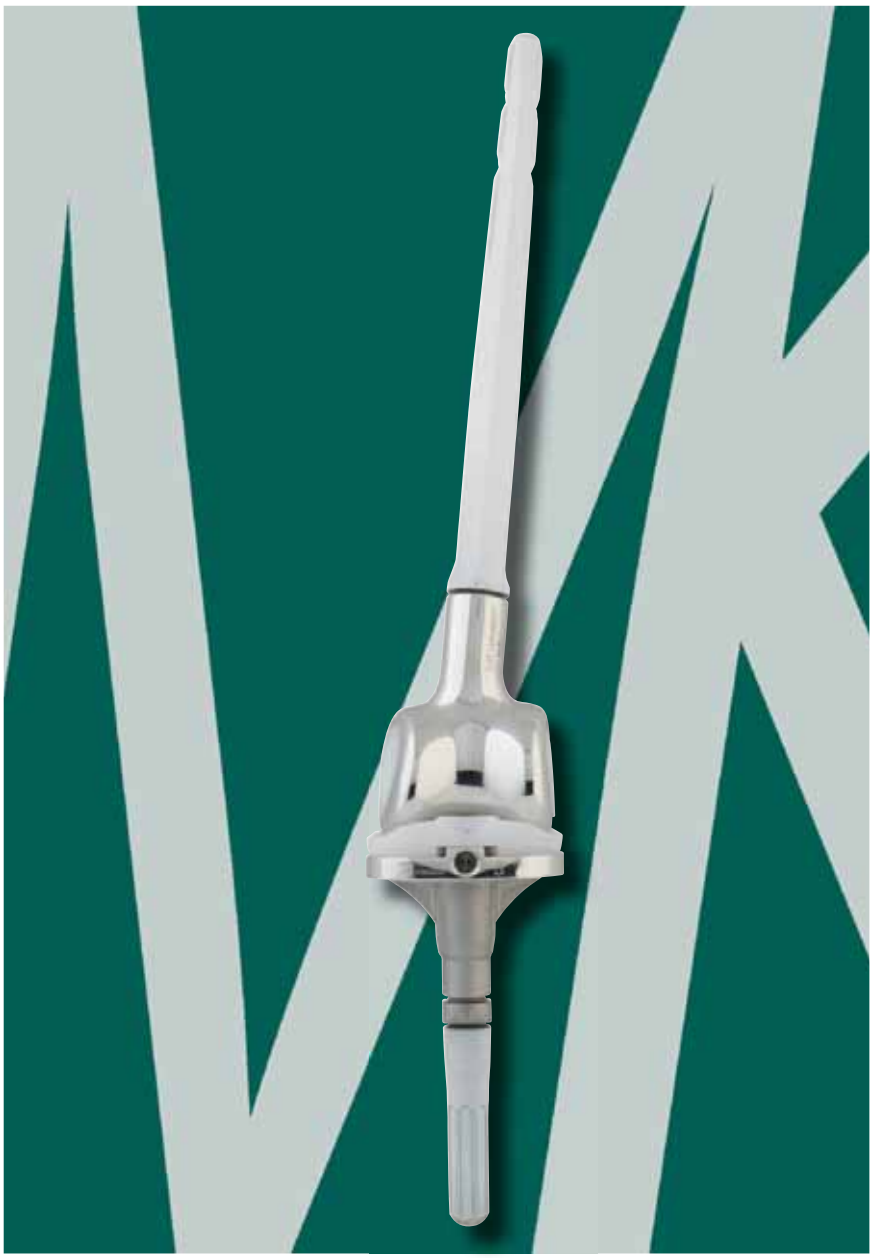
MUTARS®



implantcast

KRI MK

Surgical Technique

MUTARS®

KRI MK
Surgical Technique

MUTARS® was developed in co-operation with
Prof. Dr. W. Winkelmann* (former director)
and Prof. Dr. G. Gosheger (director), Clinic and
Polyclinic for General Orthopedics and Tumororthopedics
at the University Hospital of Münster, Germany.
MUTARS® has been in successful clinical use since 1992.
**now Consultant for Orthopaedic Oncology,*
Schönklinik Eilbek

Table of content

Nota Bene: The described surgical technique is the suggested treatment for uncomplicated procedures. In the final analysis the preferred treatment is that which addresses the needs of the individual patient.

MUTARS® KRI MK - the modular knee system

characteristics

- full constrained knee system
- Mobile-Bearing and Fixed Bearing PE-inserts
- up to 20° rotation (Mobile-Bearing)
- cemented and cementless
- 360° free adjustable tibial offset
- tibial offsets of 0, 2, 4 and 6mm
- fixation of tibial spacers
- 4 tibial sizes

Preoperative Planning

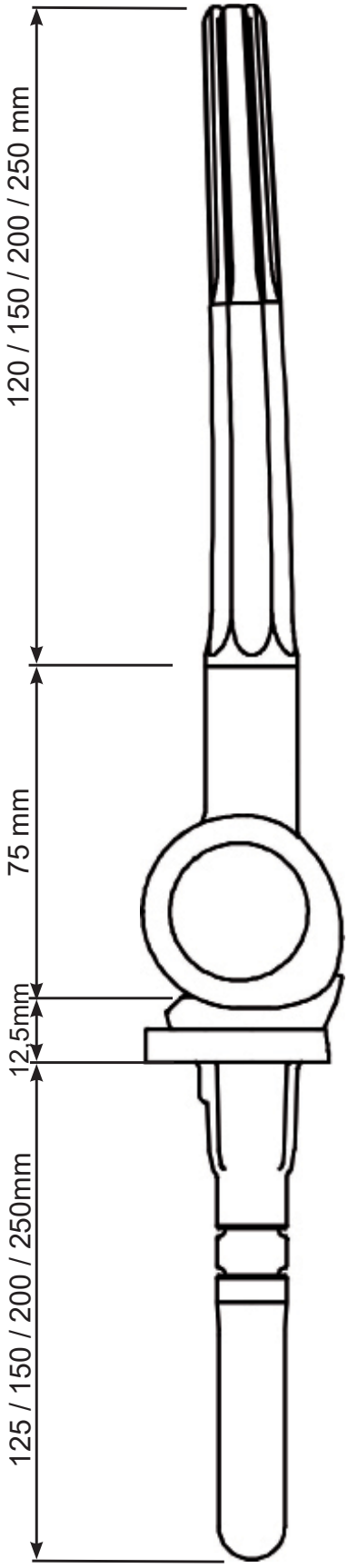
Preoperative planning and precise surgical techniques are mandatory for optimal results. The instructions and the procedure given in the surgical technique to the system must be adhered to. Familiarity with the recommended surgical technique and its careful application is essential to achieve the best possible outcome.

Prior to surgery a surgical planning with regard to the dimensions of the prosthetic model and the positioning of the implant components in the bone has to be carried out by the surgeon. For this purpose, x-ray templates are available from implantcast GmbH.

Figure A: MUTARS® KRI MK implant in A/P-view

Figure B: MUTARS® KRI MK implant in M/L-view

System Overview



MUTARS® RS stems
Ø 11-18mm cemented
length: 120, 150, 200mm
Ø 10-20mm cementless HA
length:150, 200, 250mm

MUTARS® KRI MOM
length: 75mm

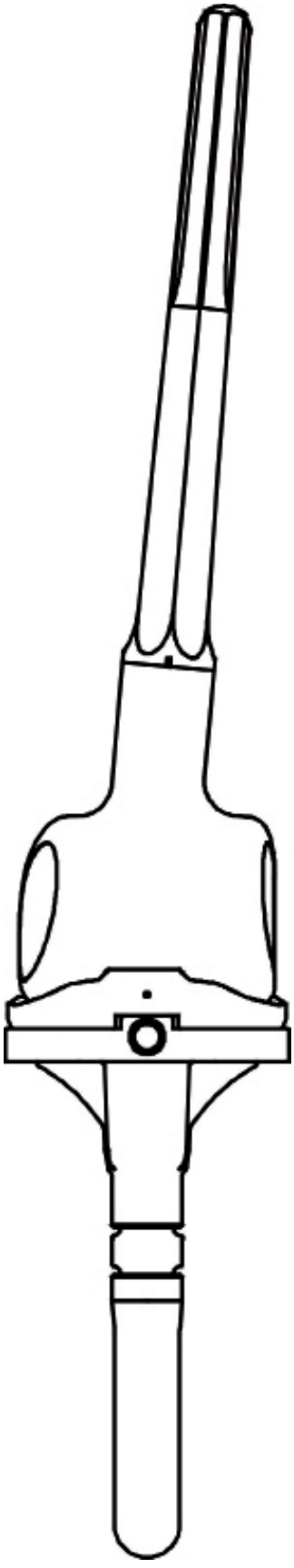
MUTARS® GenuX® MK PE-insert
size 2-5
MB and FB

MUTARS® GenuX® MK tibial component
size 2-5
cemented and cementless

MK tibial spacer
5, 10, 15 and 20mm unicondylar
25, 35 and 45mm bicondylar

MUTARS® GenuX® MK offset adapter:
femoral and tibial
offset: 0, 2, 4, 6mm

MUTARS® GenuX® MK stem
femoral and tibial
Length: 125, 150, 200, 250mm
Ø 11-19mm cemented
Ø 12-28mm cementless HA



