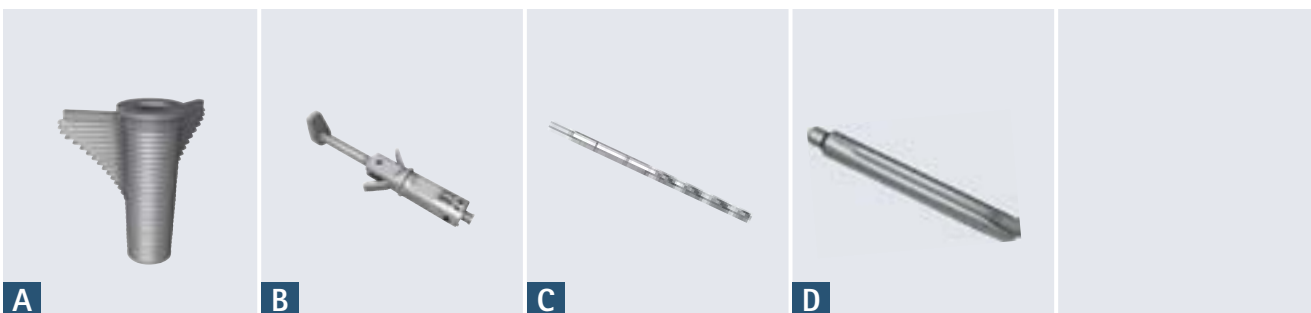
Option 1: Priority to the Tibia Resection

In this case, the tibia preparation is performed following the steps described previously (§ 8.1 to § 8.4). At the last stage, instead of using the drill with stop, a long drill is used for preparing the site of the future stem.

Length and diameter of this long drill should be assessed on the pre-operative X-rays. The drilling is performed through the tibia drill sleeve on the guiding tower and the diameter (Ø 12, 14 or 16 mm) corresponds to the trial stem diameter. Two laser markings are available on the drill in order to define the right depth for short or long stems. For the winglet preparation, the corresponding trial tibia stem is connected to the winglet chisel for the final preparation.

Please note that this option is indicated for cemented stems.

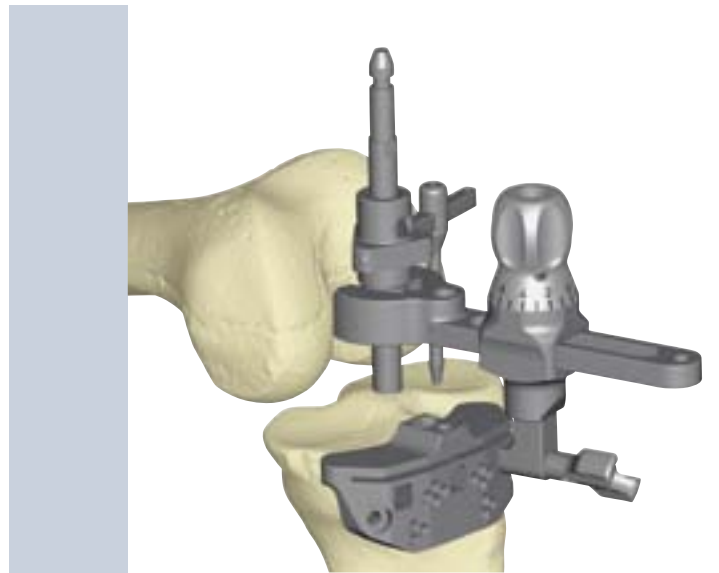
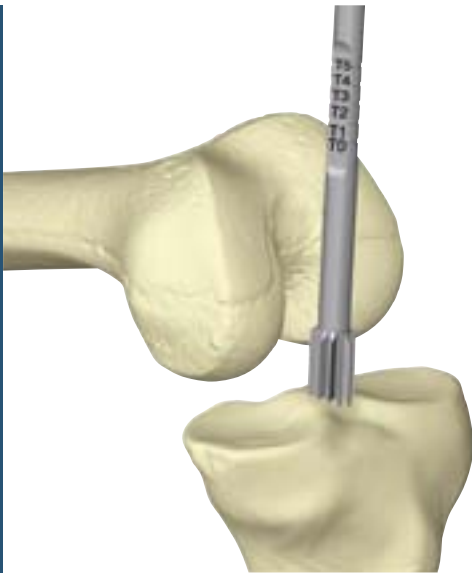
NOTE: The cemented implant stems have diameters Ø 10, 12 and 14 mm in order to manage a 1 mm cement mantle thickness around the stems.



A: Winglet chisel/Trial keel NQ1090R-NQ1095R, B: Osteodenser holder NQ1097R, C: Drill for cemented stem NS376R-NS377R, NS380R, D: Trial stem cemented NS384T-NS389T

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8. Tibia Preparation



Option 2: Priority to the Extension Stem Fixation

In this case, the medullary canal of the tibia is opened according to the preoperative planning (entry point) with the Ø 9 mm drill. The thinnest reamer (for short or long stem) is then coupled to the T-handle and inserted into the tibia medullary canal as deep as possible until a primary stability is achieved and a depth laser marking reaches the estimated level of the tibia resection according to the planned tibia size (T0-T5). If not, a thicker diameter is used until stability is achieved. Once the T-handle is removed, the intramedullary alignment system is mounted on the reamer with the 0° angle sleeve (angled sleeve for slope is not possible here!) and the cutting guide. The stylus is set on the deepest point of the tibia plateau to define the 0-level cut.

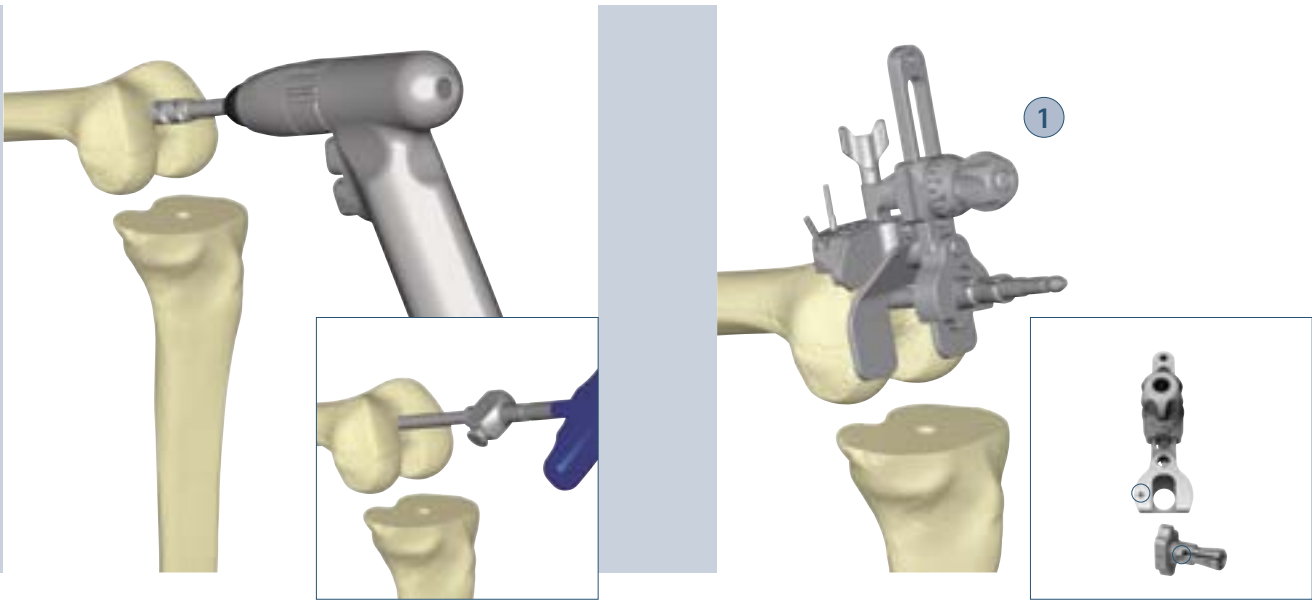
The height of the cut is then adjusted by turning the tuning wheel. The alignment of the cutting block can be checked with the EM alignment rod. The cutting block is fixed with two headless pins in position „0“; the +/-2 mm pinholes are available on the resection blocks to further adjust the resection level if needed. In order to avoid movements during the resection, additional pins are set in convergent holes if necessary. The IM tibia alignment system is removed in one step with the T-handle after unlocking the cutting block from the alignment system. Please note that this option is indicated for cementless stems and the surgeon must take into account the alignment of the tibia as directed by the cementless stem since it may not coincide with the mechanical axis of the tibia.

NOTE: For the cementless stems the reamer diameter corresponds to the final implant stem diameter.



A: Reamer for cementless stem NQ1151R-NQ1156R, B: IM alignment rod NS331R, C: IM alignment system NS332R, D: Tibia IM stylus for orientation sleeves NS847R, E: Tibia cutting guide NS334R, F: Tibia orientation sleeve 0° NS843R

9. Femur Preparation



9.1 Femur Intramedullary Alignment

- The medullary canal of the femur is opened according to the preoperative planning (entry point) with the drill \varnothing 9 mm. The rod is inserted into the intramedullary canal using the T-handle. Once the rod is inserted, the T-handle can be removed.
- In order to compensate the anatomical valgus angulation of the femoral bone, the appropriate angle sleeve 5° , 6° or 7° according to the preoperative planning is set into the intramedullary alignment system. The distal femur contact plate and the cutting block are connected to this system. The assembly is placed on the IM rod in contact with at least one distal condyle.

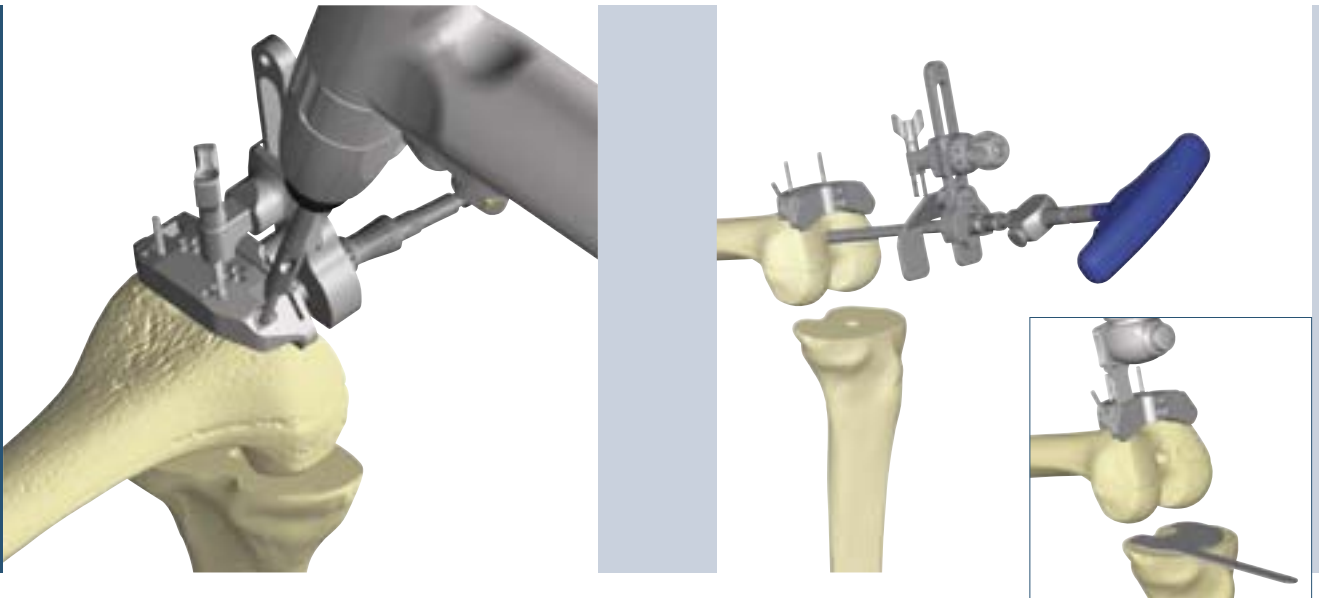
- A laser marking on the alignment system shows in which direction the sleeve has to be assembled. For a right leg, the „R” on the sleeve is connected with the laser marking on the alignment system. For a left leg, the „L” on the sleeve is connected with the laser marking.
- The planned height of the distal resection is adjusted by turning the wheel (1) until the desired thickness matches the anterior laser marking. The standard resection is 9 mm and corresponds to the distal thickness of the implant.



A: Drill \varnothing 9 mm NS330R, B: Acculan drill, C: T-handle NE198R, D: Tibia alignment system NS332R, E: Distal femur contact plate NS834R, F: Femur orient. sleeve NS335R-NS337R, G: Tibia cutt. guide NS334R

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9. Femur Preparation



9.2 Distal Resection

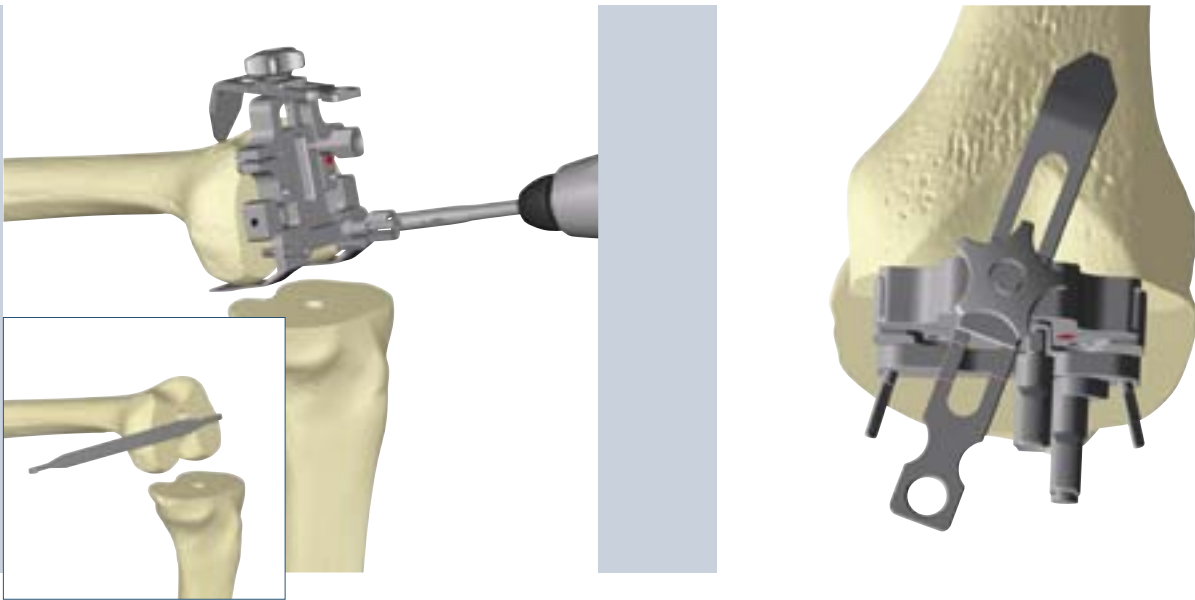
- The cutting block is fixed with two headless pins in position „0“. To avoid movement during resection, additional pins are set in convergent holes.

- The intramedullary alignment system is completely removed in one step with the T-handle by unlocking the connection to the cutting guide.
- The distal femoral resection is performed by sawing through the slot with a 1.27 mm thick oscillating saw blade. Make sure that the resection is fully completed and that no remaining bone structures are prominent to the resection plane.
- Pins and cutting block are removed.

NOTE: Please always pay a great care to the lateral structures by protecting them if necessary by the use of Hohmann retractors.



A: IM alignment rod NS331R, B: Tibia alignment system NS332R, C: Distal femur contact plate NS834R, D: Femur orient. sleeve NS335R-NS337R, E: Tibia cutt. guide NS334R, F: Headl. pins 63 mm NP583R, G: Acculan drill



9.3 Femur A/P Sizing and Rotation

- The medio-lateral (ML) size of the resected femur should be checked with the ML femoral sizing gauge. One side specifies standard sizes, the other side narrow sizes. (For size information, see table on page 69).
- The femur alignment block is placed flush onto the resected distal surface of the femur. The posterior foot plate must be in contact with the posterior condyles. The femoral alignment block is fixed with two headless pins against the distal femur through the posterior holes.

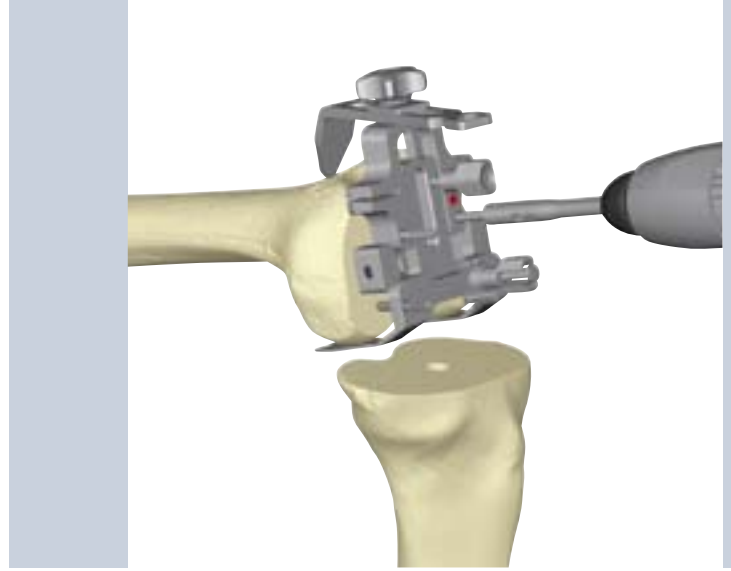
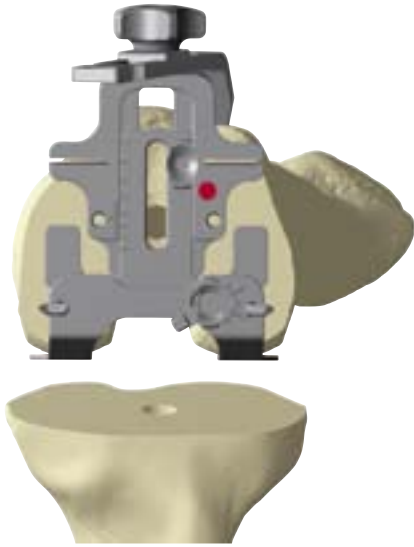
- The femur sizing is achieved by reading frontally the marked size on the scale when the stylus tip is placed at the intended exit point of the saw blade on the anterior lateral cortex in order to avoid any notching. A scale on the surface of the stylus indicates the femur size depth and the position can then be fixed by tightening the screw.



A: T-handle NE198R, B: Tibia protection plate NQ377R, C: Acculan saw, D: ML femoral size gauge NS339R, E: Pin driver NP613R, F: Femur alignment block NS340R

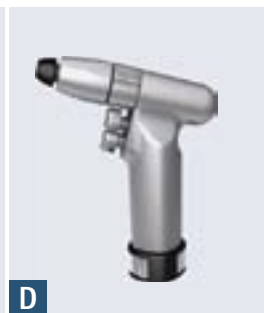
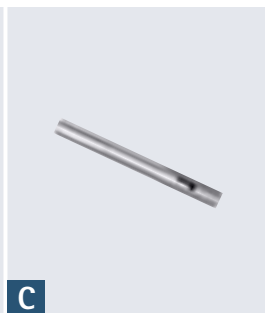
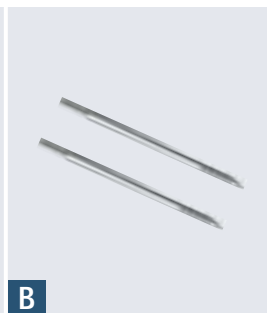
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9. Femur Preparation

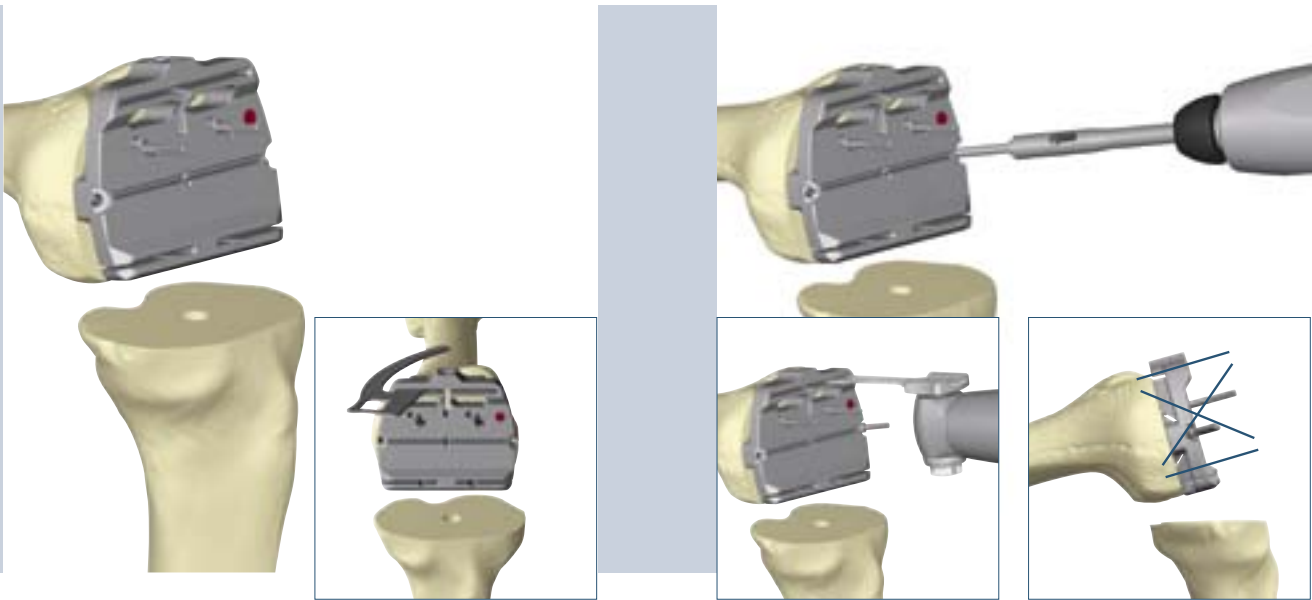


- It is possible to adjust the external rotation by moving the posterior lever arm in the right direction (clockwise for right knees, anticlockwise for left knees). The rotational position is confirmed by assessing the trans-epicondylar axis perpendicularity or by checking the Whiteside's line through the slot at the middle of the instrument. Size and rotation are fixed by tightening the screw at the bottom lever arm.

