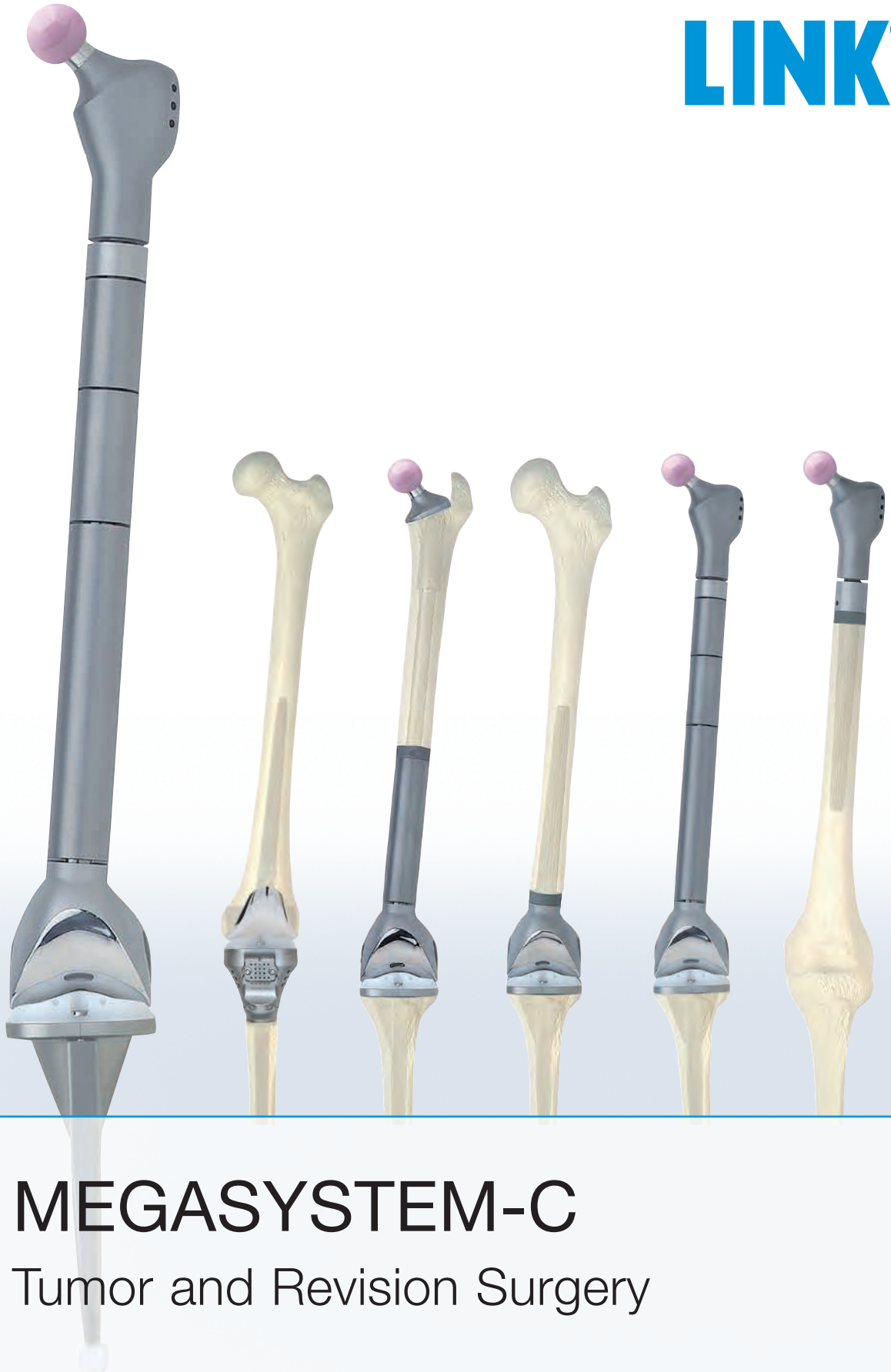
LINK®



MEGASYSTEM-C

Tumor and Revision Surgery

Explanation of Pictograms					
	Manufacturer	REF	Item number	MAT	Material number

Contents

The **LINK MEGASYSTEM-C** is intended to be used with the components of the Endo-Model SL Rotating and Non-Rotating Hinge Knee or Endo-Model Knee System (#K143179) which can be integrated for knee joint replacement and with the MP Reconstruction Prosthesis (#K142187) for hip replacement.