Compatibility Matrix

KRI

PE-inserts MK
MB and FB

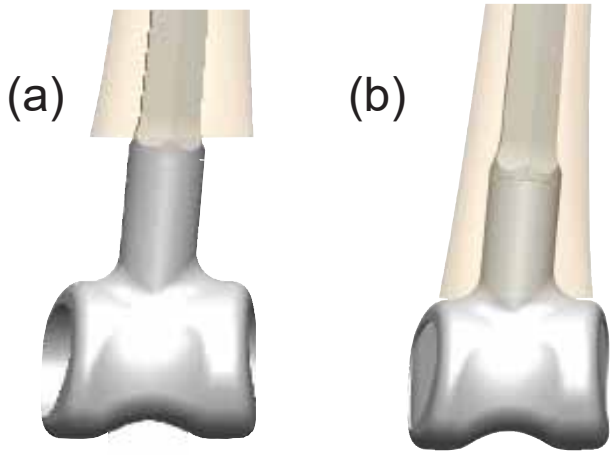
size 2 | size 3 | size 4 | size 5

Tibial Component MK

size 2 | size 3 | size 4 | size 5

Surgical Approach

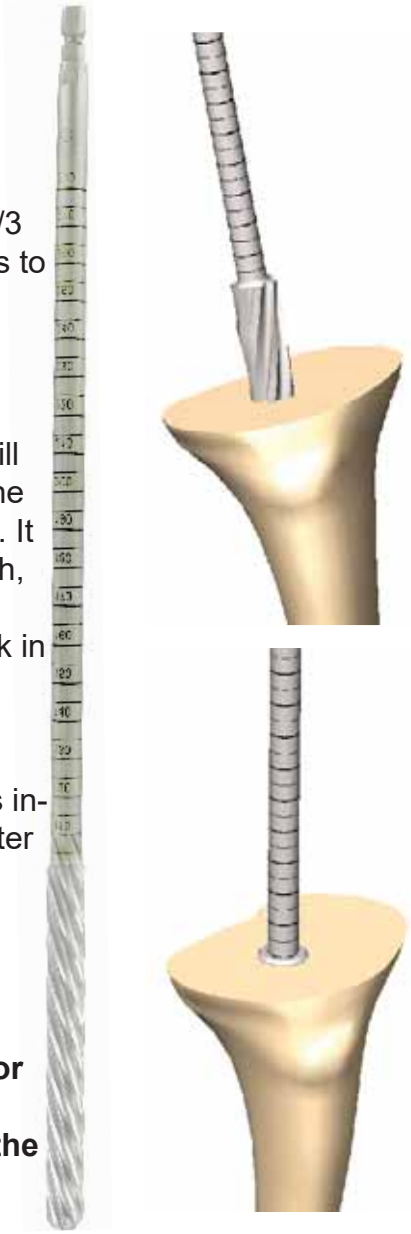
Resect the amount of 75mm (a) of the distal femoral condyles. If the upper part of the KRI shall be inserted in the medullary cavity a resection can be minimized to 50mm (b).
Remove the menisci.



Tibial Preparation

Flex the knee joint to 90°. If necessary, open the tibial medullary canal with the 9mm initiator drill. The entry point should be set 1/3 ventrally and 2/3 dorsally relative to the eminentia intercondylaris to open the centre of the medullary canal.

Ream with the rigid drills till the preoperatively determined stem diameter and stem length is reached. For planned stem lengths larger than 125mm place the drill sleeve of the corresponding drill diameter and the planned stem length over the rigid drill. Thus the rigid drill is centered over its whole length in the medullary canal. It is recommended to use the 150mm drill sleeve for all stem length, longer than 125mm, to ensure that the drill sleeve is completely countersink in the bone. Make sure that the sleeve is countersink in the medullary canal while reaming.



The drill diameter, as well as the sleeve diameter if applicable, is increased stepwise till the pre-operatively determined stem diameter and stem length is reached.
For optimal anchorage of the stem in the medullary canal, you should drill till cortical contact occurs at the drill tip.

<u>Note:</u> To ensure adequate drill depth, adhere to the "Table for tibial drill depth" on the next page (page 9). Make sure that the correct stem length mark, located on the drill, matches the tibial resection plane.

Leave the last used rigid drill (the largest used drill diameter) together with the corresponding drill sleeve if applicable in the medullary canal.
This drill indicates the implant diameter to choose for a cementless respectively a cemented stem implantation.
Note: Ensure that the largest used drill diameter is of an uneven number. Thus a press-fit is reached with the cementless stems and space for a 1mm cement layer is given for the cemented stems.

drill diameter	MUTARS® GenuX® MK stem cementless	MUTARS® GenuX® MK stem cemented
11mm	12mm	/
13mm	14mm	11mm
15mm	16mm	13mm
17mm	18mm	15mm
19mm	20mm	17mm
21mm	22mm	19mm
23mm	24mm	/
25mm	26mm	/
27mm	28mm	/

Table for tibial drill depth

revision		
Stem length	**cementless***	**cemented***
125mm	115	140
150mm	140	165
200mm	190	215
250mm	240	265

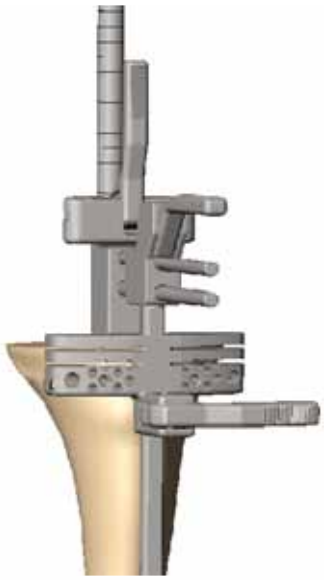
primary		
Stem length	**cementless***	**cemented***
125mm	125	150
150mm	150	175
200mm	200	225
250mm	250	275

After resection always drill until this drilling depth!

Note: After each resection the drill needs to be inserted deeper. Make sure that the correct mark reach the resection plane. After tibial resection always drill up to the depth indicated in the table for revision surgery, no matter whether you are performing primary or revision surgery.

Tibial alignment

The tibial alignment is carried out intramedullary. Fix the tibial cutting block revision 0° to the I/M tibial alignment guide. Slide the tibial alignment guide over the drill in the medullary canal and adjust the desired rotation of the instruments.
Fix the position by impacting the proximal pins of the tibial alignment guide into the tibial bone.

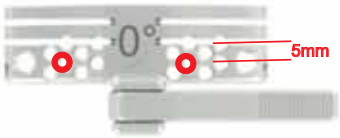


Alignment of the tibial cutting block

The tibial resection height is adjusted by the use of the tibial stylus. Choose the stylus tip with the 2mm marking **1** to resect 2mm below the pre-operated tibial surface. Attach the tibial stylus to the tibial cutting block and resect through the proximal slot of the cutting block.

The stylus and the connected cutting block need to be lowered till the tip of the stylus touches the deepest point of the tibial surface. The cutting block is fixed in this position to the alignment guide.
Use the stylus tip with the 12,5mm marking **2** to referenc to the highest tibial point of the less affected joint side in case of a primary implantation. Thus an adequate tibial resection height is ensured for primary implantation of the tibial component.

Fix the tibial cutting block with two pins. It is recommended to use the two countersunk holes. Thus shifting of the block in both directions is possible in case of a tibial reresection, respectively a decrease of the planned resection.



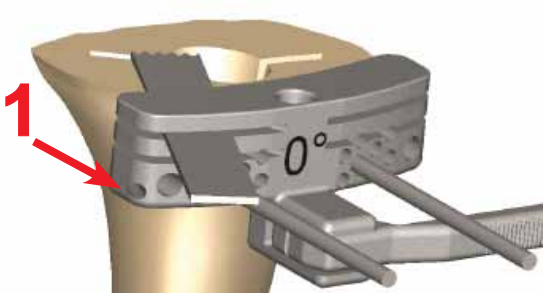
Note: **Note:** Screw pins can be used alternatively.

Tibial Resection

The resection level is checked with the long resection check. Remove the tibial alignment and the rigid drill.

Resect the tibia. If required, insert a third oblique pin to secure the position of the tibial cutting block **1**.
To compensate tibial bone defects, the tibial cutting block allows for preparation for spacer.

After resection the pins and the tibial cutting block are removed.



Femoral Preparation

Cementless Implantation

Drill the femoral medullary cavity using a flexible medullary reamer 3mm smaller than the diameter of the preoperatively chosen cementless RS-stem. Connect the slide hammer with the broach which is of the same size as the chosen cementless stem.

Cemented Implantation

For cemented use prepare the cavity with a reamer which is 1mm smaller than the cemented RS stem. Connect the slide hammer with the broach which is one size larger than the chosen stem.
Prepare the medullary cavity with the RS broach. The mark 50mm' shows the joint line of the prosthesis. If an extension piece of 25mm has been planned refer to the '75mm' mark of the broach.

Tibial preparation

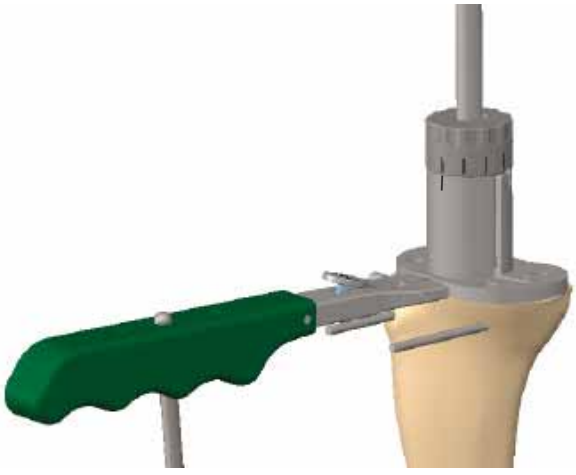
Insert the lastly used rigid drill (together with the corresponding drill sleeve if applicable) in the tibial medullary canal.

