MUTARS®

implantcast

Distal Femur M-O-M

surgical technique

Femorotibial M-O-M coupling

MUTARS®

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surgical technique

Femorotibial M-O-M coupling

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.

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

The *Silver* coating

Infections represent the most severe complications of tumour arthroplastic treatments. Although local and systemic antibiotic treatments are considered, the scientific literature reports of infection rates from 5 to 35 percent [1]. Reasons for these high rates are, for example, the long surgery time, the large incisions and the immunosupression due to chemo therapy and radio therapy as well as the increasing resistance of the bacteria against antibiotic drugs.
Silver, in particular free silver ions, is well known for its broad-spectrum antimicrobial activity. The silver coating has been shown to reduce bacterial colonization on the device surface.
Until now only non-articulating surfaces and surfaces without direct bony contact are coated with silver.
In the catalogue information of this surgical technique you can find the supplement *S indicating which MUTARS® components are available in a silver coated version. The eight digit REF number receives an addition after the last digit (e.g. 5220-0020S).

Important intra-operative instructions for the use of silver-coated implants

It is not permitted to flush the wound with antiseptics that contain H_2O_2, Iodine or heavy metals (such as Betaisodona®) and acetic acid during surgery since this can lead to a subsequent loss of effectiveness of the silver coating due to their oxidative properties. Alternatively, solutions such as NaCl or Lavasept® and Prontosan® can be used. The additional use of antibiotic-containing bone cement can be an advantage particular in case of a septic revision.

The TiN coating for allergy prophylaxis

All metallic implant components release ions to their environment over time. In some patients such ions can elicit allergic reactions. Nickel, cobalt and chromium, which are elements of the base material CoCrMo of the articulating implant components, are considered the most frequently allergy eliciting metals [2] The TiN-coating is biocompatible and acts like a barrier; the potential release of allergy eliciting ions of the base material is reduced to a minimum [3]. Also in clinical practice there have never been any evidence of allergic reactions with implants that have been TiN-coated showing an intact surface [5]. Therefore the TiN-coating on implant components is especially suitable for patients with sensitivity to nickel, chromium or cobalt [4][5].
Since almost all components of the MUTARS® tumor system consist of titanium alloy, this only concerns those components, which are made of a cast CoCrMo alloy. The REF-numbers of the TiN-coated implants have the suffix N after the last digit (e.g. 5720-0005N). Items which are available with Silver and TiN coating have the suffix SN after the last digit (e.g. 5720-0005SN).

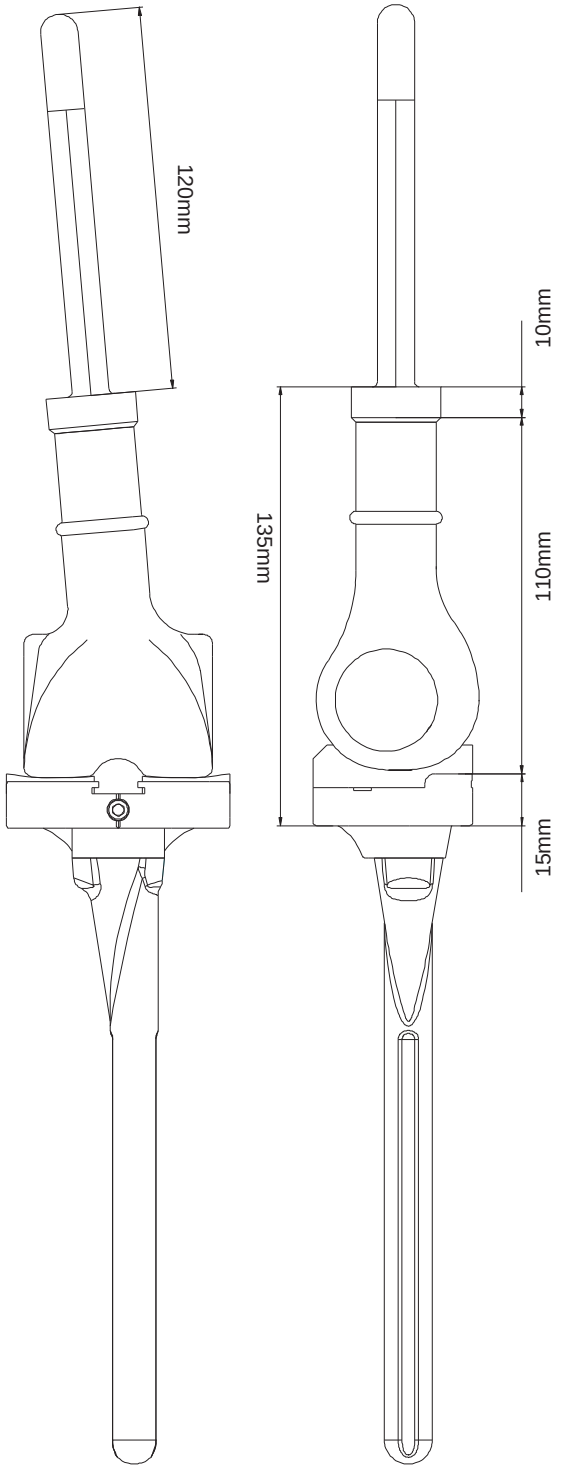
***S**: Implants are available with Silver coating!

***N**: Implants are available with TiN coating!

***SN**: Implants are available with Silver and TiN coating!

[1] Gosheger et al. 2004. Silver-coated megaendoprostheses in a rabbit model – an analysis of the infection rate and toxicological side effects. Biomaterials 25, 5547-5556.
[2] Eben R et al. (2009) Implantatallergieregister - ein erster Erfahrungsbericht. Orthopäde 38: 557-562
[3] Wisbey et al. (1987) Application of PVD TiN coating to Co-Cr-Mo based surgical implants. Biomaterials, 11
[4] Prof. Thomas LMU München Final Report Effect of a TiNbN or TiN surface coating on cobaltchromium- molybdenum and stainless steel test specimens regarding the release of nickel, chromium and cobalt: evaluation via eluate analysis and in-vitro cytokine release from peripheral human blood cells, Data on file
[5] Baumann A. (2001) Keramische Beschichtungen in der KTEP Standardlösung für Allergiker. JATROS Orthopädie & Rheumatologie 6: 16-17

