

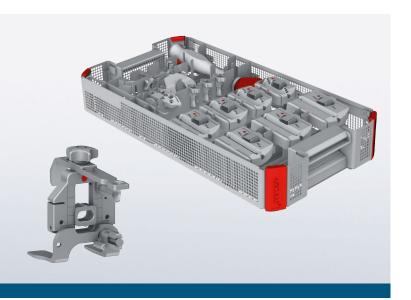


ORTHOPAEDIC SURGERY

# AESCULAP® IQ e.motion® FGT INSTRUMENTS

KNEE ARTHROPLASTY OPERATING TECHNIQUE WITH IQ INSTRUMENTS

#### 1 | FGT INSTRUMENTS



The e.motion® FGT instrument solution follows the principles of the flexion gap technique (FGT) and the Aesculap IQ instrument platform. The flexion gap technique focuses on gap stability and symmetry to achieve a high functional outcome for the patient. The Intuitive & Quick (IQ) instrument platform has been designed to support the everyday challenges that are faced in the OR; offering:

- Reliable precision,
- A reduced instrument volume,
- Monobloc instruments with quick-release fasteners,
- Ergonomic handling and
- Color coding to aid correct usage.

IQ e.motion® instruments are stored in newly developed, validated trays. Not only do these trays offer systematic and reliable storage for the instruments, they also significantly simplify reprocessing for the CSSD (central sterile services department) since the instruments can remain in the trays during mechanical cleaning. This time-saving solution offers economic benefits and eliminates potential sources of error as the sets do not require repacking in the CSSD.

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#### NOTE

Complex instruments, such as cutting guides, or instruments that are inserted into the intramedul-lary (IM) canal, such as drills and reamers, have to be pre-cleaned by hand.

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2 | INDICATIONS / PATIENT SELECTION

e.motion® FP

e.motion® UC Pro

e.motion® PS Pro





The e.motion® system offers solutions for patients from primary arthroplasty through to revision.

The e.motion® principle is based on a high degree of congruence between the femoral condyles and the movable meniscal components. It therefore requires stable collateral ligaments, mediolateral symmetry as well as perfect balance of the flexion gap and the extension gap.

The e.motion® implant solutions have a modular design, allowing the surgeon to make the right instrument choices for every primary or revision procedure.

Patients who are hypersensitive to metal can also receive the treatment they require as the entire e.motion® range is available with an AS (Advanced Surface) ceramic coating. Another benefit of the 7-layer coating is that wear is reduced by up to 58 %! (1)

For details about contraindications, see instructions for use TA012000.

<sup>(1)</sup> Reich et al. Präklinische Ergebnisse beschichteter Knieimplantate für Allergiker [Pre-clinical results of coated knee implants for allergic patients]. Orthopäde. 2010 May;39(5):495-502.



Long leg x-ray for planning of the mechanical axis

Every TKA requires careful X-ray-based preoperative planning to define the following parameters:

- Varus-valgus deformation
- The angle between the anatomical and mechanical femoral axis
- Entry point(s) of the intramedullary alignment rods (manual IM technique)
- Joint line level
- Femoral resection heights
- Tibial resection heights
- Component size definition
- Implant positioning
- Areas with potential bone loss and location of osteophytes

The following views are normally captured for the X-ray analysis:

- Knee joint in AP projection: Knee in extension, centered above the distal patella.
- Knee joint in lateral projection: Knee in 30° flexion, centered above the distal patella.
- X-ray of the entire leg (hip to ankle) in single-leg stance.
- Tangential view (merchant view) of the patella, knee in 30° flexion.

The angle between the mechanical and anatomical femoral axis is measured using the combination template for axis measurements. The joint center, joint line and mechanical femoral axis can be determined.

To define the tibial resection, the template with representations of the tibial components is placed and aligned over the X-ray. The resection height is specified in a 2-mm graduation from 10-24 mm.

A full set of X-ray templates is supplied for preoperative determination of the appropriate implant sizes. Determining the position of osteophytes facilitates their removal and improves joint mobility.

The e.motion® knee system includes a full set of X-ray templates in various scales (1.1 and 1.15).

4 | APPROACH



The IQ instruments of the e.motion® FGT knee system have been developed for standard and minimally invasive approaches to the knee joint.

The skin incision is a straight midline or slightly oblique parapatellar skin incision, that starts 2 to 4 cm proximally from the superior pole of the patella and extends distally to the medial aspect of the tibial tubercle. The surgeon must decide for each patient individually how long to make the incision in order to obtain a sufficient overview of the knee anatomy. A parapatellar skin incision makes kneeling easier for the patient post surgery.

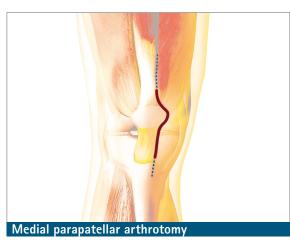
The incision length is generally between 8 and 14 cm, extending symmetrically above and below the joint line.

Depending on the patient's anatomy, soft tissue and skin tension, it may be necessary to extend the skin incisions during the procedure.

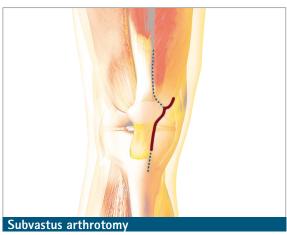
There are essentially three arthrotomy options recommended for exposing the joint: the medial-parapatellar, midvastus or subvastus approach.











Medial parapatellar arthrotomy

This arthrotomy is performed with the knee in flexion or extension, beginning proximal to the superior pole of the patella and dividing the tendons of the rectus femoris muscle lengthwise. The arthrotomy extends distally around the medial aspect of the patella and ends medial to the tibial tubercle.

#### Midvastus arthrotomy

This arthrotomy is performed with the knee in flexion and begins by dividing the fibers of the vastus medialis obliquus muscle (VMO); it extends distally around the medial aspect of the patella and ends medial to the tibial tubercle.

#### Subvastus arthrotomy

This arthrotomy is performed with the knee in flexion, starting with a 4 to 6 cm-long incision of the fascia at the inferior border of the vastus medialis obliquus. It extends horizontally along the medial aspect of the patella and ends distal medial to the medial tubercle.

#### Complete exposure

A fat pad excision is performed to improve joint exposure and increase patella mobility. Then the medial removal is carried out to enable the patella to be everted or laterally subluxated.

5 | ASSEMBLY INSTRUCTIONS AND INSTRUMENT HANDLING





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#### A | EXTRAMEDULLARY TIBIAL ALIGNMENT - ASSEMBLY INSTRUCTIONS



- Press down on the top button of the bimalleolar clamp.
- Slide the bimalleolar clamp holding fixture into the groove.
- Once in the neutral position, release the button.



- Turn the wheel of the tibial alignment handle to the OP-EN position.
- Attach the handle to the bimalleolar clamp holding fixture.
- Set it to the neutral position.



- Press down on the handle adjusting wheel to release the locking mechanism.
- Attach the cutting block mounting rod to the handle.
- Once you have reached the required level, let go of the wheel.
- Turn the wheel to fine tune the height.



- Attach the tibial cutting block to one of the three mounting holes on the mounting rod.
- Use the locking screw to secure it in place.

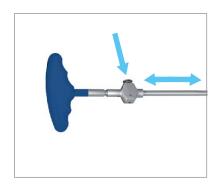


- Slide the tibial resection height stylus onto the mounting rod proximally up to its limit stop.
- The resection height stylus provides a resection reference of 0 or 10 mm.



- The adjusting wheel can be used to set the final resection height with millimeter precision.
- Height adjustment is supported by the scale on the instrument, which shows the height difference in 1-mm increments.

B | INTRAMEDULLARY (IM) TIBIAL ALIGNMENT



- Press the button on the T-handle to unlock the locking mechanism.
- Couple the T-handle to the IM rod.
- Release the button to lock the device.

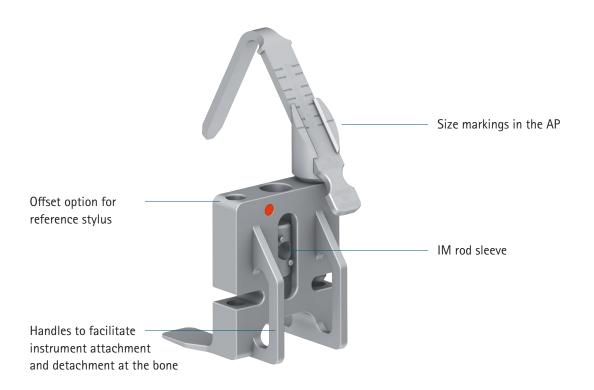


- Select the 0° IM alignment sleeve for tibial resection.
- Connect the sleeve to the IM alignment system.



- Secure the device to the alignment rod.
- Attach the alignment system to one of the connection holes on the tibial and distal cutting block.
- Secure the connection by locking the wing screw.

#### C | AP AND PROXIMAL-DISTAL SIZE MEASURING INSTRUMENT FOR THE FEMUR





- The measuring instrument indicates the AP height of the femur on the scale probe. At the same time, the probe's point of contact on the anterior femur also indicates the length of the anterior plate. For a precise measurement, the instrument has to be in contact with both posterior condyles and at least one distal condyle.
- Option 1: The IM rod can be used to attach and secure the instrument to the femur.
- Option 2: The instrument is placed on the distal and posterior femur directly.

#### NOTE

The posterior and distal thickness of the e.motion® femur implant varies depending on the size group:

S = size 2, 3 = 7 mm; M = size 4, 5, 6 = 8.5 mm and

L = size 7, 8 = 10 mm. It is therefore possible that the choice of size will not only affect the flexion gap, but also the extension gap.

#### D | TIBIAL CUTTING BLOCK

# Tibial resection of the knee joint using a central mount with a standard approach

- In this case, use the neutral connection hole (green square).
- Fix the cutting block with 2 headless pins.
- To achieve secure fixation, the pins should be inserted into the holes marked with blue circles so that they converge.



#### Tibial resection of the left knee using a less invasive approach

- In this case, use the right-hand connection hole (green square).
- Fix the cutting block with 2 headless pins.
- To achieve secure fixation, the pins should be inserted into the holes marked with blue circles so that they converge.



## Tibial resection of the right knee using a less invasive approach

- In this case, use the left-hand connection hole (green square).
- Fix the cutting block with 2 headless pins.
- To achieve secure fixation, the pins should be inserted into the holes marked with blue circles so that they converge.



# NOTES

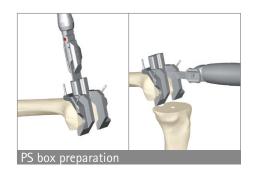
6 | SUMMARY OF THE SURGICAL PROCEDURE - TIBIA FIRST



# 7 Femoral sloping surface resections 8 Tibia preparation 9 Patella preparation (optional) optional 10 Trial reduction

11 Final implantation

#### OPTIONAL

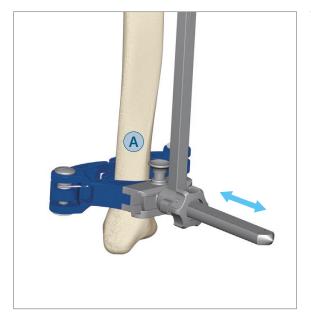


#### 7 | TIBIA PREPARATION



#### 7.1 Extramedullary alignment

- With the leg in flexion, the EM alignment system is positioned parallel to the anterior edge of the tibia.
- The bimalleolar clamp, which was previously set in the neutral position, is secured on the calf, slightly above the ankle joint and centered on the tibiotarsal joint.
- The alignment system can be secured to the proximal tibia with 2 threaded pins; the posterior vertical pin providing primary stability and the second oblique pin defining rotational alignment.