<u>Note:</u> Ensure an adequate drill depth. Consider „Table for tibial drilling depth“ page 9.
After each resection the drill needs to be inserted deeper. Make sure that the correct mark reaches the resection plane. When a 150mm stem should be used the drill sleeve must be removed for the subsequent preparation.

Determine the size of the tibial component by means of tibial reaming guide (the outer contour of the reaming guide corresponds to the outer contour of the tibial component.
Attach the tibial reaming guide of the corresponding size to the tibia via the rigid drill.

Use the tibial offset alignment (0mm, 2mm, 4mm, 6mm) to evaluate a potential tibial offset.
By turning the respective offset alignment in the tibial reaming guide the optimal position of the reaming guide on the proximal tibia is determined.
Keep in mind the offset position, which is read off the anterior edge of the reaming guide (see marking).
These are necessary for the correct assembling of the trial as well as the implant components.
Tibial trial spacer can be attached to the reaming guide if needed.

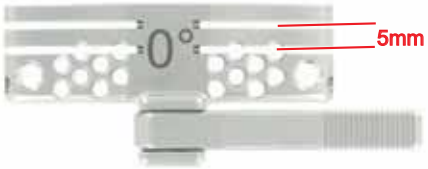
When the optimal position is determined, mark the centre of the tibial reaming guide (corresponds later to the centre of the implant) at the anterior edge of the tibia.
The rotational alignment can be checked by use of the tibial alignment handle combined with the external alignment rod.



If tibial spacer should be used, the tibial bone is prepared as follows:
First remove the tibial reaming guide, the offset alignment and the rigid drill.

To compensate tibial bone defects, the tibial cutting block allows for preparation for spacer.
For 5mm tibial spacer 5mm are resected accordingly. Use the more distal one of both slots of the affected side for this. Use the previous marked position at the anterior tibial edge for orientation for the vertical resection.

Note: If the tibia needs to be prepared for 10mm spacer, use the pin holes of the bottom row to fix the cutting block. Thus the distal one of both slots can be used after shifting the block down via the pins.
For spacer of increased thickness use a ruler to measure the defect respectively to determine the required height.



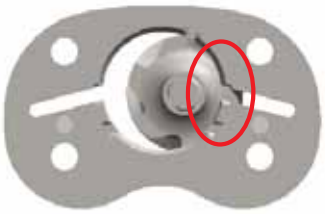
After resection the tibial cutting block and the pins are removed.

Insert again the lastly used rigid drill (together with the respective drill sleeve where required) into the tibial medullary canal. Attach again the tibial reaming guide as well as the offset alignment via the rigid drill and adjust again the previous determined offset position.
Fix the tibial reaming guide with two pins to the tibial bone.

Note: Screw pins can be used alternatively...

Afterwards remove the offset alignment and the rigid drill. Depending on the used offset and the rigid drill diameter, the tibial reaming guide needs to be removed temporary via the pins, to allow for removal of the rigid drill from the medullary canal.
The table below indicates at which combinations of offset alignment and rigid drill the tibial reaming guide can be left in place on the bone (✓) and when it needs to be removed temporary via the pins (✗).

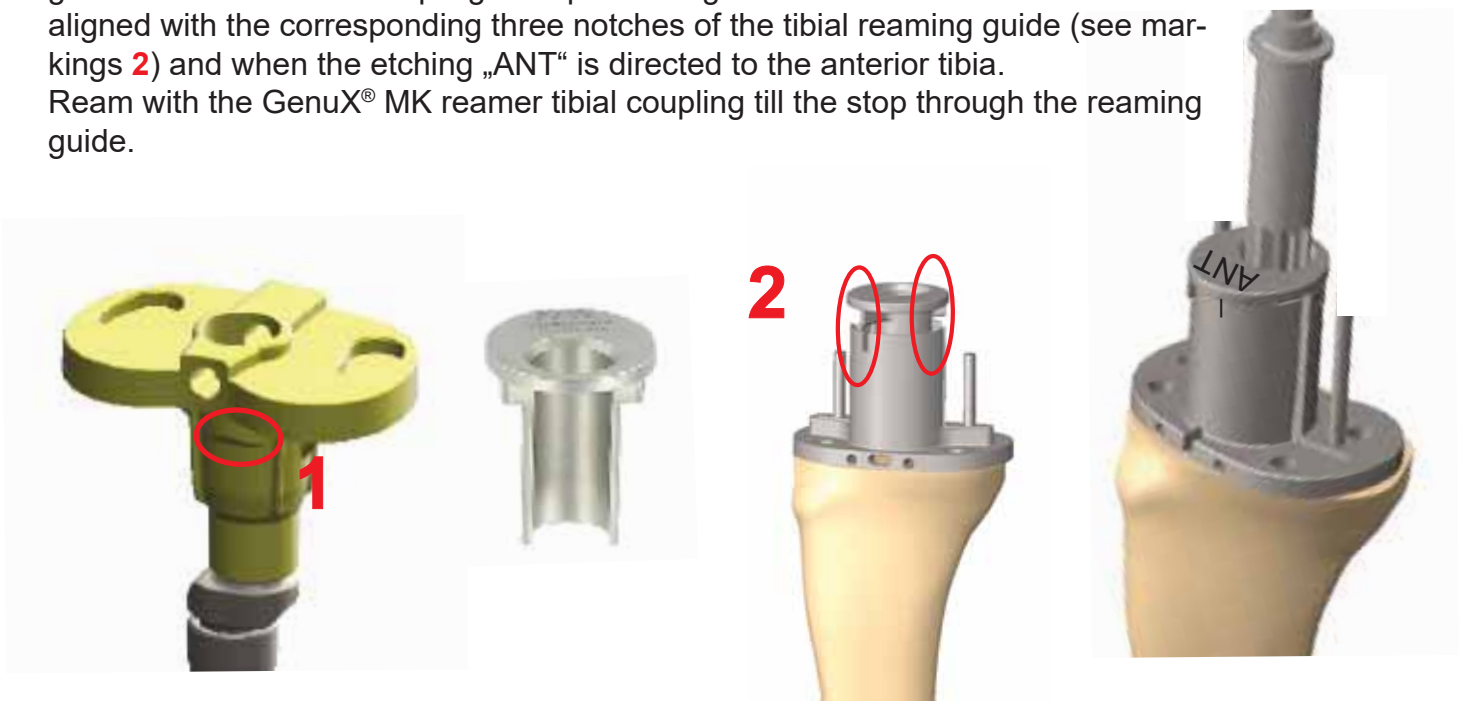
Offset 0 mm	Offset 2 mm	Offset 4 mm	Offset 6 mm	rigid drill Ø [mm]
✓	✓	✓	✓	10
✓	✓	✓	✓	11
✓	✓	✓	✓	12
✓	✓	✓	✗	13
✓	✓	✓	✗	14
✓	✓	✓	✗	15
✓	✓	✓	✗	16
✓	✓	✗	✗	17
✓	✓	✗	✗	18
✓	✓	✗	✗	19
✓	✓	✗	✗	20
✓	✗	✗	✗	21
✓	✗	✗	✗	22
✓	✗	✗	✗	23
✓	✗	✗	✗	24
✗	✗	✗	✗	25
✗	✗	✗	✗	26
✗	✗	✗	✗	27



Attach the tibial reaming guide again via the pins to the bone.

Prepare the tibia with the GenuX® MK tibial reamer by reaming till the stop through the reaming guide.

For preparation of the portion covering the tibial coupling insert **1** the Genux® MK guide for reamer tibial coupling. The positioning is correct when the three bars are aligned with the corresponding three notches of the tibial reaming guide (see markings **2**) and when the etching „ANT“ is directed to the anterior tibia.
Ream with the GenuX® MK reamer tibial coupling till the stop through the reaming guide.



For the fin preparation connect the handle to the fin punch of the determined tibial size (size 2-4 and 5-6).
Punch till the stop through the tibial reaming guide.

Disconnect the fin punch from the handle and connect the handle with the MK attachments tibial fins.
Punch till the stop through the tibial reaming guide.

Remove the fin punch, the reaming guide and the pins afterwards.