System Overview



femoral stem
∅ 12 – 18 mm cementless
∅ 11 – 17 mm cemented

Distal Femur M-O-M

PE-insert

tibial plateau M-O-M
xsmall, small, standard, large
cemented / cementless

stem for tiabial plateau
length: 120, 160 + 200mm
ø12-18mm cementless
ø11-15mm cemented

tibial spacer
25, 35, 50 mm (bicondylar)
5,10,15,20 mm (unicondylar)

MUTARS® Distal Femur

distal femur replacement
assembling options
(length in mm)

reconstruction	components			
	distal femur	connecting part 100 mm	extension piece	bar screw
100 mm	**90***			**25**
120 mm	110	-	-	45
140 mm	90*		40	65
160 mm	110	-	40	85
180 mm	110	-	60	105
200 mm	110	-	80	125
220 mm	110	100	-	45 + 25
240 mm	110	-	80 + 40	165
260 mm	110	100	40	65 + 45
280 mm	110	100	60	85 + 45
300 mm	110	100	80	105 + 45
320 mm	110	100	60 + 40	125 + 45

*A distal femur 90 mm is available on special request
(reconstruction length 100 mm)

Note: Please notice that the amount of implants and instruments send with an individual shipment may differ from the information in the catalogue information of this brochure. Please make sure, during the preoperatively planning, that all necessary implants and instruments are available for the surgery.

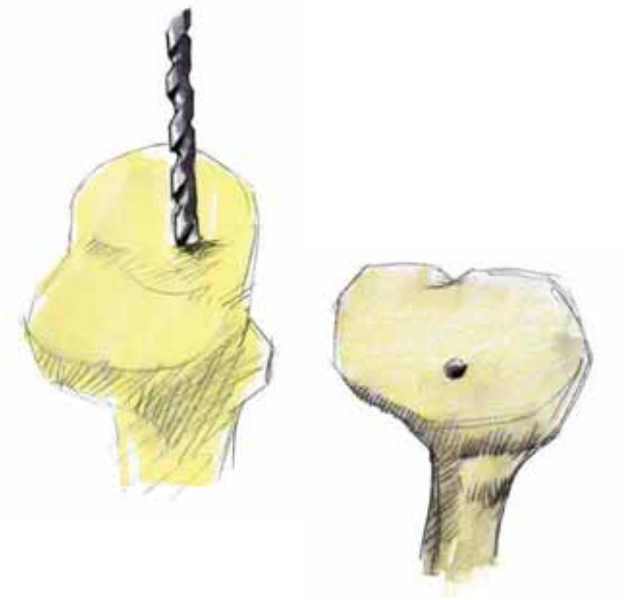


figure 1a and 1b

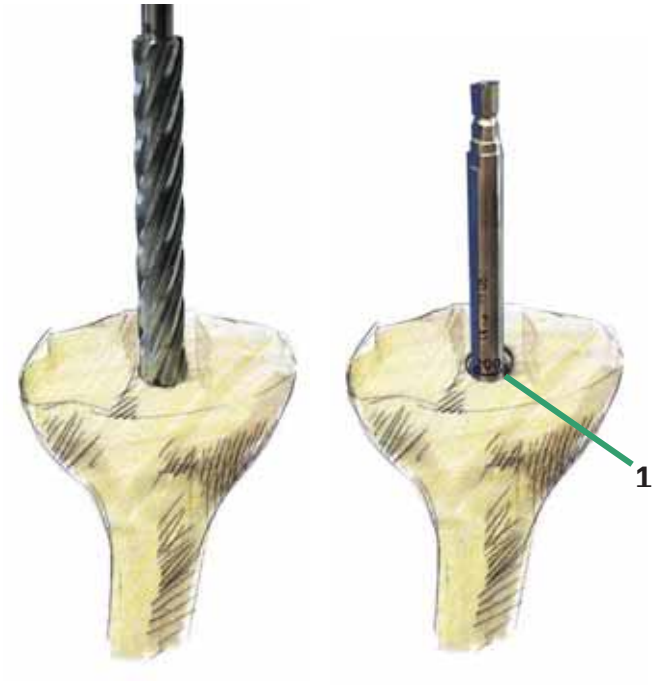


figure 2a and 2b

Tumor resection

Resect the tumour and measure the length of the explant.

The minimum bone resection should be 120mm (or 100 mm if the special distal femur 90 mm is used, available on demand). Remove the menisci.

Tibial bone preparation

Open the tibial medullary cavity with the universal drill ∅ 6 mm (fig. 1a and 1b). The drilling should be orientated to open the center of the medullary cavity (eminentia intercondylaris: ventral 1/3, dorsal 2/3).

Enlarge the opening of the medullary cavity with rigid drills (fig. 2a and 2b).

To choose the correct reamer size for the use of a **cementless tibial stem** consult table 1, for the use of a **cemented tibial stem** consult table 2.

Table 1: cementless implantation
Tibial stem 12 mm ➔ drill 11 mm
Tibial stem 14 mm ➔ drill 13 mm
Tibial stem 16 mm ➔ drill 15 mm
Tibial stem 18 mm ➔ drill 17 mm

Table 2: cemented implantation
Tibial stem 11 mm ➔ drill 13 mm
Tibial stem 13 mm ➔ drill 15 mm
Tibial stem 15 mm ➔ drill 17 mm

To ascertain adequate depth is met, the drills have depth marks (120 mm for 120 mm stems, 160 mm for 160 mm stems and 200 mm for 200 mm stems) corresponding with the tibial stem length (fig. 2a and 2b). The last drill used is left in the tibial canal.

The tibia resection block 0° is attached to the intramedullary tibial alignment guide and the cutting block is placed over the tibial drill left in the intramedullary canal (fig. 3a).

Adjust the rotational alignment and lock the alignment guide by impacting the two spikes into the tibial surface and lock all quick connectors (fig. 3b).

and 3b

Slide the tibial stylus into the upper slot of the resection block to adjust the resection height. Make sure that the marking SLOTTED[1] is directed to the bone, when a slotted cut is planned (fig. 4).
If a nonslotted cut should be performed the NONSLOTTED marking on the stylus should point to the bone.

For the primary bone cut, make sure that the stylus is adjusted to the 15 mm mark[2] and 15mm of bone will be removed from the tibia (fig. 4).
In revision cases normally a minimum bone cut is recommended and the stylus should be adjusted to the 2mm height. When the correct resection height is determined, please lock the quick connector at the resection block.