#### Varus-valgus alignment

Press the button (1) on the bimalleolar clamp and slide the alignment system medially or laterally to change the varus / valgus setting of the proximal tibial resection. The distance between each laser-marked line on the scale corresponds to a 1° alteration with a tibial length of 40 cm.



Bimalleolar Clamp NS345R



Bimalleolar clamp holder NS344R



Tibial alignment handle NS342R



Mounting rod for tibial cutting block NS863R



FGT tibial cutting block NS860R

#### Tibial slope alignment

Alignment of the instrument parallel to the anterior edge of the tibia results in a proximal resection with a 0° slope.

#### **NOTE**

The FGT EM alignment system takes into account that the anterior edge of the tibia does not run parallel to the tibia axis. This means, when the instrument is parallel to the tibia axis. Results from M. Goebel, Technische Universität München (TUM), confirm an inclination angle of 2–3° between the anterior edge of the tibia and the tibia axis (1).

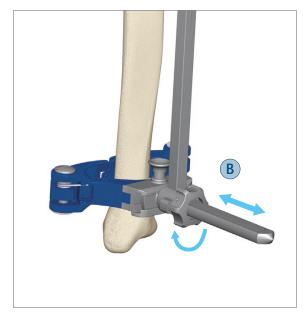
When you loosen the fixation wheel (2) on the lower part of the alignment system (by turning the screw to OP-EN), the alignment system may move in an anteroposterior direction to change the slope of the proximal tibial resection. The distance between each laser-marked line on the scale corresponds to a 1° alteration with a tibial length of 40 cm.

The FGT EM alignment system is fixed with one or two pins.

#### NOTE

The e.motion® Total Knee System is designed to be implanted with a tibial slope of 0°. A slope of 3° is factored in for the meniscal components. A posterior slope of 3° is factored in for the tibia plateau.

(1) "Geometrie von distalem Femur und proximaler Tibia und simulierte Implantation von Kniegelenksprothesensystemen (Geometry of distal femur and proximal tibia and simulated implantation of total knee replacement systems," dissertation by Michael Goebel - TUM, 28 June 2000.







Headless pins 63 mm NP583R



Pin driver NP613R



Acculan-drill

#### 7 | TIBIA PREPARATION



#### Height adjustment (3)

- The resection height is defined during preoperative planning.
   The goal is to remove any defect on the tibia joint surface as completely as possible in order to create an implant bed on intact bone.
- The tibia height probe offers adjustment options of 0 and 10 mm. Attach the probe proximally to the mounting rod; it is correctly fixed in place when an audible click is heard. The height of the extramedullary alignment instrument is then decreased with the heigh adjustment wheel (3) until the probe comes into contact with the selected point.



- The reference to the healthy tibial plateau is useful for defining the joint line level. The reference to the lowest point of the worn side of the tibia ensures that the defects are undercut completely.
- The point used for reference will depend on the pre-operative planning and surgeon preference. However, reconstructing the joint line should be a priority.
- The cutting block should be far enough away from the anterior tuberosity to permit a slight height adjustment without jamming the block on the bone.



Bimalleolar Clamp NS345R



Bimalleolar clamp holder NS344R



Tibia alignment handle NS342R



Mounting rod for tibial cutting block NS863R



FGT tibial cutting block NS860R

- The cutting block is secured in the "0" position with two headless pins. The +/-2-mm pinholes on the resection blocks allow the resection plane to be adjusted if required.
- The height of the cutting block can be adjusted additionally or alternatively in millimeter increments using the large black screw. Use the scale on the cutting block mount for guidance.

#### **NOTE**

To permit unrestricted and straightforward height adjustment of the tibial cutting block using the large black screw, first detach the tibial height probe.

To prevent slippage during the resection, screw additional pins into the dedicated converging holes.



- Then detach the EM tibial alignment system from the tibial cutting block by turning the connecting screw counterclockwise by one quarter turn to open. To release the proximal fixation, remove the threaded pins from the intercondylar eminence.
- Once the modular resection counter-guide has been attached to the tibial cutting block, complete the proximal tibial resection. Hold onto the counter-guide during the resection.





Headless pins 63 mm NP583R



Pin driver NP613R



Acculan-drill

#### 7 | TIBIA PREPARATION



#### 7.2 Intramedullary alignment

 The tibial medullary canal is first opened using the drill (Ø 9 mm). To avoid cortical injury to the posterior metaphysis, pay careful attention to the drilling direction.



• Use the T-handle to position the intramedullary rod in the canal. After removing the handle, attach the alignment system, the 0° slope sleeve and the tibial cutting block over the IM rod.



Drill bit Ø 9 mm NE443R



T-handle NE198R



IM alignment rod NS331R



IM alignment system NS332R

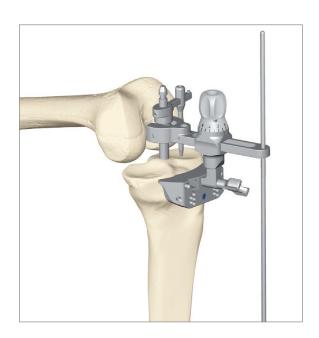
■ The resection height stylus provides a reference for the resection height. The point used for reference will depend on the preoperative planning and surgeon preference. However, reconstructing the joint line should be a priority. The resection height is then set by adjusting the wheel (1) to the required resection height with millimeter precision.

#### NOTE

The minimum implant height (PE+metal) is 10 mm.



• Carefully align the cutting block with the alignment rod.





FGT tibial cutting block NS860R



Tibia IM stylus for orientation sleeves NS847R

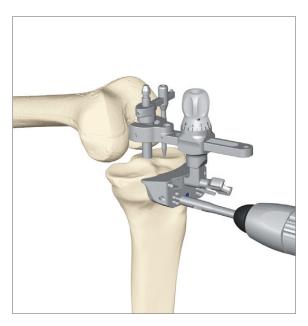


IM orientation sleeve 0° NS843R



Alignment rod, long NP471R

#### 7 | TIBIA PREPARATION



- Secure the cutting block in the "0" position with two headless pins. The +/-2-mm pinholes on the resection block allow the resection plane to be adjusted if required. To prevent slippage during the resection, place additional pins in converging holes.
- After releasing the cutting block from the alignment system (by turning the connecting screw counterclockwise), remove the IM tibial alignment system and T-handle.



#### 7.3 Verification and Correction of tibia cut

To verify correct axis alignment, attach the counter-guide to the cutting block and use the guide and axis control rod to assess the situation.



IM alignment rod NS331R



IM alignment system NS332R



Tibia IM resection height probe for alignment sleeves NS847R



FGT tibial cutting block NS860R



Headless pins 63 mm NP583R

• If a correction is required, the cutting block can be detached by removing the convergent pins. The 2° varus-valgus correction block can be brought onto the remaining pins.

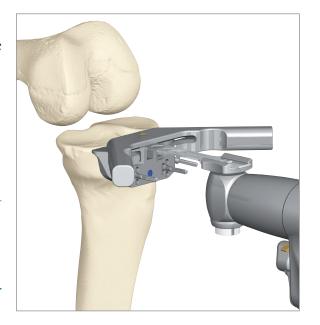


#### 7.4 Tibial resection

- After positioning and securing the cutting block, complete the proximal tibial resection with a 1.27 mm oscillating saw blade (see note). To have a controlled precise cut the counter guide is placed on the cutting block.
- Once the proximal tibial resection has been completed, first remove the cutting block and then the resected bone. Inspect the resection plane carefully to ensure that a good bony bed has been created on the tibial plateau.

#### NOTE

Adjacent soft tissue preservation within the knee joint is of the utmost importance! For this purpose, we recommend the use of Hohmann retractors, collateral retractors and PCL retractors.





Acculan drill, Acculan saw,



FGT counter-guide for cutting blocks NS879R



EM alignment control plate NS864R



Headedpin 30 mm NP585R

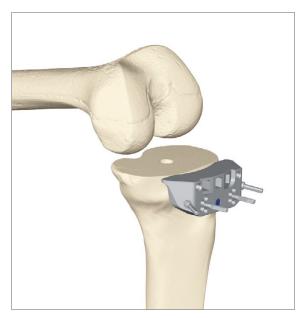


Pin driver NP613R



FGT tibial correction cutting block 2° var/val

7 | TIBIA PREPARATION



Remove the counter-guide once the resection has been completed. The cutting or correction block can remain secured to the bone and used as a reference for the subsequent gap measurement.



FGT tibial cutting block NS860R

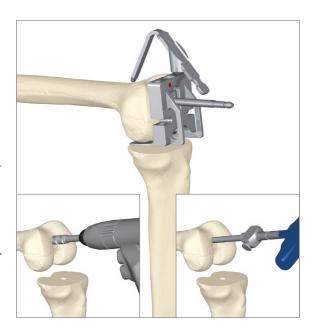
#### 8.1 Intramedullary femoral alignment

- Using the Ø 9 mm drill bit, drill open the femoral medullary cavity as per the preoperative planning (entry point). Using the T-handle, insert the rod into the intrameduallary canal. The T-handle can then be removed.
- Attach the measuring instrument to determine the correct femur size (the results can be read on the stylus scale).

#### **NOTE**

A shortened IM stem is available for special situations, such as exaggerated antecurvature of the femur or pre-existing hip revision implants (order no. NS881R).

The stylus of the size measuring instrument can be clamped onto the instrument medially or laterally. Make sure the stylus clicks securely and audibly into place.

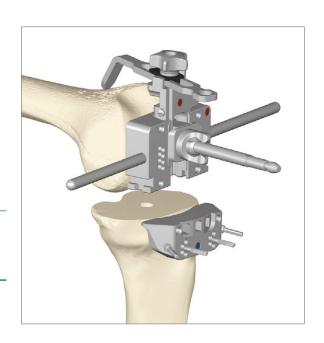


#### 8.2 Attaching the femoral AP cutting block

- Select the suitable AP cutting block and fit it with lateral handles and an angle block that corresponds to the valgus angle measured prior to the operation. The labeling specified above (R or L) determines the direction of the valgus angle.
- The anterior reference stylus is inserted into the AP cutting block from anterior.
- Once the AP cutting block has been assembled, it is attached to the IM alignment rod above the angle block.

#### NOTE

Prior to the measurement, the anterior stylus should be clicked onto the AP resection block.





FGT femoral size measuring instrument NS880R



Drill bit Ø 9 mm NE443R



Acculan drill



T-handle NE198R



FGT AP femoral cutting block NS872R-NS878R



FGT femoral valgus angle block NS865R-NS867R



Handle for AP cutting block NE730R



FGT ant. femoral reference probe NS868R



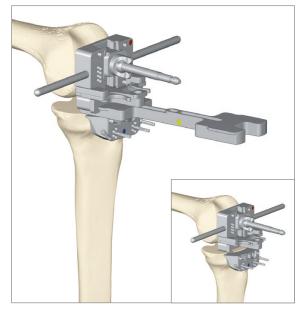
IM rod NS331R

8 | FEMUR PREPARATION



#### 8.3 Aligning the femoral AP cutting block

- The stylus is used to palpate the anterior reference point, fix the stylus screw and secure the AP position of the cutting block by locking the valgus angle screw in the center.
- The anterior contact point must be selected carefully in ML (that is, neither the highest nor lowest point) since this is the reference for the anterior resection plane.