Small Stem Preparation

The following stems have a conical stem portion:

- stem diameter 11mm cemented all lengths
- stem diameter 12mm cementless all lengths
- stem diameter 14mm cementless all lengths

For preparation of this conical portion, connect the GenuX® MK stem reamer conical (diameter 11mm respectively 13mm) to the ic T-handle as follows:

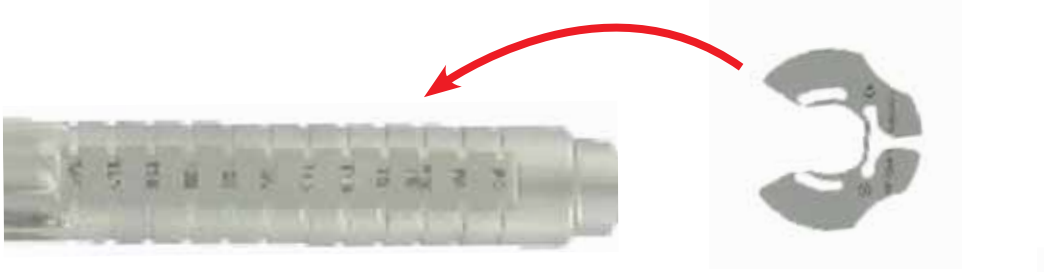
Ø12mm cementless:
stem reamer conical diameter 11mm

Ø11mm cemented and Ø14mm cementless:
stem reamer conical diameter 13mm

To ensure the correct reaming depth, attach the stop to the corresponding marking of the reamer:

T0: tibial no use of spacer
Tx: tibial use of xmm spacer, uni- or bilateral

x = thickness of tibial spacer (0 / 5 / 10 / 15 / 20 / 25 / 35 / 45mm)

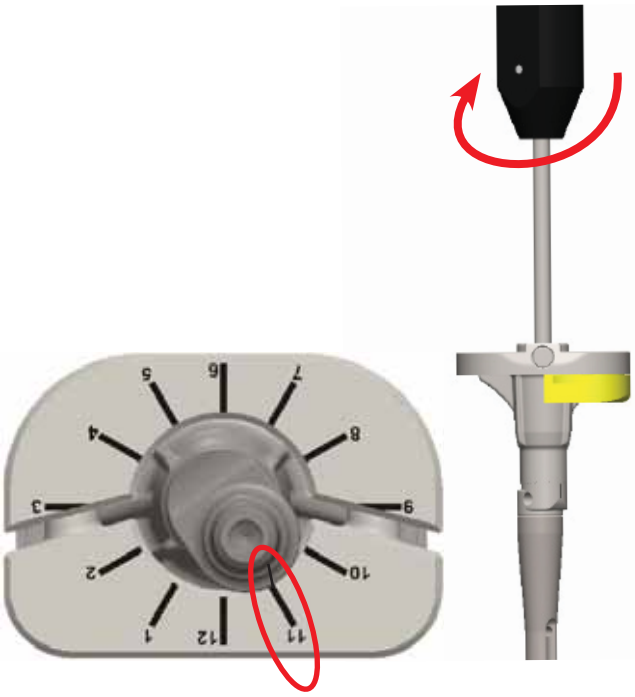


Drive the stem reamer carefully into the prepared intramedullary canal and prepare manually the conical stem portion till the stop touches the proximal tibia.

Thereby the tibial preparation is finished.

Trial reduction

For a trial reduction the components are assembled as followed.
Connect the GenuX® MK tibial trial component to the GenuX® MK trial offset adapter of the afore determined offset by means of the 3,5mm hexagon screw driver.
Ensure the correct position of the offset adapter; use the tibial offset alignment to adjust the offset position (in the shown case offset 4mm position 5). The marking of the offset adapter should be consistent with the afore determined offset position.
Afterwards the trial stem of the determined diameter and length is screwed to the trial offset adapter.
Depending on the planned stem fixation (cemented or cementless) the following use of trial stems is recommended:



trial stem diameter	drill diameter	MUTARS® GenuX® MK stem cementless	MUTARS® GenuX® MK stem cemented
11mm	11mm	12mm	/
13mm	13mm	14mm	11mm
15mm	15mm	16mm	13mm
17mm	17mm	18mm	15mm
19mm	19mm	20mm	17mm
21mm	21mm	22mm	19mm
23mm	23mm	24mm	/
25mm	25mm	26mm	/
27mm	27mm	28mm	/

Tibial trial spacer of the determined size may be attached to the tibial trial component.

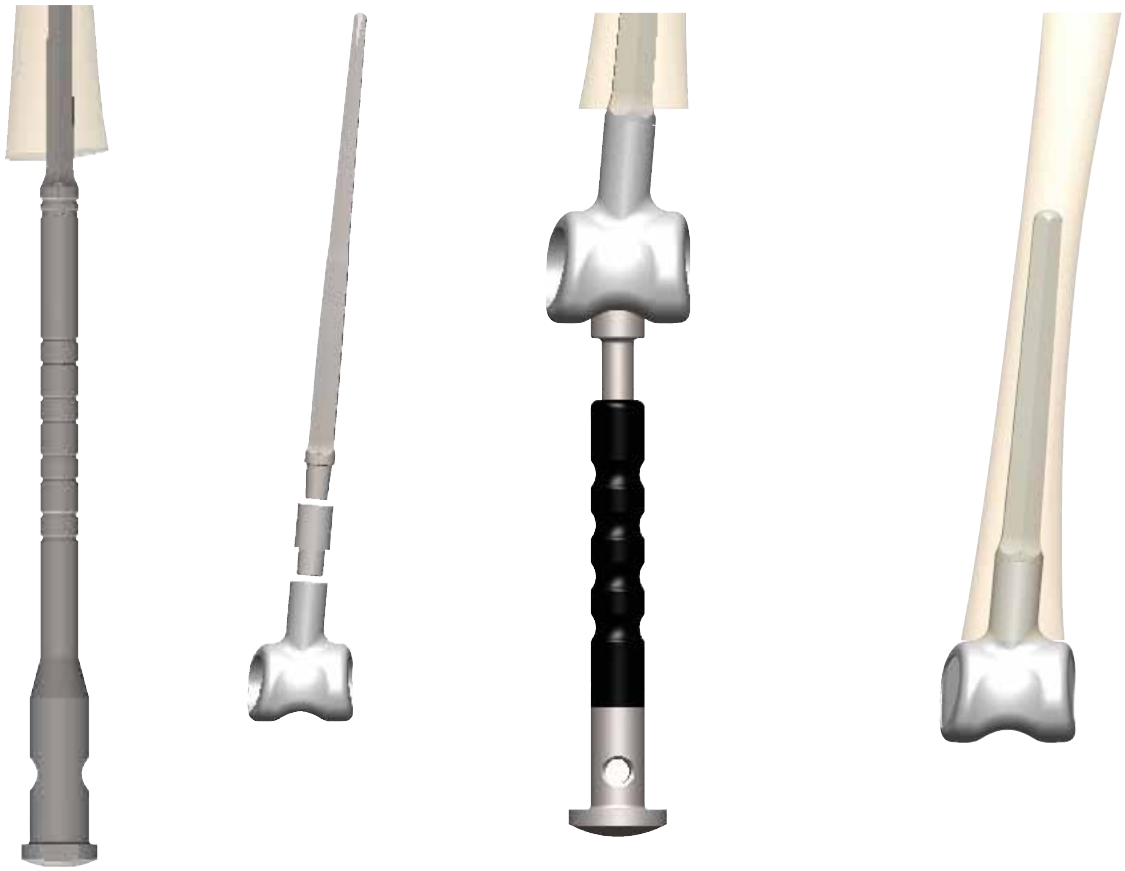
Note: If spacer of 25mm or 35mm height are used, the trial spacer need to be fixed to the tibial component prior to fixation of the offset adapter.

Note: If spacer of 45mm height are used, just the 0mm offset adapter can be combined with the tibial component.

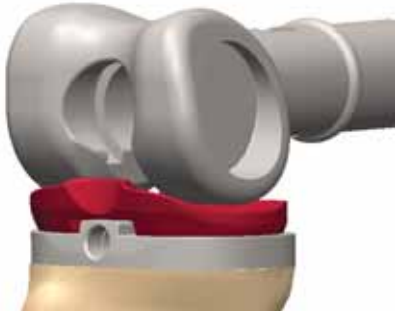
Use the GenuX® MK tibial impactor to insert the tibial trial component to the prepared tibia.

Trial reduction

Connect the RS stem with the KRI through the taper connection. Consider the curvation mark on the stem and the KRI to meet the correct femoral alignment. (If a 25mm extension piece shall be used, please add it between the stem and the KRI).
Do not insert the screw for trialing, this allows an easy readjustment of the femoral rotation afterwards.
Impact the components into the femoral bone using the impactor.
If the stem should be implanted separately please connect the stem to the impactor and impact the stem. Please mount the KRI and the optional extension sleeve onto the stem.
For a minimized bone resection the proximal part of the KRI component can be inserted into the distal femoral bone.

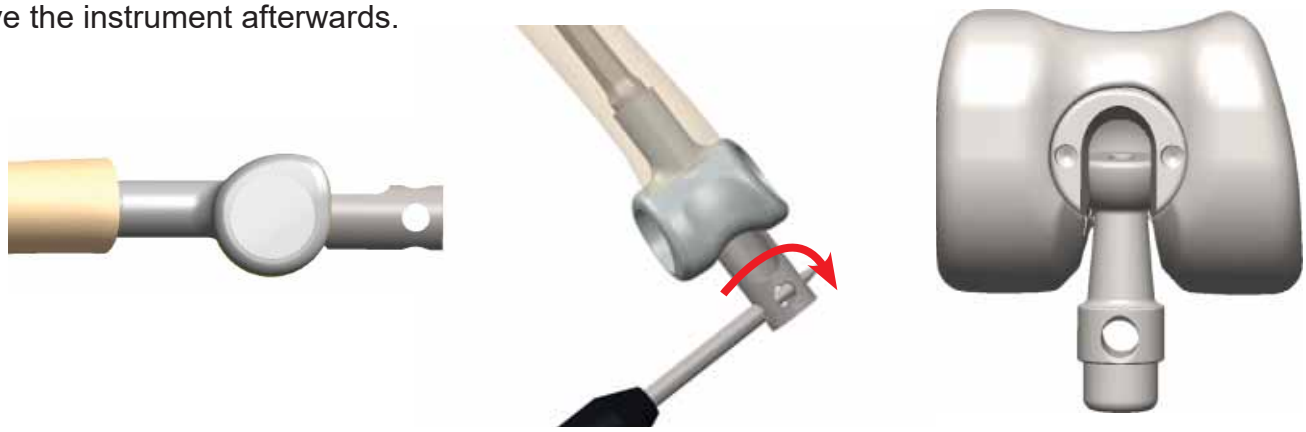


Select the tibial trial insert of the desired type (Mobile-Bearing or Fixed-Bearing trial PE-insert) and place it to the tibial trial component. The size of the PE-insert corresponds to the size of the tibial component.