- Two long headless pins are fixed through the 2 frontal holes in order to reference the position of the 4-in-1 cutting guide. It is recommended to check the level of the anterior resection by using the check plate in the alignment block slots. The size to choose is to be read on the scale (see § 6 handling instructions).
- The posterior pins and the block are removed, leaving the headless pins in place.



A: Femur alignment block NS340R, B: Headless pins 63 mm NP583R, C: Pin driver NP613R, D: Acculan drill



9.4 Femur Anterior, Posterior and Chamfer Resections

- The 4-in-1 cutting guide that matches the femur size is placed over the two headless pins into the marked "0" mm pinhole and pressed onto the distal resection. It is advised to check the level of the anterior resection by using the check plate in the alignment block slots before placing the convergent pins for fixation.
- Before fixing the guide with convergent headless pins, it is possible to adjust the A/P position by using the holes marked +/-2 mm in order to remain as close as possible to the anterior cortex without notching it.

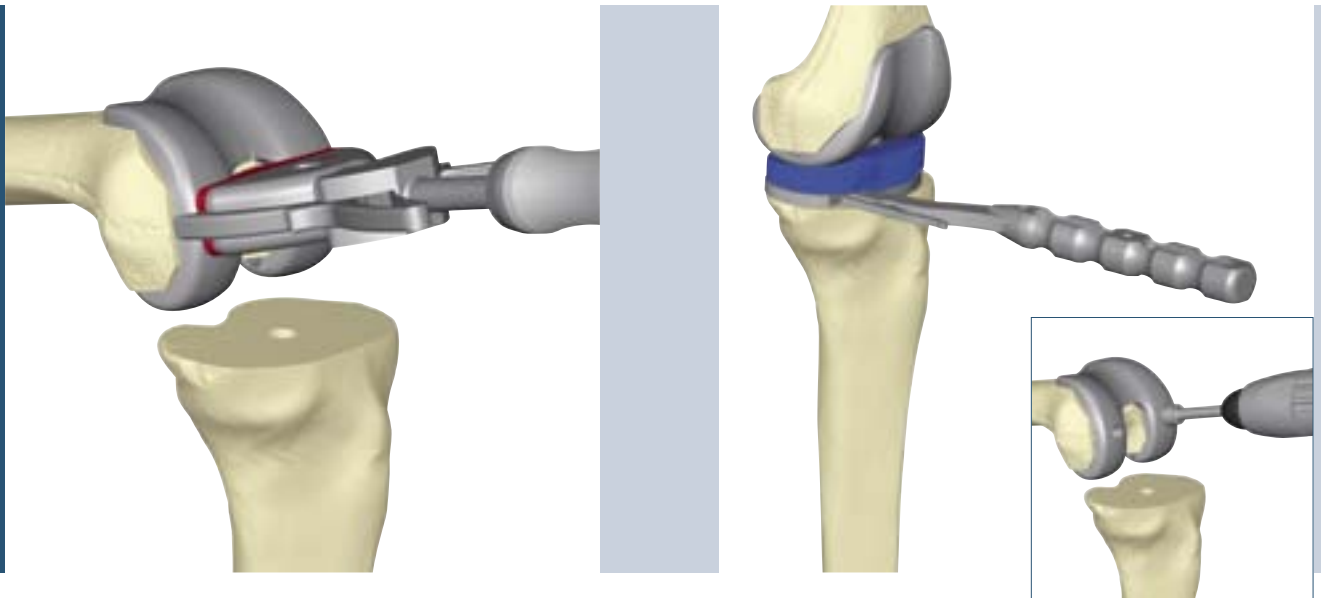
- The resections are performed as follow: anterior cut, posterior cut, removal of sizing pins, posterior chamfer, anterior chamfer. Thereby, the maximum distal contact surface and cutting block fixation is preserved up to the last resection, ensuring stability.
- Convergent pins and cutting guide are removed, and the resections are carefully checked in order to detect any remaining bone stock.



A: 4-in-1 femur cutting guide NQ1041R-NQ1048R, B: Cutting depth check blade NS850R, C: Acculan saw

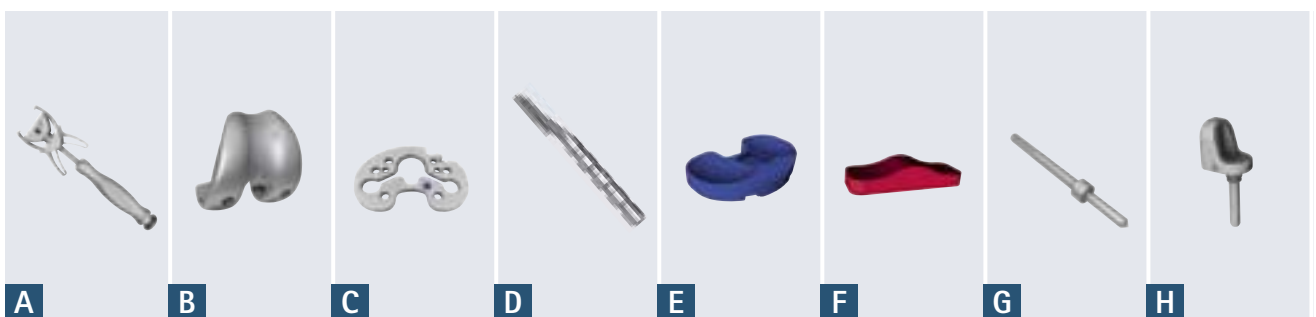
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9. Femur Preparation

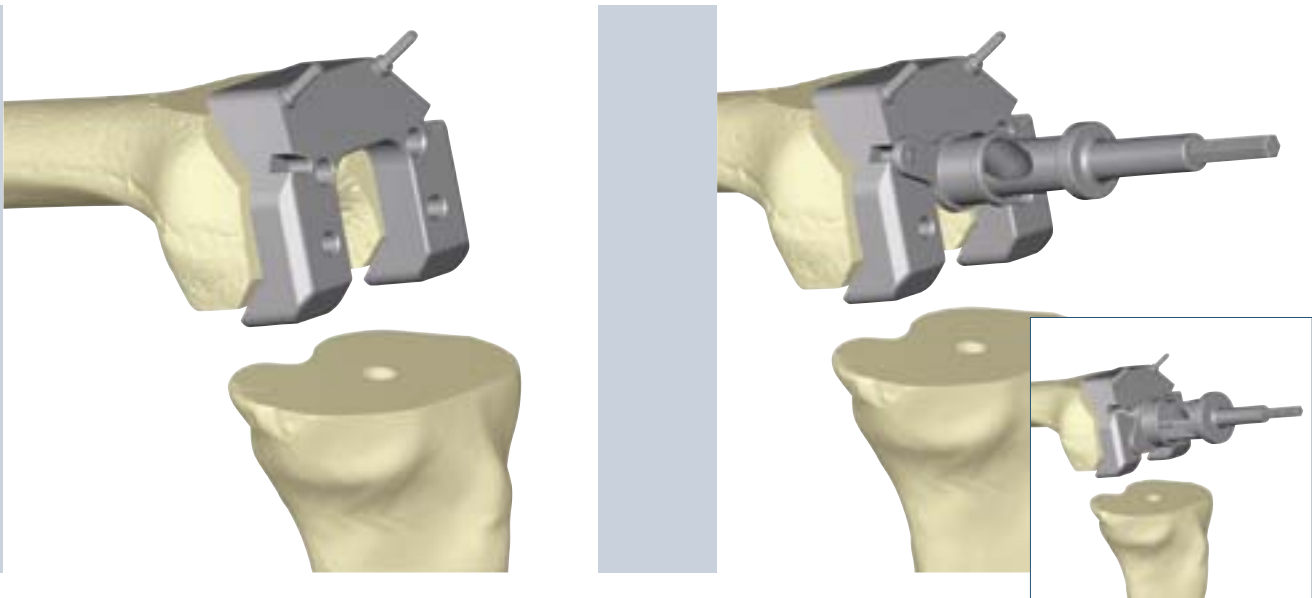


- The quality of the resections and the fit of the prosthesis can be assessed by placing the femur trial implant onto the bone preparation. Using the corresponding holder with the fitting insert (small for sizes F1-F5, large for sizes F6-F8), make sure to apply a force toward anterior in order to avoid a flexed position.
- For downsizing the femur, a smaller 4-in-1 cutting guide is placed directly onto the same anterior headless pins using the same holes as previously (-2/0/+2 mm). Since the reference is anterior, you will achieve the same anterior cut but recut the posterior condyles, the posterior chamfer as well as the anterior chamfer. This will open your posterior gaps correspondingly.

- When the frontal headless pins have been removed, it is possible to downsize the femur as follow: place the femur alignment block on the distal resected bone. With the help of the cutting depth check plate the anterior reference can be found. When the alignment block is in a proper position, the pins are drilled through the anterior holes. Now a smaller cutting guide can be placed over the pins.
- The peg holes for the femoral implant are drilled with the Ø 6 mm drill with stop. They determine the final position of the femoral implant. Therefore it is strongly recommended that these holes are only drilled after the joint function test has been carried out.



A: Trial femur insertion instrument NS600R, B: Trial femur NQ451R-NQ458R, NQ461R-NQ468R, NQ1052R-NQ1057R, NQ1062R-NQ1067R
 C: Tibia trial/preparation plateau NQ1079R-NQ1089R, D: Tibia trial/prep. plateau holder NQ378R, E: Trial gliding surface, F: Insert for NS600R, NQ1031R-NQ1032R, G: Drill with stop D 6 mm NQ449R, H: PS trial peg NQ499RM

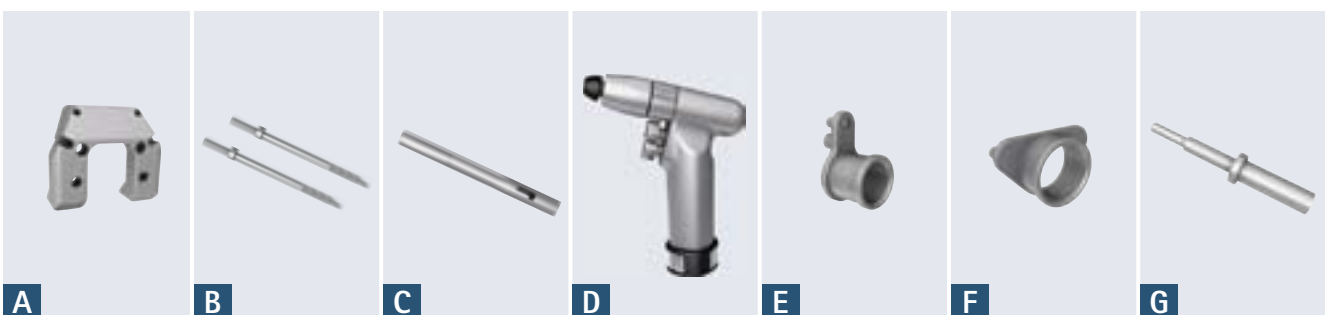


9.5 PS Box Preparation

- In order to perform the femoral preparation for the PS version, the trial femoral implant and the trial gliding surface must be removed. The trial tibia plateau can remain on the bone.
- The appropriately sized PS preparation guide is selected (size of the femoral component) and inserted with its two pegs in the peg holes for the femoral component. It should then be pressed firmly onto the bone. The guide is fixed to the bone with two headed pins.

- The drilling guide for the \varnothing 14 mm drill is put into the hole of the PS preparation guide. It is moved in both lateral and medial direction in order to drill the two box corners. Then the cutting guide for the \varnothing 22.5 mm cutter is attached and the bone is milled with the cutter up to its stop.

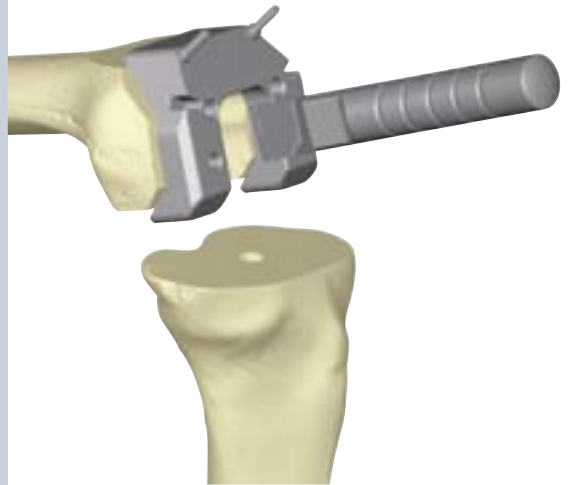
NOTE: The PS screw of the final meniscal component is fixed with the screw driver SW4.5 after cement hardening.



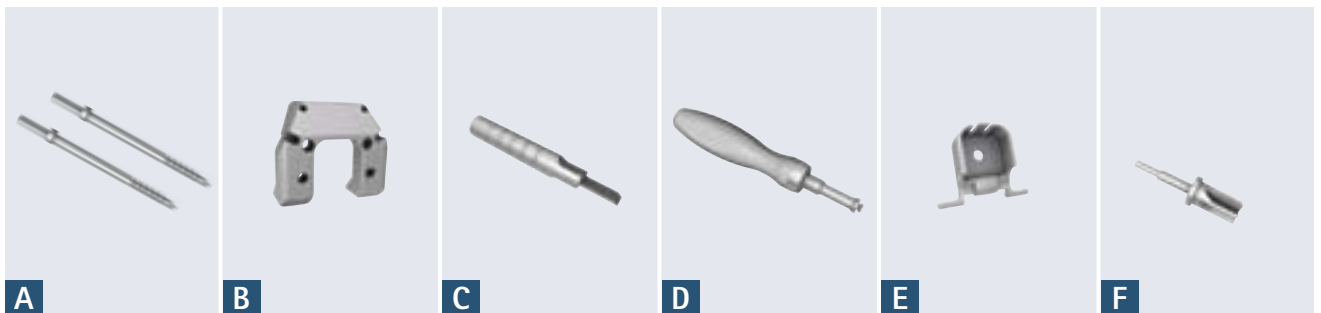
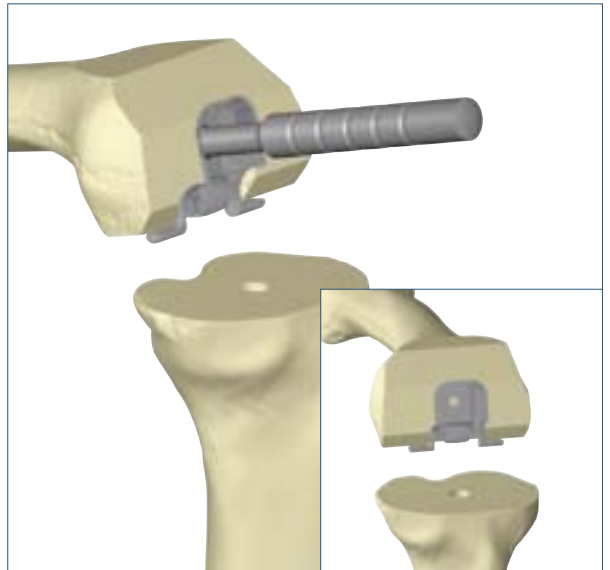
A: PS femur box preparation guide NQ571R-NQ578R B: Headed pins 50 mm NP586R, C: Pin driver NP613R, D: Acculan drill, E: Milling guide 14 mm NQ589R, F: Milling guide 22.5 mm NQ591R, G: Reamer with stop 14 mm NQ590R

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9. Femur Preparation

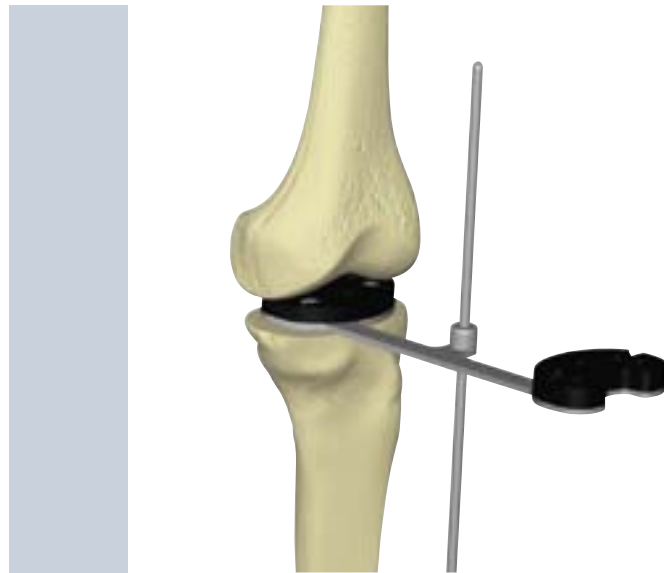
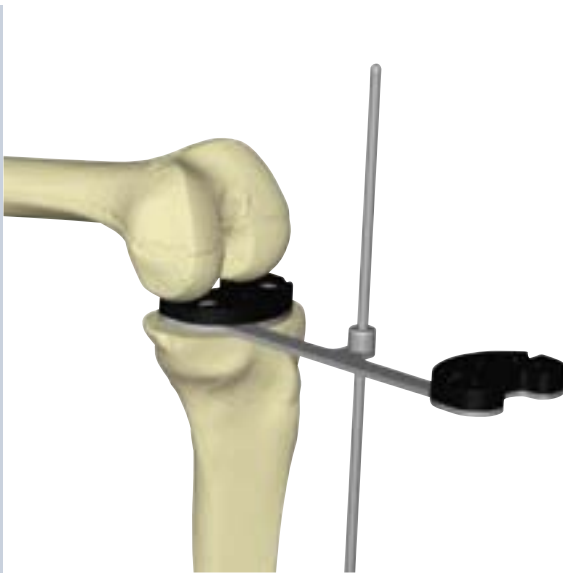


- Both lateral and medial walls are prepared with the chisel cutting edge always positioned on the outside.
- To check the intercondylar preparation, the appropriately sized PS trial femoral box template is selected and placed into position with the holder. Correct positioning is confirmed through the equal height of the trial template and the distal resection as well as contact between the two pegs and the posterior chamfer resection.