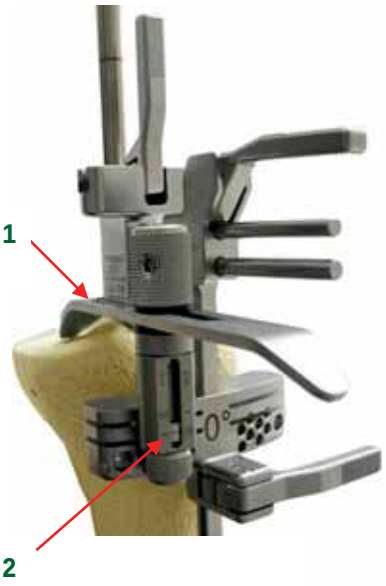


figure 4

Please insert the fixation pins in the marked level to fix the block to the bone. Remove the tibial resection stylus. If necessary please use the 3,2mm drill to predrill the holes (fig. 5).

figure 5

Double check the resection angle and height by using the resection check (fig. 6a).

figure 6a

Use the ACS® saw blade to resect the bone. Prevent damaging of the intramedullary drill. If necessary please remove the drill before resectioning. For additional stability a pin can inserted in the oblique hole (fig. 6b).

figure 6b

Please check the quality of the cut. Make sure that the cut is totally flat and remove the resection block.

figure 7

The resected tibia is checked and the reamer guide with the tibial centering guide is slide over the tibial reamer in place (fig. 7). The mark MEDIAL should be placed correctly to the medial side.

The right mediolateral alignment should be established and the tibial reamer guide is fixed with two pins (fig. 8a). The tibia reamer guide and the intramedullary tibial reamer are now removed.

figure 8a figure 8b

Use of tibial spacer

The joint line can be restored using tibial spacers or bone grafts. If necessary, additional bone should be resected to accommodate the trial tibial spacer. The trial tibial spacer is clicked under the tibial reamer guide. (fig. 8b). The height of the spacer should correspond with the one fixed at the preoperative assessment.

Combine the tibial reamer and the T-handle and ream carefully until the reamer is stopped by the chimney of the reamer (fig. 9a and 9b). It is strongly recommended **not** to use power tools for the reaming.

figure 9a figure 9b

The tibial fin punch is used to continue the tibial preparation. The punch should be punched down until it is stopped by the tibial reamer guide (fig. 10a and 10b).

figure 10a **figure 10b**

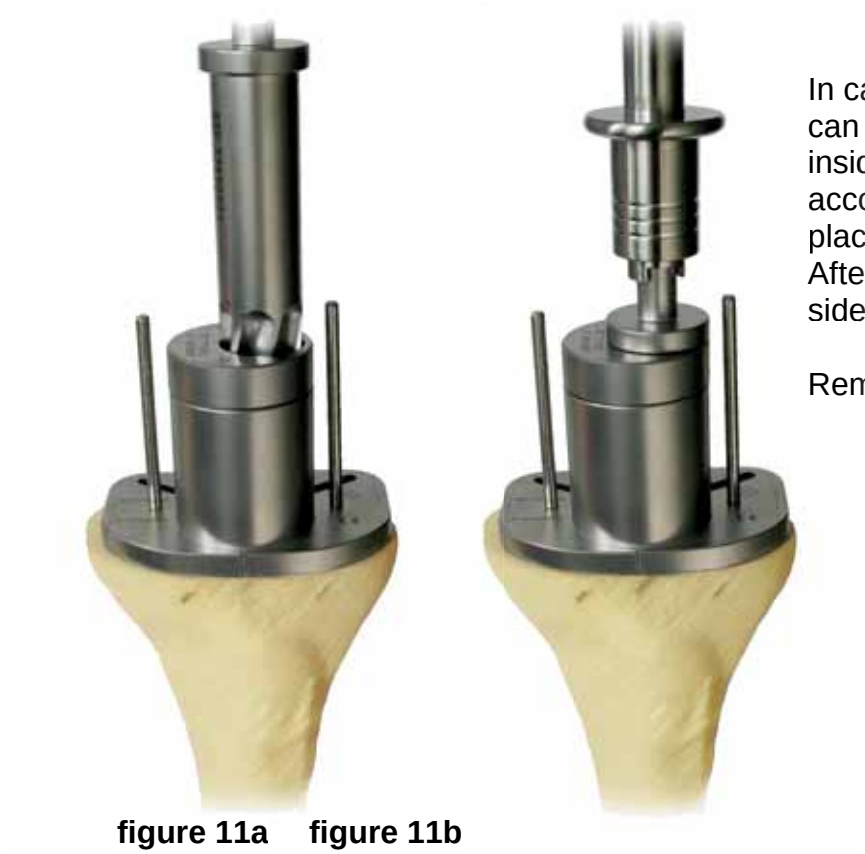


figure 11a **figure 11b**

In case of sclerotic bone the tibial drill can be used. A drill sleeve is placed inside the tibia reamer guide to accommodate this drill. The drill sleeve is placed medially and the canal is drilled. After turning the sleeve 180°, the lateral side is to be drilled.

Remove all instruments.

Femoral bone preparation

Prepare the femoral medullary cavity with the MUTARS® medullary cavity reamer (fig. 12).

figure 12

Cementless fixation

Ream the femoral medullary cavity preferably up to a depth of 130 mm with a flexible reamer 1,5 mm smaller than the preoperatively chosen femoral stem (fig. 13).

Cemented fixation

Ream the femoral medullary cavity preferably up to a depth of 130 mm with a flexible reamer 2 mm larger than the preoperatively chosen femoral stem (fig. 13).