- The stylus can be removed for the rotational adjustment. Subsequently the size corresponding alignment block (S, M or L) is clicked posterior to the AP cutting block.
- Set the rotation of the AP cutting block parallel to the tibial resection using the alignment block and spacer block. The thickness of the spacer block corresponds to the tibia plus PE thickness.
- Use the lateral handles to check the set rotation position compared to the alignment of the transepicondylar axis and adjust if necessary.

#### **NOTE**

Before alignment steps all osteophytes have to be removed.



AP cutting block NS872R- angle block NS878R



Valgus NS865R-NS867R



Handle for AP cutting block NE730R



Ant. reference probe NS868R



Tibial cutting block NS860R



**Fixation** pins NP583R



Intramedullary alignment rod NE331R



Spacer block NS892T-NS895T



Femoral rot. alignment block NS889R-NS891R

- Secure the femoral AP cutting block by inserting two headless fixation pins through the holes marked 0.
- Now remove the alignment block and spacer block. The handles can also be unscrewed and removed if desired.

#### NOTE

The size can be changed at this time by attaching the appropriate AP resection block. Please note, to keep the same anterior reference, if a bigger size is chosen, you must select the series of holes above the neutral pin holes and, if a smaller size, the series of holes below the neutral pin holes.



#### 8.4 AP resections

- AP resections can be completed with the modular counter-guide attached. The anterior resection is completed first, followed by the posterior.
- Prior to completing the resection, this must be checked carefully using the resection control plate.





T-handle NE198R



Tibial protection plate NQ377R



Acculan drill



Counter-guide NS879R



Pin driver NP613R

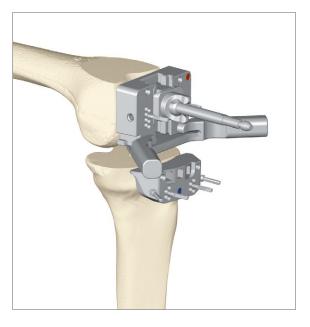


Headless pins 63 mm NP583R

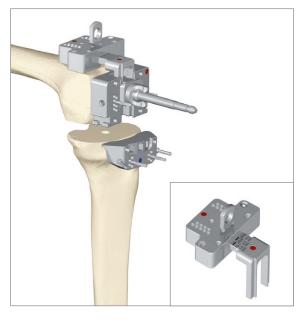


Resection Control Plate NP599R

#### 8 | FEMUR PREPARATION



- Complete the posterior resection after the anterior resection and remove the counter-guide.
- While performing the resection, hold onto the handles of the counter-guide, which should be secured to the AP resection block



#### 8.5 Aligning the distal cutting block

- Attach the holding device for the distal cutting block to the AP cutting block in order to allow the distal resection depth to be adjusted to the same thickness as the implant (S (7 mm), M (8.5 mm) or L (10 mm)) using special key pins.
- You can then insert the block and device into the AP cutting block.



FGT distal femoral cutting block storage NS869R



Headless pins 63 mm NP583R



Pin driver NP613R

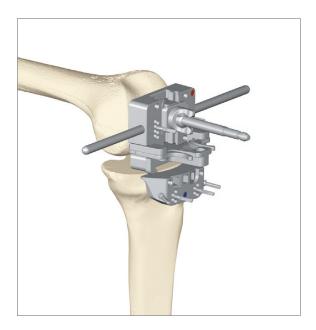


Acculan drill



FGT distal femoral resection block NS870R

- The position of the distal resection block is secured by inserting two threaded, headless pins into the holes marked 0 on the block.
- Use the T-handle to remove the IM rod, AP cutting block and distal block holding device all together.



• Remove the distal pins before completing the distal resection.





Distal cutting block NS870R



T-handle NE381



Acculan saw

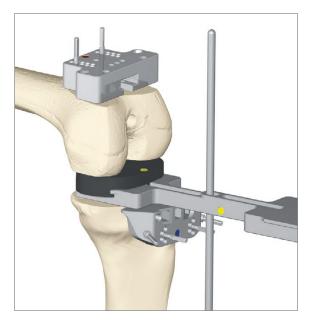


Headed fixation pin NP586R



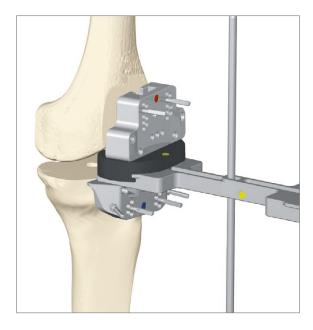
Pin driver NP613R

#### 8 | FEMUR PREPARATION



#### 8.6 Measuring the flexion gap and extension gap

- Before performing the distal resection, the symmetry and stability of the flexion gap and the extension gap must be checked by measuring the gap.
- To check the flexion gap, insert the suitable spacer block with supplementary plate and check the axis and stability once again using the alignment rod.



- Then insert the same spacer block in extension and check the correct valgus alignment by orienting the supplementary plate on the distal and tibial cutting block.
- The alignment rod shows the set leg axis prior to resection.
   If required, the 2° varus-valgus correction block can be used to optimize the alignment of the distal femoral resection.



Spacer block NS892T-NS895T



Supplementary plate NS897–NS899



Alignment control rod NS881R



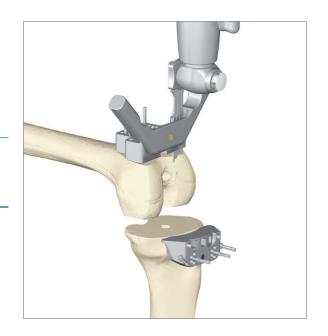
2° femoral correction block NS871R

#### 8.7 Distal resection

- Insert two threaded pins in converging holes to secure the distal cutting block to the bone.
- You can then attach the modular counter-guide and perform the distal resection.

#### NOTE

To protect the tibia the tibia protection plate can be used for this step.



#### 8.8 Final control of the joint gaps

- The symmetry and stability of the flexion gap and extension gap is finally measured and evaluated using the spacer and supplementary plate at the level of the femoral section.
- If the extension gap is too narrow, additional resection can be performed in 2 mm increments by repositioning the cutting block to proximal. The symmetry and stability of the gaps can also be checked at the bone without the tibial resection block.





Distal cutting block NS870R



Tibial cutting block NS860R



Headed fixation pins NP586R



Pin driver NP613R



Acculan drill



Counter-guide NS879R



Acculan saw

#### 8 | FEMUR PREPARATION



• Once the required stability and symmetry has been achieved, the threaded pins and resection blocks can be removed.



#### 8.9 Making the chamfer cut

- To make the chamfer cut, the cutting block (in the chosen size and with the corresponding posterior reference plate inserted) is placed at the distal posterior end of the femur. An anterior attachment can also be attached to the cutting block as an option.
- Now insert two threaded pins in converging holes to secure the block to the bone.



Acculan drill



Headed pins 50 mm NP586R



Trial femur NE702K-NE708K, NE752K-NE758K

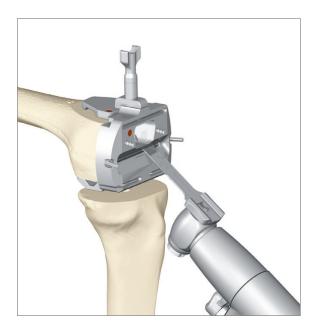


FGT femoral reference plate NS882R-NS888R



Pin driver NP613R

- Now use the femoral cutting block to first make the posterior chamfer cut and then the anterior chamfer cut.
- You have the option of rechecking the anterior resection plane.



 Any protruding posterior bone can be removed by special osteotomy. Use the posterior reference plate as a guide for this.





Acculan saw



Ant. femoral reference plate NS862R



Osteotomy NS366R

#### 9 | GAP BALANCING

		Flexion gap					
		optimal	narrow	wide			
Extension gap	optimal		<ul><li>Increase tibial slope</li><li>Reduce femoral size</li></ul>	<ul> <li>Release the posterior capsule and select a thicker insert</li> <li>Extend the distal cut and select a thicker insert</li> <li>Increase the femoral size</li> </ul>			
	narrow	<ul><li>Release the posterior capsule</li><li>Extend the distal cut</li></ul>	<ul><li>Select a thinner insert</li><li>Extend the tibial cut</li></ul>	<ul> <li>Extend the distal cut, release the posterior capsule and select a thicker insert</li> <li>Increase the femoral size and extend the distal cut</li> <li>Increase the femoral size and release the posterior capsule</li> </ul>			
	wide	<ul> <li>Reduce the distal cut</li> <li>Reduce the femoral size and select a thicker insert</li> </ul>	<ul> <li>Reduce the femoral size and select a thicker insert</li> <li>Reduce the femoral size and shorten the distal cut</li> <li>Shorten the distal cut</li> </ul>	■ Select a thicker insert			

#### 9.1 Strategies

If the flexion and extension gaps are incongruent, an individualized strategy must be defined to correct the problem.

The table shows a few possible options for correcting situations in which the flexion and extension gaps are not both equally optimal and instead are either too narrow or too wide.

Note that these solutions are not systematic requirements across the board, however. It is the responsibility of the surgeon to select the most appropriate option on the basis of the clinical evaluation, the surgical situation, patient-specific problems and experience.

#### Femoral/tibial compatibility overview for UC Pro/PS Pro e.motion® implants

Size	F2	F3	F4N	F4	F5N	F5	F6N	F6	F7	F8
T1										
T2										
T3										
T4										
T5										
T6										
T7										
T8										

Standard combination

Tibia > femur = no restrictions

Femur > tibia = can only go up by 2 femur sizes for UC Pro/PS Pro and 1 femur size for UC/PS standard.

#### 10 | PATELLA PREPARATION

Use the caliper to measure the patella thickness. This thickness should not be exceeded after the patella implant has been implanted. Calculate the bone resection plane. The thickness of the remaining patella bone should not fall below 12 mm.



- Clamp the patella and adjust the resection plane by turning the resection depth wheel to the planned plane of the remaining patella bone thickness.
- Perform the resection through the slot using a 1.27 mm-thick saw blade.





Caliper AA847R



Patella resection clamp NS840R



Acculan-Saw

10 | PATELLA PREPARATION



- Remove the patella resection clamp. Place the patella drill/ impaction clamp in a medialized position on the osteotomized patellar surface to reproduce the resected apex of the joint surface. The trial patella can be placed above on the drill sleeve to check its position compared to the medial margin and its appropriate positioning in the superior and inferior direction.
- Using the 6-mm drill bit, drill the implant pegs through the holes up to the limit stop. Use the dedicated trial patella implant to determine the size of the patella.