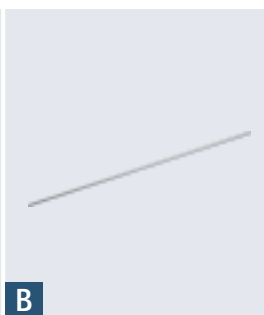
A: Headed pins 50 mm NP586R, B: PS femur box preparation guide NQ571R-NQ578R, C: Blade chisel NQ593R, D: Femur box holder/extractor NS428R, E: Trial femur box NQ581T-NQ588T, F: Reamer with stop 22.5 mm NQ592R

10. Gap Balancing



10.1 Tibia First – Measurement with Spacers

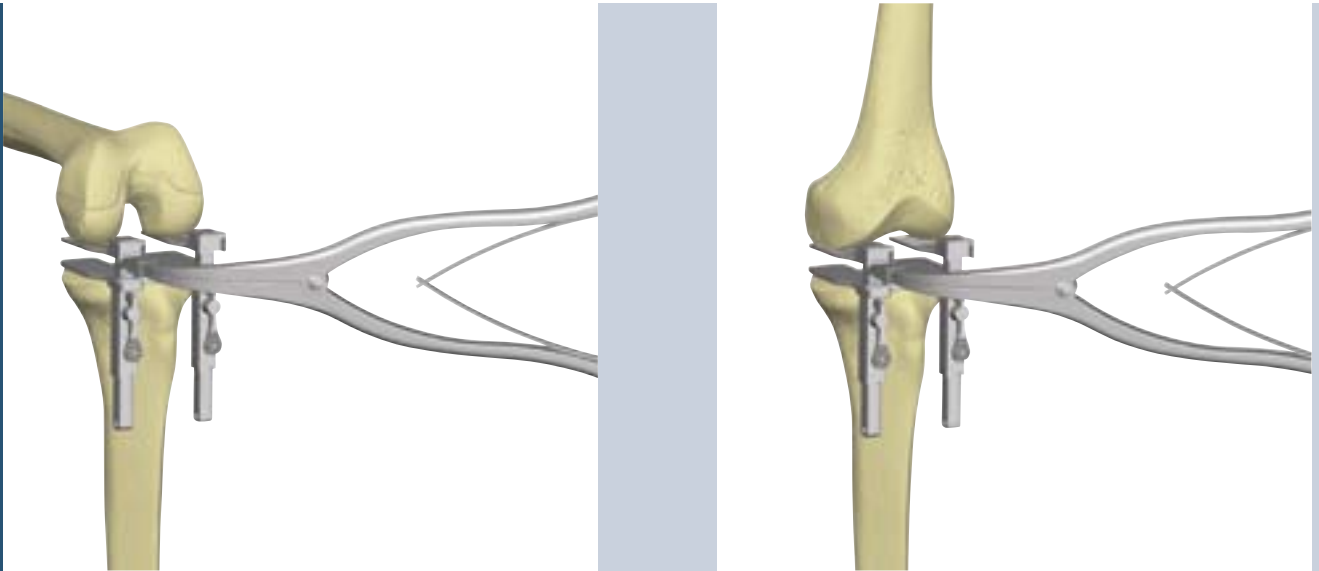
- After performing the tibia resection, check the plane of the resection by inserting the thinnest spacer block (10 mm) in the joint. If the resection needs correction then apply the cutting block accordingly and recut the proximal tibia accordingly. The soft tissue gaps can be assessed by applying a varus/valgus stress in extension and in flexion. If the joint is too lax, insert the next spacer and repeat the operation until a spacer thickness allows the knee to reach a stable point in flexion and extension. (Note: The posterior cruciate ligament (PCL) must be released and removed prior to assessing gaps in flexion and extension since it will increase the flexion gaps once removed.)
- If the medial and lateral gaps are asymmetrical, it is necessary to perform the appropriate release on the contracted side and then repeat the gaps measurements with the spacers until stability is reached.
- If the flexion and extension gaps are incongruent then please refer to the chapter 10.4 strategies and define the right corrective action.
- The thickness of the last spacer that allows good balance and stability of the knee corresponds to the needed polyethylene thickness that should be used.
- At each step, the leg axis can be checked by inserting the alignment rod through the spacer handle; the rod should point respectively at the femoral head center and the ankle joint center.
- The measurements can also be done after the distal resection is performed by adding the distal cut spacer for the extension measurement.



A: Tibia cut spacer NS852R-NS854R, B: Alignment rod long NP471R

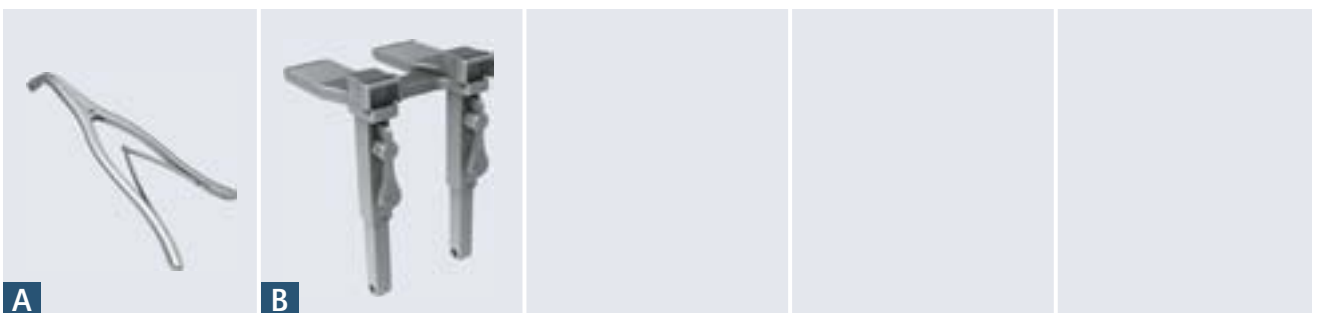
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10. Gap Balancing

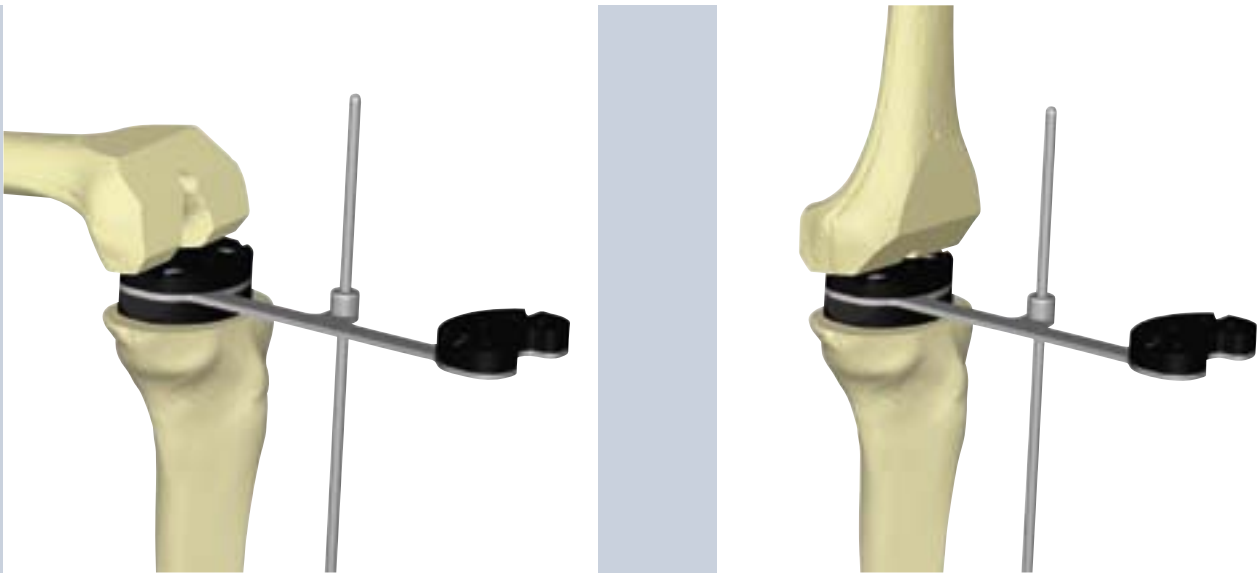


10.2 Optional Tibia First – Measurement with Distractor

- After performing the tibia resection, check the plane of the resection so that it corresponds with the mechanical axis of the tibia. Insert the distractor into the joint and use the clamp to distract sequentially the medial and lateral gaps in extension.
- If the medial and lateral gaps are asymmetrical, it is necessary to perform an appropriate release on the contracted side and then repeat the gaps measurements.
- When the joint is balanced in extension, note the thickness of the gaps, and move to the flexion gap measurement and repeat the same operation. In flexion, the possible future rotation of the femoral component should be taken into account.
- When the flexion gaps (FG) differ from the extension gaps (EG), calculate the needed thickness of the distal resection in order to equalize flexion and extension: $\text{distal resection height} = 9 \text{ mm} - \text{EG} + \text{FG}$. (Note: the PCL must be released and removed prior to this step since its removal will increase the flexion gaps.)

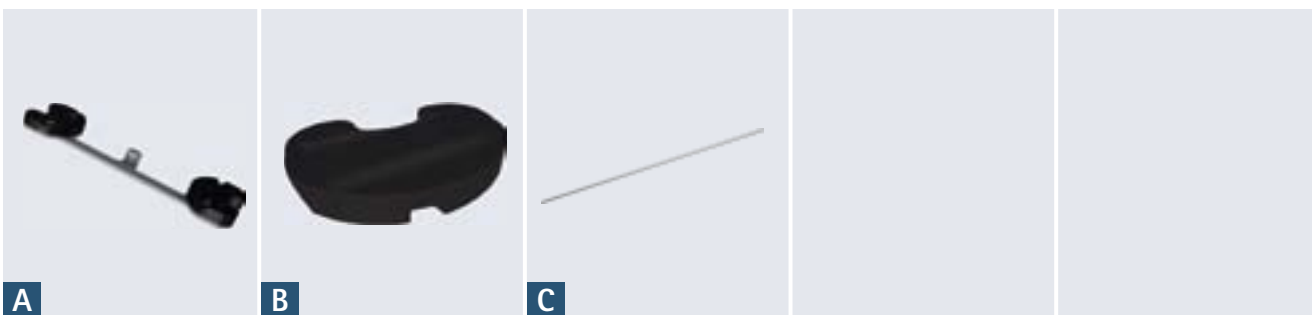


A: Distraction clamp NP609R, B: Femur-tibia distractor NP604R



10.3 Femur First – Measurement with Spacers

- After completion of the femoral and tibial resections, the trial femur implant is placed on the femur. The height of the resection and flexion/extension gaps can be checked by inserting the spacers like in chapter 10.1.



A: Tibia cut spacer NS852R-NS854R, B: Added femur cut spacer NS498, C: Alignment rod long NP471R

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10. Gap Balancing

		Flexion gap		
		optimal	tight	wide
Extension gap	optimal		<ul style="list-style-type: none"> increase tibia slope downsize the femur 	<ul style="list-style-type: none"> posterior capsule release and thicker insert increase distal cut and thicker insert increase femur size
	tight	<ul style="list-style-type: none"> posterior capsule release increase distal cut 	<ul style="list-style-type: none"> thinner insert increase tibia cut 	<ul style="list-style-type: none"> increase distal cut, release posterior capsule and thicker insert upsized femur and increase distal cut upsized femur and release posterior capsule
	wide	<ul style="list-style-type: none"> decrease distal cut downsize femur and thicker insert 	<ul style="list-style-type: none"> downsize femur and thicker insert downsize femur and decrease distal cut decrease distal cut 	<ul style="list-style-type: none"> thicker insert

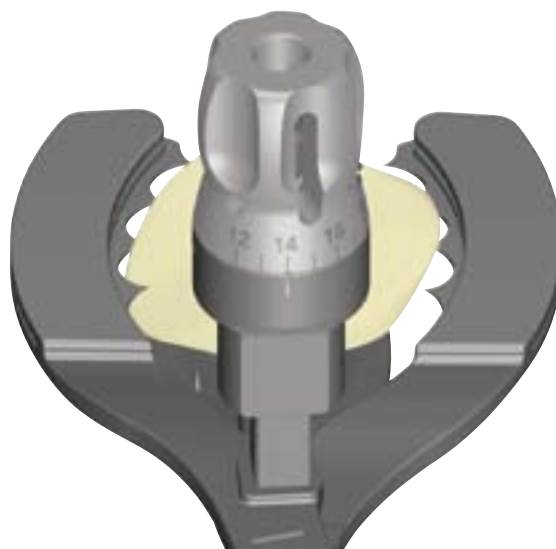
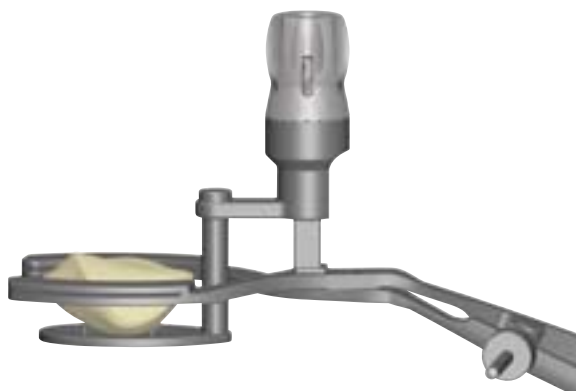
10.4 Strategies

When the flexion and extension gaps are incongruent, an individualized strategy has to be defined in order to correct it.

The table presents some possible options to follow in order to correct a situation where the flexion and extension gaps are not both equally optimal but either tight or wide.

This does not pretend to be an exhaustive and systematic solution matrix. The surgeon has to make his own choices depending on the clinical evaluation, the surgical situation, patient specific issues and his own experience.

11. Patella Preparation



- The thickness of the patella is measured using the caliper. This thickness should not be exceeded after implantation of the patella implant. The level of bone resection is calculated. A minimum thickness of remaining the patella bone should be no less than 12 mm.
- The patella is clamped and the level of the resection is adjusted by turning the resection depth wheel to the planned level of remaining patellar bone thickness.
- The resection is performed through the cutting slot with a 1.27 mm thick saw blade.



A

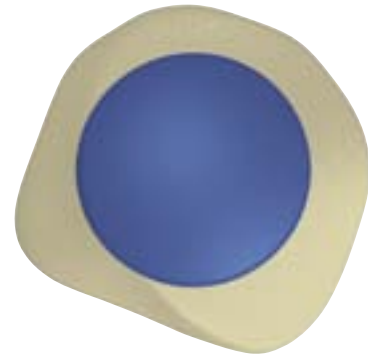
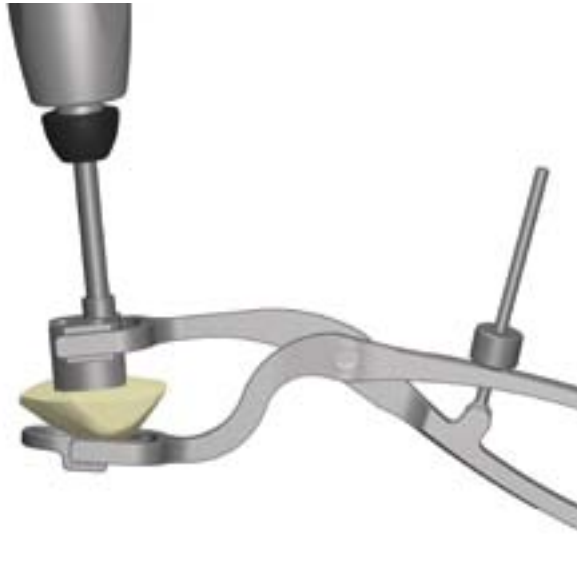
B

C

A: Caliper AA847R, B: Patella resection clamp NS840R, C: Acculan saw

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11. Patella Preparation



- The patella resection clamp is removed. The patella drill/impaction clamp is set onto the osteotomized patellar surface choosing a medialized position to recreate the resected apex of the articular surface; the trial patella can be placed on top of the drill guide in order to check its position to the medial rim and appropriate positioning in the superior and inferior direction.
- The pegs of the implant are drilled through the holes with the Ø 6 mm drill until the stop is reached. The size of the patella is established with the corresponding trial patellar implant.



A



B



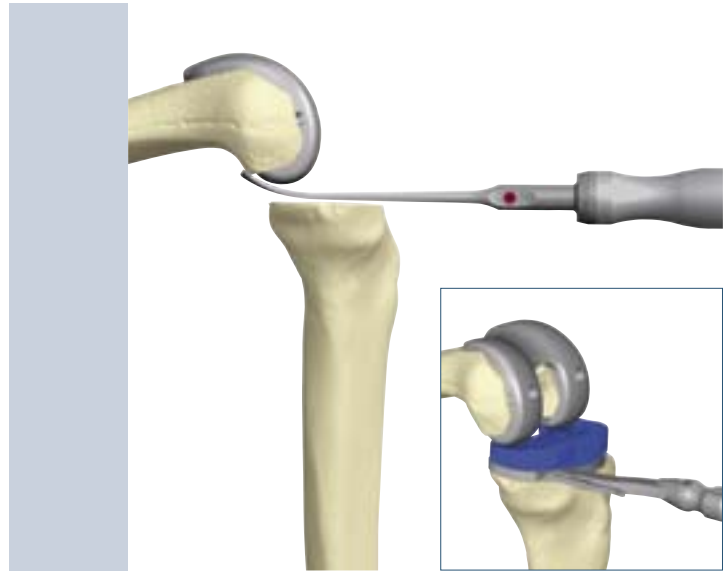
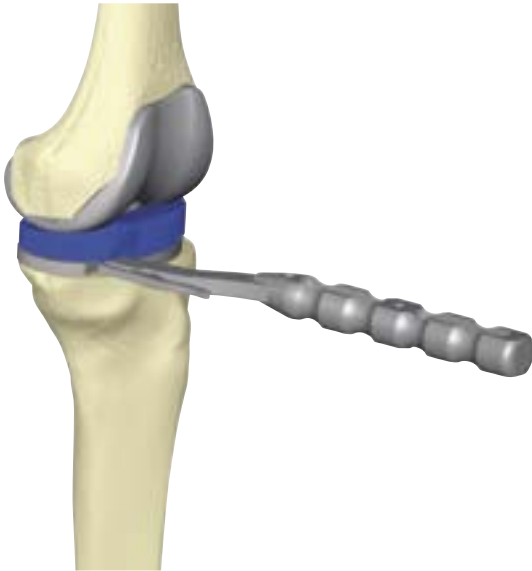
C



D

A: Patella drill/impaction clamp NS841R, B: Acculan drill, C: Drill with stop Ø 6 mm NQ449R, D: Trial Patella NQ281-NQ285

12. Trial Reduction



- The trial femoral and tibial implants are placed onto the prepared bony surfaces.
- The polyethylene trial corresponding to the gap measurements with the spacer or the distractor is placed between both trial implants. The RP gliding surfaces are available in thicknesses from 10 to 16 mm. For the DD, UC and PS version the range is from 10 to 20 mm. A 6 mm trial spacer is therefore supplied for each of the DD, UC and PS trial tibia plateau. The 18 mm size is achieved using the 6 mm trial spacer + 12 mm trial gliding surface, the 20 mm size using the 6 mm trial spacer + 14 mm trial gliding surface.
- For the PS version the appropriate trial femoral prosthesis is connected to the PS femoral box and placed on the bone. The PS trial peg is fixed on the tibia trial implants using the holder for the PS trial femoral box template. The knee kinematics are checked with the help of the trial prostheses.

The following sequence is recommended for trial prosthesis removal:

- PS peg
 - Trial gliding surface
 - Trial femoral prosthesis
 - Trial tibia wing stem with/without extension stem
 - Trial tibia plateau
- The stability of the joint is assessed by applying varus/valgus stresses in extension and flexion. If the joint appears to be lax (opening of gaps under stress), then a thicker trial gliding surface is tested.
 - The range of motion is assessed. Intra-operative limited extension and flexion and marked hyper-extension must be avoided.

NOTE: Bone rests in the dorsal region of the femur have to be removed with a curved osteotome to avoid implant-bone conflicts in flexion.



A: Tibia trial/preparation plateau NQ1079R-NQ1089R, B: Tibia trial/prep. plateau holder NQ378R, C: Trial gliding surface, D: PS trial peg NQ499RM, E: Trial femur NQ451R-NQ458R, NQ461R-NQ468R, NQ1052R-NQ1057R, NQ1062R-NQ1067R, F: Trial spacer 6 mm NQ544, G: Osteotome NS366R

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13. Preparation and Assembly of Extension Stems



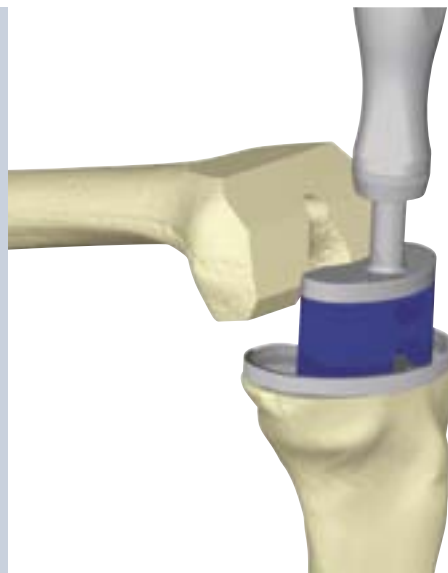
- The length that has to be prepared for implanting the cementless extension stem can be determined with the marking on the reamer. The reamer (for short or long stem) has to be inserted on the resected tibia until the marking of the planned tibia size (T0-T5) is reached. To ensure that the final extension stem will fit a trial stem can be inserted.