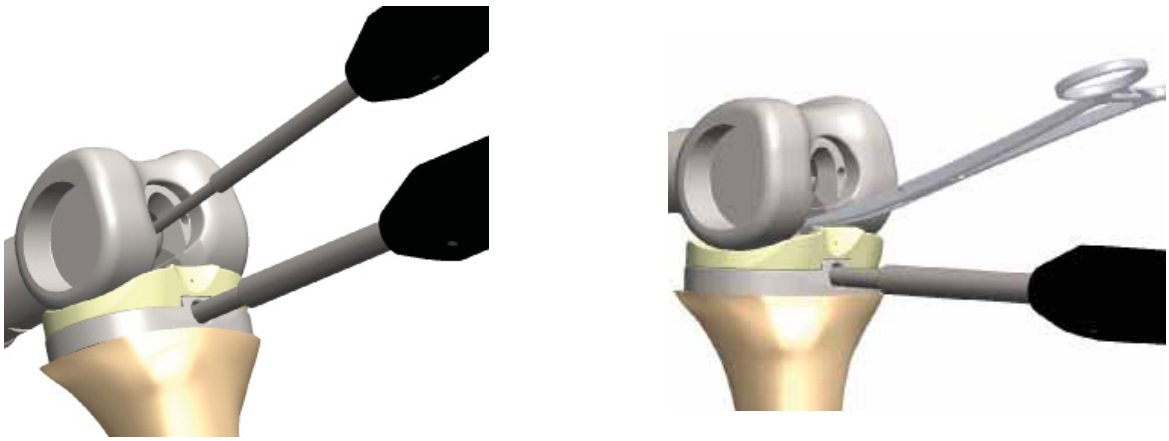


Use the instrument for the locking mechanism to insert the GenuX® MK trial coupling into the femoral trial component.
The trial coupling and the instrument for the locking mechanism are assembled as shown **1**. Turn the coupling in a way that it falls into the sleeve of the instrument **2**.

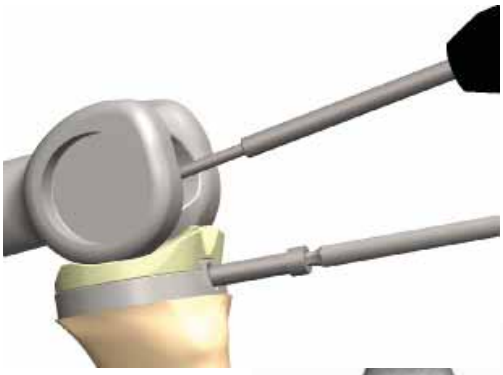
Insert the coupling into the femoral box with the knee in flexion and turn the coupling 90° clockwise by the use of this Instrument.
The coupling is positioned correct, when the peg falls out of the sleeve of the instrument. Remove the instrument afterwards.



Push the peg of the coupling in the opening of the tibial trial component in a way that the hole is directed towards anterior. Use the setting instrument for the locking mechanism or the assembling forceps as aid in positioning.
Insert the positioner from ventral into the hole of the tibial trial component to ensure the correct positioning of the peg.



Lock the coupling from ventral with the trial screw for coupling and the hex screwdriver 3.5mm.



Check the joint stability in flexion and extension.

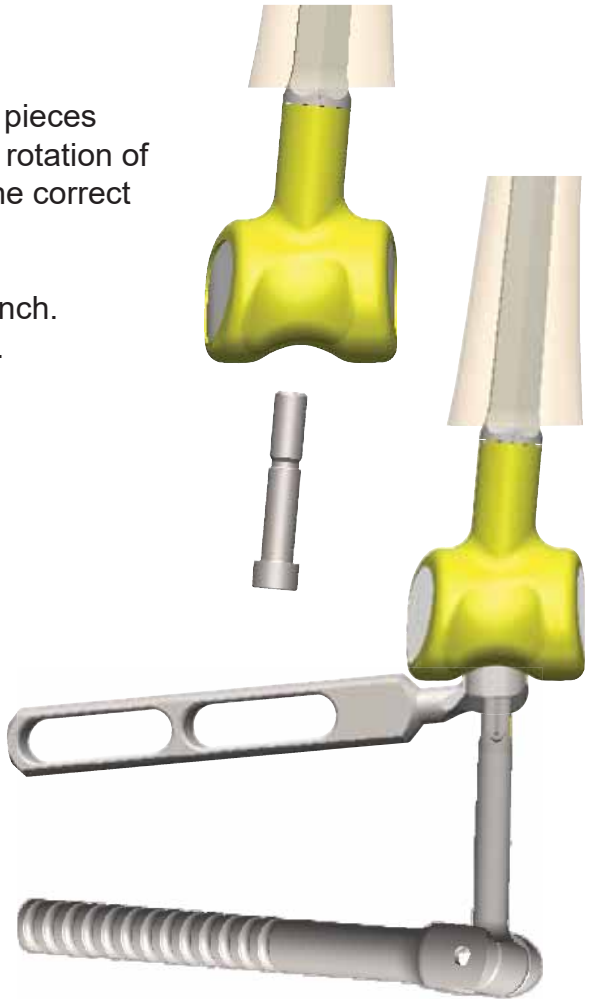
Afterwards remove all trial components. Use the slap hammer combined with the extractor for the femoral component respectively the tibial extractor.

Implantation of the Components

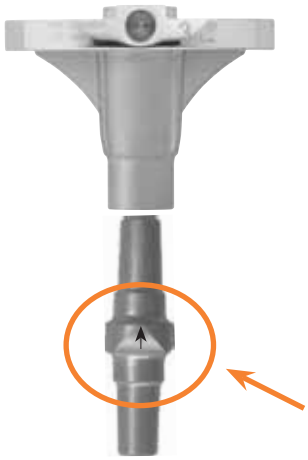
Combine the KRI and possibly needed extension pieces with the femoral stem. Make sure that the correct rotation of the KRI MK is achieved. Insert the bar screw of the correct length.

Lock the bar screw with the MUTARS® swing wrench. Secure the assembly with the counter instrument.

Lock the safety screw in the same way.

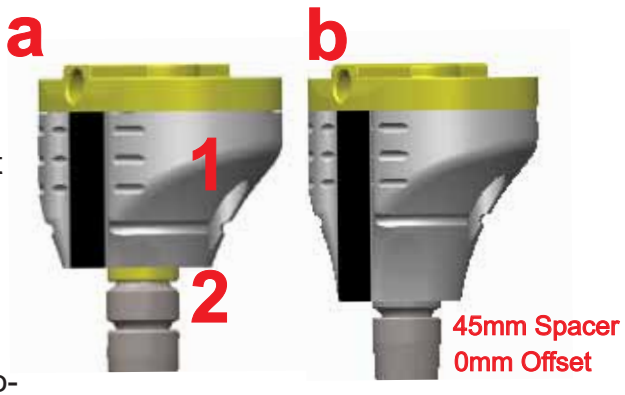


Attach the offset adapter of the determined offset to the taper of the tibial component. Ensure the correct positioning of the offset adapter (in the shown case, offset 4mm position 11).
The stem of the determined size and length is then attached to the offset adapter. Fix the conical connection by means of the tibial impactor and the stem assembly block.



Arrow points in the direction of the component !!!!

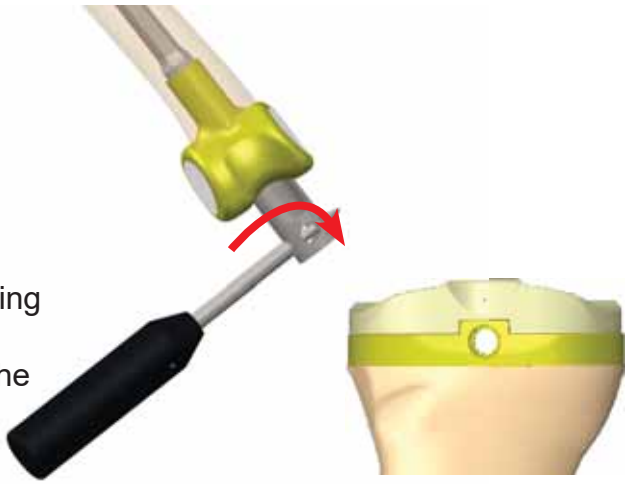
Note: If spacer of the height 25mm or 35mm are used, first the spacer needs to be fixed to the tibial component before the offset adapter is attached to the tibial component **a**.
Note: If spacer of a height from 45mm are used, just the offset adapter 0mm can be combined with the tibial component **b**.