Patella drill/impaction clamp NS841R



Acculan drill



Drill NQ449R



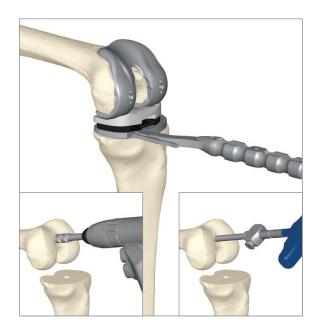
Trial patella NQ281-NQ285

#### 11 | TRIAL REDUCTION

- Place the trial femoral and tibial implants on the prepared bone surfaces
- The trial meniscus component, which is the product of the gap measurements using the spacer or distractor, is placed between the two trial implants. The modular trial meniscus components are available in thicknesses of 10 to 20 mm (for e.motion® UC, FP, Pro and size 2+3 PS) and up to 24 mm (for size 4-8 e.motion® PS).
- The same e.motion® trial components are used for trial reduction of the right and left knee. The dimensions of the trial components correspond to the final implants. The required trial meniscus component height can be achieved in conjunction with the complementary plate. The complementary plate is used to simulate the medialzed center of rotation. Once the complementary plate has been connected with the main trail meniscus component, the letter R and L on the underside indicate the joint side for which the connection is intended.



- Evaluate the stability of the joint by applying varus-valgus loads in extension and flexion. If the joint appears to be unstable (if gaps open when the joint is placed under load), test a thicker trial meniscus component.
- Evaluate the range of movement of the knee using trial components. Restricted extension and flexion and significant hyperextension should be avoided during the procedure.
- Once the desired result is achieved, drill the holes for the femoral pegs.





Tibial trial plateau NS532R-NS538R



Tibial trial plateau holder NQ378R



Trial meniscus component

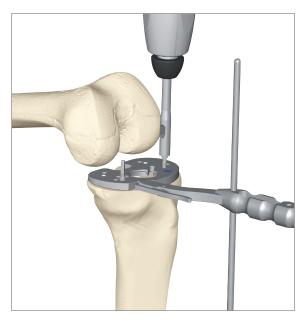


complementary plate NS675-NS697



Trial rotation peg NS541P-NS543P

#### 12 | FINAL TIBIA PREPARATION



#### 12.1 Tibial wing preparation

- Determine the size of the tibia and achieve correct transversal rotational alignment of the trial plateau, avoiding ML-AP overhang and aiming for optimum bone coverage.
- Place the trial plateau flush onto the tibial resection and determine the rotation using the EM rod inserted through the holder. The reference points for rotation are the central third of the anterior tuberosity and the second toe axis of the leg.
   The plateau is secured by inserting short, headed pins into the marked holes.



As an option for the bony references, when the trial implants are in place, (see page 37) the leg can be mobilized alternately between flexion and extension to maneuver the plateau into a natural position beneath the femur. Use the electric cautery pen to mark the exact anterior position, where the plateau has a central anterior laser marking.

#### **INSTRUMENTS**



Acculan drill



Acculan saw



Tibia trial plateau NS532R-NS538R



Tibia trial plateau fastener NQ378R



Headed dpin 30 mm NP585R



Pin driver NP613R



Rotation peg NS541P-NS543P

- Remove the tibial handle. Place the center sleeve onto the tibial plateau, positioning the posterior teeth first.
- First use the tibial drill with stop to prepare the bone for the wing chisel.

#### NOTE

If drilled to the stop the 12 mm mini stem is prepared. If drilled to the engraved marking on the drill it is prepared for the peek plug. If prepared between stop and marking, the obturator 6 mm) is prepared.



■ The wing stem is prepared using the wing chisel attached to the corresponding wing chisel holder. Both are driven in distally through the center sleeve and up to the limit stop on the tibia plateau or to the laser marking on the wing chisel. The center sleeve is then loosened by pulling up the two lateral wing handles and can then be removed. The wing chisel remains in the bone as a trial implant.





Tibia trial plateau NS532R-NS538R



Headed pins 30 mm NP585R



Wing chisel handle NS791R-NS792R



Center sleeve for tibial broach NS527R-NS529R

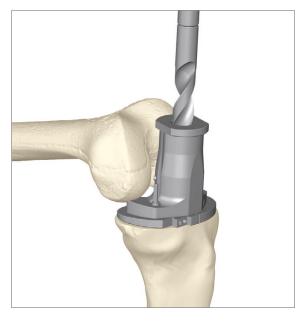


Drill bit with stop NS521R-NS523R



Acculan drill

#### 12 | FINAL TIBIA PREPARATION



#### 12.2 Tibia stem preparation

If the bone quality is poor, the primary fixation can be reinforced with a stem extension. A cemented or cementless stem can be selected depending on the surgeon's approach.

#### Option 1: Preparation following a tibial resection

In this case, the tibia is prepared as described in steps chapter 8. In the final step, a long drill bit is used instead of the standard drill bit to prepare the medullary cavity for the future stem.



The length and diameter of this long drill bit must be defined on the basis of the preoperative X-rays. Drill through inserts for the center sleeve, the diameters of which correspond to the trial diameter (12, 14 or 16 mm). The drill has two laser markings indicating the correct depth for the short and long stems. For the final wing preparation, the appropriate trial tibia stem is connected to the wing chisel.

Please note that this option is to be used for cemented stems.

#### **NOTE**

The implant stems have diameters of 10, 12 and 14 mm. The cement mantle is therefore 1 mm.

#### **INSTRUMENTS**



Wing chisel/trial bit NS524R-NS526R



Locking screw for wing chisel/trial bit NE105T-NE107T



Wing chisel handle, NS524R-NS526R



Tibial drilling sleeve for cemented stem NS547R-NS549R



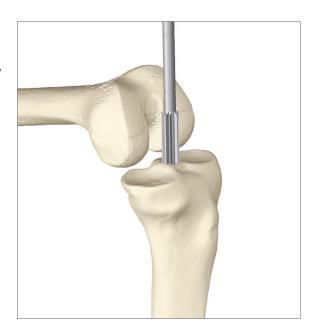
Drill bit for cemented stem NS544R-NS546R



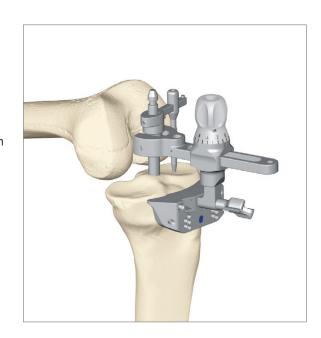
Tibia trial stem NE114T-NE117T, NE094T-NE097T, NE124T-NE127T

#### Option 2: Preparation with reference to the extension stem

In this case, use the drill (Ø 9 mm) to open the medullary cavity of the tibia in accordance with the preoperative planning (entry point). The finest reamer is then connected to the T-handle and inserted into the medullary cavity of the tibia as deeply as possible to achieve primary stability and until a depth laser marking has reached the estimated tibial resection plane (short or long stem). If necessary, a larger diameter can be used to achieve stability. After removing the T-handle, the intramedullary alignment system is secured using the 0° slope sleeve and the cutting guide on the reamer. The IM tibial resection height probe is set to the lowest point of the tibial plateau to define the 0 plane.



The resection height is then defined by turning the adjusting wheel. The EM alignment rod can be used to check the cutting block alignment. The cutting block is secured in the "0" position with two headless pins. The +/-2-mm pinholes on the resection blocks allow the resection plane to be adjusted if required. To prevent slippage during the resection, insert additional pins into converging holes. Once the cutting block has been released from the alignment system, the IM tibial alignment system and the T-handle are removed together.





Reamer for cementless stem NE154R-NE158R



IM alignment rod NS331R



IM alignment system NS332R

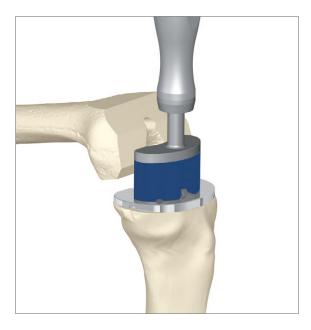


Tibial resection height probe for alignment sleeves NS847R



FGT tibial cutting block NS860R

#### 13 | IMPLANTATION OF THE FINAL COMPONENTS



The following is the recommended implantation sequence:

- Tibial implant
- Femoral implant
- Meniscus Component
- Patella
- The final tibial implant is brought into the exact predetermined position. Final positioning is performed with the aid of the tibial plateau impactor. When implanting the tibia, the rotation peg corresponding to the meniscal component height can be secured to the tibial implant prior to implantation. The rotation peg is tightened at a torque of 10 Nm using the torque wrench with adapter.

**Option:** The rotation peg can also be inserted in the tibial implant once the cement has completely cured.



#### NOTE

If an FP version is being used, the meniscal component must be inserted before implantation of the final femoral implant.

#### **INSTRUMENTS**



Counterholder for stem fixation NS570R



Tibial plateau impactor NS425



Tibial implant

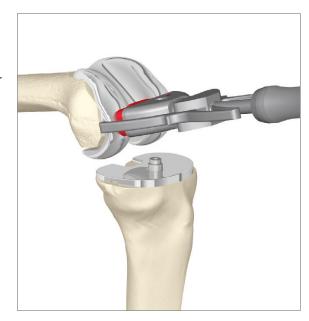


Torque wrench NE160R

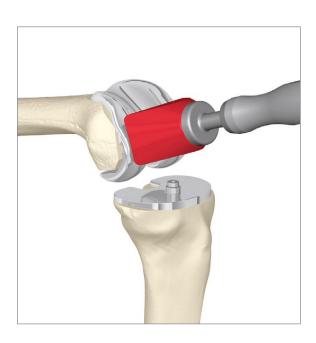


Torque wrench adapter NQ658R

- The final femoral implant is aligned and implanted using the femoral implant holder and the insert from the corresponding size group. To also ensure a good attachment in the sagittal direction, the holder should be pressed in the anterior direction.
- The femoral holder is opened by turning the handle counterclockwise.



• The femoral impactor is used to hammer the implant into its final position.





Implant retaining / insertion instrument NS600R



Femoral insert for NS600R, NS601-NS603

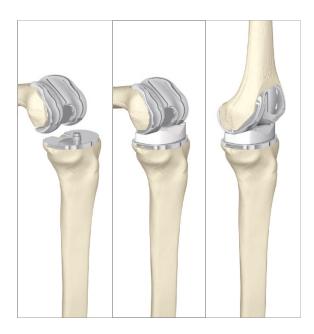


Femoral impactor NS424



Femoral implant

## 13 | IMPLANTATION OF THE FINAL COMPONENTS



 The meniscus component is positioned above the rotation peg (UC and PS) or the fixation hook (FP).

#### NOTE

A trial meniscus component can be inserted while the cement is curing. A final check can then be made of the range of movement and joint stability and the final PE height can be defined.



The patella is implanted using the patella drill/impaction clamp and the concave plastic insert, which ensures good force transmission during the cement curing process.