- For the assembly of the extension stem on the final implant the stem has to be tightened with a torque of 20 NM. It is recommended to tighten the extension stem on the table and ensure that the components are hold by an assistant during the tightening.



A: Tibia holder for stem torque fixation NS390R, B: Torque wrench NE184RM, C: Stem Adapter for NE184RM for Extension stems Ø 12, 14 mm NE185R, D: Stem Adapter for NE184RM for Extension stems Ø 10 mm NS835R, E: Tibia Extension stem NX060K-NX068K, NX082K-NX087K, F: Reamer for cementless stem NQ1151R-NQ1156R

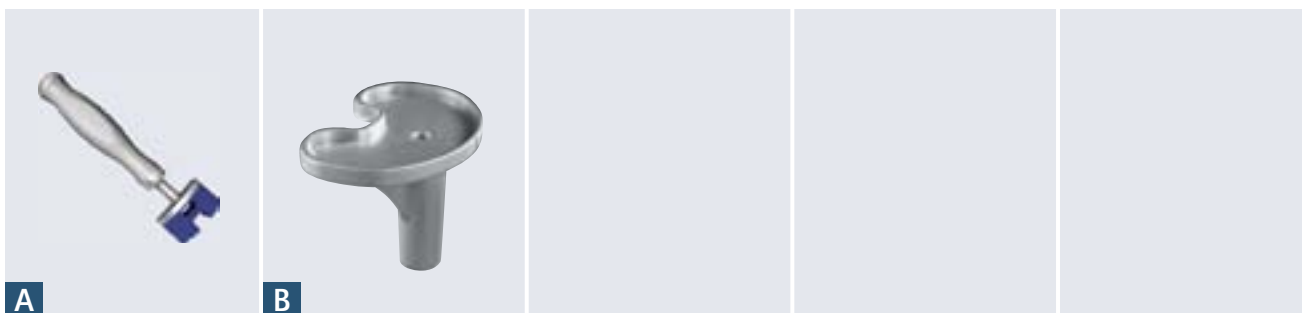
14. Component Implantation



The following implant sequence is recommended:

- Tibia implant
 - Femur implant
 - Gliding surface
 - Patella implant
- The final tibia implant is brought precisely into the predefined position. The final positioning is achieved with the help of the tibia impactor.

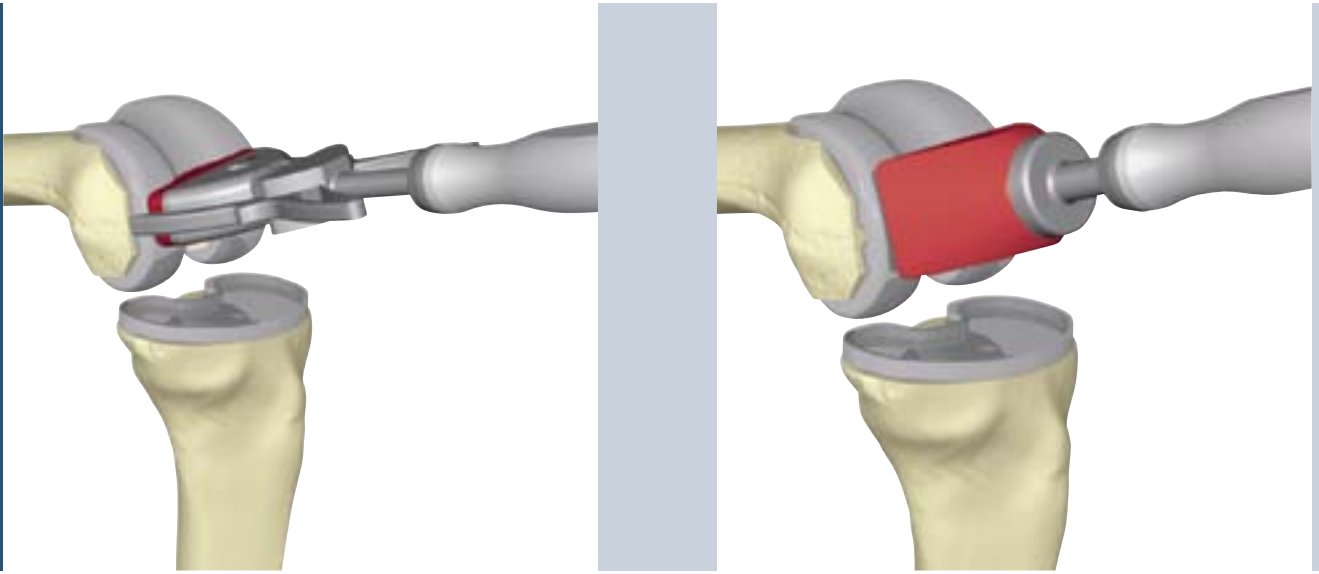
NOTE: The obturator screw diameter 12 mm fits to the tibial plateau size T1-T3+. The obturator screw diameter 14 mm fits to the tibial plateau Size T4-T5.



A: Tibia plateau impactor NS425, B: Tibia implant

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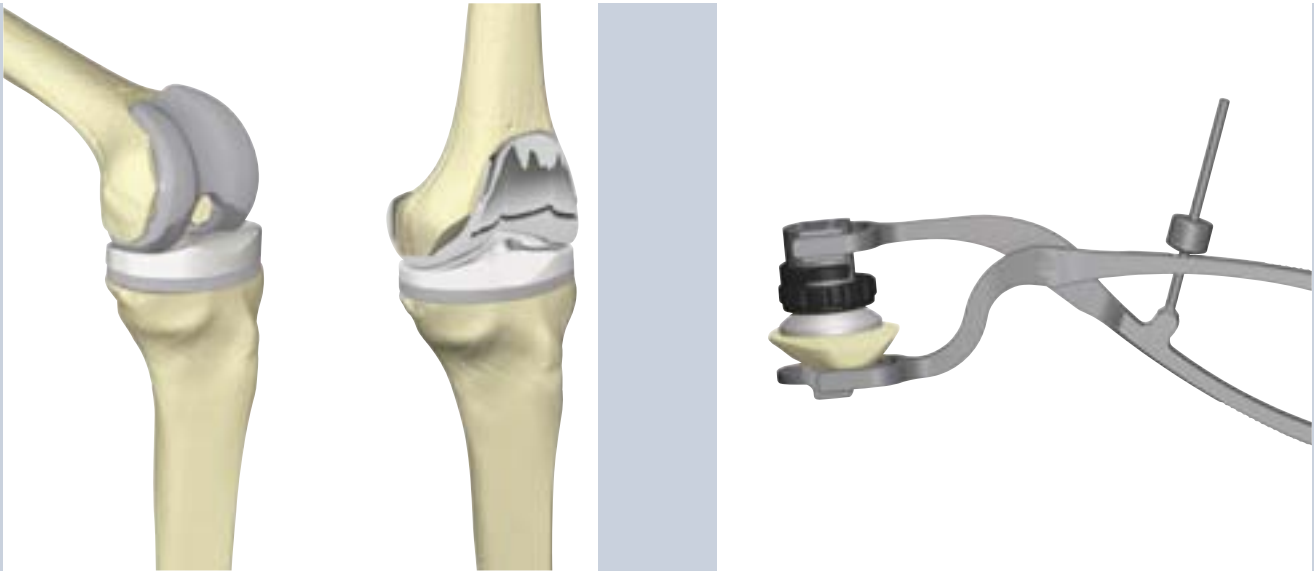
14. Component Implantation



- Using the femur holder and its insert of the corresponding size group (small for sizes F1-F5, large for sizes F6-F8), the final femur implant is brought into alignment and implanted. Care must be taken to assure the holder is properly seated and attached to the femoral implant so that it does not dislodge during cementing. A special attention has to be placed to the sagittal orientation: forcing the holder to the anterior direction helps to avoid an implantation in a flexion position.
- The femur holder is opened by turning its handle counter-clockwise.
- The femoral impactor is used to knock the implant into place.



D: Implant holding/insertion instrument NS600R, E: Femur insert to NS600R, NQ1031/NQ1032, F: Femur impactor NS424, G: Femur implant, H: Tibia implant



- If using a fixed platform, the gliding surface is placed into position by inserting first its posterior part in the tibia plateau and impacting the anterior part with the help of the tibia impactor.

- The patella is implanted using the patella drill/impaction clamp and the concave plastic cap, which allows good transmission of forces during the cement hardening process.

NOTE: It may be prudent to use a trial insert and recheck joint motion and stability after the cement has cured before deciding on the final type and thickness of the polyethylene insert.



A: Gliding surface, B: Patella drill/impaction clamp NS841R, C: Inlay for NS841R, NS842, D: Patella implant NX041-NX045,

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15. Cementing Technique

- Regardless of what fixation method is utilized it is critical that correct techniques are employed in order to avoid complications and early failure. Also, even with accurate cuts it is important to ensure that components are fully seated, as it is easy for this to be obscured when cementing is taking place. Varus-valgus alignment can be significantly affected by unequal medial-lateral cement mantles and poorly seated components and there can be a tendency to place femoral components in relatively flexed positions if specific care is not taken.
- It should also be noted that when definitive components are cemented in, they may prove more stable and seat better than the trials, which are often a little loose. It is therefore worthwhile to recheck the balancing and stability at this point so that further adjustments can be made if necessary. It has been possible to relate poor cementing techniques to early and continuous component migration, which in turn is of positive prognostic significance when predicting aseptic loosening so proper attention to the cementation steps must be taken.
- Preparation of the bony surfaces and cancellous bone should be performed with pulsatile type lavage with the knee under a pressure tourniquet. This step allows for optimal cement penetration and interlocking to the bony prepared surfaces and also removes bone debris that can serve as third body particles that increase polyethylene wear after surgery. The surfaces should be properly dried prior to cementation and appropriate exposure of all bony surfaces achieved. All of the surfaces should be pressurized for optimal cement penetration. Emphasizing the importance of effective cementation of the posterior femoral condylar surfaces is also recommended since it can have a significant effect on the longevity of the fixation of the femoral implant. A further point worth noting is that if holding the knee out in full extension while cement is hardening is used to compress components down and possibly improve cement intrusion.
- Care should be taken to completely remove all excess cement that protrudes from the implant bone interface. Any remnants of overhanging cement can impinge on surrounding soft tissue or can provide a source of debris that can serve as a generator of third body wear and may contribute to the demise of the fixation earlier than expected.

16. Closure

After cement polymerization and removal of all cement excess, thoroughly irrigate the joint. If a tourniquet is used, hemostasis is achieved after its deflation.

Close soft tissue in the normal layered fashion.

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17. Instruments

Instrument trays	page 53
Optional instruments	page 62
Sawblades	page 64

For the IQ Columbus® instrument sets it is possible to order it on a modular basis. If the basic instruments with standard femur and DD gliding surfaces are needed, please order NQ1000. In case of customized demands please order by single set numbers, e. g.

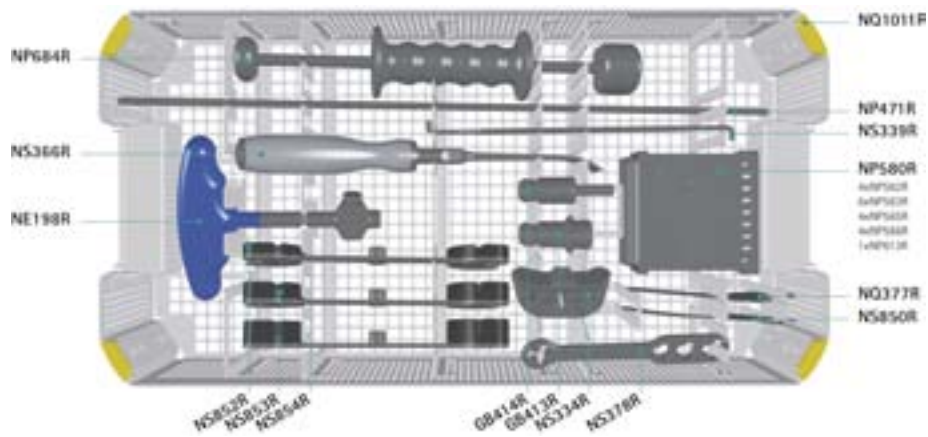
Basic instruments with narrow femur and DD gliding surfaces
Order: NQ1001, NQ1002, NQ1003, NQ1024, NQ1005, NQ1006

Item No.	Description	Container recommended	Lid	Height of tray incl. lid
NQ1000	IQ Columbus® Instrumentation Basic			
NQ1001	IQ Columbus® Set General Instruments	JK444	JK489	118 mm
NQ1002	IQ Columbus® Set Manual Instruments	JK441	JK489	88 mm
NQ1003	IQ Columbus® Set Femur Preparation	JK440	JK489	68 mm
NQ1004	IQ Columbus® Set Trial Femur Components Standard	JK444	JK489	118 mm
NQ1005	IQ Columbus® Set Tibia Preparation	JK441	JK489	88 mm
NQ1006	IQ Columbus® Set Trial Gliding Surfaces DD	JK441	JK489	88 mm
NQ1007	IQ Columbus® Set Trial Gliding Surfaces RP	JK441	JK489	88 mm
NQ1008	IQ Columbus® Set Trial Gliding Surfaces UC	JK441	JK489	88 mm
NQ1009	IQ Columbus® Set Instruments for Tibia-Hemispacer	JK440	JK489	68 mm
NQ1010	IQ Columbus® Set Preparation Instruments PS	JK441	JK489	88 mm
NQ1024	IQ Columbus® Set Trial Femur Components Narrow	JK444	JK489	118 mm
NQ1025	IQ Columbus® Set Preparation Instruments UCR	JK441	JK489	88 mm
NQ1027	IQ Columbus® Set Preparation Instruments UCR T0/T0+	JK340	JK389	68 mm
NQ1026	IQ Columbus® Set StemPreparation	JK444	JK489	118 mm
NS709	IQ Set Patella Preparation	JK444	JK489	118 mm
NS720	IQ Set Navigation Instruments	JK444	JK489	118 mm

X-ray templates

Item No.	Description
NQ192	Columbus® X-ray templates set 1.1:1
NQ193	Columbus® X-ray templates set 1.15:1

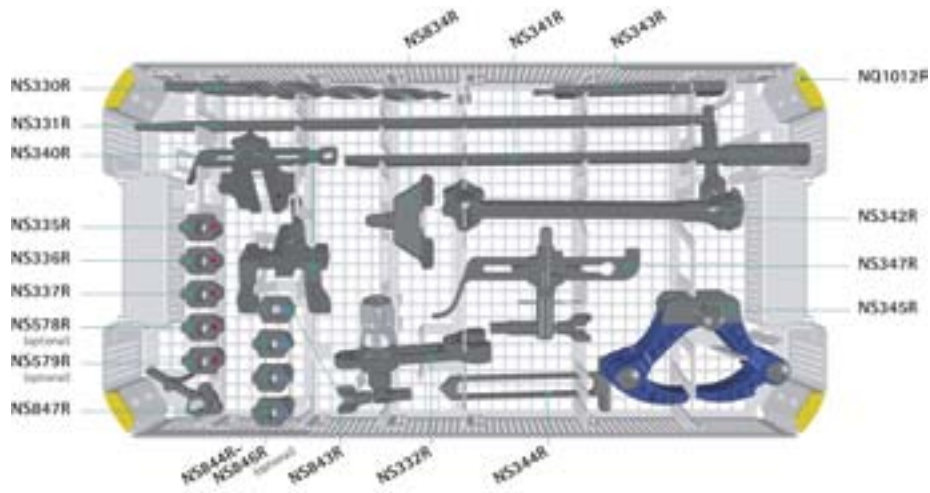
NQ1001



IQ Columbus® Set General Instruments

Qty.	Item No.	Description	Qty.	Item No.	Description
1	NP684R	Slap Hammer	1	NS334R	IQ Tibia/Distal Femur Cutting Guide
1	NP471R	Alignment Rod Long	1	NS378R	Stem Tightening Key
1	NS366R	IQ Osteotome Fine curved 20/205 mm	4	NP582R	Threaded Pin Headless 3.2 mm x 38 mm
1	NE198R	Revision Navigated T-Handle	6	NP583R	Threaded Pin Headless 3.2 mm x 63 mm
1	NS852R	IQ Spacer for Tibia Cut 10+12 mm	4	NP585R	Threaded Pin Headed 3.2 mm x 30 mm
1	NS853R	IQ Spacer for Tibia Cut 14+16 mm	4	NP586R	Threaded Pin Headed 3.2 mm x 50 mm
1	NS854R	IQ Spacer for Tibia Cut 18+20 mm	1	NP613R	Threaded Pin Driver Attachment
1	NS339R	ML Femoral Size Gauge	1	NQ377R	Tibia Protection Plate Asym.
1	GB414R	Hexagonal Chuck (Targon®) with Triang. Shank	1	NS850R	IQ Cutting Check Plate
1	GB413R	Acculan LI Hexagonal Chuck (Targon®)	1	NQ1011R	Tray General Instruments

NQ1002

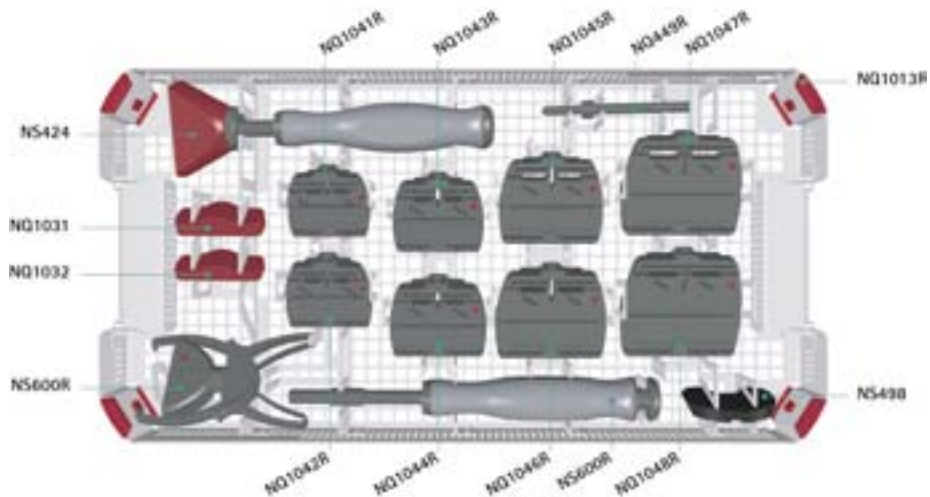


IQ Columbus® Set Manual Instruments

Qty.	Item No.	Description
1	NS330R	IQ Stepped Drill for Intramedullary Alignment Rod
1	NS331R	IQ Intramedullary Alignment Rod D 8.0 mm
1	NS340R	Manual Femoral Alignment Block
1 ea.	NS335R – NS337R	IQ Femur Orientation Sleeve AP 5°, 6°, 7°
1 ea.	NS578R – NS579R	IQ Femur Orientation Sleeve 8°, 9°
1	NS847R	IQ Tibia Stylus for Orientation Sleeves
1	NS843R	IQ IM Tibia Orientation Sleeve 0°
1	NS844R – NS846R	IQ IM Tibia Orientation Sleeve 3°, 5°, 7°

Qty.	Item No.	Description
1	NS343R	IQ Tibia Alignment System Proximal Fixation
1	NS341R	IQ Holding Rod for Tibia Cutting Guide
1	NS834R	IQ Distal Femur Contact Plate Large
1	NS342R	IQ Tibia Alignment System Handle
1	NS347R	IQ Tibia Stylus
1	NS332R	IQ Intramedullary Alignment System
1	NS345R	IQ Tibia Alignment System Bimalleolar Clamp
1	NS344R	IQ Tibia Alignment System Support for Bimalleolar Clamp
1	NQ1012R	Tray Manual Instruments