The **LINK MEGASYSTEM-C** is indicated for treatment of any of the following Limb Salvage/Oncology procedures:

1) Revision for loosened femoral prosthesis components involving extensive bone loss.
2) Surgical intervention for severe trauma.
3) Oncology cases where extensive resection and replacement of bone is required from tibia to hip area. The device is to be used with bone cement unless a proximal femur or a modular stem is indicated for use.

For the use of the LINK Endo-Model SL Rotating and Non-Rotating Hinge Knee System additional indications should be noted:

1) Bone necroses.
2) Bicondylar arthrosis by partly damaged collateral ligaments.
3) Revision after primary total knee replacement.
4) Revision surgery after hinge knee or rotational knee joint.
5) Revision surgery by insufficient / inadequate bone mass.
6) Arthrosis of patella flange.
7) Valgus/varus deformities <10°.
8) Valgus/varus deformities 10-15°.
9) Valgus/varus deformities 15-20°.

For the use of the LINK Endo-Model SL Non-Rotating Hinge Knee System additional indications should be noted:

10) Bicondylar arthrosis by completely damaged collateral ligaments and muscular instability.
11) Valgus/varus deformities 20-30°.

Contraindications:

A. As related to bone tumors:

Not all bone tumors may be treated successfully by segmental resection. Any condition that may have already resulted in local or distant spread of the tumor may be a contraindication. Some examples of such conditions include:

1) Pathological fracture.
2) Overt infection.
3) Inopportune placement of biopsy incision.
4) Rapid disease progression beyond a respectable margin.

B. As related to failed previous prosthesis and trauma:

1) Acute or chronic infections, local and systemic.
2) Allergies to (implant) materials.
3) Revision in septic environment.
4) For preparation of the prosthesis bearing insufficient length of intact diaphysis (less than 80 mm).
5) Distinctive muscular, nerve, vascular or other diseases which put the affected limb at risk.
6) Insufficient bone integrity which prevents a stable anchorage of the prosthesis.
7) Adiposity.
8) Lacking or foreseeable not assured compliance.
9) Foreseeable overload/overstressing of joint prosthesis.

For the use of the LINK Endo-Model SL Rotating Hinge Knee System additional contraindications should be noted:

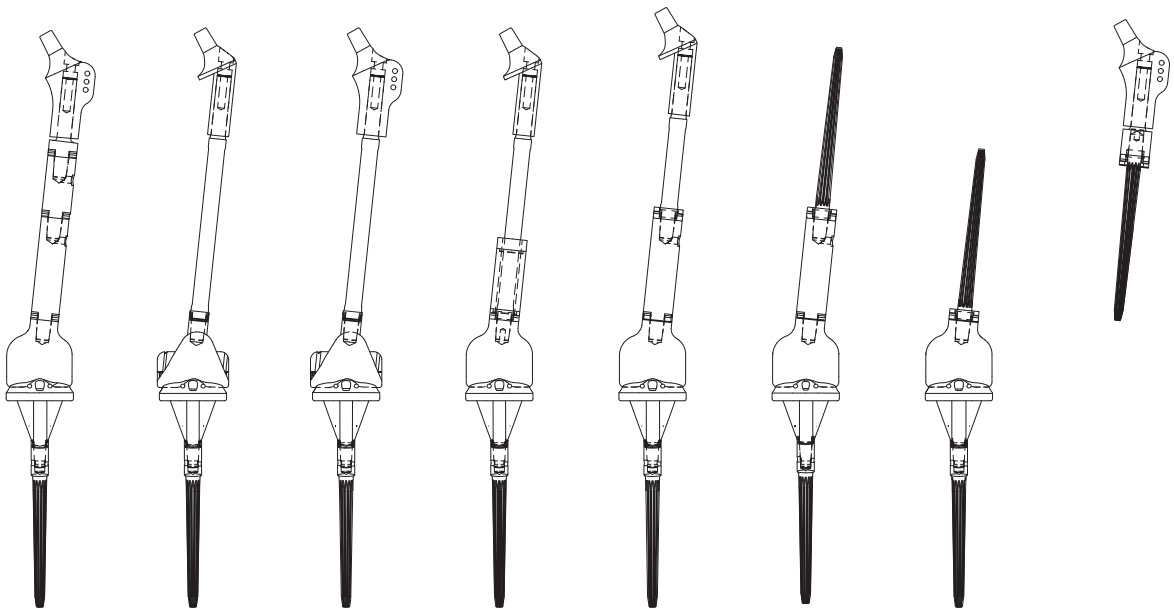
1) Insufficient musculature.

The design of the modular Bone and Joint Revision System **MEGASYSTEM-C** for tumor and revision surgery has been developed in collaboration with Prof. Dr. Capanna of the Centro Traumatologico Ortopedico in Florence.

Due to its high modularity, the system allows partial bone replacements both in the proximal and distal femur in small increments as well as a total replacement of the femur. For the knee joint components, the **Endo-Model SL** Rotating and Non-Rotationg Hinge Knee is used in the **MEGASYSTEM-C**.

The modularity of the system helps to successfully address intraoperative problems. Observation of biomechanical load and anchoring principles and the application of clinically proven implant components successfully implanted over a long period allow utmost safety of the system and thus good prospects for the surgical outcome.

- Maximum intraoperative flexibility using highly modular implant components, thus reducing costs for true custom-made implants
- System-integrated components compatible with standard implant systems such as the MP Reconstruction Hip System and Endo-Model Total Knee Joint Prosthesis System
- Knee joint components based on long-term clinical experience with the Endo-Model Rotating Hinge Knee
- Coupling mechanics clinically used over a long period
- Cemented and cementless stem components
- Length adjustment in 10 mm increments intraoperatively
- Microporous implant surfaces support bone ongrowth
- Easy to handle system-integrated instrumentation