Remark
In case no flexible reamers are in the hospital's stock flexible reamers can be provided on special demand.

figure 13

figure 14

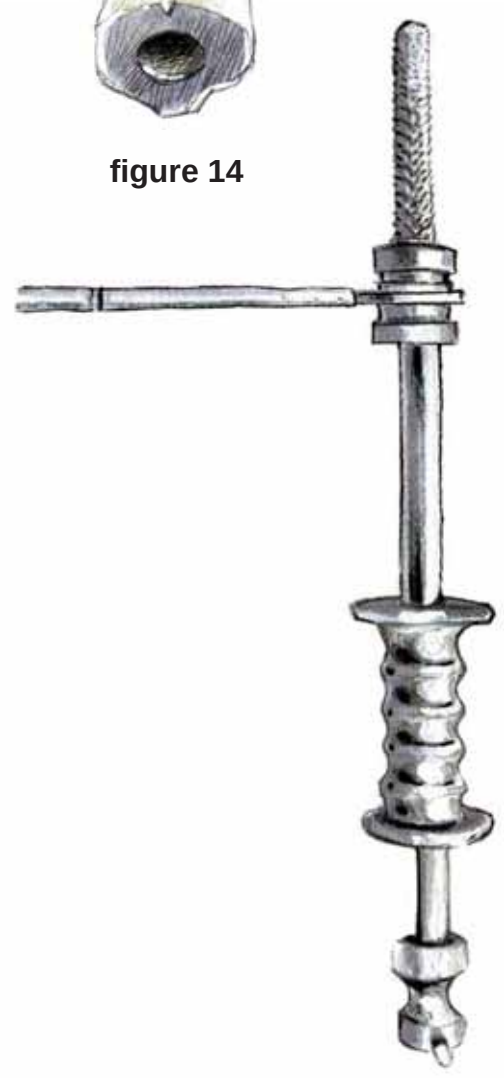


figure 15

Rasping of the femoral cavity

Assemble the femur rasp of the appropriate size (see tables below), the sleeve and the slide hammer. Lock the rasp on the slide hammer by using the engineers' wrench.

Remark
The use of a femoral rasp for a **cemented stem** is optional. Generally you can proceed with the trial reduction (see page 11).

Mark the anterior aspect of the femoral bone to meet the correct antecurvation of the femur (fig. 15).

Use of cementless stems
Use the femur rasp (fig. 15), of the same size as the preoperatively chosen femoral stem (table 3).

Stem size	Rasp size
12mm	12mm
13mm	13mm
14mm	14mm
15mm	15mm
16mm	16mm
17mm	17mm
18mm	18mm

table 3

Rasp the medullary cavity with the chosen femoral rasp (fig. 15). A carefully use of the slide hammer is recommended.

Optional technique for the use of cemented stems

If you want to prepare for a cemented stem with the femoral rasp, please use the rasp which is 2 mm larger than the preoperatively chosen cemented femoral stem (fig. 16).

That will provide a cement mantle of 1 mm thickness (table 4). Use the 18 mm rasp to prepare for the 17 mm stem.

Stem size	Rasp size
11mm	13mm
13mm	15mm
15mm	17mm
17mm	18mm

table 4

Remark
It is recommended to clean the rasp of bone chips during the rasping.

Leave the femoral rasp in the bone for the trialing.

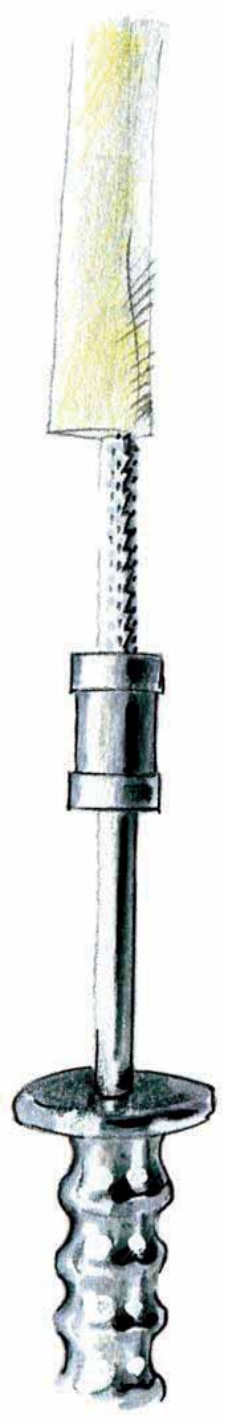


figure 16

figure 17

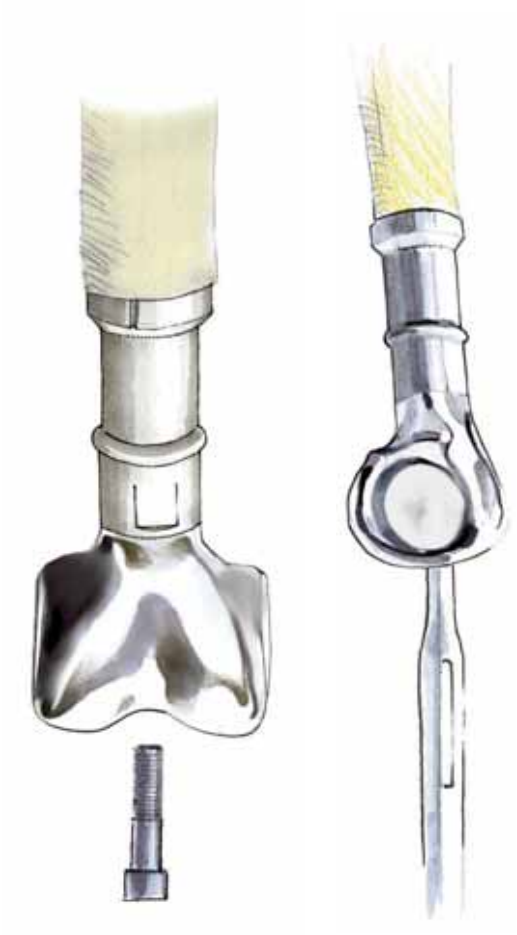


figure 18a and 18b

Trial reduction

Mount the MUTARS® Distal Femur and the possibly needed extension pieces (possible enlargement from 20 to 260 mm; see table page 2) to the top of the rasp (fig. 17).

Remark
For the **cemented procedure** bone rasps are usually not available. Please insert the cemented stem (without cement) or the trial stem for trialing purposes.

At that stage the use of a screw is optional, because the teeth mechanism gives the assembly a reasonable stability (fig. 18a and 18b).

Use of trial implants

To check all resections performed, the tibial and femoral trial implants are used.

Screw the trial stem under the tibial trial of the selected size (fig. 19).

The stem is medialized and care should be taken to place the trial stem into the correct medio-lateral position. If necessary a trial spacer can be clicked under the trial tibial implant (fig. 19).

figure 19

The tibial trial and stem can be inserted using the tibial impactor (fig. 20a and 20b).

figure 20a **figure 20b**

The corresponding trial insert is then placed on the tibial trial implant (fig. 21a), using the impactor for PE-inlay (fig. 21b).

figure 21a **figure 21b**

Perform a trial reduction to assure that the correct femoral rotation is achieved and the joint line is restored in the correct height (fig. 22).