NQ1003

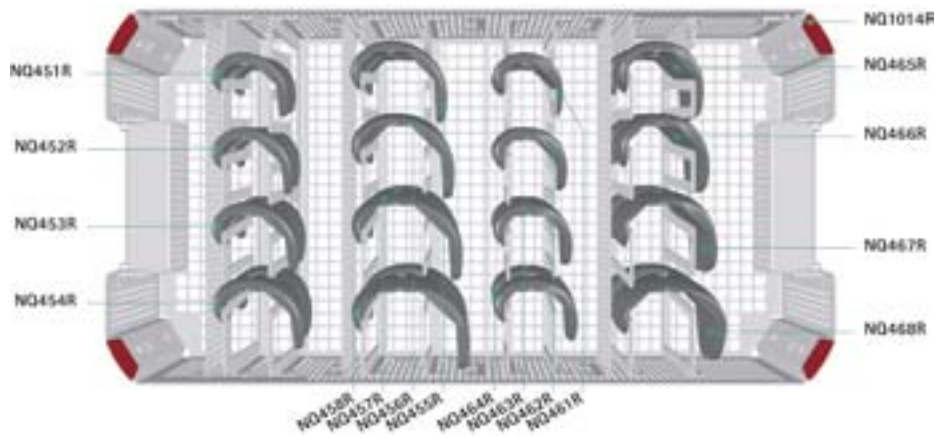


IQ Columbus® Set Femur Preparation

Qty.	Item No.	Description
1	NS424	IQ Femoral Component Impactor
1	NQ449R	Columbus® Drill with Stop D 6.0 mm
1	NQ1031 – NQ1032	IQ Columbus® Insert Femur for NS600R Small/Large

Qty.	Item No.	Description
1 ea.	NQ1041R – NQ1048R	IQ Columbus® 4-in-1 Femur Cutting Guide F1 – F8
1	NS600R	IQ Implant Holding/Insertion Instrument
1	NS498	Spacer for Added Femur Cuts
1	NQ1013R	Tray Femur Preparation

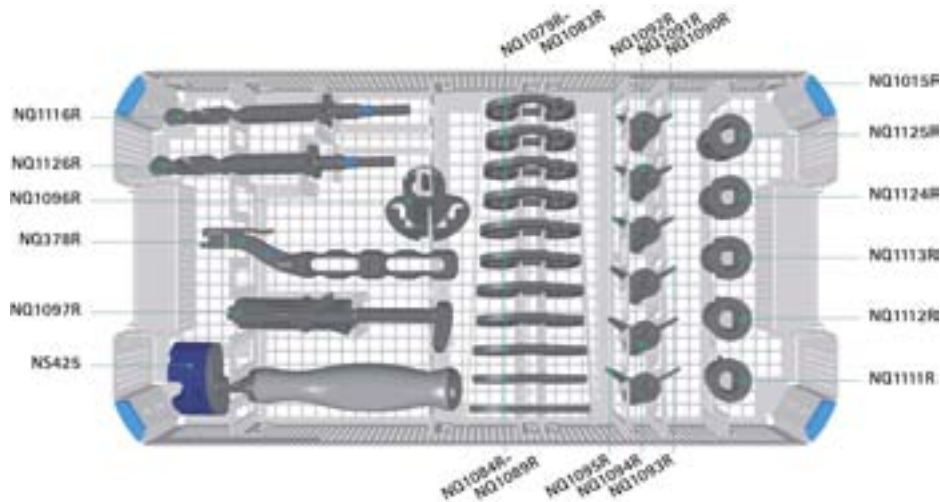
NQ1004



IQ Columbus® Set Trial Femur Components Standard

Qty.	Item No.	Description
1	NQ461R – NQ468R	Columbus® Trial Femoral Component F1R – F8R
1	NQ451R – NQ458R	Columbus® Trial Femoral Component F1L – F8L
1	NQ1014R	Tray Trial Femur Components Standard

NQ1005

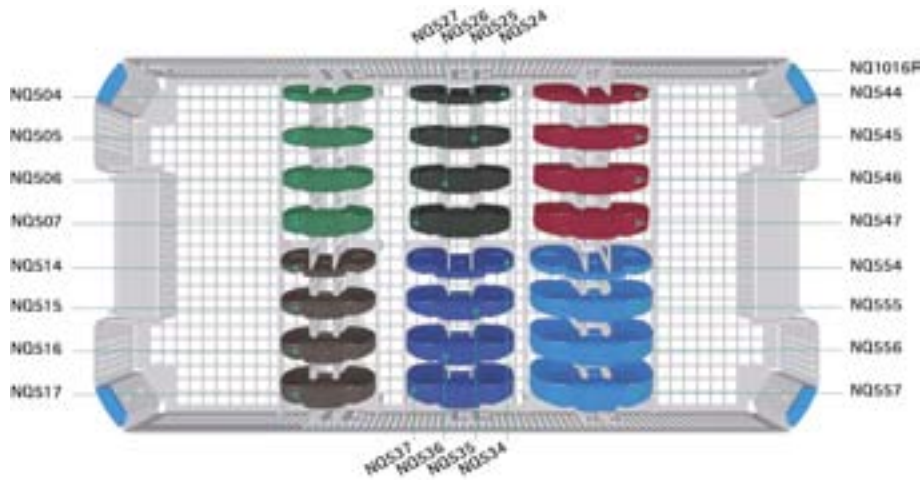


IQ Columbus® Set Tibia Preparation

Qty.	Item No.	Description
1	NQ1116R	Drill with Stop D 12 mm
1	NQ1126R	Drill with Stop D 14 mm
1	NQ1096R	IQ Columbus® Guide for Winglet Rasp/Trial Keel
1	NQ378R	Columbus® Tibial Trial/Preparation Plateau Holder
1	NQ1097R	IQ Columbus® Winglet Impactor/Extractor
1	NS425	IQ Tibial Plateau Impactor

Qty.	Item No.	Description
1 ea.	NQ1079R – NQ1089R	IQ Columbus® Tibia Trial/Preparation Plateau T0 – T5
1 ea.	NQ1090R – NQ1095R	IQ Columbus® Winglet Rasp/Trial Keel T0/0+ – T5
1 ea.	NQ1111R – NQ1125R	IQ Columbus® Tibia Drill Sleeve D 12 mm T0/1+ – T5
1	NQ1015R	Tray Tibia Preparation

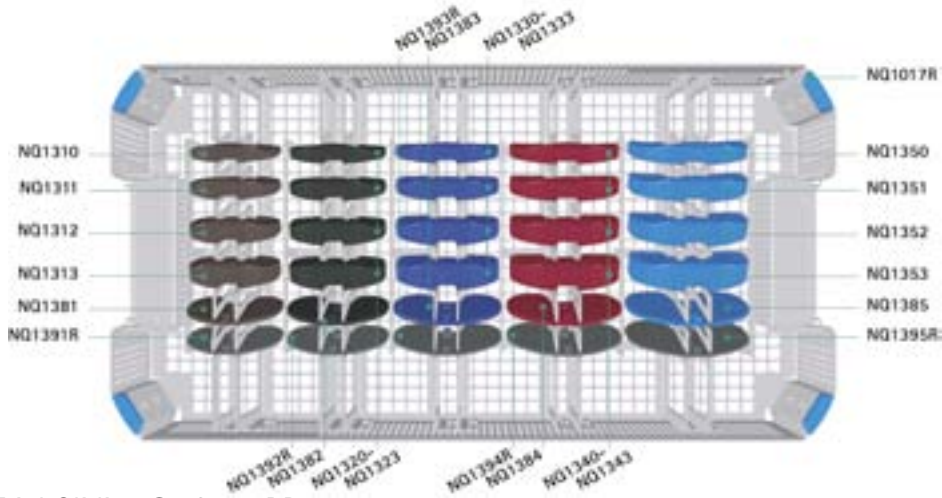
NQ1006



IQ Columbus® Set Trial Gliding Surfaces CR DD

Qty.	Item No.	Description	Qty.	Item No.	Description
1 ea.	NQ504, NQ514, NQ524, NQ534, NQ544, NQ554	Columbus® CR/PS Trial Spacer 6 mm T0/0+ – T5	1 ea.	NQ525 – NQ527	Columbus® CR/PS Trial Gliding Surfaces T2/2+ 10 mm, 12 mm, 14 mm
1 ea.	NQ505 – NQ507	Columbus® CR/PS Trial Gliding Surfaces T0/0+ 10 mm, 12 mm, 14 mm	1 ea.	NQ535 – NQ537	Columbus® CR/PS Trial Gliding Surfaces T3/3+ 10 mm, 12 mm, 14 mm
1 ea.	NQ515 – NQ517	Columbus® CR/PS Trial Gliding Surfaces T1/1+ 10 mm, 12 mm, 14 mm	1 ea.	NQ545 – NQ547	Columbus® CR/PS Trial Gliding Surfaces T4/4+ 10 mm, 12 mm, 14 mm
			1 ea.	NQ555 – NQ557	Columbus® CR/PS Trial Gliding Surfaces T5 10 mm, 12 mm, 14 mm
			1	NQ1016R	Tray Trial Gliding Surfaces CR DD

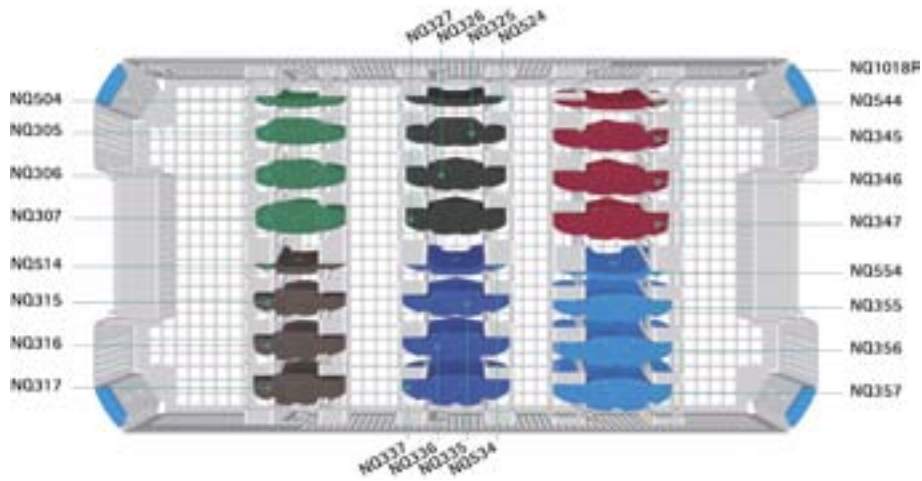
NQ1007



IQ Columbus® Set Trial Gliding Surfaces RP

Qty.	Item No.	Description	Qty.	Item No.	Description
1 ea.	NQ1310 – NQ1313	Columbus® Trial Gliding Surface T1/T1+ 10 mm, 12 mm, 14 mm, 16 mm	1 ea.	NQ1350 – NQ1353	Columbus® Trial Gliding Surface T5 10 mm, 12 mm, 14 mm, 16 mm
1 ea.	NQ1320 – NQ1323	Columbus® Trial Gliding Surface T2/T2+ 10 mm, 12 mm, 14 mm, 16 mm	1 ea.	NQ1381 – NQ1385	Columbus® RP Insert Tibia/Surf.Gl. T1/1+ – T5
1 ea.	NQ1330 – NQ1333	Columbus® Trial Gliding Surface T3/T3+ 10 mm, 12 mm, 14 mm, 16 mm	1 ea.	NQ1391R – NQ1395R	Insert Tibia Gliding Surface RP T1/T1+ – T5
1 ea.	NQ1340 – NQ1343	Columbus® Trial Gliding Surface T4/T4+ 10 mm, 12 mm, 14 mm, 16 mm	1	NQ1017R	Tray Trial Gliding Surfaces RP

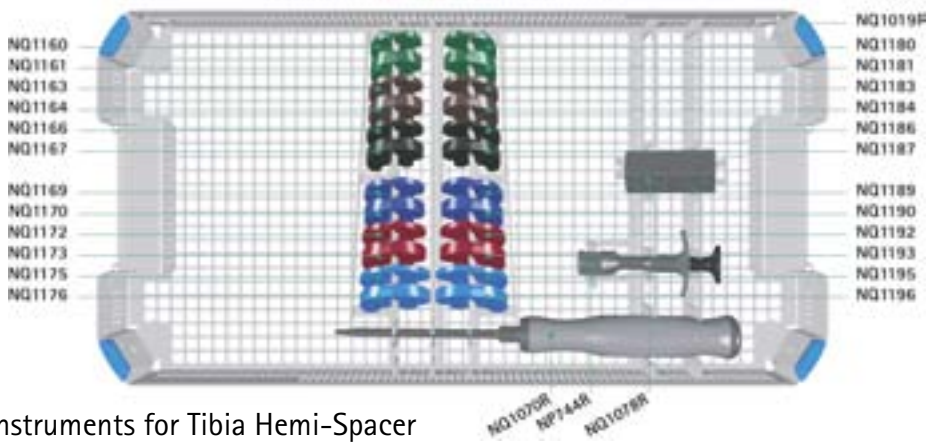
NQ1008



IQ Columbus® Set Trial Gliding Surfaces UC

Qty.	Item No.	Description	Qty.	Item No.	Description
1 ea.	NQ504, NQ514, NQ524, NQ534, NQ544, NQ554	Columbus® CR/PS Trial Spacer 6 mm T0/0+ – T5	1 ea.	NQ325 – NQ327	Columbus® UC Trial Gliding Surfaces T2/2+ 10 mm, 12 mm, 14 mm
1 ea.	NQ305 – NQ307	Columbus® UC Trial Gliding Surfaces T0/0+ 10 mm, 12 mm, 14 mm	1 ea.	NQ335 – NQ337	Columbus® UC Trial Gliding Surfaces T3/3+ 10 mm, 12 mm, 14 mm
1 ea.	NQ315 – NQ317	Columbus® UC Trial Gliding Surfaces T1/1+ 10 mm, 12 mm, 14 mm	1 ea.	NQ345 – NQ347	Columbus® UC Trial Gliding Surfaces T4/4+ 10 mm, 12 mm, 14 mm
			1 ea.	NQ355 – NQ357	Columbus® UC Trial Gliding Surfaces T5 10 mm, 12 mm, 14 mm
			1	NQ1018R	Tray Trial Gliding Surfaces UC

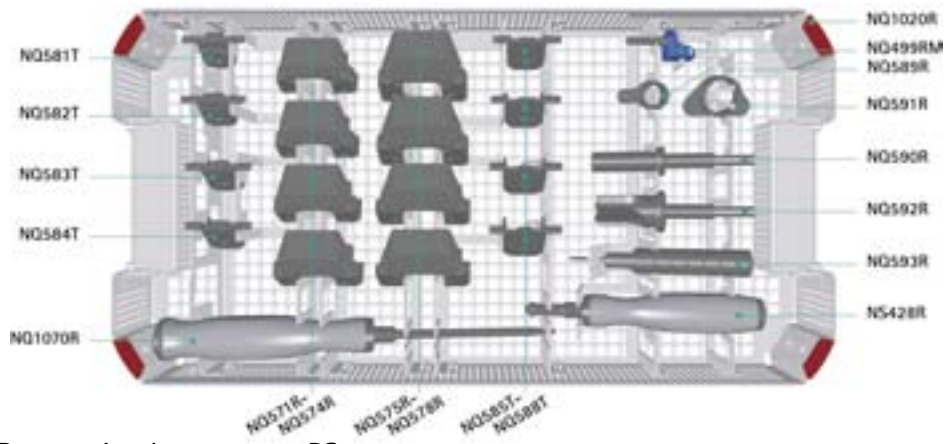
NQ1009



IQ Columbus® Set Instruments for Tibia Hemi-Spacer

Qty.	Item No.	Description	Qty.	Item No.	Description
1 ea.	NQ1160 – NQ1161	Columbus® Trial Hemi-Spacer T0/0+ RM/LL 4 mm, 8 mm	1 ea.	NQ1186 – NQ1187	Columbus® Trial Hemi-Spacer T2/2+ RL/LM 4 mm, 8 mm
1 ea.	NQ1163 – NQ1164	Columbus® Trial Hemi-Spacer T1/1+ RM/LL 4 mm, 8 mm	1 ea.	NQ1189 – NQ1190	Columbus® Trial Hemi-Spacer T3/3+ RL/LM 4 mm, 8 mm
1 ea.	NQ1166 – NQ1167	Columbus® Trial Hemi-Spacer T2/2+ RM/LL 4 mm, 8 mm	1 ea.	NQ1192 – NQ1193	Columbus® Trial Hemi-Spacer T4/4+ RL/LM 4 mm, 8 mm
1 ea.	NQ1169 – NQ1170	Columbus® Trial Hemi-Spacer T3/3+ RM/LL 4 mm, 8 mm	1 ea.	NQ1195 – NQ1196	Columbus® Trial Hemi-Spacer T5 RL/LM 4 mm, 8 mm
1 ea.	NQ1172 – NQ1173	Columbus® Trial Hemi-Spacer T4/4+ RM/LL 4 mm, 8 mm	1	NQ1078R	IQ Columbus® Tibia Pin Drill Guide 18.5 mm
1 ea.	NQ1175 – NQ1176	Columbus® Trial Hemi-Spacer T5 RM/LL 4 mm, 8 mm	1	NP744R	Search evolution® Revision Tibia Plateau Plug Remover
1 ea.	NQ1180 – NQ1181	Columbus® Trial Hemi-Spacer T0/0+ RL/LM 4 mm, 8 mm	1	NQ1070R	PS Screw Driver
1 ea.	NQ1183 – NQ1184	Columbus® Trial Hemi-Spacer T1/1+ RL/LM 4 mm, 8 mm	1	NQ1019R	Tray Instruments for Tibia Hemi-Spacer

NQ1010

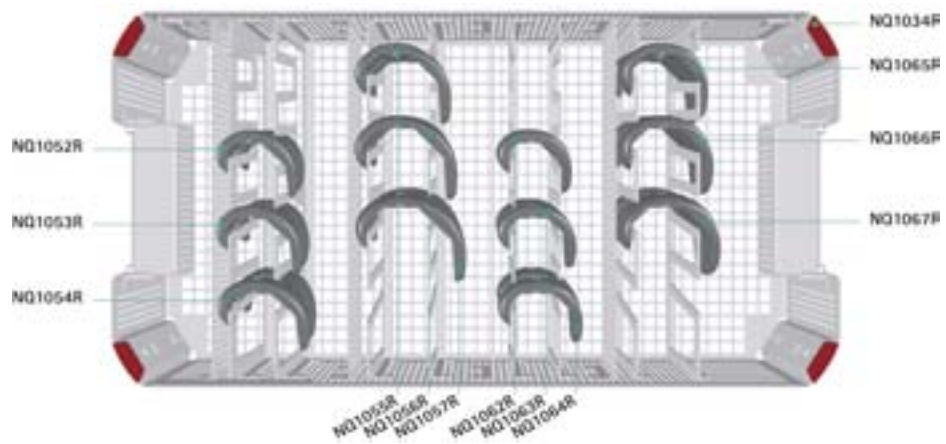


IQ Columbus® Set Preparation Instruments PS

Qty.	Item No.	Description
1 ea.	NQ581T – NQ588T	Trial Femur Box F1 – F8
1 ea.	NQ571R – NQ578R	PS Femoral Box Preparation Guide F1 – F8
1	NQ499RM	PS Tibial Trial Peg
1	NQ589R	Target device D 14 mm for femoral box preparation
1	NQ591R	Target device D 22.5 mm for femoral box preparation

Qty.	Item No.	Description
1	NQ590R	Reamer with stop D 14 mm
1	NQ592R	Reamer with stop D 22.5 mm
1	NQ593R	Blade chisel
1	NS428R	Femur Gauge Holder/Extractor
1	NQ1070R	PS Screw Driver
1	NQ1020R	Tray Preparation Instruments PS

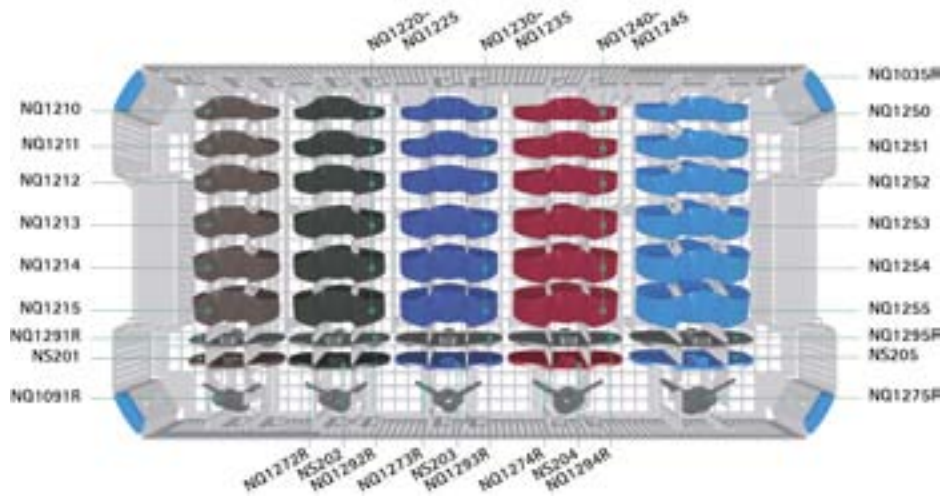
NQ1024



IQ Columbus® Set Trial Femur Components Narrow

Qty.	Item No.	Description
1 ea.	NQ1052R – NQ1057R	IQ Columbus® Narrow Trial Femur Component R F2N – F7N
1 ea.	NQ1062R – NQ1067R	IQ Columbus® Narrow Trial Femur Component L F2N – F7N
1	NQ1034R	Tray Trial Femur Components Narrow