#### **INSTRUMENTS**



Menicus Component



Patella drill/ impaction clamp NS841R



Insert for NS841R, NS842



Patella



Trial rotation peg NS540P

# NOTES

#### 14 | CEMENTING TECHNIQUE

- Irrespective of the fixation method used, it is extremely important to use correct techniques in order to avoid complications and early failure. In addition, even in the case of precise resections, it is important to ensure that the components are fully seated on the prepared bone surface. Varus-valgus alignment can be greatly impaired by an uneven medial-lateral cement mantle and poorly seated components. If insufficient care is taken, there can be a tendency to place femoral components in a flexed position.
- After being cemented, the final implant components have greater stability than the trial components. In view of this, it is advisable to check balance and stability once more after cementing to allow any necessary additional adjustments to be made. Poor cementing techniques have been linked with early and continuous component migration. This, in turn, results in significantly higher aseptic loosening rates. For this reason, special care must be taken when completing the cementing procedure.
- Prepare the bone surfaces and cancellous bone by means of jet lavage with a tourniquet on the knee. This step ensures good cement penetration and integration with the prepared bony surfaces and also removes bone debris, which can act as a foreign body and increase polyethylene wear following the surgical procedure. Before starting cementing, ensure that the implant beds are dried thoroughly and exposed. To improve cement penetration, pressure must be exerted on all surfaces. Take special care when cementing the dorsal femoral condyles as this has a significant impact on implant fixation. When the cement is curing, you should also build distal pressure with the leg in extension to improve intrusion of the cement in the bone.
- Make sure you completely remove all excess cement from the implant/bone interface. Any cement debris that is left in situ could impinge upon or injure the adjacent soft tissue. These loose cement particles can cause third-body wear, which can contribute to early worsening of the fixation.



# 15 | WOUND CLOSURE



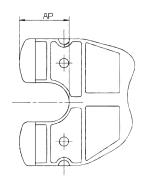
After polymerization of the cement and removal of all excess cement debris, irrigate the joint thoroughly. If using a tourniquet, loosen it and induce hemostasis.

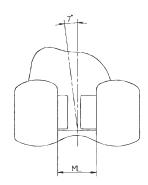
Close the individual soft tissue layers according to the usual procedure.

## 16 | IMPLANT DIMENSIONS

AP/ML dimensions [mm] of e.motion® femoral implants for the possible required use of intramedullary nails. Dimensions in mm:

Size	AP	ML
F2	20	18
F3	22	19
F4	24	20
F5	27	21
F6	29	22
F7	31	23
F8	33	25

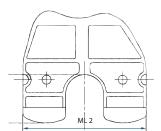


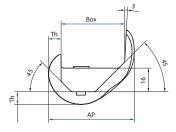


#### Femoral component

The following table provides an overview of the main e.motion® femoral implants dimensions. Dimensions in mm:

Size	ML	AP	Box	Th	Trochlea depth
F2	56	50	37	7	4
F3	60	54	40	7	4.5
F4	64	58	43	8.5	4.5
F4 N	60	58	43	8.5	4.5
F5	68	62	46	8.5	5
F5 N	64	62	46	8.5	5
F6	72	66	49	8.5	5
F6 N	68	66	49	8.5	5
F7	76	70	52	10	5.5
F8	80	74	55	10	6

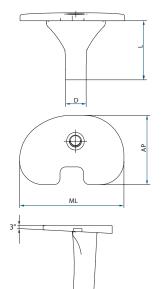




#### **Tibial component**

The following table provides an overview of the main e.motion® tibial implants dimensions. Dimensions in mm:

Size	ML	AP	AP/ML	L	D
T1 L/R	59	38	0.64	40	12
T2 L/R	63	41	0.65	40	12
T3 L/R	67	44	0.66	40	12
T4 L/R	71	47	0.66	45	14
T5 L/R	75	50	0.67	45	14
T6 L/R	79	53	0.67	45	14
T7 L/R	83	56	0.67	50	16
T8 L/R	87	59	0.68	50	16

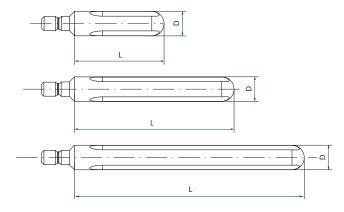


#### Tibial extension stem

The following table provides an overview of the main e.motion® tibial extension stems dimensions.

Dimensions in mm:

Size	L	D
Short	52	10, 12, 14, 16
Medium	92	10, 12, 14, 16
Long	132	10, 12, 14, 16

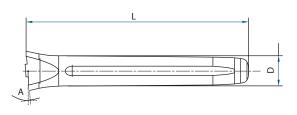


#### Femoral extension stem

The following table provides an overview of the main  $\text{e.motion}^{\circ}$  femoral extension stems.

Dimensions in mm:

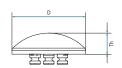
Valgus angle	Size	L	D
5°	Short	77	14, 16, 18, 20
	Medium	117	14, 16, 18, 20
	Long	157	14, 16, 18, 20
7°	Short	77	14, 16, 18, 20
	Medium	117	14, 16, 18, 20
	Long	157	14, 16, 18, 20



#### Patellar component

The following table provides an overview of the main patellar implants dimensions. Dimensions in mm:

Size	D	Th
1	26	7
2	29	8
3	32	9
4	35	10
5	38	11

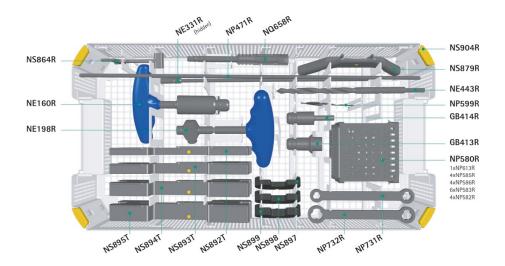


# 17 | INSTRUMENTS

Art. no.	Description		
	IQ e.motion® UC Pro basic instrument set		
	NS901 IQ e.motion® Set general instruments		
	NS902 IQ e.motion® Set tibial and femoral instruments		
	NS903 IQ e.motion® set femur preparation		
	NS856 IQ e.motion® Pro set tibia preparation and UC trial meniscal components		
	NS706 IQ e.motion® Set femoral trial implants		
NS704	IQ e.motion® Set FP trial meniscal components		
NS709	IQ set Patella preparation		
X-ray tem	plates		
	NE398 FP/UC/PS/UC Pro Femur – FP/UC/PS Tibia – Revision – e.motion® stems	1.10:1	
	NE399 FP/UC/PS/UC Pro Femur – FP/UC/PS Tibia – Revision – e.motion® stems	1.15:1	
	NS416 PS Pro Femur – PS Pro/UC Pro Tibia – Standard stems	1.10:1	
	NS417 PS Pro Femur – PS Pro/UC Pro Tibia – Standard stems	1.15:1	

Optional instruments Page 57
Saw blades Page 58

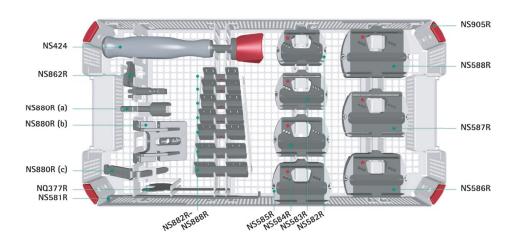
# NS901 | GENERAL INSTRUMENTS



Quant.	Art. no.	Description
1	NS904R	IQ e.motion® FGT general instrument tray
1	JA455R	Lid for DIN OrthoTray without handles
1	NS897	Complement spacer block 7.0 mm
1	NS898	Complement spacer block 8.5 mm
1	NS899	Complement spacer block 10.0 mm
4	NP582R	Headless fixing pin Ø 3.2 mm L 38 mm
6	NP583R	Headless fixing pin Ø 3.2 mm L 63 mm
4	NP585R	Headed fixing pin Ø 3.2 mm L 30 mm
4	NP586R	Headed fixing pin Ø 3.2 mm L 50 mm
1	NP613R	Pin driver
1	GB413R	Acculan II hex. chuck (Targon®)
1	GB414R	Hex. chuck (Targon®) with triangular adapter
1	NP471R	Alignment control rod w/o sleeve
1	NE331R	Alignment control rod w. sleeve
1	NS864R	FGT EM alignment control plate

Quant.	Art. no.	Description
1	NE443R	Femoral IM drill Ø 9.0 mm 200 mm
1	NE198R	T-handle
1	NS892T	FGT Spacer block 10+12 mm
1	NS893T	FGT Spacer block 14+16 mm
1	NS894T	FGT Spacer block 18+20 mm
1	NS895T	FGT Spacer block 22+24 mm
1	NS879R	FGT Cutting block counter-guide
1	NE160R	10 Nm torque wrench w. T-handle
1	NQ658R	Torque adapter, SW 3.5
1	NP731R	Stem chuck key Ø 10+12 mm
1	NP732R	Stem chuck key Ø 14+16 mm
1	TF087	Graphic template for NS904R (NS901)
1	NP580R	Pin storage box (storage tray insert)
1	NP599R	Resection control plate

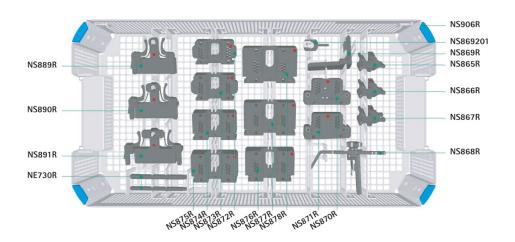
NS902 | FEMUR PREPARATION



Quant.	Art. no.	Description
1	NS905R	IQ e.motion® FGT Femur preparation tray
1	JA455R	Lid for DIN OrthoTray without handles
1	NS880R	FGT Femur sizing instrument
1	NS582R	4-in-1 Femur cutting block F2
1	NS583R	4-in-1 Femur cutting block F3
1	NS584R	4-in-1 Femur cutting block F4
1	NS585R	4-in-1 Femur cutting block F5
1	NS586R	4-in-1 Femur cutting block F6
1	NS587R	4-in-1 Femur cutting block F7
1	NS588R	4-in-1 Femur cutting block F8
1	NS581R	ML Femur sizing hook

Quant.	Art. no.	Description
1	NQ377R	Tibia protective plate asymmetric
1	NS424	Femur component impactor
1	NS862R	Femur reference plate, anterior
1	NS882R	FGT Femur reference plate posterior F2
1	NS883R	FGT Femur reference plate posterior F3
1	NS884R	FGT Femur reference plate posterior F4
1	NS885R	FGT Femur reference plate posterior F5
1	NS886R	FGT Femur reference plate posterior F6
1	NS887R	FGT Femur reference plate posterior F7
1	NS888R	FGT Femur reference plate posterior F8
1	TF088	Graphic template for NS905R (NS902)

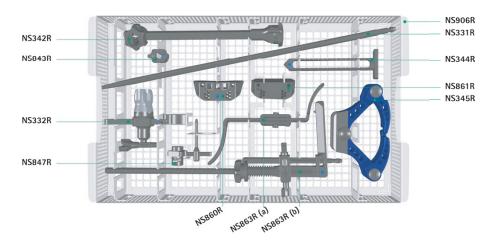
# NS903 | TIBIAL AND FEMORAL INSTRUMENTS



Quant.	Art. no.	Description
1	NS906R	IQ e.motion® FGT tibia & femur tray
1	NS872R	FGT AP femur cutting block F2
1	NS873R	FGT AP femur cutting block F3
1	NS874R	FGT AP femur cutting block F4
1	NS875R	FGT AP femur cutting block F5
1	NS876R	FGT AP femur cutting block F6
1	NS877R	FGT AP femur cutting block F7
1	NS878R	FGT AP femur cutting block F8
1	NS865R	FGT Femur valgus angle block 4°
1	NS866R	FGT Femur valgus angle block 6°
1	NS868R	FGT Anterior femur reference stylus
1	NS867R	FGT Femur valgus angle block 8°