Remark
Please notice that a coupling of the joint components is not possible at this stage when using the trial components. At a later stage the joint stability can be checked using the final implant components and the locking mechanism.

figure 22

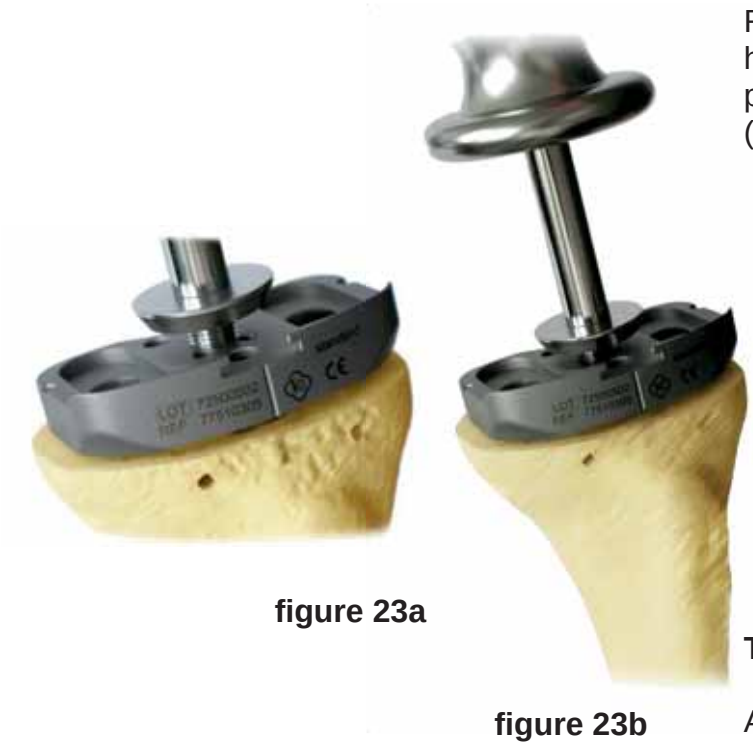


figure 23a

figure 23b

Remove the trial insert. Screw the slide hammer into the tapered hole of the trial plateau and remove the trial components (fig. 23a and 23b).

Tibial component assembly

Attach the selected tibial stem onto the cone of the tibia component and connect the two parts with the screws provided. An torque wrench 3.5 mm hex screw driver (fig. 24) should be used. The same way any tibial spacers should be added (fig. 24).

figure 24

Impact the tibial components with the tibial impactor (fig. 25a and 25b).

figure 25a **figure 25b**

After cement hardening, insert the PE-insert in the tibial joint. Insert the insert from behind, move it forward towards the anterior locking rim and push it down at the posterior part until it is locked securely (fig. 26a). Consider to use the impactor for PE-inlay (fig. 26b).

Although trial inserts are available, it is recommended to insert the final PE-insert at that time in order to reduce the surgery time.

figure 26a

figure 26b

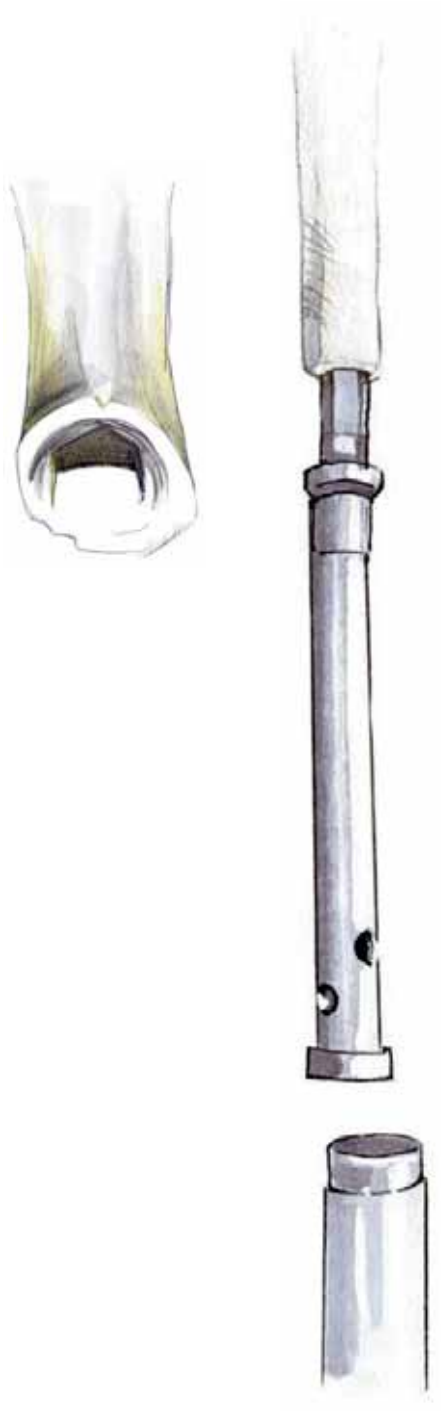


figure 27

Implantation of the femoral stem

Impact the MUTARS® femoral stem (fig. 27).
Insert the stem of the same size as the rasp if a **cementless stem** is used.
To prevent fractures of the cortical bone it is helpful to fix a bone forceps around the femoral bone during impaction.

If a cemented implantation is planned, insert the cement and use the **cemented stem** which is 2 mm smaller than the previously used reamer or rasp.

Remove all instruments during the cement hardening to prevent bending moments.

Mounting of the distal femoral implant components

Combine the Distal Femur and possibly needed extension pieces with the femoral stem. Make sure that the correct rotation of the distal femur is achieved. Insert the bar screw of the correct length (see table on page 2) (fig. 28a and 28b).

Lock the screw with the swing wrench while countering the assembly with the engineers' wrench (fig. 28b).

Insert the safety screw and lock it in the same way (fig. 28c).