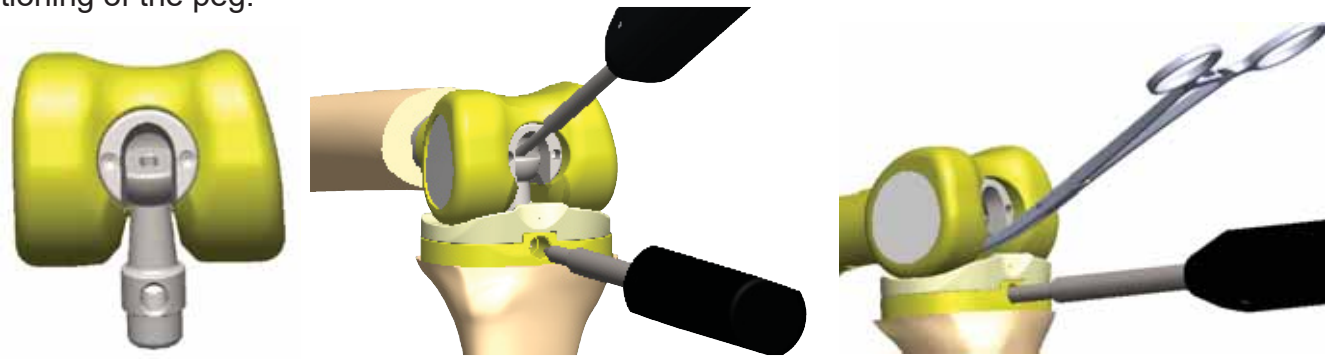
Use the instrument for the locking mechanism to insert the GenuX® MK coupling into the femoral component. The coupling and the instrument are assembled as shown **1**. Turn the coupling and the instrument in a way that the coupling falls into the sleeve of the instrument **2**.

Insert the coupling into the femoral box with the knee in flexion. Turn the coupling 180° clockwise. The coupling is positioned correct, when the peg of the coupling falls out of the sleeve of the instrument. If necessary please use the positioner as Lever.
Remove the instrument for the locking mechanism afterwards.

Select the tibial insert of the desired type (Mobile-Bearing or Fixed-Bearing PE-insert) and place it onto the tibial component. The size of the PE-insert corresponds to the size of the tibial component.

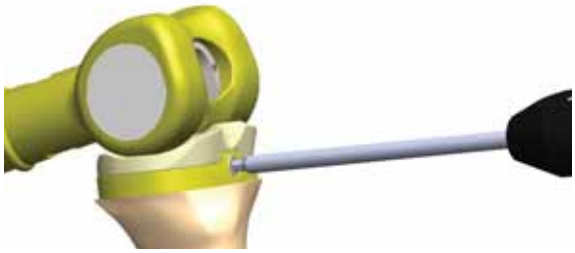


Place the peg of the coupling in the opening of the tibial component in a way that the hole is directed towards anterior. Use the setting instrument for the locking mechanism or the assembling forceps as aid in positioning.
Insert the positioner from ventral into the hole of the tibial component to ensure the correct positioning of the peg.



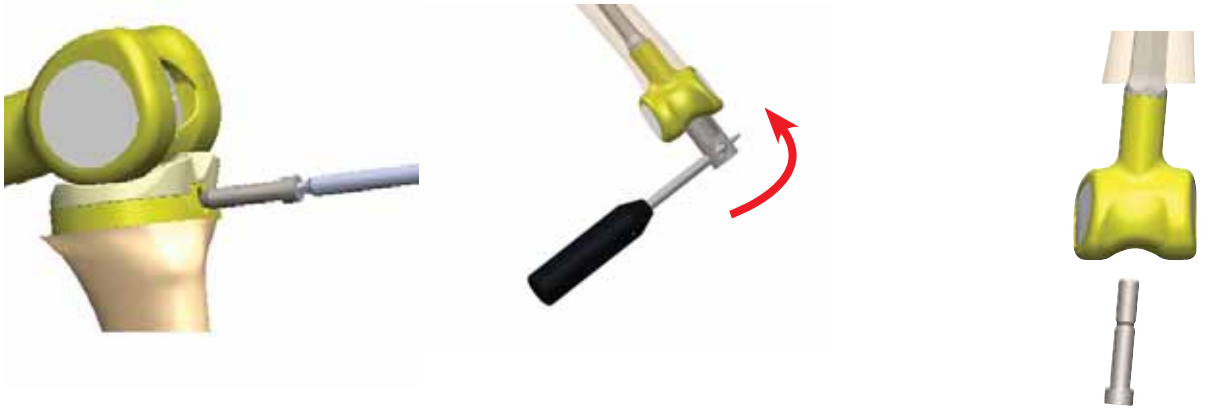
Lock the coupling from ventral with the GenuX® MK locking screw for the coupling and the hex screwdriver 3.5mm.

Use the hex screwdriver 3.5mm to insert the counterscrew and to lock the screw.
In doing so the implantation of the components is finished.
Perform final joint stability tests in flexion and extension prior to closure of the joint.



Explantation of the Components

In case of an explantation remove the tibial counter screw and the locking screw from ventral first by the use of the hex screwdriver 3.5mm.
Use the instrument for the locking mechanism to remove the coupling from the KRI component.



Subsequently the safety screw and the M10 bar screw are removed. Use the extractor for KRI and the counter instrument to remove the KRI.

Screw the tibial extractor on the slap hammer and insert it from above into the locking hole of the tibial component. Then lock the extractor with the locking tab of ventral. Subsequently the tibial component can be removed with the slap hammer.

If the connection between femoral and tibial component becomes loose during explantation, the slap hammer adapter M5 can be screwed into the offset adapter, to remove it by means of the slap hammer.
If the connection between offset adapter and stem becomes loose during explantation, the adapter for the slap hammer can be screwed into the stem to remove it with the slap hammer.

Implants

***S:** For anti-infective treatment, silver coated implants are available.
***N:** For anti-allergic treatment, TiN coated implants are available.
***SN:** Implants with Silver and TiN coating!

MUTARS® GenuX® MK stem cementless HA

mat.: implatan®, $TiAl_6V_4$ acc. to ISO 5832-3 with HA-coating acc. to ISO 13779-2

diameter	L:125mm	L: 150mm	L: 200mm	L: 250mm
12mm	5767-1212	5767-1215	5767-1220	5767-1225
14mm	5767-1412	5767-1415	5767-1420	5767-1425
16mm	5767-1612	5767-1615	5767-1620	5767-1625
18mm	5767-1812	5767-1815	5767-1820	5767-1825
20mm	5767-2012	5767-2015	5767-2020	5767-2025
22mm	5767-2212	5767-2215	5767-2220	5767-2225
24mm	5767-2412			
26mm	5767-2612			
28mm	5767-2812			

MUTARS® GenuX® MK stem cemented *N

mat.: implavit®, CoCrMo acc. to ISO 5832-4

diameter	L:125mm	L: 150mm	L: 200mm	L: 250mm
11mm	5766-1112	5766-1115	5766-1120	5766-1125
13mm	5766-1312	5766-1315	5766-1320	5766-1325
15mm	5766-1512	5766-1515	5766-1520	5766-1525
17mm	5766-1712	5766-1715	5766-1720	5766-1725
19mm	5766-1912	5766-1915	5766-1920	5766-1925

MUTARS® GenuX® MK offset adapter

mat.: implatan®, $TiAl_6V_4$ acc. to ISO 5832-3

0mm	+2mm	+4mm	+6mm
5751-0000	5751-0002	5751-0004	5751-0006

MK screws for spacer

mat.: implatan®, $TiAl_6V_4$ acc. to ISO 5832-3

5720-1216

MUTARS® GenuX® MK coupling *N

mat.: CoCrMo acc. to ISO 5832-12

5720-1210

screw for coupling

mat.: implatan®, $TiAl_6V_4$ acc. to ISO 5832-3 with TiN-coating

5720-1201

MUTARS® GenuX® MK MB PE insert

mat.: UHMW-PE acc. to ISO 5834-2

size	
2	5721-0102
3	5721-0103
4	5721-0104
5	5721-0105

MUTARS® GenuX® MK FB PE insert

mat.: UHMW-PE acc. to ISO 5834-2

size	
2	5721-0202
3	5721-0203
4	5721-0204
5	5721-0205

MUTARS® GenuX® MK tibial component cemented incl. counter screw + screw for coupling *N

mat.: implavit®, CoCrMo acc. to ISO 5832-4

size	
2	5751-0602
3	5751-0603
4	5751-0604
5	5751-0605

MUTARS® GenuX® MK tibial component cementless incl. counter screw + screw for coupling *N

mat.: implavit®, CoCrMo acc. to ISO 5832-4

size	
2	5751-0702
3	5751-0703
4	5751-0704
5	5751-0705

MK tibial spacer (incl. MK screws) *S

mat.: implatan®, $TiAl_6V_4$ acc. to ISO 5832-3

size	5mm LL/RM	10mm LL/RM	5mm RL/LM	10mm RL/LM
2	5740-5052	5740-5102	5741-0052	5741-0102
3	5740-5053	5740-5103	5741-0053	5741-0103
4	5740-5054	5740-5104	5741-0054	5741-0104
5	5740-5055	5740-5105	5741-0055	5741-0105

size	15mm LL/RM	20mm LL/RM	15mm RL/LM	20mm RL/LM
2	5740-5152	5740-5202	5741-0152	5741-0202
3	5740-5153	5740-5203	5741-0153	5741-0203
4	5740-5154	5740-5204	5741-0154	5741-0204
5	5740-5155	5740-5205	5741-0155	5741-0205

size	25mm	35mm	45mm
2	5740-0252	5740-0352	5740-0452
3	5740-0253	5740-0353	5740-0453
4	5740-0254	5740-0354	5740-0454
5	5740-0255	5740-0355	5740-0455

RS stem cementless

mat.: implatan®; $TiAl_6V_4$ acc. to ISO 5832-3 with HA-coating acc. to ISO 13779-2