Quant.	Art. no.	Description
1	NS869R	FGT Holder dist. femur cutting block
1	NS870R	FGT Femur cutting block distal
1	NS871R	FGT Femur correct. cutting block. 2° var/val
1	NS889R	FGT Femur rot. alignment block F2/F3
1	NS890R	FGT Femur rot. alignment block F4-F6
1	NS891R	FGT Femur rot. alignment block F7/F8
2	NE730R	Handle for cutting block APC

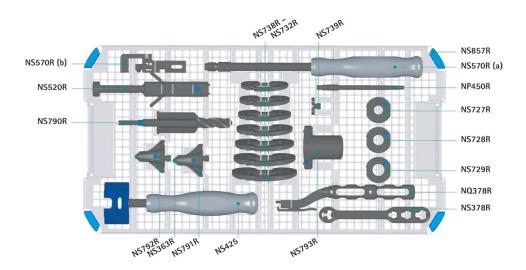
NS903 | TIBIAL AND FEMORAL INSTRUMENTS



Quant.	Art. no.	Description
1	JA455R	Lid for DIN OrthoTray without handles
1	NS863R	Height guid. axis EM alignment
1	NS342R	Tibial alignment system handle
1	NS344R	Tibial alignment sys. bimall. holder
1	NS345R	Tibial alignment sys. bimalleolar clamp
1	NS843R	IM tibial alignment socket 0°

Quant.	Art. no.	Description
1	NS847R	IM Tibia resect. ht stylus
1	NS860R	FGT tibial cutting block
1	NS861R	FGT tib. correct. cutting bl. 2° var/val
1	NS331R	IM alignment rod Ø 8.0 mm
1	NS332R	IM aligmment system
1	TF089	Graphic template for NS906R (NS903)

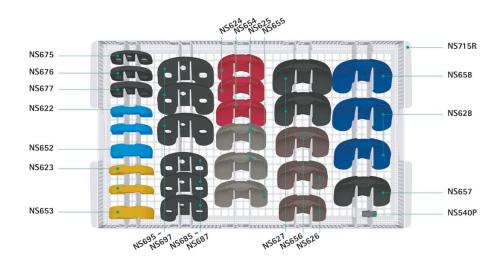
# NS856 | UC PRO TIBIA PREPARATION



Quant.	Art. no.	Description
1	NS857R	IQ e.motion® Pro tibia preparation tray
1	JA455R	Lid for DIN OrthoTray without handles
1	NS520R	Impactor/knock-out handle
1	NS790R	Opening drill Ø 14 mm
1	NS791R	Tibia osteodenser, left
1	NS792R	Tibia osteodenser, right
1	NS793R	Osteodenser centralizer
1	NS732R	Tibia trial/prep.plat. T2
1	NS733R	Tibia trial/prep.plat. T3
1	NS734R	Tibia trial/prep.plat. T4
1	NS735R	Tibia trial/prep.plat. T5
1	NS736R	Tibia trial/prep.plat. T6
1	NS737R	Tibia trial/prep.plat. T7
1	NS738R	Tibia trial/prep.plat. T8

Quant.	Art. no.	Description
1	NS739R	Rotation peg
1	NS570R	Stem fixation counterholder
1	NS425	Tibia plateau impactor
1	NQ378R	Tibia trial/prep.plat. holder
1	NS363R	Locking screw Ø 12 mm
1	NS378R	Stem chuck key
1	NS727R	Tibia stem drill. sleeve Ø 12 mm
1	NS728R	Tibia stem drill. sleeve Ø 14 mm
1	NS729R	Tibia stem drill. sleeve Ø 16 mm
1	NP450R	Torque wrench adapter SW 4.5
1	TF078	Graphic template for NS857R+NS715R (NS856)

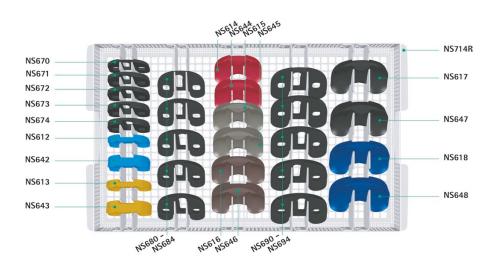
NS856 | UC PRO TIBIA PREPARATION



Quant.	Art. no.	Description
1	NS857R	IQ e.motion® Pro tibia preparation tray
1	JA455R	Lid for DIN OrthoTray without handles
1	NS520R	Impactor/knock-out handle
1	NS790R	Opening drill Ø 14 mm
1	NS791R	Tibia osteodenser, left
1	NS792R	Tibia osteodenser, right
1	NS793R	Osteodenser centralizer
1	NS732R	Tibia trial/prep.plat. T2
1	NS733R	Tibia trial/prep.plat. T3
1	NS734R	Tibia trial/prep.plat. T4
1	NS735R	Tibia trial/prep.plat. T5
1	NS736R	Tibia trial/prep.plat. T6
1	NS737R	Tibia trial/prep.plat. T7
1	NS738R	Tibia trial/prep.plat. T8

Quant.	Art. no.	Description
1	NS739R	Rotation peg
1	NS570R	Stem fixation counterholder
1	NS425	Tibia plateau impactor
1	NQ378R	Tibia trial/prep.plat. holder
1	NS363R	Locking screw Ø 12 mm
1	NS378R	Stem chuck key
1	NS727R	Tibia stem drill. sleeve Ø 12 mm
1	NS728R	Tibia stem drill. sleeve Ø 14 mm
1	NS729R	Tibia stem drill. sleeve Ø 16 mm
1	NP450R	Torque wrench adapter SW 4.5
1	TF078	Graphic template for NS857R+NS715R (NS856)

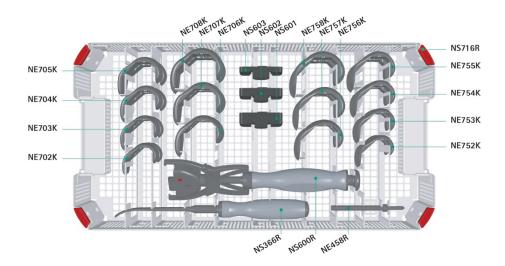
# NS704 | FP TRIAL MENISCAL COMPONENTS



Quant.	Art. no.	Description
1	NS714R	FP trial meniscal components tray
1	NS612	FP trial meniscal comp. F2 - 6 mm
1	NS642	FP trial meniscal comp. F2 - 12 mm
1	NS613	FP trial meniscal comp. F3 - 6 mm
1	NS643	FP trial meniscal comp. F3 - 12 mm
1	NS614	FP trial meniscal comp. F4 - 6 mm
1	NS644	FP trial meniscal comp.F4 - 12 mm
1	NS615	FP trial meniscal comp. F5 - 6 mm
1	NS645	FP trial meniscal comp. F5 - 12 mm
1	NS616	FP trial meniscal comp. F6 - 6 mm
1	NS646	FP trial meniscal comp. F6 - 12 mm
1	NS617	FP trial meniscal comp. F7 - 6 mm
1	NS647	FP trial meniscal comp. F7 - 12 mm
1	NS618	FP trial meniscal comp. F8 - 6 mm
1	NS648	FP trial meniscal comp. F8 - 12 mm

Quant.	Art. no.	Description
1	NS670	FP complement plate size 1 (S) - 4 mm
1	NS672	FP complement plate size 1 (S) R - 6 mm
1	NS671	FP complement plate size 1 (S) L - 6 mm
1	NS674	FP complement plate size 1 (S) R - 8 mm
1	NS673	FP complement plate size 1 (S) L - 8 mm
1	NS680	FP complement plate size 2 (M) - 4 mm
1	NS682	FP complement plate size 2 (M)R - 6 mm
1	NS681	FP complement plate size 2 (M) L - 6 mm
1	NS684	FP complement plate size 2 (M) R - 8 mm
1	NS683	FP complement plate size 2 (M) L - 8 mm
1	NS690	FP complement plate size 3 (L) - 4 mm
1	NS692	FP complement plate size 3 (L) R - 6 mm
1	NS691	FP complement plate size 3 (L) L - 6 mm
1	NS694	FP complement plate size 3 (L) R - 8 mm
1	NS693	FP complement plate size 3 (L) L - 8 mm

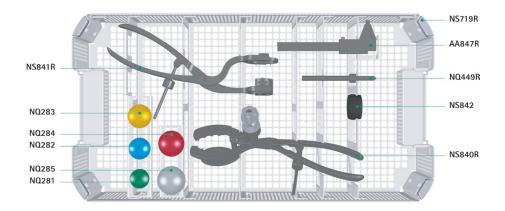
NS706 | FEMORAL TRIAL IMPLANTS



Quant.	Art. no.	Description
1	NS716R	Femoral trial implant tray
1	NS600R	Implant retaining/insertion instrument
1	NS601	Femoral F2/F3 insert for NS600R
1	NS602	Femoral F4/F5/F6 insert for NS600R
1	NS603	Femoral F7/F8 insert for NS600R
1	NE702K	Femoral trial implant F2 L
1	NE752K	Femoral trial implant F2 R
1	NE703K	Femoral trial implant F3 L
1	NE753K	Femoral trial implant F3 R
1	NE704K	Femoral trial implant F4 L
1	NE754K	Femoral trial implant F4 R

Quant.	Art. no.	Description
1	NE705K	Femoral trial implant F5 L
1	NE755K	Femoral trial implant F5 R
1	NE706K	Femoral trial implant F6 L
1	NE756K	Femoral trial implant F6 R
1	NE707K	Femoral trial implant F7 L
1	NE757K	Femoral trial implant F7 R
1	NE708K	Femoral trial implant F8 L
1	NE758K	Femoral trial implant F8 R
1	NS366R	Osteotomy 20/205 mm
1	NE458R	Stop drill bit Ø 5 x 25 mm
1	TF066	Graphic template for NS716R

# NS709 | PATELLA PREPARATION



Quant.	Art. no.	Description
1	NS719R	Patella preparation tray
1	NS840R	Patella resection clamp
1	NS841R	Patella drilling and driving clamp
1	NS842	Insert for patella drilling and driving clamp
1	AA847R	Caliper

Quant.	Art. no.	Description
1	NQ281	Trial patella 3 pegs P1 Ø 26 x 7 mm
1	NQ282	Trial patella 3 pegs P2 Ø 29 x 8 mm
1	NQ283	Trial patella 3 pegs P3 Ø 32 x 9 mm
1	NQ284	Trial patella 3 pegs P4 Ø 35 x 10 mm
1	NQ285	Trial patella 3 pegs P5 Ø 38 x 11 mm
1	NQ449R	Drill bit with stop Ø 6 x 28 mm
1	TF069	Graphic template for NS719R

## 18 | OPTIONAL INSTRUMENTS



NP604R Femorotibial distractor



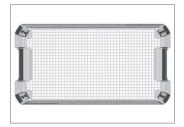
Driving pins (NP742R, NP743R, NP748R, NP749R, NP750R)