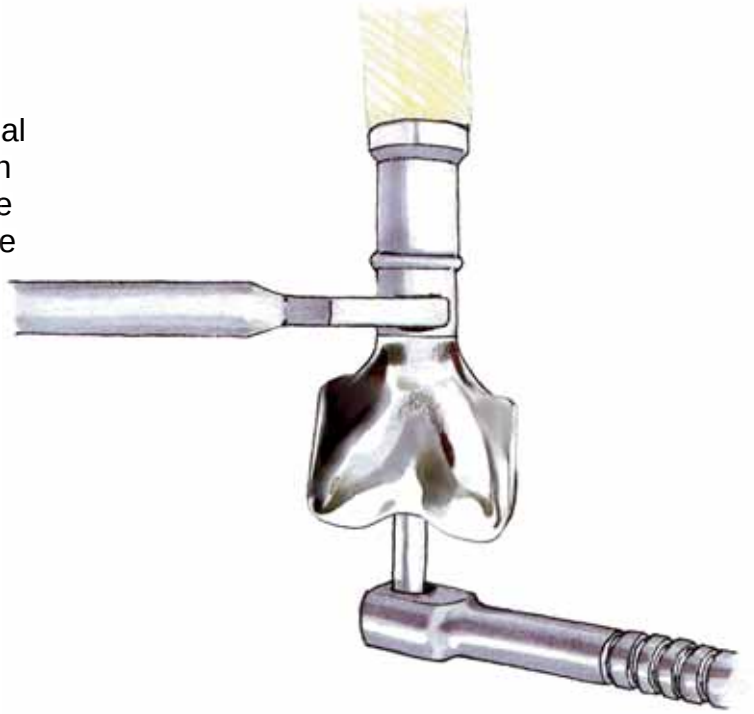


figure 28b

figure 28a

figure 28c

figure 29

Assemble the MUTARS® locking mechanism and the special MUTARS® instrument for locking mechanism. Therefore turn the attachment part of the lock by 100 degrees until it rests in the sleeve of the locking instrument (fig. 29).

figure 30

Insert the lock into the intracondylar notch of the femoral joint (fig. 30).

figure 31

Use the socket wrench to turn the locking instrument and the lock clockwise by 180 degrees (fig. 31).

The lock is correctly positioned when the attachment part falls out of the sleeve of the locking instrument (fig. 32a).
Remove the locking instrument.

The instrument to insert the mechanism into the tibia component is now placed in the top hole$_1$ of the coupling and the mechanism is guided into the hole of the tibial plateau (fig. 32b).

The coupling mechanism should be fully engaged and placed in the correct rotational position. The screw hole$_2$ (fig. 32a) should be placed forward-turned to enable locking (fig. 32b).

figure 32b

The positioner is inserted into the screw hole of the short stem of the coupling mechanism (fig. 33a and 33b).

figure 33b

The coupling mechanism is held in place with the setting instrument while removing the positioner. Then the locking bolt is fixed with the torque wrench 3.5 mm hex screw driver into the tibial component (fig. 34a).

figure 34a

Be sure that the locking bolt is fully engaged into the tibia component (fig. 34b).

figure 34b

figure 35a

A hexagonal torque wrench 3.5 mm hex screw driver is used to screw in the Multi-lock security screw and to tighten the locking bolt (fig. 35a and 35b).

figure 35b

figure 36a

The implantation of the implant is now concluded. Stability and range of motion should be performed in flexion (fig. 36a) and extension (fig. 36b).

figure 36b

Removal of an implant

In case a tibia component should be removed the Multilock security screw and the locking bolt should be removed from ventrally using the torque wrench 3,5mm hex screw driver.

The locking instrument is then used to remove the locking mechanism from the femoral component.
.

The femoral component can now be removed using the slide hammer and the special extractor (fig. 37a and 37b).

figure 37a

The tibial extractor is now attached to the slide hammer and placed into the screw hole of the tibial component (fig. 37a).

The attachment is secured using the rod with the small chain (fig. 37b).

figure 37b

The tibial component is now removed using the slide hammer (fig. 37c).

figure 37c

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® Distal Femur M-O-M, incl. safety screw *S *N *SN

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

5720-0045	110 mm	left
5720-0040	110 mm	right
5720-0047	90 mm	left
5720-0042	90 mm	right

MUTARS® extension piece *S

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

5772-2504	40 mm
5772-2506	60 mm
5772-2508	80 mm
5772-2510	100 mm

MUTARS® connecting part *S

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

5730-0100	100 mm

MUTARS® attachment tube

mat.: polyethylenterephtalat

5900-0300	35 mm
5900-0310	55 mm

IMPLANTS

MUTARS® screw

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

5792-1002	M10x 25 mm
5792-1004	M10x 45 mm
5792-1006	M10x 65 mm
5792-1008	M10x 85 mm
5792-1010	M10x105 mm
5792-1012	M10x125 mm
5792-1014	M10x145 mm
5792-1016	M10x165 mm
5792-1018	M10x185 mm
5792-1020	M10x205 mm
5792-1022	M10x225 mm

MUTARS® femoral stem cemented *N

mat.: implavit®;CoCrMo acc. to ISO 5832-3

5760-0011	11 mm
5760-0013	13 mm
5760-0015	15 mm
5760-0017	17 mm

MUTARS® femoral stem cementless

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

5760-0012	12 mm
5760-0113	13 mm
5760-0014	14 mm
5760-0115	15 mm
5760-0016	16 mm
5760-0117	17 mm
5760-0018	18 mm

MUTARS® tibial plateau M-O-M *N cementless, incl. screw for locking mechanism and safety screw

mat.: implavit®; CoCrMo acc. to ISO 5832-4 Screw implatan®; $TiAl_6V_4$ acc. to ISO 5832-3 with TiN coating

5751-0203 xsmall
5751-0200 small
5751-0205 standard
5751-0210 large

IMPLANTS

MUTARS® tibial plateau M-O-M *N cemented, incl. screw for locking mechanism and safety screw

mat.: implavit®; CoCrMo acc. to ISO 5832-4
Screw implatan®; $TiAl_6V_4$ acc. to ISO 5832-3 with TiN coating

5751-0303	xsmall
5751-0300	small *S
5751-0305	standard *S
5751-0310	large *S

screw for locking mechanism

mat.: implatan®; $TiAl_6V_4$ acc. to ISO 5832-3 with TiN coating
5720-1201

MUTARS® screw for tibial plateau M-O-M

mat.: implatan®; $TiAl_6V_4$
acc. to ISO 5832-3
5720-1205

MUTARS® stem for tibial plateau modular, cementless

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

5756-1212	12 x 120 mm
5756-1214	14 x 120 mm
5756-1216	16 x 120 mm
5756-1218	18 x 120 mm
5756-1612	12 x 160 mm
5756-1614	14 x 160 mm
5756-1616	16 x 160 mm
5756-1618	18 x 160 mm
5756-2012	12 x 200 mm
5756-2014	14 x 200 mm
5756-2016	16 x 200 mm
5756-2018	18 x 200 mm