6762-1512	12/150 mm
6762-1514	14/150 mm
6762-1516	16/150 mm
6762-1518	18/150 mm
6762-1520	20/150 mm
6762-2012	12/200 mm
6762-2014	14/200 mm
6762-2016	16/200 mm*
6762-2018	18/200 mm*
6762-2020	20/200 mm*
6762-2516	16/250 mm
6762-2516	16/250 mm
6762-2518	18/250 mm*
6762-2520	20/250 mm*

***marked length 200mm and 250mm with interlocking screw holes**

RS stem cemented *N

mat.: implavit®; CoCrMo acc. to ISO 5832-4

6760-1212	12/120 mm
6760-1412	14/120 mm
6760-1612	16/120 mm
6760-1812	18/120 mm
6760-1215	12/150 mm
6760-1415	14/150 mm
6760-1615	16/150 mm
6760-1815	18/150 mm
6761-1220	12/200 mm
6761-1420	14/200 mm
6761-1620	16/200 mm
6761-1820	18/200 mm

RS extension piece

mat.: implatan®; $TiAl_6V_4$ acc. to ISO 5832-3

6730-0025	25 mm

KRI M-O-M *N *SN

mat.: implavit®; CoCrMo acc. to ISO 5832-4

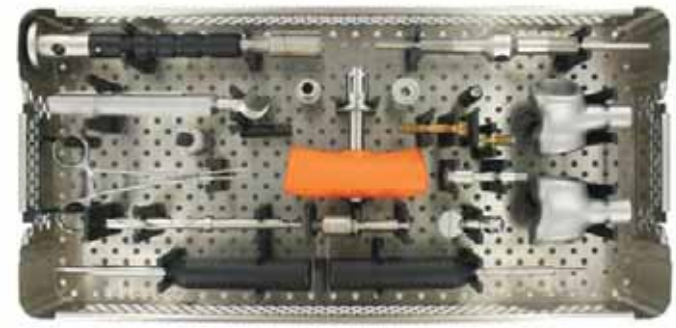
5720-0048	right
5720-0043	left

Screw for KRI

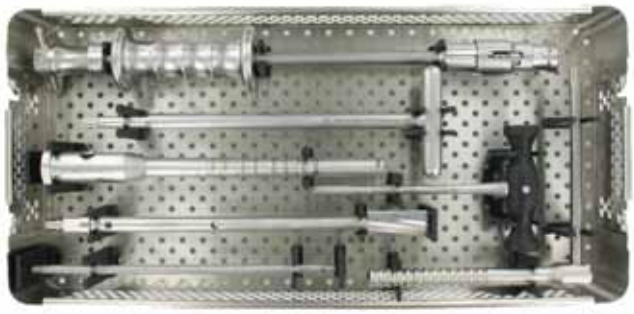
mat.: implatan®; $TiAl_6V_4$ acc. to ISO 5832-3

5720-2508	M 8 x 25 mm
5720-5008	M 8 x 50 mm

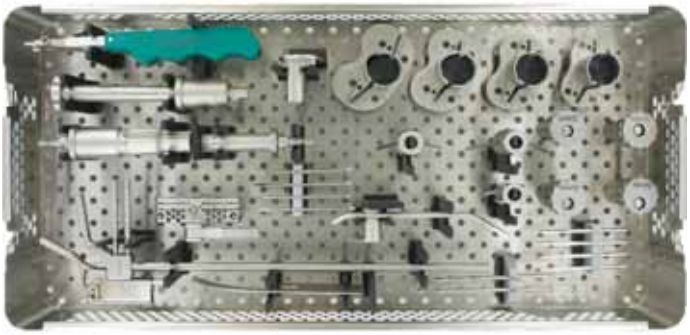
Instruments



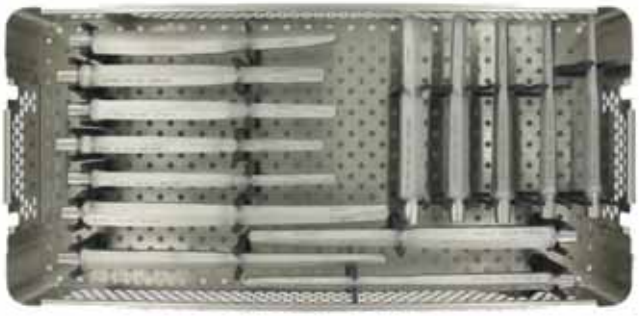
7999-5829 MUTARS® KRI MK container



7999-6715 MUTARS® RS ES container 2

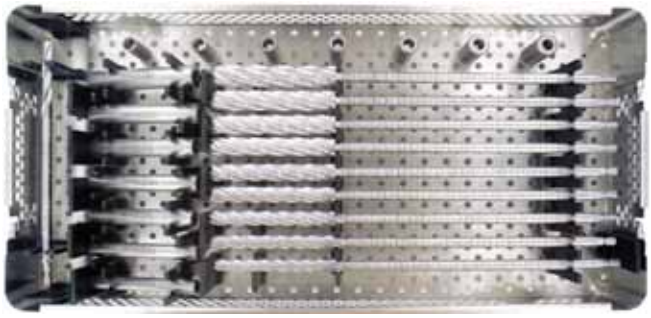


7999-5802 MK tibial container

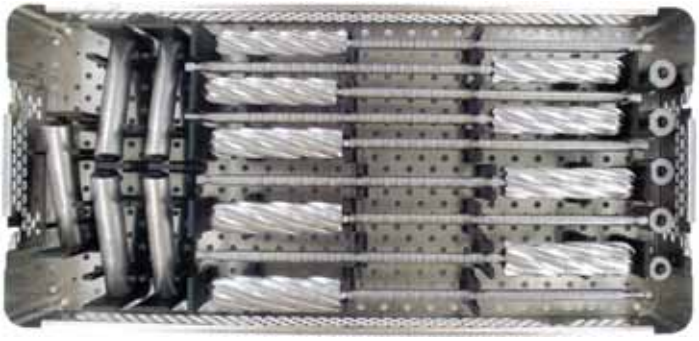


7999-6724 MUTARS® RS trial stem container

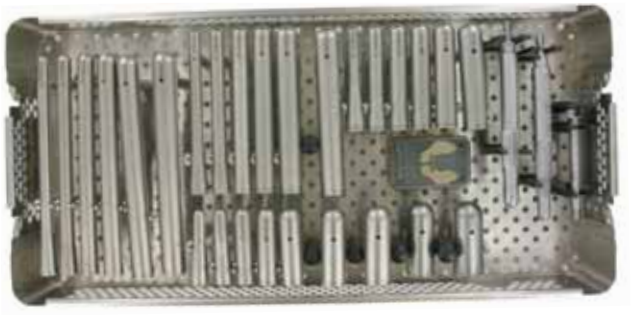
7999-5804 GenuX® MK tibial trial container