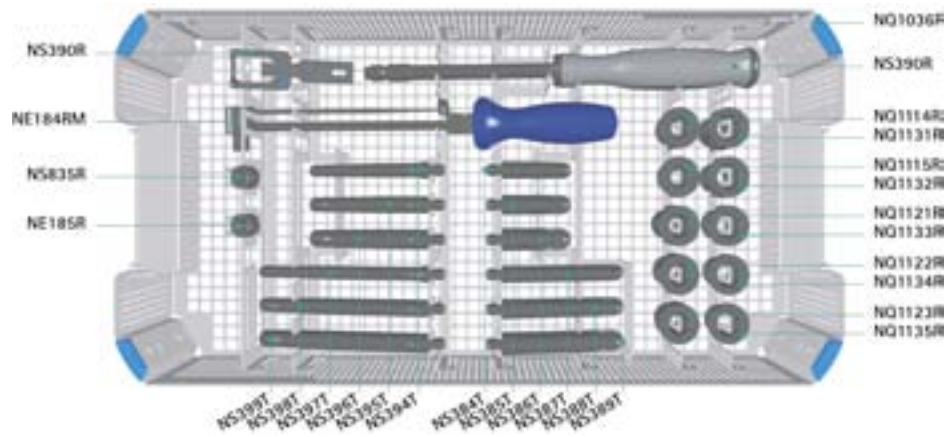
NQ1025



IQ Columbus® Set Preparation Instruments UCR

Qty.	Item No.	Description	Qty.	Item No.	Description
1 ea.	NQ1210 – NQ1215	Columbus® UCR Trial Gliding Surface T1 10 mm, 12 mm, 14 mm, 16 mm, 18 mm, 20 mm	1 ea.	NQ1250 – NQ1255	Columbus® UCR Trial Gliding Surface T5 10 mm, 12 mm, 14 mm, 16 mm, 18 mm, 20 mm
1 ea.	NQ1220 – NQ1225	Columbus® UCR Trial Gliding Surface T2 10 mm, 12 mm, 14 mm, 16 mm, 18 mm, 20 mm	1 ea.	NQ1291R – NQ1295R	Columbus® UCR Insert Trial Gliding Surface T1/T1+ – T5
1 ea.	NQ1230 – NQ1235	Columbus® UCR Trial Gliding Surface T3 10 mm, 12 mm, 14 mm, 16 mm, 18 mm, 20 mm	1 ea.	NS201 – NS205	Columbus® UCR Insert Tibia/Gliding Surface T1/1+ – T5/5+
1 ea.	NQ1240 – NQ1245	Columbus® UCR Trial Gliding Surface T4 10 mm, 12 mm, 14 mm, 16 mm, 18 mm, 20 mm	1	NQ1091R	IQ Columbus® Winglet Rasp/Trial Keel T1/T1+
			1 ea.	NQ1272R – NQ1275R	Columbus® UCR Tibial Broach T2/T2+ – T5
			1	NQ1035R	Tray Preparation Instruments UCR

NQ1026

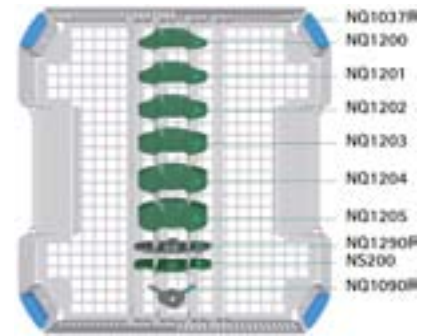


IQ Columbus® Set Stem Preparation

Qty.	Item No.	Description	Qty.	Item No.	Description
1	NS390R	IQ Counter Torque for Stem Fixation	1 ea.	NS397T – NS399T	IQ Trial Stem Long Cementless D 10 mm, 12 mm, 14 mm
1	NE184RM	Torque Wrench 20/27 nm	1 ea.	NS387T – NS389T	IQ Trial Stem Long Cemented D 12 mm, 14 mm, 16 mm
1	NE185R	e.motion® Adapter for Extention Stems for NE184R	1 ea.	NQ1114R – NQ1115R	IQ Columbus® Tibia Drill Sleeve D 12 mm T4/4+ – T5
1	NS835R	IQ Adapter SW 5.0 for Extention Stems for NE184RM	1 ea.	NQ1121R – NQ1123R	IQ Columbus® Tibia Drill Sleeve D 14 mm T0-1+, T2/2+, T3/3+
1 ea.	NS394T – NS396T	IQ Trial Stem Short Cementless D 10 mm, 12 mm, 14 mm	1 ea.	NQ1131R – NQ1135R	IQ Columbus® Tibia Drill Sleeve D 16 mm T0-1+, T2/2+, T3/3+, T4/4+, T5
1 ea.	NS384T – NS386T	IQ Trial Stem Short Cemented D 12 mm, 14 mm, 16 mm	1	NQ1036R	Tray Stem Preparation



NQ1027



IQ Columbus® Set Preparation Instruments UCR TO/TO+

Qty.	Item No.	Description
1	NS376R, NS377R, NS380R	VEGA® PS Drill for Extension Stem D 12 mm, 14 mm, 16 mm
1	NQ1151R – NQ1153R	Reamer for Trial Stem Cementless Short D 10 mm, 12 mm, 14 mm
1	NQ1154R – NQ1156R	Reamer for Trial Stem Cementless Long D 10 mm, 12 mm, 14 mm
1	NQ1036820	Insert for Tray Stem Preparation

Qty.	Item No.	Description
1	NQ1200 – NQ1205	Columbus® UCR Trial Gliding Surface TO 10 mm, 12 mm, 14 mm, 16 mm, 18 mm, 20 mm
1	NQ1290R	Columbus® UCR Insert Trial Gliding Surface TO/TO+
1	NS200	Columbus® UCR Insert Tibia/Gliding Surface TO/O+
1	NQ1090R	IQ Columbus® Winglet Rasp/Trial Keel TO/TO+
1	NQ1037R	Tray Preparation Instruments UCR TO/TO+

NS709

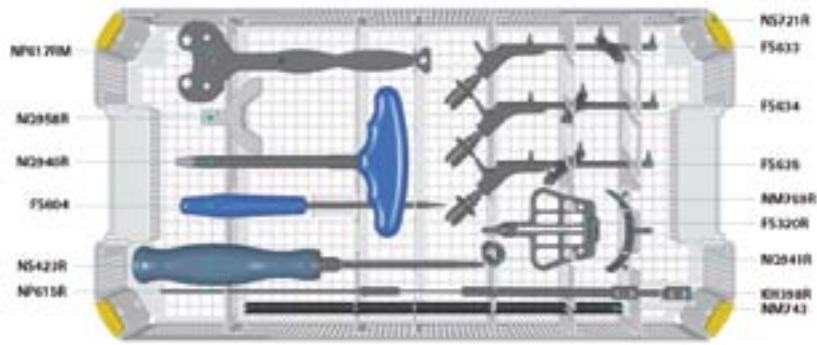


Patella Preparation

Qty.	Item No.	Description
1	NS719R	Tray patella preparation
1	NS840R	Patella resection clamp
1	NS841R	Patella drilling and impacting clamp
1	NS842	Insert for NS841R
1	AA847R	Caliper

Qty.	Item No.	Description
1	NQ281	Trial patella 3 pegs P1 Ø 27 x 7 mm
1	NQ282	Trial patella 3 pegs P2 Ø 30 x 8 mm
1	NQ283	Trial patella 3 pegs P3 Ø 33 x 9 mm
1	NQ284	Trial patella 3 pegs P4 Ø 36 x 10 mm
1	NQ285	Trial patella 3 pegs P5 Ø 39 x 11 mm
1	NQ449R	Drill with stop Ø 6 x 28 mm

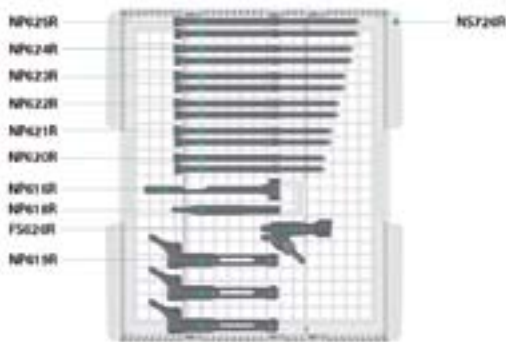
NS720



Navigation Instruments

Qty.	Item No.	Description
1	NS721R	Tray navigation instruments
1	NP617RM	Tibial cut control plate
1	FS604	Straight pointer
1	FS633	Passive transmitter yellow
1	FS634	Passive transmitter blue
1	FS635	Passive transmitter red
1	NM769R	Footplate
2	NM743	2x elastic holding strap

Qty.	Item No.	Description
1	NP615R	Drill, Ø 3.2 mm
1	KH398R	Screw length measuring device
1	NQ941R	Soft-tissue protector for transmitter screw
1	NQ940R	Soft-tissue protector handle for transmitter screw
1	NS320R	Navigated femur alignment block
1	NQ958R	Y-footplate for alignment block
1	NS423R	Screw driver SW 3.5



Qty.	Item No.	Description
1	NS726R	Tray insert navigation instruments
3	NP619R	3x screw sleeve with adapter
1	NP618R	Screw driver with hex connection, Ø 3.5 mm
1	NP616R	Insertion aid, Ø 3.2 mm
2	NP620R	2x bicortical screws, 30 mm
2	NP621R	2x bicortical screws, 35 mm
2	NP622R	2x bicortical screws, 40 mm
2	NP623R	2x bicortical screws, 45 mm
2	NP624R	2x bicortical screws, 50 mm
2	NP625R	2x bicortical screws, 55 mm
1	FS626R	Modular rigid body adapter

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Optional Instruments



NP609R Distractor Clamp



NS844R IQ Tibia IM Orientation Sleeve 3°



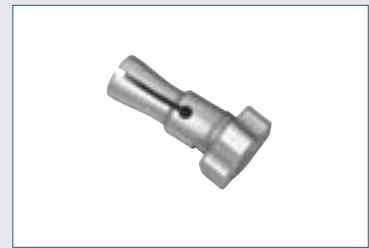
NS846R IQ Tibia IM Orientation Sleeve 7°



NM640 Force controlled spreader set



NS845R IQ Tibia IM Orientation Sleeve 5°



NS578R IQ Femur IM Orientation Sleeve 8°



NE150R Leg positioner for TKA
NE153R Fixation frame



NS579R IQ Femur IM Orientation Sleeve 9°



NS333R IQ Distal Femur Contact Plate



Pin set (NP742R, NP743R,
NP748R, NP749R, NP750R)



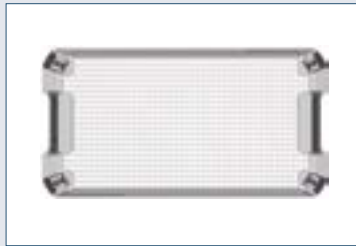
NS199R Columbus® UCR Tibia Plateau Holder/Impactor



NP604R Femur-Tibia Distractor



NQ488R Alignment control plate



NQ1429R Tray Optional Instruments Large



NE331R Alignment Rod with Sleeve



NS374R Tibial Plateau Holder/Impactor



NE1029R Tray Optional Instruments Small



NS407R Medialised cutting guide right



NS406R Medialised cutting guide left



NS338R Posterior femur plate neutral




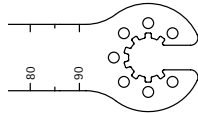
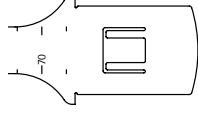
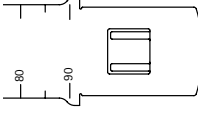
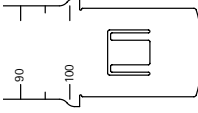
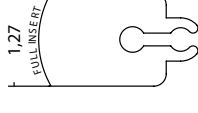
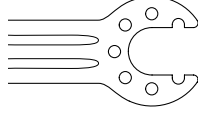
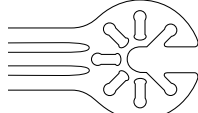
NS848R Posterior femur plate 3° left



NS849R Posterior femur plate 3° right

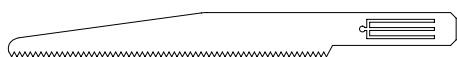
Aesculap® Columbus®

Sawblades

System	Item No.	Width	Thickness	Sawblades 
Aesculap® Comfort macro-Line Acculan Length 90 mm	GE266SU	13 mm	1.27 mm	
	GE271SU	19 mm	1.27 mm	
	GE276SU	23 mm	1.27 mm	
Aesculap® Acculan 3 Ti Length 75 mm	GE231SU	9 mm	1.27 mm	
Aesculap® Acculan 3 Ti Length 90 mm	GE236SU	13 mm	1.27 mm	
	GE241SU	19 mm	1.27 mm	
	GE246SU	23 mm	1.27 mm	
Aesculap® Acculan 3 Ti Length 100 mm	GE249SU	19 mm	1.27 mm	
Stryker System 2000 System 4 System 5 System 6 System 7 Length 90 mm	GE330SU	13 mm	1.27 mm	
	GE331SU	19 mm	1.27 mm	
	GE332SU	25 mm	1.27 mm	
Synthes Battery Power Line Length 90 mm	GE323SU	13 mm	1.27 mm	
Zimmer Universal Length 90 mm	GE326SU	25 mm	1.27 mm	
Conmed Linvatec/Hall Power Pro Mpower Mpower 2 Length 90 mm	GE327SU	13 mm	1.27 mm	
	GE329SU	25 mm	1.27 mm	

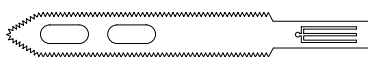
You will find the sawblades with Aesculap coupling in our Burrs & Blades catalog O17599.

Reciprocating Sawblade 75/10/1.0/1.2 mm



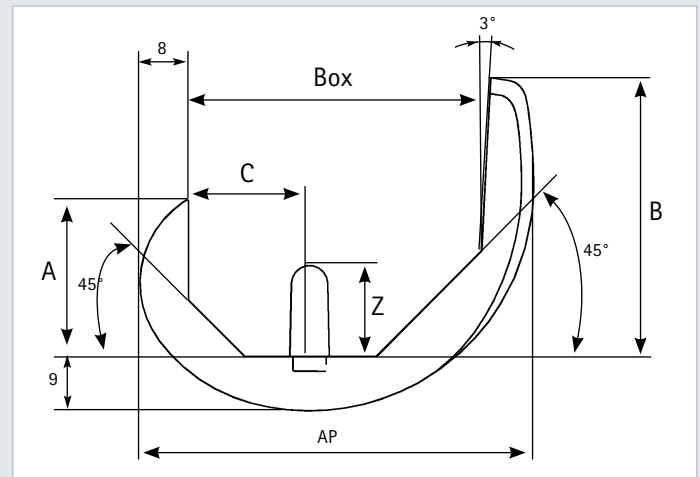
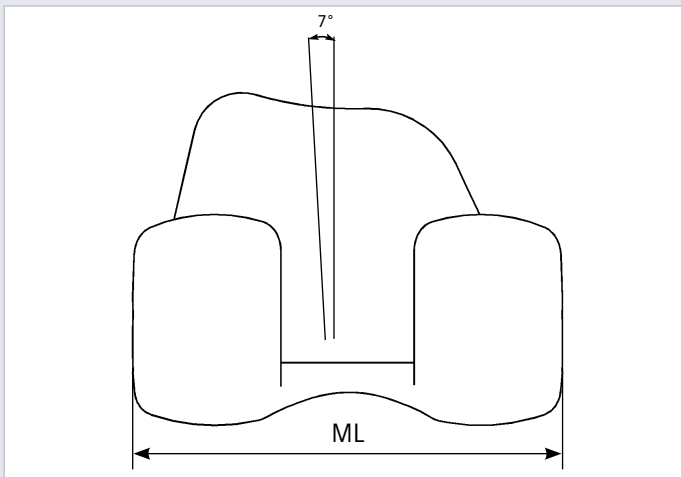
GC769R

Reciprocating Sawblade 75/12/1.0/1.2 mm



GC771R

Dimensions

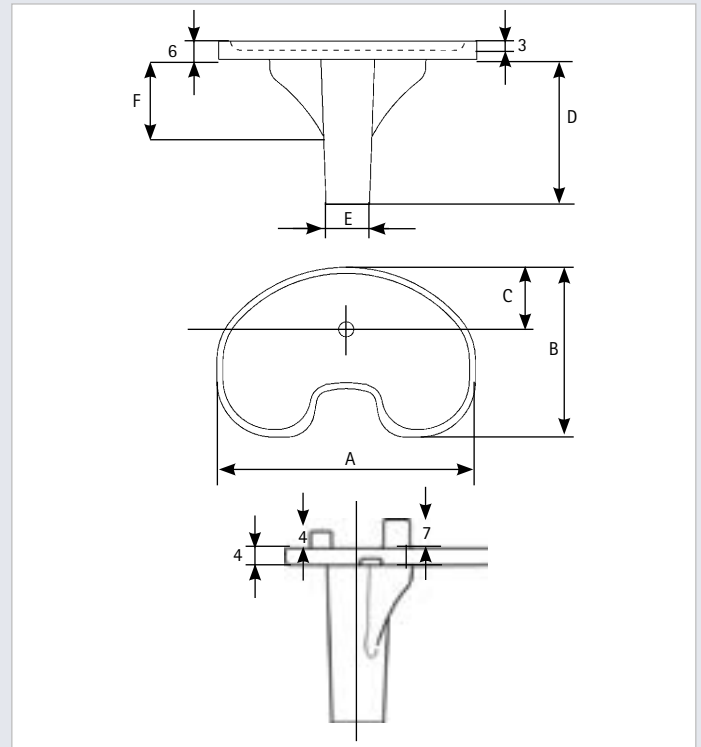
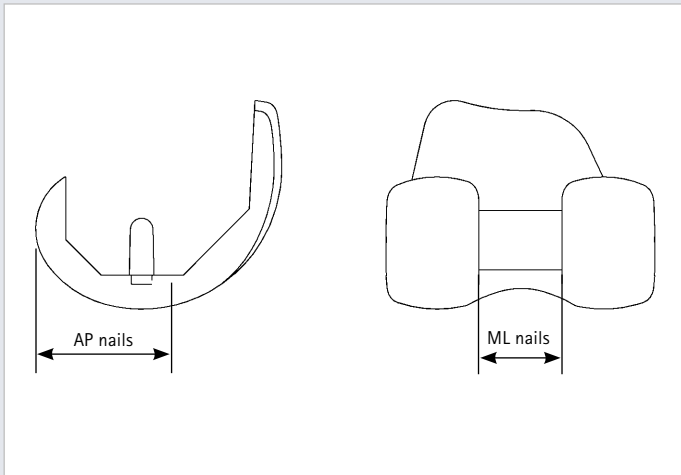


Dimensions in mm

Size	ML	AP	Box	A	B	C	Peg Z
F1	56	50	34	18.5	34	14	12
F2N	56	53	37	20	36	14.5	13.5
F2	59	53	37	20	36.5	14.5	13.5
F3N	59	56.5	40	21.5	39	16	15
F3	62.5	56.5	40	21.5	39.5	16	15
F4N	62.5	60.5	43.5	23	42	17.5	15
F4	66.5	60.5	43.5	23	42.5	17.5	15
F5N	66.5	65	47.5	26	45.5	20	15
F5	71	65	47.5	26	46	20	15
F6N	71	70	52	28	49	21.5	15
F6	76	70	52	28	49.5	21.5	15
F7	82	75.5	57	30	53.5	23	15
F8	82	80.5	62	32	58	26	15

Aesculap® Columbus®

Dimensions



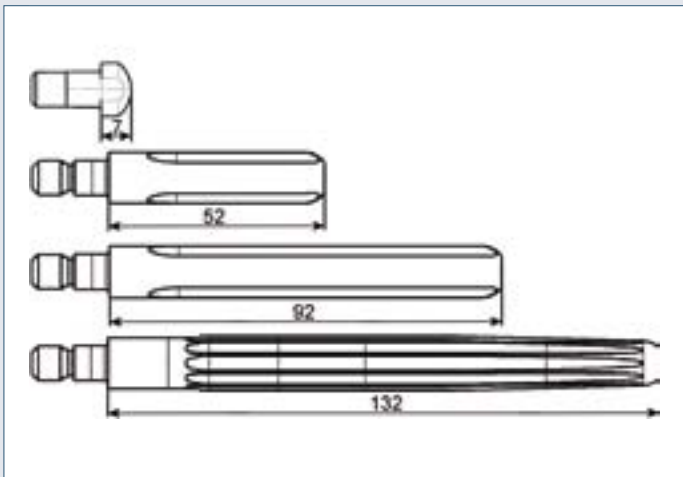
Overview – Table of Columbus® femoral implants for combined use with intramedullary nails

	AP nails CR	AP nails PS	ML nails
F1	22.5	31	18
F2/F2N	24	32.5	19
F3/F3N	26	34	20.5
F4/F4N	28	36	21
F5/F5N	30	38	22
F6/F6N	32.5	40.5	23
F7	35	42.5	25
F8	39	47	25

Dimensions in mm

	T0/T0+	T1/T1+	T2/T2+	T3/T3+	T4/T4+	T5
A	62	65	70	75	80	85
B	41/44	43/46	45/49	48/52	51/55	56
C	14/14.5	15/16	16/17.5	17.5/19	19/20.5	20.5
D	28	28	33	38	43	48
E	12.3	12.3	12.3	12.3	14.3	14.3

Overview of extension stem lengths



The overall length of the tibia plateau with the respective extension stem is given by the tibia keel length and the obturator 7 mm or the stem length 52 mm, 92 mm or 132 mm.