NS845R Tibial IM alignment sleeve 5°



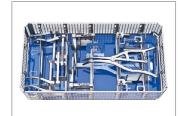
NP609R Distraction forceps for NP604R



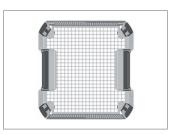
NQ1429R Optional large instrument storage tray, lid JA455R



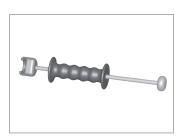
NS846R Tibial IM alignment sleeve 7°



NM640 Force-controlled spreader set



NE1029R Optional small instrument storage tray, lid JA415R



NP684R Extraction instrument



NE150R Leg holder for TKA NE153R Fixation frame



NS844R Tibial IM alignment sleeve 3°

System	Item No.	Width	Thickness	Saw blades 1 steril 2
AESCULAP® Acculan 3 Ti, Acculan 4 Length 75 mm	GE231SU	9 mm	1.27 mm	
AESCULAP®	GE233SU	13 mm	1.27 mm	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Acculan 3 Ti, Acculan 4 Length 90 mm	GE236SU	13 mm	1.27 mm	<del></del>
Langur so min	GE241SU	19 mm	1.27 mm	
	GE246SU	23 mm	1.27 mm	98
AESCULAP <sup>®</sup> Acculan 3 Ti, Acculan 4 Length 100 mm	GE249SU	19 mm	1.27 mm	001
Stryker	GE330SU	13 mm	1.27 mm	
System 4-7	GE331SU	19 mm	1.27 mm	1,27
Length 90 mm	GE332SU	25 mm	1.27 mm	_ = 1
Synthes Trauma Recon System Battery Power Line Battery Power Line II Length 90 mm	GE323SU	13 mm	1.27 mm	
Zimmer-Biomet Universal Length 90 mm	GE326SU	25 mm	1.27 mm	
Conmed Power Pro	GE327SU	13 mm	1.27 mm	
Mpower Mpower 2, Hall 50 Length 90 mm	GE329SU	25 mm	1.27 mm	

A complete overview of all saw blades with Aesculap® couplings are listed in our Burrs & Blades catalog: 017599.

System	Saw blades for reciprocating saws 75/10/1.0/1.2 mm	Saw blade for reciprocating saws 75/12/1.0/1.2 mm
Acculan 3 Ti, Acculan 4		
	GC769R	GC771R

## 21 | IMPLANT MATRIX

## e.motion® Implant Matrix - Femoral Implants - Standard



#### Femur FP/UC cemented

Var.:	F2	F3	F4	F4N	F5	F5N	F6	F6N	F7	F8
Left	N0502K	N0503K	N0504K	N0817K	N0505K	N0818K	N0506K	N0819K	N0507K	N0508K
Right	N0602K	N0603K	N0604K	N0917K	N0605K	N0918K	N0606K	N0919K	N0607K	N0608K



#### Femur FP/UC cementless

Var.:	F2	F3	F4	F4N	F5	F5N	F6	F6N	F7	F8
Left	N0582K	N0583K	N0584K	N0837K	N0585K	N0838K	N0586K	N0839K	N0587K	N0588K
Right	N0682K	N0683K	N0684K	N0937K	N0685K	N0938K	N0686K	N0939K	N0687K	N0688K



#### Femur PS cemented

Var.:	F2	F3	F4	F5	F6	F7	F8
Left	NB702K	NB703K	NB704K	NB705K	NB706K	NB707K	NB708K
Right	NB752K	NB753K	NB754K	NB755K	NB756K	NB757K	NB758K



#### Patella

Var.:	F2-F8
P1	NX041
P2	NX042
P3	NX043
P4	NX044
P5	NX045



#### Distal femoral augments

Var.:	F2	F3	F4	F5	F6	<b>F</b> 7	F8
4 mm	NB282K	NB283K	NB284K	NB285K	NB286K	NB287K	NB288K
8 mm	NB292K	NB293K	NB294K	NB295K	NB296K	NB297K	NB298K
12 mm			NB274K	NB275K	NB276K	NB277K	NB278K



#### Posterodistal femoral augments

Var.:	F2	F3	F4	F5	F6	F7	F8
4 x 4 mm	NB302K	NB303K	NB304K	NB305K	NB306K	NB307K	NB308K
4 x 8 mm	NB312K	NB313K	NB314K	NB315K	NB316K	NB317K	NB318K
4 x 12 mm			NB340K	NB341K	NB342K	NB343K	NB344K
8 x 4 mm	NB322K	NB323K	NB324K	NB325K	NB326K	NB327K	NB328K
8 x 8 mm	NB332K	NB333K	NB334K	NB335K	NB336K	NB337K	NB338K
8 x 12 mm			NB350K	NB351K	NB352K	NB353K	NB354K
12 x 4 mm			NB359K	NB360K	NB361K	NB362K	NB363K
12 x 8 mm			NB364K	NB365K	NB366K	NB367K	NB368K
12 x 12 mm			NB394K	NB395K	NB396K	NB397K	NB398K

## e.motion® Implant Matrix - Tibial Implants - Standard



#### Tibia FP Monobloc cemented

Var.:	T2	T3	T4	T5	T6	T7	T8
Left	N0522K	N0523K	N0524K	N0525K	N0526K	N0527K	N0528K
Right	N0622K	N0623K	N0624K	N0625K	N0626K	N0627K	N0628K



#### Tibia FP Modular cemented

Var.:	T2	T3	T4	T5	T6	T7	T8
Left	NB732K	NB733K	NB734K	NB735K	NB736K	NB737K	NB738K
Right	NB782K	NB783K	NB784K	NB785K	NB786K	NB787K	NB788K



#### Tibia UC/PS Modular cemented

Var.:	T2	T3	T4	T5	T6	T7	T8
Left	NB742K	NB743K	NB744K	NB745K	NB746K	NB747K	NB748K
Right	NB792K	NB793K	NB794K	NB795K	NB796K	NB797K	NB798K



#### Tibial obturator

Var.:	Ø 12	Ø 14	Ø 16
T1/T2/T3	NB105K		
T4/T5/T6		NB106K	
T7/T8			NB107K



#### PEEK plug

Ø 14 mm NN260P

## 21 | IMPLANT MATRIX

## e.motion® Implant Matrix - Femoral Implants - Standard



#### Femur FP/UC cemented

Var.:	F2	F3	F4	F4N	F5	F5N	F6	F6N	F7	F8
Left	N0502Z	N0503Z	N0504Z	N0817Z	N0505Z	N0818Z	N0506Z	N0819Z	N0507Z	N0508Z
Right	N0602Z	N0603Z	N0604Z	N0917Z	N0605Z	N0918Z	N0606Z	N0919Z	N0607Z	N0608Z



#### Femur PS cemented

Var.:	F2	F3	F4	F5	F6	F7	F8
Left	NB702Z	NB703Z	NB704Z	NB705Z	NB706Z	NB707Z	NB708Z
Right	NB752Z	NB753Z	NB754Z	NB755Z	NB756Z	NB757Z	NB758Z



#### Distal femoral augments

Var.:	F2	F3	F4	F5	F6	F7	F8	
4 mm	NB282Z	NB283Z	NB284Z	NB285Z	NB286Z	NB287Z	NB288Z	
8 mm	NB297Z	NB298Z						
12 mm 12 mm femur wedges not in AS available								



#### Posterodistal femoral augments

i osteroaistai rei	norar augme	1103								
Var.:	F2	F3	F4	F5	F6	F7	F8			
4 x 4 mm	NB302Z	NB303Z	NB304Z	NB305Z	NB306Z	NB307Z	NB308Z			
4 x 8 mm	NB312Z	NB313Z	NB314Z	NB315Z	NB316Z	NB317Z	NB318Z			
4 x 12 mm	12 mm F	12 mm Femur-Augmente in AS nicht verfügbar								
8 x 4 mm	NB322Z	NB323Z	NB324Z	NB325Z	NB326Z	NB327Z	NB328Z			
8 x 8 mm	NB332Z	NB333Z	NB334Z	NB335Z	NB336Z	NB337Z	NB338Z			
8 x 12 mm	12 mm fe	12 mm femur wedges not in AS available								
12 x 4 mm	12 mm fe	mur wedg	jes not in <i>i</i>	AS availab	le					
12 x 8 mm	12 mm fe	mur wedg	jes not in <i>i</i>	AS availab	le					
12 x 12 mm	12 mm fe	mur wedo	es not in A	AS availab	le					



#### Patella 3-Peg

Var.:	F2-F8
P1	NX041
P2	NX042
P3	NX043
P4	NX044
P5	NX045

## e.motion® Implant Matrix - Tibial Implants - Standard



#### Tibia UC/PS, modular cemented

Var.:	T2	T3	T4	T5	T6	T7	T8
Left	NB732Z	NB733Z	NB734Z	NB735Z	NB736Z	NB737Z	NB738Z
Right	NB782Z	NB783Z	NB784Z	NB785Z	NB786Z	NB787Z	NB788Z



#### Rotation axis for meniscal components SW 3.5

Var.:								
Height mm	10	12	14	16	18	20	22	24
UC	NR900Z	NR910Z	NR920Z	NR930Z	NR940Z	NR950Z		
PS	NB900Z	NB910Z	NB920Z	NB930Z	NB940Z	NB950Z	NB960Z	NB980Z



#### Rotation axis for meniscal components SW 4.5

		•						
Var.:								
Height mm	10	12	14	16	18	20	22	24
UC	NR801Z	NR811Z	NR821Z	NR831Z	NR841Z	NR851Z		
PS	NB800Z	NB810Z	NB820Z	NB830Z	NB840Z	NB850Z	NB860Z	NB870Z



#### Tibial obturator

Var.:	Ø 12	Ø 14	Ø 16
T1/T2/T3	NB105K		
T4/T5/T6		NB106K	
T7/T8			NB107K

## 21 | IMPLANT MATRIX

## e.motion® Implant Matrix - Meniscal Components - Standard



FP – Left									
Var.:	F2	F3	F4	F5	F6	F7	F8		
10	N0542	N0543	N0544	N0545	N0546	N0547	N0548		
12	N0552	N0553	N0554	N0555	N0556	N0557	N0558		
14	N0562	N0563	N0564	N0565	N0566	N0567	N0568		
16	N0572	N0573	N0574	N0575	N0576	N0577	N0578		



FP – Right									
F2	F3	F4	F5	F6	F7	F8			
N0642	N0643	N0644	N0645	N0646	N0647	N0648			
N0652	N0653	N0654	N0655	N0656	N0657	N0658			
N0662	N0663	N0664	N0665	N0666	N0667	N0668			
N0672	N0673	N0674	N0675	N0676	N0677	N0678			



	UC – Left												
Var.:	F2	F3	F4	F5	F6	F7	F8						
10	NR802	NR803	NR804	NR805	NR806	NR807	NR808						
12	NR812	NR813	NR814	NR815	NR816	NR817	NR818						
14	NR822	NR823	NR824	NR825	NR826	NR827	NR828						
16	NR832	NR833	NR834	NR835	NR836	NR837	NR838						
18	NR842	NR843	NR844	NR845	NR846	NR847	NR848						
20	NR852	NR853	NR854	NR855	NR856	NR857	NR858						