MUTARS® stem for tibial plateau modular, cemented *N

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

5755-1211	11 x 120 mm
5755-1213	13 x 120 mm
5755-1215	15 x 120 mm
5755-1611	11 x 160 mm
5755-1613	13 x 160 mm
5755-1615	15 x 160 mm
5755-2011	11 x 200 mm
5755-2013	13 x 200 mm
5755-2015	15 x 200 mm

IMPLANTS

MUTARS® PE-insert
mat.: UHMWPE acc. to ISO 5834-2
5721-0013 xsmall
5721-0002 small
5721-0001 standard
5721-0006 large

MUTARS® coupling 15mm
mat.: implavit®; CoCrMo acc. to ISO 5832-12
5720-1212

MUTARS® patella replacement cemented
Mat.: UHMW-PE acc. to ISO 5834-2
5720-1000 standard

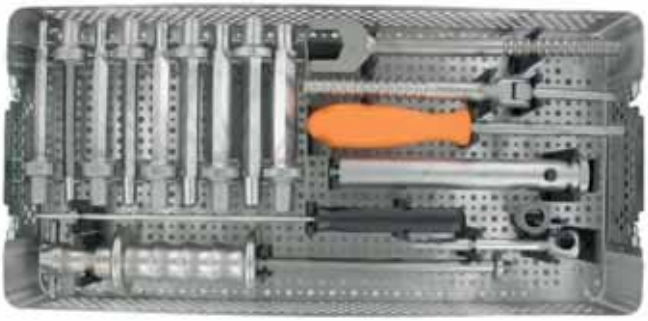
Intramedullary plug
Mat.: UHMW-PE acc. to ISO 5834-2
0299-4000 small
0299-4010 large

MUTARS® tibial spacer *S
Mat.: implatan®; $TiAl_6V_4$ acc. To ISO 5832-3
5810-0500 5 mm rl/lm
5810-1000 10 mm rl/lm
5810-1500 15 mm rl/lm
5810-2000 20 mm rl/lm
5805-0500 5 mm ll/rm
5805-1000 10 mm ll/rm
5805-1500 15 mm ll/rm
5805-2000 20 mm ll/rm

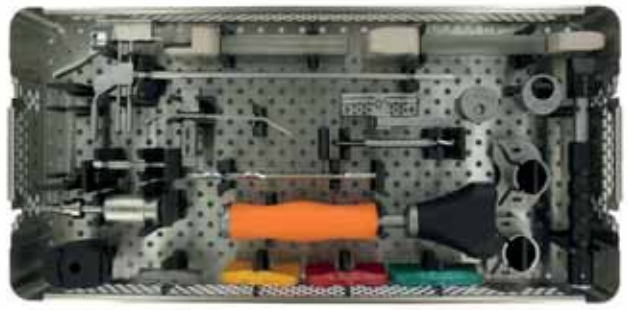
MUTARS® tibial spacer small *S
Mat.: implatan®; $TiAl_6V_4$ acc. to ISO 5832-3
5800-2500 25 mm small right/left
5800-3505 35 mm small left
5800-5005 50 mm small left
5800-3500 35 mm small right
5800-5000 50 mm small right

MUTARS® screw for tibial spacer
Mat.: implatan®; $TiAl_6V_4$ acc. to ISO 5832-3
5720-1203 for 5mm spacers
5720-1204 for 10-50 mm spacers

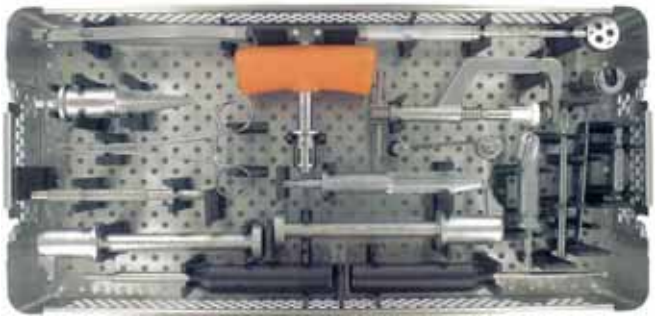
INSTRUMENTS



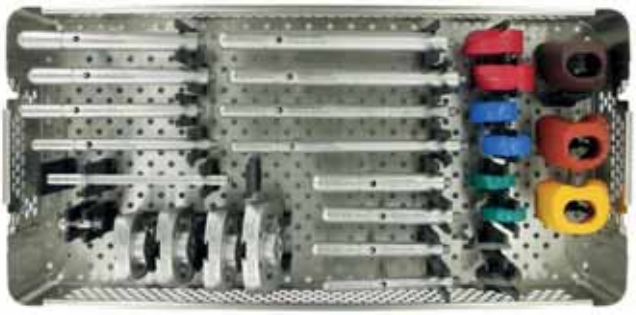
MUTARS® Basic container
7999-5712



MUTARS® Tibia Container 1
7999-5733



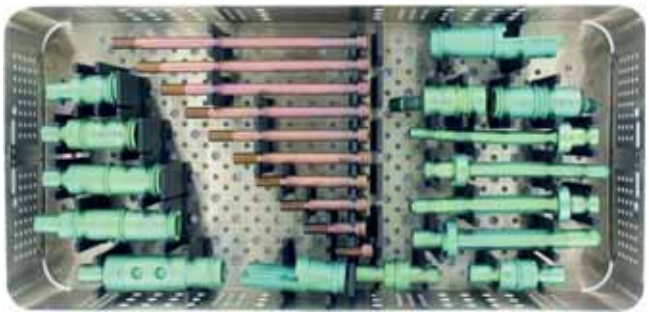
MUTARS® Tibia Container 2
7999-5738



MUTARS® tibia trial container
7999-5736

INSTRUMENTS

MUTARS® trial container
7999-7701



MUTARS® rigid drills container
7999-5735

MUTARS® distal femur M-O-M trial left/ right container
7999-7733 left
7999-7734 right

INSTRUMENTS

Content MUTARS® basic container
7999-5712

MUTARS® universal impactor
7210-0000

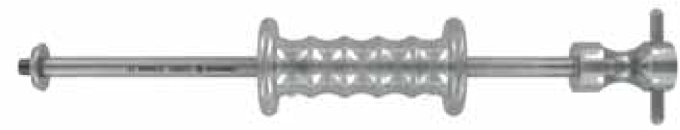
MUTARS® impact and extract sleeve
7230-0000