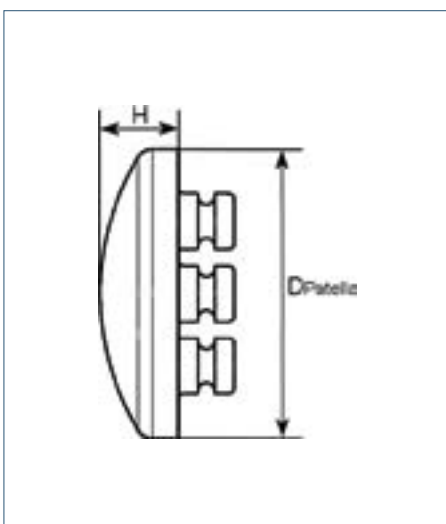
Obturator screws are available in diameters 12 and 14 mm.

All extension stems are available in diameters 10, 12 and 14 mm.

Dimensions in mm

	T0/T0+	T1/T1+	T2/T2+	T3/T3+	T4/T4+	T5
D	28	28	33	38	43	48
D + Stem 52 mm	80	80	85	90	95	100
D + Stem 92 mm	120	120	125	130	135	140
D + Stem 132 mm	160	160	165	170	175	180

Overview of patella sizes



Dimensions in mm

	Patella x H
Patella P1	Ø 26 x 7
Patella P2	Ø 29 x 8
Patella P3	Ø 32 x 9
Patella P4	Ø 35 x 10
Patella P5	Ø 38 x 11

Aesculap® Columbus®

Order Information



AS version

Femoral Component CR/RP Cruciate Retaining/cemented		
Standard	AS	
NN001K	NN001Z	Columbus® CR/RP Femur F1L
NN800K	NN800Z	Columbus® CR/RP Femur F2N L
NN002K	NN002Z	Columbus® CR/RP Femur F2L
NN801K	NN801Z	Columbus® CR/RP Femur F3N L
NN003K	NN003Z	Columbus® CR/RP Femur F3L
NN899K	NN899Z	Columbus® CR/RP Femur F4N L
NN004K	NN004Z	Columbus® CR/RP Femur F4L
NN900K	NN900Z	Columbus® CR/RP Femur F5N L
NN005K	NN005Z	Columbus® CR/RP Femur F5L
NN901K	NN901Z	Columbus® CR/RP Femur F6N L
NN006K	NN006Z	Columbus® CR/RP Femur F6L
NN007K	NN007Z	Columbus® CR/RP Femur F7L
NN008K	NN008Z	Columbus® CR/RP Femur F8L
NN011K	NN011Z	Columbus® CR/RP Femur F1R
NN810K	NN810Z	Columbus® CR/RP Femur F2N R
NN012K	NN012Z	Columbus® CR/RP Femur F2R
NN811K	NN811Z	Columbus® CR/RP Femur F3N R
NN013K	NN013Z	Columbus® CR/RP Femur F3R



Standard	AS	
NN909K	NN909Z	Columbus® CR/RP Femur F4N R
NN014K	NN014Z	Columbus® CR/RP Femur F4R
NN910K	NN910Z	Columbus® CR/RP Femur F5N R
NN015K	NN015Z	Columbus® CR/RP Femur F5R
NN911K	NN911Z	Columbus® CR/RP Femur F6N R
NN016K	NN016Z	Columbus® CR/RP Femur F6R
NN017K	NN017Z	Columbus® CR/RP Femur F7R
NN018K	NN018Z	Columbus® CR/RP Femur F8R

Femoral Component CR/RP Cruciate Retaining/cementless		
Standard	AS	
NN021K		Columbus® CR/RP Femur F1L
NN820K		Columbus® CR/RP Femur F2N L
NN022K		Columbus® CR/RP Femur F2L
NN821K		Columbus® CR/RP Femur F3N L
NN023K		Columbus® CR/RP Femur F3L
NN919K		Columbus® CR/RP Femur F4N L
NN024K		Columbus® CR/RP Femur F4L
NN920K		Columbus® CR/RP Femur F5N L
NN025K		Columbus® CR/RP Femur F5L
NN921K		Columbus® CR/RP Femur F6N L
NN026K		Columbus® CR/RP Femur F6L
NN027K		Columbus® CR/RP Femur F7L
NN028K		Columbus® CR/RP Femur F8L
NN031K		Columbus® CR/RP Femur F1R
NN830K		Columbus® CR/RP Femur F2N R
NN032K		Columbus® CR/RP Femur F2R
NN831K		Columbus® CR/RP Femur F3N R
NN033K		Columbus® CR/RP Femur F3R



Standard	AS	
NN929K		Columbus® CR/RP Femur F4N R
NN034K		Columbus® CR/RP Femur F4R
NN930K		Columbus® CR/RP Femur F5N R
NN035K		Columbus® CR/RP Femur F5R
NN931K		Columbus® CR/RP Femur F6N R
NN036K		Columbus® CR/RP Femur F6R
NN037K		Columbus® CR/RP Femur F7R
NN038K		Columbus® CR/RP Femur F8R

Femoral Component PS Posterior Stabilised cemented		
Standard	AS	
NN161K	NN161Z	Columbus® PS Femur F1L
NN840K		Columbus® PS Femur F2N L
NN162K	NN162Z	Columbus® PS Femur F2L
NN841K		Columbus® PS Femur F3N L
NN163K	NN163Z	Columbus® PS Femur F3L
NN939K		Columbus® PS Femur F4N L
NN164K	NN164Z	Columbus® PS Femur F4L
NN940K		Columbus® PS Femur F5N L
NN165K	NN165Z	Columbus® PS Femur F5L
NN941K		Columbus® PS Femur F6N L
NN166K	NN166Z	Columbus® PS Femur F6L
NN167K	NN167Z	Columbus® PS Femur F7L
NN168K		Columbus® PS Femur F8L
NN171K	NN171Z	Columbus® PS Femur F1R
NN850K		Columbus® PS Femur F2N R
NN172K	NN172Z	Columbus® PS Femur F2R
NN851K		Columbus® PS Femur F3N R
NN173K	NN173Z	Columbus® PS Femur F3R



Standard	AS	
NN949K		Columbus® PS Femur F4N R
NN174K	NN174Z	Columbus® PS Femur F4R
NN950K		Columbus® PS Femur F5N R
NN175K	NN175Z	Columbus® PS Femur F5R
NN951K		Columbus® PS Femur F6N R
NN176K	NN176Z	Columbus® PS Femur F6R
NN177K	NN177Z	Columbus® PS Femur F7R
NN178K		Columbus® PS Femur F8R

AS PS Fixation screw for meniscal component		
Standard	AS	
	NN497Z	Height 10/12
	NN498Z	Height 14/16
	NN499Z	Height 18/20



Standard and Narrow (N) Sizes of the Columbus® Femur components

Measurements	ML F1	ML F2	ML F3	ML F4	ML F5	ML F6	ML F7
AP F1	F1						
AP F2	F2N	F2					
AP F3		F3N	F3				
AP F4			F4N	F4			
AP F5				F5N	F5		
AP F6					F6N	F6	
AP F7							F7
AP F8							F8

Aesculap® Columbus®

Order Information

Tibia plateau CR/PS Cruciate Retaining/ Posterior Stabilised modular, cemented

Standard AS

NN070K	NN070Z	Columbus® CR/PS Tibia Plateau T0
NN058K	NN058Z	Columbus® CR/PS Tibia Plateau T0+
NN071K	NN071Z	Columbus® CR/PS Tibia Plateau T1
NN072K	NN072Z	Columbus® CR/PS Tibia Plateau T1+
NN073K	NN073Z	Columbus® CR/PS Tibia Plateau T2
NN074K	NN074Z	Columbus® CR/PS Tibia Plateau T2+
NN075K	NN075Z	Columbus® CR/PS Tibia Plateau T3
NN076K	NN076Z	Columbus® CR/PS Tibia Plateau T3+
NN077K	NN077Z	Columbus® CR/PS Tibia Plateau T4
NN078K	NN078Z	Columbus® CR/PS Tibia Plateau T4+
NN079K	NN079Z	Columbus® CR/PS Tibia Plateau T5



Tibia plateau CR/PS Cruciate Retaining/ Posterior Stabilised modular, cementless

NN080K		Columbus® CR/PS Tibia Plateau T0
NN059K		Columbus® CR/PS Tibia Plateau T0+
NN081K		Columbus® CR/PS Tibia Plateau T1
NN082K		Columbus® CR/PS Tibia Plateau T1+
NN083K		Columbus® CR/PS Tibia Plateau T2
NN084K		Columbus® CR/PS Tibia Plateau T2+
NN085K		Columbus® CR/PS Tibia Plateau T3
NN086K		Columbus® CR/PS Tibia Plateau T3+
NN087K		Columbus® CR/PS Tibia Plateau T4
NN088K		Columbus® CR/PS Tibia Plateau T4+
NN089K		Columbus® CR/PS Tibia Plateau T5



Tibia plateau RP Rotating Platform Cruciate Retaining modular, cemented

NN271K	NN271Z	Columbus® RP Tibia Plateau T1
NN272K	NN272Z	Columbus® RP Tibia Plateau T1+
NN273K	NN273Z	Columbus® RP Tibia Plateau T2
NN274K	NN274Z	Columbus® RP Tibia Plateau T2+
NN275K	NN275Z	Columbus® RP Tibia Plateau T3
NN276K	NN276Z	Columbus® RP Tibia Plateau T3+
NN277K	NN277Z	Columbus® RP Tibia Plateau T4
NN278K	NN278Z	Columbus® RP Tibia Plateau T4+
NN279K	NN279Z	Columbus® RP Tibia Plateau T5



Tibia plateau RP Rotating Platform modular, cementless

Standard AS

NN281K		Columbus® RP Tibia Plateau T1
NN282K		Columbus® RP Tibia Plateau T1+
NN283K		Columbus® RP Tibia Plateau T2
NN284K		Columbus® RP Tibia Plateau T2+
NN285K		Columbus® RP Tibia Plateau T3
NN286K		Columbus® RP Tibia Plateau T3+
NN287K		Columbus® RP Tibia Plateau T4
NN288K		Columbus® RP Tibia Plateau T4+
NN289K		Columbus® RP Tibia Plateau T5



**Tibia plateau CRA/PSA CR Augmentation/
PS Augmentation modular cemented**

NN470K	NN470Z	Columbus® CRA/PSA Tibia Plateau T0
NN469K	NN469Z	Columbus® CRA/PSA Tibia Plateau T0+
NN471K	NN471Z	Columbus® CRA/PSA Tibia Plateau T1
NN472K	NN472Z	Columbus® CRA/PSA Tibia Plateau T1+
NN473K	NN473Z	Columbus® CRA/PSA Tibia Plateau T2
NN474K	NN474Z	Columbus® CRA/PSA Tibia Plateau T2+
NN475K	NN475Z	Columbus® CRA/PSA Tibia Plateau T3
NN476K	NN476Z	Columbus® CRA/PSA Tibia Plateau T3+
NN477K	NN477Z	Columbus® CRA/PSA Tibia Plateau T4
NN478K	NN478Z	Columbus® CRA/PSA Tibia Plateau T4+
NN479K	NN479Z	Columbus® CRA/PSA Tibia Plateau T5



Columbus® UCR Tibia Plateau cemented

NN670K	Columbus® UCR Tibial Plateau cemented T0
NN668K	Columbus® UCR Tibial Plateau cemented T0+
NN671K	Columbus® UCR Tibial Plateau cemented T1
NN672K	Columbus® UCR Tibial Plateau cemented T1+
NN673K	Columbus® UCR Tibial Plateau cemented T2
NN674K	Columbus® UCR Tibial Plateau cemented T2+
NN675K	Columbus® UCR Tibial Plateau cemented T3
NN676K	Columbus® UCR Tibial Plateau cemented T3+
NN677K	Columbus® UCR Tibial Plateau cemented T4
NN678K	Columbus® UCR Tibial Plateau cemented T4+
NN679K	Columbus® UCR Tibial Plateau cemented T5



Aesculap® Columbus®

Order Information

Tibial Hemispacer with screws		
Standard	AS	
NN560K	NN560Z	Columbus® Tibial Hemispacer T0/0+ 4 mm RM/LL
NN561K	NN561Z	Columbus® Tibial Hemispacer T0/0+ 8 mm RM/LL
NN563K	NN563Z	Columbus® Tibial Hemispacer T1/1+ 4 mm RM/LL
NN564K	NN564Z	Columbus® Tibial Hemispacer T1/1+ 8 mm RM/LL
NN566K	NN566Z	Columbus® Tibial Hemispacer T2/2+ 4 mm RM/LL
NN567K	NN567Z	Columbus® Tibial Hemispacer T2/2+ 8 mm RM/LL
NN569K	NN569Z	Columbus® Tibial Hemispacer T3/3+ 4 mm RM/LL
NN570K	NN570Z	Columbus® Tibial Hemispacer T3/3+ 8 mm RM/LL
NN572K	NN572Z	Columbus® Tibial Hemispacer T4/4+ 4 mm RM/LL
NN573K	NN573Z	Columbus® Tibial Hemispacer T4/4+ 8 mm RM/LL
NN575K	NN575Z	Columbus® Tibial Hemispacer T5 4 mm RM/LL
NN576K	NN576Z	Columbus® Tibial Hemispacer T5 8 mm RM/LL
NN580K	NN580Z	Columbus® Tibial Hemispacer T0/0+ 4 mm RL/LM
NN581K	NN581Z	Columbus® Tibial Hemispacer T0/0+ 8 mm RL/LM
NN583K	NN583Z	Columbus® Tibial Hemispacer T1/1+ 4 mm RL/LM
NN584K	NN584Z	Columbus® Tibial Hemispacer T1/1+ 8 mm RL/LM
NN586K	NN586Z	Columbus® Tibial Hemispacer T2/2+ 4 mm RL/LM
NN587K	NN587Z	Columbus® Tibial Hemispacer T2/2+ 8 mm RL/LM
NN589K	NN589Z	Columbus® Tibial Hemispacer T3/3+ 4 mm RL/LM
NN590K	NN590Z	Columbus® Tibial Hemispacer T3/3+ 8 mm RL/LM
NN592K	NN592Z	Columbus® Tibial Hemispacer T4/4+ 4 mm RL/LM
NN593K	NN593Z	Columbus® Tibial Hemispacer T4/4+ 8 mm RL/LM
NN595K	NN595Z	Columbus® Tibial Hemispacer T5 4 mm RL/LM
NN596K	NN596Z	Columbus® Tibial Hemispacer T5 8 mm RL/LM



PE gliding surface CR Cruciate Retaining Deep Dish

NN200	Columbus® CR Deep Dish gliding surface T0/0+ 10 mm
NN201	Columbus® CR Deep Dish gliding surface T0/0+ 12 mm
NN202	Columbus® CR Deep Dish gliding surface T0/0+ 14 mm
NN203	Columbus® CR Deep Dish gliding surface T0/0+ 16 mm
NN204	Columbus® CR Deep Dish gliding surface T0/0+ 18 mm
NN205	Columbus® CR Deep Dish gliding surface T0/0+ 20 mm
NN210	Columbus® CR Deep Dish gliding surface T1/1+ 10 mm
NN211	Columbus® CR Deep Dish gliding surface T1/1+ 12 mm
NN212	Columbus® CR Deep Dish gliding surface T1/1+ 14 mm
NN213	Columbus® CR Deep Dish gliding surface T1/1+ 16 mm
NN214	Columbus® CR Deep Dish gliding surface T1/1+ 18 mm
NN215	Columbus® CR Deep Dish gliding surface T1/1+ 20 mm
NN220	Columbus® CR Deep Dish gliding surface T2/2+ 10 mm
NN221	Columbus® CR Deep Dish gliding surface T2/2+ 12 mm
NN222	Columbus® CR Deep Dish gliding surface T2/2+ 14 mm
NN223	Columbus® CR Deep Dish gliding surface T2/2+ 16 mm
NN224	Columbus® CR Deep Dish gliding surface T2/2+ 18 mm
NN225	Columbus® CR Deep Dish gliding surface T2/2+ 20 mm
NN230	Columbus® CR Deep Dish gliding surface T3/3+ 10 mm
NN231	Columbus® CR Deep Dish gliding surface T3/3+ 12 mm
NN232	Columbus® CR Deep Dish gliding surface T3/3+ 14 mm
NN233	Columbus® CR Deep Dish gliding surface T3/3+ 16 mm
NN234	Columbus® CR Deep Dish gliding surface T3/3+ 18 mm
NN235	Columbus® CR Deep Dish gliding surface T3/3+ 20 mm
NN240	Columbus® CR Deep Dish gliding surface T4/4+ 10 mm
NN241	Columbus® CR Deep Dish gliding surface T4/4+ 12 mm



NN242	Columbus® CR Deep Dish gliding surface T4/4+ 14 mm
NN243	Columbus® CR Deep Dish gliding surface T4/4+ 16 mm
NN244	Columbus® CR Deep Dish gliding surface T4/4+ 18 mm
NN245	Columbus® CR Deep Dish gliding surface T4/4+ 20 mm
NN250	Columbus® CR Deep Dish gliding surface T5 10 mm
NN251	Columbus® CR Deep Dish gliding surface T5 12 mm
NN252	Columbus® CR Deep Dish gliding surface T5 14 mm
NN253	Columbus® CR Deep Dish gliding surface T5 16 mm
NN254	Columbus® CR Deep Dish gliding surface T5 18 mm
NN255	Columbus® CR Deep Dish gliding surface T5 20 mm

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Order Information

PE gliding surface cruciate sacrificing UC Ultra Congruent

NN400	Columbus® UC gliding surface T0/0+ 10 mm
NN401	Columbus® UC gliding surface T0/0+ 12 mm
NN402	Columbus® UC gliding surface T0/0+ 14 mm
NN403	Columbus® UC gliding surface T0/0+ 16 mm
NN404	Columbus® UC gliding surface T0/0+ 18 mm
NN405	Columbus® UC gliding surface T0/0+ 20 mm
NN410	Columbus® UC gliding surface T1/1+ 10 mm
NN411	Columbus® UC gliding surface T1/1+ 12 mm
NN412	Columbus® UC gliding surface T1/1+ 14 mm
NN413	Columbus® UC gliding surface T1/1+ 16 mm
NN414	Columbus® UC gliding surface T1/1+ 18 mm
NN415	Columbus® UC gliding surface T1/1+ 20 mm
NN420	Columbus® UC gliding surface T2/2+ 10 mm
NN421	Columbus® UC gliding surface T2/2+ 12 mm
NN422	Columbus® UC gliding surface T2/2+ 14 mm
NN423	Columbus® UC gliding surface T2/2+ 16 mm
NN424	Columbus® UC gliding surface T2/2+ 18 mm
NN425	Columbus® UC gliding surface T2/2+ 20 mm
NN430	Columbus® UC gliding surface T3/3+ 10 mm
NN431	Columbus® UC gliding surface T3/3+ 12 mm
NN432	Columbus® UC gliding surface T3/3+ 14 mm
NN433	Columbus® UC gliding surface T3/3+ 16 mm