UC – Right													
F2	F3	F4	F5	F6	F7	F8							
NR902	NR903	NR904	NR905	NR906	NR907	NR908							
NR912	NR913	NR914	NR915	NR916	NR917	NR918							
NR922	NR923	NR924	NR925	NR926	NR927	NR928							
NR932	NR933	NR934	NR935	NR936	NR937	NR938							
NR942	NR943	NR944	NR945	NR946	NR947	NR948							
NR952	NR953	NR954	NR955	NR956	NR957	NR958							



	PS – Left												
Var.:	F2	F3	F4	F5	F6	F7	F8						
10	NB802	NB803	NB804	NB805	NB806	NB807	NB808						
12	NB812	NB813	NB814	NB815	NB816	NB817	NB818						
14	NB822	NB823	NB824	NB825	NB826	NB827	NB828						
16	NB832	NB833	NB834	NB835	NB836	NB837	NB838						
18	NB842	NB843	NB844	NB845	NB846	NB847	NB848						
20	NB852	NB853	NB854	NB855	NB856	NB857	NB858						
22			NB864	NB865	NB866	NB867	NB868						
24			NB874	NB875	NB876	NB877	NB878						



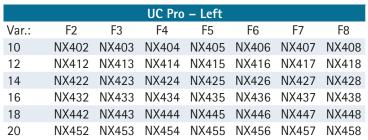
	PS – Right												
F2	F3	F4	F5	F6	F7	F8							
NB902	NB903	NB904	NB905	NB906	NB907	NB908							
NB912	NB913	NB914	NB915	NB916	NB917	NB918							
NB922	NB923	NB924	NB925	NB926	NB927	NB928							
NB932	NB933	NB934	NB935	NB936	NB937	NB938							
NB942	NB943	NB944	NB945	NB946	NB947	NB948							
NB952	NB953	NB954	NB955	NB956	NB957	NB958							
		NB964	NB965	NB966	NB967	NB968							
		NB974	NB975	NB976	NB977	NB978							

#### NOTE

All meniscus components on this page include rotations pegs in CoCrMo material.

### e.motion® Implant Matrix - UC Pro/PS Pro Femoral/Tibial Implants







	PS Pro – Left											
F2	F3	F4	F5	F6	F7	F8						
NX802	NX803	NX804	NX805	NX806	NX807	NX808						
NR812	NX813	NX814	NX815	NX816	NX817	NX818						
NX822	NX823	NX824	NX825	NX826	NX827	NX828						
NX832	NX833	NX834	NX835	NX836	NX837	NX838						
NX842	NX843	NX844	NX845	NX846	NX847	NX848						
NX852	NX853	NX854	NX855	NX856	NX857	NX858						







PS Pro – Right											
F2	F3	F4	F5	F6	F7	F8					
NX902	NX903	NX904	NX905	NX906	NX907	NX908					
NX912	NX913	NX914	NX915	NX916	NX917	NX918					
NX922	NX923	NX924	NX925	NX926	NX927	NX928					
NX932	NX933	NX934	NX935	NX936	NX937	NX938					
NX942	NX943	NX944	NX945	NX946	NX947	NX948					
NX952	NX953	NX954	NX955	NX956	NX957	NX958					

#### NOTE

All meniscus components on this page include rotations pegs in CoCrMo material.

## 21 | IMPLANT MATRIX

## e.motion® Implant Matrix - Stems - Standard

e.motion® specific stems for PS/UC/FP



#### Femoral extension stem cementless

		5	°	7°				
Var.:	Ø 14	Ø 16	Ø 18	Ø 20	Ø 14	Ø 16	Ø 18	Ø 20
Short	NB236K	NB237K	NB238K	NB239K	NB256K	NB257K	NB258K	NB259K
Middle	NB241K	NB242K	NB243K	NB244K	NB261K	NB262K	NB263K	NB264K
Long	NB246K	NB247K	NB248K	NB249K	NB266K	NB267K	NB268K	NB269K



#### Femoral extension stem cemented

	5		$I^{*}$					
Var.:	Ø 14	Ø 16	Ø 14	Ø 16				
Short	NB145K	NB144K	NB135K	NB134K				
Middle	NB150K	NB149K	NB137K	NB136K				
Long	NB155K	NB154K	NB139K	NB138K				



# Sleeve for femoral extension stem

NB140K

AS e.motion® specific stems for PS/UC/FP



#### Femoral extension stem cementless

		5	7°					
Var.:	Ø 14	Ø 16	Ø 18	Ø 20	Ø 14	Ø 16	Ø 18	Ø 20
Short	NB236Z	NB237Z	NB238Z	NB239Z	NB256Z	NB257Z	NB258Z	NB259Z
Middle	NB241Z	NB242Z	NB243Z	NB244Z	NB261Z	NB262Z	NB263Z	NB264Z
Long	NB246Z	NB247Z	NB248Z	NB249Z	NB266Z	NB267Z	NB268Z	NB269Z



#### Femoral extension stem cemented

	5	°	7°			
Var.:	Ø 14	Ø 16	Ø 14	Ø 16		
Short	NB145Z	NB144Z	NB135Z	NB134Z		
Middle	NB150Z	NB149Z	NB137Z	NB136Z		
Long	NB155Z	NB154Z	NB139Z	NB138Z		



# Sleeve for femoral extension stem

NB140Z

## e.motion<sup>®</sup> Implant Matrix - PS Pro Femoral / Tibial Implants



#### Femur PS Pro cemented

Var.:	F2	F3	F4N	F4	F5N	F5	F6N	F6	F7	F8
Left	NX700K	NX701K	NX702K	NX703K	NX704K	NX705K	NX706K	NX707K	NX708K	NX709K
Riaht	NX750K	NX751K	NX752K	NX753K	NX754K	NX755K	NX756K	NX757K	NX758K	NX759K



#### AS Femur PS Pro cemented

Var.:	F2	F3	F4N	F4	F5N	F5	F6N	F6	<b>F</b> 7	F8
Left	NX700Z	NX701Z	NX702Z	NX703Z	NX704Z	NX705Z	NX706Z	NX707Z	NX708Z	NX709Z
Right	NX750Z	NX751Z	NX752Z	NX753Z	NX754Z	NX755Z	NX756Z	NX757Z	NX758Z	NX759Z

#### Aesculap stems for UC Pro/PS Pro tibia



#### Tibial extension stem cemented

Var.:	Ø	Ø 10		12	Ø 14		
Length mm	52	92	52	92	52	92	
Standard	NX060K	NX061K	NX062K	NX064K	NX063K	NX065K	
AS	NX060Z	NX061Z	NX062Z	NX064Z	NX063Z	NX065Z	



#### Tibial extension stem cementless

Var.:	Ø	Ø 10		12	Ø 14		
Length mm	92	132	92	132	92	132	
Standard	NX082K	NX083K	NX084K	NX086K	NX085K	NX087K	
AS	NX082Z	NX083Z	NX084Z	NX086Z	NX085Z	NX087Z	



#### PEEK plug

Ø 14 mm NN260P

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## e.motion® Implant Matrix - PS Pro Femoral / Tibial Implants



#### Tibia UC Pro/PS Pro modular cemented

Var.:	T2	T3	T4	T5	T6	T7	T8
Left	NX732K	NX733K	NX734K	NX735K	NX736K	NX737K	NX738K
Right	NX782K	NX783K	NX784K	NX785K	NX786K	NX787K	NX788K



#### AS tibia UC Pro/PS Pro modular cemented

Var.:	T2	T3	T4	T5	T6	T7	T8
Left	NX732Z	NX733Z	NX734Z	NX735Z	NX736Z	NX737Z	NX738Z
Right	NX782Z	NX783Z	NX784Z	NX785Z	NX786Z	NX787Z	NX788Z



#### AS rotation axis for meniscal components SW 4.5

Var.:								
Height mm	10	12	14	16	18	20	22	24
UC	NR801Z	NR811Z	NR821Z	NR831Z	NR841Z	NR851Z		
PS	NB800Z	NB810Z	NB820Z	NB830Z	NB840Z	NB850Z	NB860Z	NB870Z



#### Tibial obturator for UC Pro/PS Pro

Var.:	Ø 14
Standard	NN264K
AS	NN264Z



#### Tibia short stem cementless

Var.:	Ø 14
Length mm	12
Standard	NB100K
AS	NB1007

## e.motion® Implant Matrix - UC Pro/PS Pro Femoral/Tibial Implants



#### e.motion® UC Pro/PS Pro tibial augments medial

	•	9						
Var.:	Height	T2	T3	T4	T5	T6	T7	T8
Left / Right	4 mm	NX602K	NX603K	NX604K	NX605K	NX606K	NX607K	NX608K
Left	8 mm	NX622K	NX623K	NX624K	NX625K	NX626K	NX627K	NX628K
Right	8 mm	NX632K	NX633K	NX634K	NX635K	NX636K	NX637K	NX638K
Left	12 mm	NX662K	NX663K	NX664K	NX665K	NX666K	NX667K	NX668K
Right	12 mm	NX672K	NX673K	NX674K	NX675K	NX676K	NX677K	NX678K



#### e.motion® UC Pro/PS Pro tibial augments lateral

	•	3						
Var.:	Height	T2	T3	T4	T5	T6	<b>T7</b>	T8
Left / Right	4 mm	NX612K	NX613K	NX614K	NX615K	NX616K	NX617K	NX618K
Left	8 mm	NX642K	NX643K	NX644K	NX645K	NX646K	NX647K	NX648K
Right	8 mm	NX652K	NX653K	NX654K	NX655K	NX656K	NX657K	NX658K
Left	12 mm	NX682K	NX683K	NX684K	NX685K	NX686K	NX687K	NX688K
Right	12 mm	NX692K	NX693K	NX694K	NX695K	NX696K	NX697K	NX698K



#### AS e.motion® UC Pro/PS Pro tibial augments medial

	•	_						
Var.:	Height	T2	T3	T4	T5	T6	T7	T8
Left/Right	4 mm	NX602Z	NX603Z	NX604Z	NX605Z	NX606Z	NX607Z	NX608Z
Left	8 mm	NX622Z	NX623Z	NX624Z	NX625Z	NX626Z	NX627Z	NX628Z
Right	8 mm	NX632Z	NX633Z	NX634Z	NX635Z	NX636Z	NX637Z	NX638Z
Left	12 mm	NX662Z	NX663Z	NX664Z	NX665Z	NX666Z	NX667Z	NX668Z
Right	12 mm	NX672Z	NX673Z	NX674Z	NX675Z	NX676Z	NX677Z	NX678Z



#### AS e.motion® UC Pro/PS Pro tibial augments lateral

Var.:	Height	T2	T3	T4	T5	T6	T7	T8
Left/Right	4 mm	NX612Z	NX613Z	NX614Z	NX615Z	NX616Z	NX617Z	NX618Z
Left	8 mm	NX642Z	NX643Z	NX644Z	NX645Z	NX646Z	NX647Z	NX648Z
Right	8 mm	NX652Z	NX653Z	NX654Z	NX655Z	NX656Z	NX657Z	NX658Z
Left	12 mm	NX682Z	NX683Z	NX684Z	NX685Z	NX686Z	NX687Z	NX688Z
Right	12 mm	NX692Z	NX693Z	NX694Z	NX695Z	NX696Z	NX697Z	NX698Z

# AESCULAP® - a B. Braun brand

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