7999-5774 rigid drill container 1

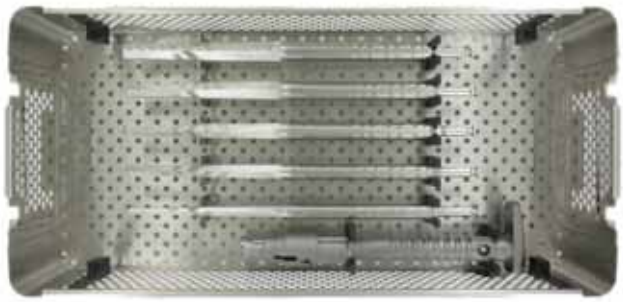


7999-5775 rigid drill container 2

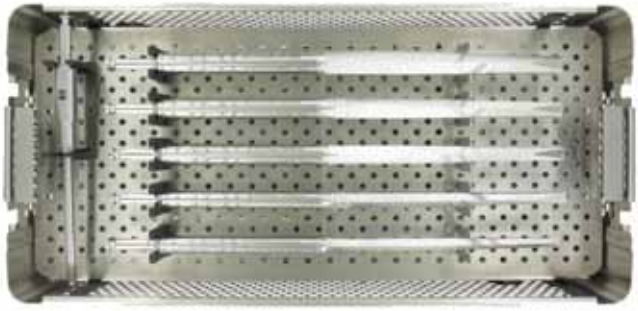


7999-5805 MK trial stem container

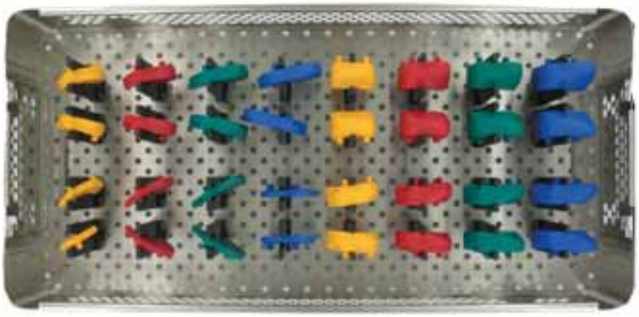
7999-5770 stem assembly container



7999-6721 MUTARS® RS broach container lower tray



7999-6721 MUTARS® RS broach container upper tray



7999-5808 MK tibial trial spacer container

7999-7000 flexible reamer nitinol container

MUTARS® KRI MK 7999-5829

MUTARS® RS extractor for KRI M-O-M
6500-0017

GenuX® MK extractor for femoral component
4214-0129

MUTARS® impactor for femoral component
7610-0000

MUTARS® counter instrument KRI/Distal Femur M-O-M
7230-1004

MUTARS® extractor for KRI
REF 7230-1003

ACS® tibial drill
4221-0008

MUTARS® KRI MK trial
7720-0143 left
7720-0148 right

MUTARS® KRI trial screw
7720-2508 M 8 x 25 mm
7720-5008 M 8 x 50 mm

MUTARS® RS extension trial piece 25 mm
6500-0025

ic T-handle Zimmer-Jakobs
4223-0023

MUTARS® assembling forceps
7720-1202

GenuX® MK trial coupling
7720-1210

MUTARS® MK trial screw for coupling
7720-1213

setting instrument for locking mechanism
7751-1200

MUTARS® positioner for locking mechanism
7610-0003

MUTARS® instrument for locking mechanism
7720-1201

MUTARS® extraction adapter M8x1 to M8
6500-0060

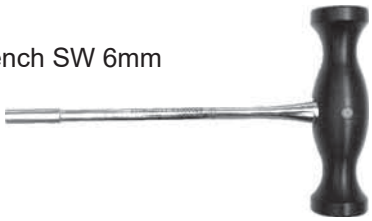
MUTARS® RS ES container 2 7999-6715

slide hammer with snap mechanism
6500-0012

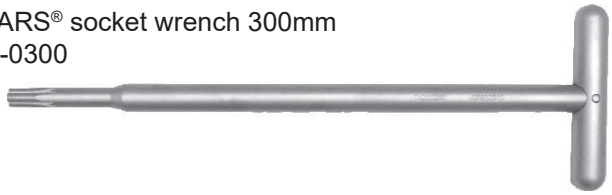
MUTARS® RS ES stem impactor
6500-3000

MUTARS® RS guide rod ES
6500-3003

MUTARS® RS socket wrench SW 6mm
6500-0013



MUTARS® socket wrench 300mm
7420-0300



MUTARS® swing wrench long
7411-0001

MUTARS® RS reamer for metaphyseal part 21mm ES
6500-3021

Rigid drill container 1 7999-5774

Drill sleeve
4211-1512 12/150mm
4211-1513 13/150mm
4211-1514 14/150mm
4211-1515 15/150mm
4211-1516 16/150mm
4211-1517 17/150mm
4211-1518 18/150mm

4211-2012 12/200mm
4211-2013 13/200mm
4211-2014 14/200mm
4211-2015 15/200mm
4211-2016 16/200mm
4211-2017 17/200mm
4211-2018 18/200mm

Rigid drill
4220-3110 Ø10/330mm
4220-3111 Ø11/330mm
4220-3112 Ø12/330mm
4220-3113 Ø13/330mm
4220-3114 Ø14/330mm
4220-3115 Ø15/330mm
4220-3116 Ø16/330mm
4220-3117 Ø17/330mm
4220-3118 Ø18/330mm

initiator drill 9mm
4220-0014

Rigid drill container 2 7999-5775

Drill sleeve
4211-1519 19/150mm
4211-1520 20/150mm
4211-1521 21/150mm
4211-1522 22/150mm
4211-1523 23/150mm

4211-2019 19/200mm
4211-2020 20/200mm
4211-2021 21/200mm
4211-2022 22/200mm
4211-2023 23/200mm

Rigid drill
4220-3119 Ø19/330mm
4220-3120 Ø20/330mm
4220-3121 Ø21/330mm
4220-3122 Ø22/330mm
4220-3123 Ø23/330mm
4220-3124 Ø24/330mm
4220-3125 Ø25/330mm
4220-3126 Ø26/330mm
4220-3127 Ø27/330mm

MUTARS® RS trial stem container
7999-6724

MUTARS® RS trial stem
6511-1215 12/150 mm
6511-1220 12/200 mm
6511-1415 14/150 mm
6511-1420 14/200 mm
6511-1425 14/250 mm
6511-1615 16/150 mm
6511-1620 16/200 mm
6511-1625 16/250 mm
6511-1815 18/150 mm
6511-1820 18/200 mm
6511-1825 18/250 mm
6511-2015 20/150 mm
6511-2020 20/200 mm
6511-2025 20/250 mm

MUTARS® RS broach container
7999-6721

MUTARS® RS broach
6500-1512 12/150mm
6500-1514 14/150mm
6500-1516 16/150mm
6500-1518 18/150mm
6500-1520 20/150mm
6501-2012 12/200mm
6501-2014 14/200mm
6501-2016 16/200mm
6501-2018 18/200mm
6501-2020 20/200mm

MUTARS® RS stem extractor adapter ES
6500-3007

MUTARS® RS broach impactor
6500-0008

MK Tibial trial spacer container 7999-5808

MK trial tibial spacer
ll/rm
7740-5052 2/5mm
7740-5053 3/5mm
7740-5054 4/5mm
7740-5055 5/5mm
7740-5102 2/10mm
7740-5103 3/10mm
7740-5104 4/10mm
7740-5105 5/10mm
7740-5152 2/15mm
7740-5153 3/15mm
7740-5154 4/15mm
7740-5155 5/15mm
7740-5202 2/20mm
7740-5203 3/20mm
7740-5204 4/20mm
7740-5205 5/20mm

rl/lm
7741-0052 2/5mm
7741-0053 3/5mm
7741-0054 4/5mm
7741-0055 5/5mm
7741-0102 2/10mm
7741-0103 3/10mm
7741-0104 4/10mm
7741-0105 5/10mm
7741-0152 2/15mm
7741-0153 3/15mm
7741-0154 4/15mm
7741-0155 5/15mm
7741-0202 2/20mm
7741-0203 3/20mm
7741-0204 4/20mm
7741-0205 5/20mm

MK trial stem container 7999-5805

GenuX® MK stem reamer conical
4214-0127 Ø11mm
4214-0128 Ø13mm

Stop for GenuX® MK stems reamer conical
4220-4211

adapter for slap hammer
4223-0033

GenuX® MK trial stem
7766-1112 11/125mm
7766-1115 11/150mm
7766-1120 11/200mm
7766-1125 11/250mm
7766-1312 13/125mm
7766-1315 13/150mm
7766-1320 13/200mm
7766-1325 13/250mm
7766-1512 15/125mm
7766-1515 15/150mm
7766-1520 15/200mm
7766-1525 15/250mm
7766-1712 17/125mm
7766-1715 17/150mm
7766-1720 17/200mm
7766-1725 17/250mm
7766-1912 19125mm
7766-1915 19/150mm
7766-1920 19/200mm
7766-1925 19/250mm
7766-2112 21/125mm
7766-2115 21/150mm
7766-2120 21/200mm
7766-2125 21/250mm
7766-2312 23/125mm
7766-2512 25/125mm
7766-2712 27/125mm

MK tibial container 7999-5802

tibial alignment handle
4210-2215

MK tibial offset sleeve
4210-4261 2mm
4210-4263 4mm
4210-4267 6mm
4210-4270 0mm

GenuX® MK tibial reamer
4214-0120

GenuX® MK reamer tibial coupling
4214-0124

GenuX® MK guide for reamer tibial coupling
4214-0125

MK fin punch
4214-0142 size 2-4
4214-0145 size 5-6

handle for tibial fin punch
4215-0447

resection check long
4220-0318

MK tibial reamer guide
4220-4202 size 2
4220-4203 size 3
4220-4204 size 4
4220-4205 size 5

drill 126 x 3,2 mm (2 pieces)
4221-0019

tibial stylus 2/12,5mm for slotted resection
4220-0428

I/M tibial alignment guide
7755-0024

tibia cutting block revision 0°
7755-0054

fixation pin 3,2mm x 77mm (4 pieces)
4223-0029

MK attachments tibial fins
4214-0146

Drilling pin 3,2mm x 77mm (4 pieces)
4224-0132

stem assembly container 7999-5770

MK stem assembly block
4223-4003

MK tibial trial container

7999-5804

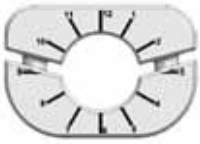
GenuX® MK tibial impactor
4214-0130

hexagon screw driver short 3,5 mm
0280-1007

GenuX® MK trial tibial component

7751-0602	Gr. 2
7751-0603	Gr. 3
7751-0604	Gr. 4
7751-0605	Gr. 5

MK tibial offset alignment instrument
4220-4210



GenuX® MK trial offset adapter

7751-0000	0 mm
7751-0002	2 mm
7751-0004	4 mm
7751-0006	6 mm

GenuX® MK MB trial PE-insert

7721-0102	2
7721-0103	3
7721-0104	4
7721-0105	5

GenuX® MK FB trial PE-insert

7721-0202	2
7721-0203	3
7721-0204	4
7721-0205	5

tibia extractor
7755-0020

adapter for slap hammer M5
7801-0025

flexible reamer nitinol container
7999-7000

flexible reamer shaft Nitinol
7702-0000

Nitinol reamer head

7702-0085	8,5mm
7702-0090	9,0mm
7702-0095	9,5mm
7702-0100	10,0mm
7702-0105	10,5mm
7702-0110	11,0mm
7702-0115	11,5mm
7702-0120	12,0mm
7702-0125	12,5mm
7702-0130	13,0mm
7702-0135	13,5mm
7702-0140	14,0mm
7702-0145	14,5mm
7702-0150	15,0mm
7702-0155	15,5mm
7702-0160	16,0mm
7702-0165	16,5mm
7702-0170	17,0mm
7702-0175	17,5mm
7702-0180	18,0mm
7702-0185	18,5mm
7702-0190	19,0mm

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