MUTARS® socket wrench
7420-0000

alternatively
MUTARS® socket wrench
7421-0000

MUTARS® swing wrench
7411-0000

MUTARS® engineers wrench SW 24
7490-0000



MUTARS® slide hammer
7220-0001

MUTARS® rasp for femoral stem

7760-0112	12 mm
7760-0113	13 mm
7760-0114	14 mm
7760-0115	15 mm
7760-0116	16 mm
7760-0117	17 mm
7760-0118	18 mm

handle for intramedullary plug
7512-4001

MUTARS® medullary cavity reamer cross-hole
4220-0000

INSTRUMENTS

Content MUTARS Tibia Container 1
7999-5733

MUTARS® tibial impactor
7800-0008

MUTARS® impaction head
7800-0009

MUTARS® impaction head XS
7800-0010

MUTARS® spacer block
7755-0010

MUTARS® spacer block rotation
7755-0023

hexagonal screw driver ¼" chuck, 3.5 mm
7512-0009

torque limiter ¼" chuck 7Nm
7512-0007

tibia cutting block revision 0°
7755-0054

I / M tibial alignment guide
7755-0024

MUTARS® tibial reamer guide
77550025 ± 2,5 ap
7755-0039 ± 2,5 ap x-small

INSTRUMENTS

fixation pin: 77 mm, D: 3,2 mm
4223-0029 4x

Universal drill 6 mm
7630-0106

tibial resection stylus 15 mm
7700-0415

MUTARS® tibial centralizer sleeve 5mm
7755-0008

MUTARS® sleeve for tibial preparator
7755-0022

MUTARS® patella drill
7351-0000

MUTARS® trial PE-insert

7721-0013	extra small
7721-0001	standard
7721-0002	small
7721-0006	large

MUTARS® impactor for PE-inlay
7210-0001

INSTRUMENTS

Content MUTARS® Tibia container 2
7999-5738

MUTARS® patella drill guide
7350-0000

ic patella clamp
7352-0001

or alternatively
MUTARS® patella clamp
7352-0000

drill 126 x 3,2 mm
4221-0019 2x

pin inserter 3,2 mm
4223-0006

pin extractor
7512-0800

or alternatively
pin extractor
4223-0007

ic t-handle
4223 -0023

resection check
4223 0009

MUTARS® instrument for locking mechanism
7720-1201

MUTARS® tibial reamer
7755-0003

extractor universal
7512-2026

INSTRUMENTS

setting instrument for locking mechanism
7751-1200

MUTARS® positioner for locking mechanism
7610-0003

MUTARS® tibial punch
7755 0004
7755-0028 xsmall

MUTARS® tibia preparator
7755-0021

MUTARS® tibia extractor
7755-0020

MUTARS® reamer for stem preparation
7330-1003

MUTARS® assembling forceps
7720-1202

INSTRUMENTS

Content MUTARS® tibia trial container
7999-5736

MUTARS® trial for tibial joint
7751-0303 extra small
7751-0300 small
7751-0305 standard
7751-0310 large

MUTARS® trial tibial spacer
7800-2500 25 mm small
7800-3500 35 mm small
7800-5000 50 mm small

MUTARS® trial tibial spacer
7810-0500 5 mm rl lm
7805-0500 5 mm ll rm
7810-1000 10 mm rl lm
7805-1000 10 mm ll rm
7810-1500 15 mm rl lm
7805-1500 15 mm ll rm
7810-2000 20 mm rl lm
7805-2000 20 mm ll rm

MUTARS® trial stem for tibial joint
7755-1211 11/120 mm tibial; 11/160mm femoral
7755-1213 13/120 mm tibial; 13/160mm femoral
7755-1215 15/120 mm tibial; 15/160mm femoral
7755-1217 17/120 mm tibial; 17/160mm femoral

7755-1611 11/160 mm tibial; 11/200mm femoral
7755-1613 13/160 mm tibial; 13/200mm femoral
7755-1615 15/160 mm tibial; 15/200mm femoral
7755-1617 17/160 mm tibial; 17/200mm femoral

7755-2011 11/200 mm tibial; 11/240mm femoral
7755-2013 13/200 mm tibial; 13/240mm femoral
7755-2015 15/200 mm tibial; 15/240mm femoral
7755-2017 17/200 mm tibial; 17/240mm femoral

MUTARS® trial locking mechanism
7720-1200

MUTARS® counter instrument for tibial joint
7755-0027

INSTRUMENTS

Content MUTARS® trial container
7999-7701

MUTARS® trial prox. femur

7710 0205	50 mm
7710 0207	50 mm

MUTARS® trial reducer

7730 0220	20 mm
7730 0230	30 mm

MUTARS® trial connecting part 100 mm
7730 0100

MUTARS® trial extension

7772 2504	40 mm
7772 2506	60 mm
7772 2508	80 mm
7772 2510	100 mm

MUTARS® trial extension piece piece for mod. prox. tibia

77500105	105 mm
77500125	125 mm

MUTARS® trial femoral stem

7760 0011	11 mm
7760 0013	13 mm
7760 0015	15 mm
7760 0017	17 mm

MUTARS® trial bar screw

7792 1002	M10x25 mm	x2
7792 1004	M10x45 mm	x2
7792 1006	M10x65 mm	
7792 1008	M10x85 mm	
7792 1010	M10x105 mm	
7792 1012	M10x125 mm	
7792 1014	M10x145 mm	
7792 1016	M10x165 mm	
7792 1018	M10x185 mm	
7792 1020	M10x205 mm	

INSTRUMENTS

Content MUTARS® rigid drills container
7999-5735

MUTARS® rigid drill

4220 4010.1	∅10 mm
4220 4011.1	∅11 mm
4220 4012.1	∅12 mm
4220 4013.1	∅13 mm
4220 4014.1	∅14 mm
4220 4015.1	∅15 mm
4220 4016.1	∅16 mm
4220 4017.1	∅17 mm
4220 4018.1	∅18 mm

ic adapter outside A/O, inside ic canulated
7512-3602

INSTRUMENTS

Content MUTARS® distal femur M-O-M trial left/right container
7999-7733/ 7999-7734

MUTARS® dist. Femur M-O-M trial implant

7720-0045	110 mm left
7720-0047	90 mm left
7720-0040	110 mm right
7720-0042	90 mm right

MUTARS® trial locking mechanism
7720-1200

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

MUTARS® extractor for femoral componenet
7610-0002

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