NN434	Columbus® UC gliding surface T3/3+ 18 mm
NN435	Columbus® UC gliding surface T3/3+ 20 mm
NN440	Columbus® UC gliding surface T4/4+ 10 mm
NN441	Columbus® UC gliding surface T4/4+ 12 mm
NN442	Columbus® UC gliding surface T4/4+ 14 mm
NN443	Columbus® UC gliding surface T4/4+ 16 mm
NN444	Columbus® UC gliding surface T4/4+ 18 mm
NN445	Columbus® UC gliding surface T4/4+ 20 mm
NN450	Columbus® UC gliding surface T5 10 mm
NN451	Columbus® UC gliding surface T5 12 mm
NN452	Columbus® UC gliding surface T5 14 mm
NN453	Columbus® UC gliding surface T5 16 mm
NN454	Columbus® UC gliding surface T5 18 mm
NN455	Columbus® UC gliding surface T5 20 mm

PE gliding surface cruciate retaining RP Rotating Platform

NN310	Columbus® RP gliding surface T1/1+ 10 mm
NN311	Columbus® RP gliding surface T1/1+ 12 mm
NN312	Columbus® RP gliding surface T1/1+ 14 mm
NN313	Columbus® RP gliding surface T1/1+ 16 mm
NN320	Columbus® RP gliding surface T2/2+ 10 mm
NN321	Columbus® RP gliding surface T2/2+ 12 mm
NN322	Columbus® RP gliding surface T2/2+ 14 mm
NN323	Columbus® RP gliding surface T2/2+ 16 mm
NN330	Columbus® RP gliding surface T3/3+ 10 mm
NN331	Columbus® RP gliding surface T3/3+ 12 mm
NN332	Columbus® RP gliding surface T3/3+ 14 mm
NN333	Columbus® RP gliding surface T3/3+ 16 mm
NN340	Columbus® RP gliding surface T4/4+ 10 mm
NN341	Columbus® RP gliding surface T4/4+ 12 mm
NN342	Columbus® RP gliding surface T4/4+ 14 mm



NN343	Columbus® RP gliding surface T4/4+ 16 mm
NN350	Columbus® RP gliding surface T5 10 mm
NN351	Columbus® RP gliding surface T5 12 mm
NN352	Columbus® RP gliding surface T5 14 mm
NN353	Columbus® RP gliding surface T5 16 mm

Columbus® UCR gliding surface

NN600	Columbus® UCR gliding surface T0/0+ 10 mm
NN601	Columbus® UCR gliding surface T0/0+ 12 mm
NN602	Columbus® UCR gliding surface T0/0+ 14 mm
NN603	Columbus® UCR gliding surface T0/0+ 16 mm
NN604	Columbus® UCR gliding surface T0/0+ 18 mm
NN605	Columbus® UCR gliding surface T0/0+ 20 mm
NN610	Columbus® UCR gliding surface T1/1+ 10 mm
NN611	Columbus® UCR gliding surface T1/1+ 12 mm
NN612	Columbus® UCR gliding surface T1/1+ 14 mm
NN613	Columbus® UCR gliding surface T1/1+ 16 mm
NN614	Columbus® UCR gliding surface T1/1+ 18 mm
NN615	Columbus® UCR gliding surface T1/1+ 20 mm
NN620	Columbus® UCR gliding surface T2/2+ 10 mm
NN621	Columbus® UCR gliding surface T2/2+ 12 mm
NN622	Columbus® UCR gliding surface T2/2+ 14 mm
NN623	Columbus® UCR gliding surface T2/2+ 16 mm
NN624	Columbus® UCR gliding surface T2/2+ 18 mm
NN625	Columbus® UCR gliding surface T2/2+ 20 mm
NN630	Columbus® UCR gliding surface T3/3+ 10 mm
NN631	Columbus® UCR gliding surface T3/3+ 12 mm
NN632	Columbus® UCR gliding surface T3/3+ 14 mm
NN633	Columbus® UCR gliding surface T3/3+ 16 mm
NN634	Columbus® UCR gliding surface T3/3+ 18 mm
NN635	Columbus® UCR gliding surface T3/3+ 20 mm
NN640	Columbus® UCR gliding surface T4/4+ 10 mm
NN641	Columbus® UCR gliding surface T4/4+ 12 mm



NN642	Columbus® UCR gliding surface T4/4+ 14 mm
NN643	Columbus® UCR gliding surface T4/4+ 16 mm
NN644	Columbus® UCR gliding surface T4/4+ 18 mm
NN645	Columbus® UCR gliding surface T4/4+ 20 mm
NN650	Columbus® UCR gliding surface T5 10 mm
NN651	Columbus® UCR gliding surface T5 12 mm
NN652	Columbus® UCR gliding surface T5 14 mm
NN653	Columbus® UCR gliding surface T5 16 mm
NN654	Columbus® UCR gliding surface T5 18 mm
NN655	Columbus® UCR gliding surface T5 20 mm

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Order Information

PE gliding surface PS Posterior Stabilised incl. fixation screw

NN500	Columbus® PS gliding surface T0/0+ 10 mm
NN501	Columbus® PS gliding surface T0/0+ 12 mm
NN502	Columbus® PS gliding surface T0/0+ 14 mm
NN503	Columbus® PS gliding surface T0/0+ 16 mm
NN504	Columbus® PS gliding surface T0/0+ 18 mm
NN505	Columbus® PS gliding surface T0/0+ 20 mm
NN510	Columbus® PS gliding surface T1/1+ 10 mm
NN511	Columbus® PS gliding surface T1/1+ 12 mm
NN512	Columbus® PS gliding surface T1/1+ 14 mm
NN513	Columbus® PS gliding surface T1/1+ 16 mm
NN514	Columbus® PS gliding surface T1/1+ 18 mm
NN515	Columbus® PS gliding surface T1/1+ 20 mm
NN520	Columbus® PS gliding surface T2/2+ 10 mm
NN521	Columbus® PS gliding surface T2/2+ 12 mm
NN522	Columbus® PS gliding surface T2/2+ 14 mm
NN523	Columbus® PS gliding surface T2/2+ 16 mm
NN524	Columbus® PS gliding surface T2/2+ 18 mm
NN525	Columbus® PS gliding surface T2/2+ 20 mm
NN530	Columbus® PS gliding surface T3/3+ 10 mm
NN531	Columbus® PS gliding surface T3/3+ 12 mm
NN532	Columbus® PS gliding surface T3/3+ 14 mm
NN533	Columbus® PS gliding surface T3/3+ 16 mm
NN534	Columbus® PS gliding surface T3/3+ 18 mm
NN535	Columbus® PS gliding surface T3/3+ 20 mm
NN540	Columbus® PS gliding surface T4/4+ 10 mm
NN541	Columbus® PS gliding surface T4/4+ 12 mm



NN542	Columbus® PS gliding surface T4/4+ 14 mm
NN543	Columbus® PS gliding surface T4/4+ 16 mm
NN544	Columbus® PS gliding surface T4/4+ 18 mm
NN545	Columbus® PS gliding surface T4/4+ 20 mm
NN550	Columbus® PS gliding surface T5 10 mm
NN551	Columbus® PS gliding surface T5 12 mm
NN552	Columbus® PS gliding surface T5 14 mm
NN553	Columbus® PS gliding surface T5 16 mm
NN554	Columbus® PS gliding surface T5 18 mm
NN555	Columbus® PS gliding surface T5 20 mm

Tibia Obturator		
Standard	AS	
NN261K	NN261Z	Obturator Ø 12 mm T1-T3+
NN264K	NN264Z	Obturator Ø 14 mm T4-T5



Peek Plug		
NN260P		Peek Plug T1-T5



Tibia Stems cemented		
Standard	AS	
NX060K	NX060Z	Tibia Stem, L 52 mm, Ø 10 mm
NX062K	NX062Z	Tibia Stem, L 52 mm, Ø 12 mm
NX063K	NX063Z	Tibia Stem, L 52 mm, Ø 14 mm
NX061K	NX061Z	Tibia Stem, L 92 mm, Ø 10 mm
NX064K	NX064Z	Tibia Stem, L 92 mm, Ø 12 mm
NX065K	NX065Z	Tibia Stem, L 92 mm, Ø 14 mm



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Order Information

Tibia Stems cementless

Standard AS

NX082K	NX082Z	Tibia Stem, L 92 mm, Ø 10 mm
NX084K	NX084Z	Tibia Stem, L 92 mm, Ø 12 mm
NX085K	NX085Z	Tibia Stem, L 92 mm, Ø 14 mm
NX083K	NX083Z	Tibia Stem, L 132 mm, Ø 10 mm
NX086K	NX086Z	Tibia Stem, L 132 mm, Ø 12 mm
NX087K	NX087Z	Tibia Stem, L 132 mm, Ø 14 mm



Patella 3-Peg

NX041	Patella Size P1, Ø 26 x 7 mm
NX042	Patella Size P2, Ø 29 x 8 mm
NX043	Patella Size P3, Ø 32 x 9 mm
NX044	Patella Size P4, Ø 35 x 10 mm
NX045	Patella Size P5, Ø 38 x 11 mm





Femur CR cemented

Types:	F1	F2N	F2	F3N	F3	F4N	F4	F5N	F5	F6N	F6	F7	F8
Left	NN001K	NN800K	NN002K	NN801K	NN003K	NN899K	NN004K	NN900K	NN005K	NN901K	NN006K	NN007K	NN008K
Right	NN011K	NN810K	NN012K	NN811K	NN013K	NN909K	NN014K	NN910K	NN015K	NN911K	NN016K	NN017K	NN018K



Femur PS cemented

Types:	F1	F2N	F2	F3N	F3	F4N	F4	F5N	F5	F6N	F6	F7	F8
Left	NN161K	NN840K	NN162K	NN841K	NN163K	NN939K	NN164K	NN940K	NN165K	NN941K	NN166K	NN167K	NN168K
Right	NN171K	NN850K	NN172K	NN851K	NN173K	NN949K	NN174K	NN950K	NN175K	NN951K	NN176K	NN177K	NN178K



Femur CR cementless

Types:	F1	F2N	F2	F3N	F3	F4N	F4	F5N	F5	F6N	F6	F7	F8
Left	NN021K	NN820K	NN022K	NN821K	NN023K	NN919K	NN024K	NN920K	NN025K	NN921K	NN026K	NN027K	NN028K
Right	NN031K	NN830K	NN032K	NN831K	NN033K	NN929K	NN034K	NN930K	NN035K	NN931K	NN036K	NN037K	NN038K

**PS Fixation screw for PE in AS version
(generally packed with gliding surface)**



Types:	Height 10/12	Height 14/16	Height 18/20
	NN497Z	NN498Z	NN499Z



Patella-3-Peg

Types:	P1	P2	P3	P4	P5
F1-F8	NX041	NX042	NX043	NX044	NX045



Tibia cemented	CR/PS	CRA/PSA	RP	UCR							
Types:	T0	T0+	T1	T1+	T2	T2+	T3	T3+	T4	T4+	T5
CR/PS	NN070K	NN058K	NN071K	NN072K	NN073K	NN074K	NN075K	NN076K	NN077K	NN078K	NN079K
CRA/PSA	NN470K	NN469K	NN471K	NN472K	NN473K	NN474K	NN475K	NN476K	NN477K	NN478K	NN479K
RP	—	—	NN271K	NN272K	NN273K	NN274K	NN275K	NN276K	NN277K	NN278K	NN279K
UCR	NN670K	NN668K	NN671K	NN672K	NN673K	NN674K	NN675K	NN676K	NN677K	NN678K	NN679K

CRA/PSA Tibia Hemispacers with screws



Types:	T0	T1	T2	T3	T4	T5
RM/LL	NN560K	NN563K	NN566K	NN569K	NN572K	NN575K
RL/LM	NN580K	NN583K	NN586K	NN589K	NN592K	NN595K

Types:	T0	T1	T2	T3	T4	T5
RM/LL	NN561K	NN564K	NN567K	NN570K	NN573K	NN576K
RL/LM	NN581K	NN584K	NN587K	NN590K	NN593K	NN596K

Tibia cementless	CR/PS	RP									
Types:	T0	T0+	T1	T1+	T2	T2+	T3	T3+	T4	T4+	T5
CR/PS	NN080K	NN059K	NN081K	NN082K	NN083K	NN084K	NN085K	NN086K	NN087K	NN088K	NN089K
RP	—	—	NN281K	NN282K	NN283K	NN284K	NN285K	NN286K	NN287K	NN288K	NN289K



Obturator	Ø 12 mm	Ø 14 mm
	NN261K	NN264K

Peek Plug	NN260P
	NN260P

Tibia stems cemented



Tibia stems cementless



Types:	Ø 10 mm	Ø 12 mm	Ø 14 mm	Ø 10 mm	Ø 12 mm	Ø 14 mm
T0-T5	NN060K	NN061K	NN062K	NN063K	NN064K	NN065K
	NNX061K	NNX062K	NNX063K	NNX064K	NNX065K	NNX066K
	NNX067K	NNX068K	NNX069K	NNX070K	NNX071K	NNX072K

Gliding Surfaces



Types:	10	12	14	16	18	20	10	12	14	16	18	20	10	12	14	16	18	20
CR	—	—	—	—	—	—	NN110	NN111	NN112	NN113	—	—	NN120	NN121	NN122	NN123	—	—
DD	NN200	NN201	NN202	NN203	NN204	NN205	NN210	NN211	NN212	NN213	NN214	NN215	NN220	NN221	NN222	NN223	NN224	NN225
UC fix.	NN400	NN401	NN402	NN403	NN404	NN405	NN410	NN411	NN412	NN413	NN414	NN415	NN420	NN421	NN422	NN423	NN424	NN425
UCR	NN600	NN601	NN602	NN603	NN604	NN605	NN610	NN611	NN612	NN613	NN614	NN615	NN620	NN621	NN622	NN623	NN624	NN625
RP	—	—	—	—	—	—	NN310	NN311	NN312	NN313	—	—	NN320	NN321	NN322	NN323	—	—
PS	NN500	NN501	NN502	NN503	NN504	NN505	NN510	NN511	NN512	NN513	NN514	NN515	NN520	NN521	NN522	NN523	NN524	NN525

Gliding Surfaces



Types:	10	12	14	16	18	20	10	12	14	16	18	20	10	12	14	16	18	20
CR	NN130	NN131	NN132	NN133	—	—	NN140	NN141	NN142	NN143	—	—	NN150	NN151	NN152	NN153	—	—
DD	NN230	NN231	NN232	NN233	NN234	NN235	NN240	NN241	NN242	NN243	NN244	NN245	NN250	NN251	NN252	NN253	NN254	NN255
UC fix.	NN430	NN431	NN432	NN433	NN434	NN435	NN440	NN441	NN442	NN443	NN444	NN445	NN450	NN451	NN452	NN453	NN454	NN455
UCR	NN630	NN631	NN632	NN633	NN634	NN635	NN640	NN641	NN642	NN643	NN644	NN645	NN650	NN651	NN652	NN653	NN654	NN655
RP	NN330	NN331	NN332	NN333	—	—	NN340	NN341	NN342	NN343	—	—	NN350	NN351	NN352	NN353	—	—
PS	NN530	NN531	NN532	NN533	NN534	NN535	NN540	NN541	NN542	NN543	NN544	NN545	NN550	NN551	NN552	NN553	NN554	NN555



AS Femur CR cemented

Types:	F1	F2N	F2	F3N	F3	F4N	F4	F5N	F5	F6N	F6	F7	F8
Left	NN001Z	NN800Z	NN002Z	NN801Z	NN003Z	NN899Z	NN004Z	NN900Z	NN005Z	NN901Z	NN006Z	NN007Z	–
Right	NN011Z	NN810Z	NN012Z	NN811Z	NN013Z	NN909Z	NN014Z	NN910Z	NN015Z	NN911Z	NN016Z	NN017Z	–



AS Femur PS cemented

Types:	F1	F2	F3	F4	F5	F6	F7	F8
Left	NN161Z	NN162Z	NN163Z	NN164Z	NN165Z	NN166Z	NN167Z	–
Right	NN171Z	NN172Z	NN173Z	NN174Z	NN175Z	NN176Z	NN177Z	–

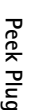


Patella-3-Peg

Types:	P1	P2	P3	P4	P5
F1-F8	NX041	NX042	NX043	NX044	NX045



AS Tibia cemented	CR/PS	CRA/PSA	RP
Types:	T0	T0+	T1
	T1	T1+	T2
	T2	T2+	T3
	T3	T3+	T4
	T4	T4+	T5



Otturator	Ø 12 mm	Ø 14 mm	NN260P
	NN261Z	NN264Z	

Fixation Screw for PS Gliding Surfaces

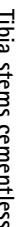


Types:	10/12	14/16	18/20
	NN497Z	NN498Z	NN499Z



CRA/PSA Tibia Hemispacers with screws	4 mm					8 mm						
Types:	T0	T1	T2	T3	T4	T5	T0	T1	T2	T3	T4	T5
RM/LL	NN560Z	NN563Z	NN566Z	NN569Z	NN572Z	NN575Z	NN561Z	NN564Z	NN567Z	NN570Z	NN573Z	NN576Z
RL/LM	NN580Z	NN583Z	NN586Z	NN589Z	NN592Z	NN595Z	NN581Z	NN584Z	NN587Z	NN590Z	NN593Z	NN596Z

Tibia stems cemented



Types:	Ø 10 mm	Ø 12 mm	Ø 14 mm	Ø 10 mm	Ø 12 mm	Ø 14 mm
	52 mm	92 mm	52 mm	92 mm	52 mm	92 mm
	92 mm	52 mm	92 mm	52 mm	92 mm	132 mm
	132 mm	92 mm	52 mm	92 mm	132 mm	92 mm
	132 mm	92 mm	52 mm	92 mm	132 mm	132 mm

T0-T5	NX060Z	NX061Z	NX062Z	NX064Z	NX063Z	NX065Z	NX082Z	NX083Z	NX084Z	NX086Z	NX085Z	NX087Z
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Gliding Surfaces



Types:	10	12	14	16	18	20	10	12	14	16	18	20	10	12	14	16	18	20
CR	—	—	—	—	—	—	NN110	NN111	NN112	NN113	—	—	NN120	NN121	NN122	NN123	—	—
DD	NN200	NN201	NN202	NN203	NN204	NN205	NN210	NN211	NN212	NN213	NN214	NN215	NN220	NN221	NN222	NN223	NN224	NN225
UC fix.	NN400	NN401	NN402	NN403	NN404	NN405	NN410	NN411	NN412	NN413	NN414	NN415	NN420	NN421	NN422	NN423	NN424	NN425
UCR	NN600	NN601	NN602	NN603	NN604	NN605	NN610	NN611	NN612	NN613	NN614	NN615	NN620	NN621	NN622	NN623	NN624	NN625
RP	—	—	—	—	—	—	NN310	NN311	NN312	NN313	—	—	NN320	NN321	NN322	NN323	—	—
PS	NN500	NN501	NN502	NN503	NN504	NN505	NN510	NN511	NN512	NN513	NN514	NN515	NN520	NN521	NN522	NN523	NN524	NN525

Gliding Surfaces



Types:	10	12	14	16	18	20	10	12	14	16	18	20	10	12	14	16	18	20
CR	NN130	NN131	NN132	NN133	—	—	NN140	NN141	NN142	NN143	—	—	NN150	NN151	NN152	NN153	—	—
DD	NN230	NN231	NN232	NN233	NN234	NN235	NN240	NN241	NN242	NN243	NN244	NN245	NN250	NN251	NN252	NN253	NN254	NN255
UC fix.	NN430	NN431	NN432	NN433	NN434	NN435	NN440	NN441	NN442	NN443	NN444	NN445	NN450	NN451	NN452	NN453	NN454	NN455
UCR	NN630	NN631	NN632	NN633	NN634	NN635	NN640	NN641	NN642	NN643	NN644	NN645	NN650	NN651	NN652	NN653	NN654	NN655
RP	NN330	NN331	NN332	NN333	—	—	NN340	NN341	NN342	NN343	—	—	NN350	NN351	NN352	NN353	—	—
PS	NN530	NN531	NN532	NN533	NN534	NN535	NN540	NN541	NN542	NN543	NN544	NN545	NN550	NN551	NN552	NN553	NN554	NN555