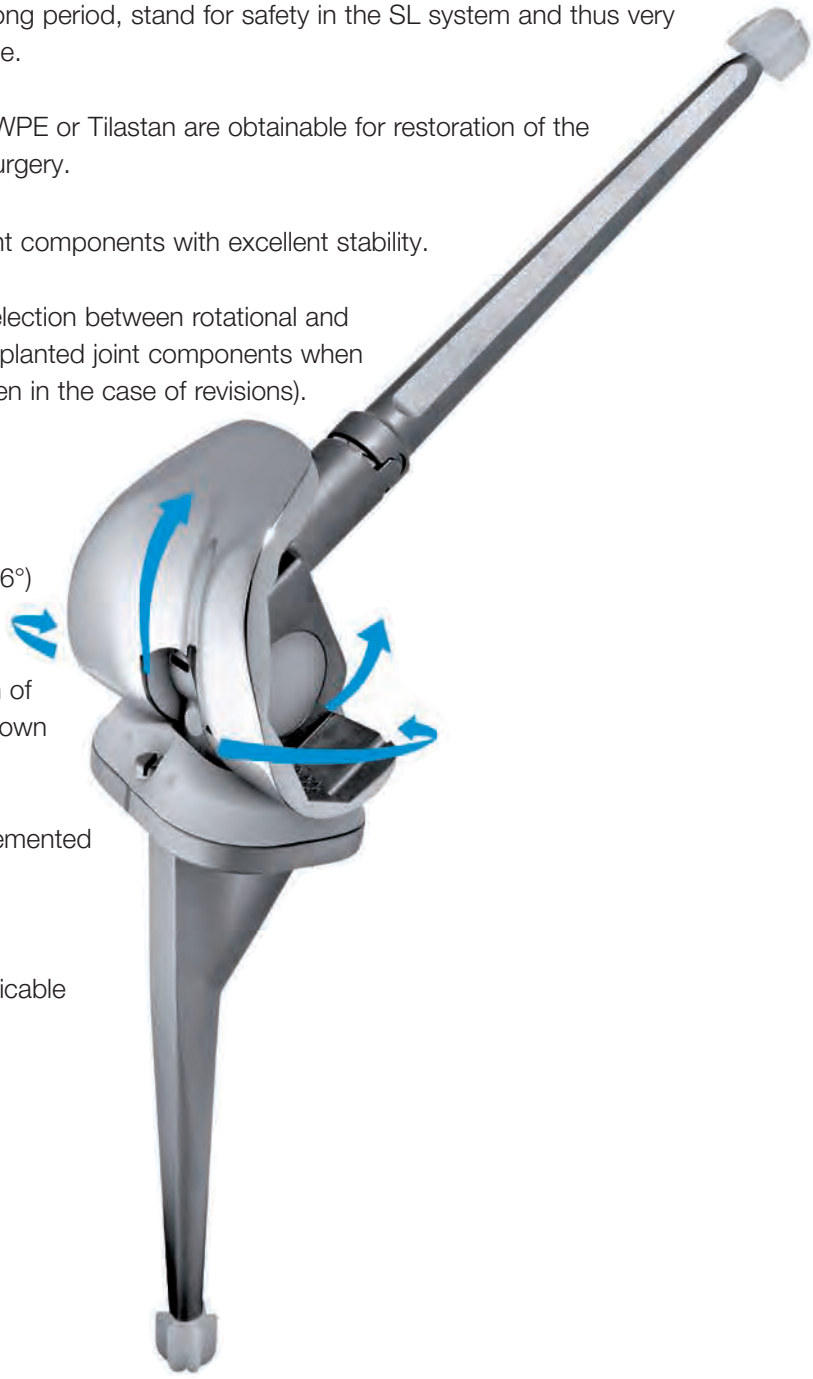
Development of the intracondylar **Endo-Model SL** Rotating and pure Hinge Knee System dates back to the decades of experience with the Endo-Model Rotating Hinge Knee* and Endo-Model Non-Rotating Hinge Knee** and the corresponding modular implant version Endo-Model – M.

A high modularity of the system allows the knee joint system to be used in difficult primary and revision indications (see indications). Incorporation with the implants of the MEGASYSTEM-C extends the range of indications to the treatment of revisions with large bone defects and oncological bone replacement.

Strict observation of biomechanical load and anchoring principles, the simple and well reproducible surgical technique, as well as the already mentioned experience from the application of proven implant components successfully used over a long period, stand for safety in the SL system and thus very good prospects for the surgical outcome.

Special tibial washers made from UHMWPE or Tilastan are obtainable for restoration of the joint line in cases of tumor or revision surgery.

- Flexibility using highly modular implant components with excellent stability.
- Adaptability through intraoperative selection between rotational and hinge version (no exchange of the implanted joint components when adjusting the coupling mechanics even in the case of revisions).
- Bone-sparing through minimal intra-medullary unit dimensions.
- Anatomical due to valgus alignment (6°) of the intramedullary box.
- Anti-luxation effect through extension of the rotational pivot and use of the known anti-luxation mechanism.
- Modularity through optional use of cemented and cementless extension stems.
- Compatible with implants of the MEGASYSTEM-C and therefore applicable for severe bone defects.



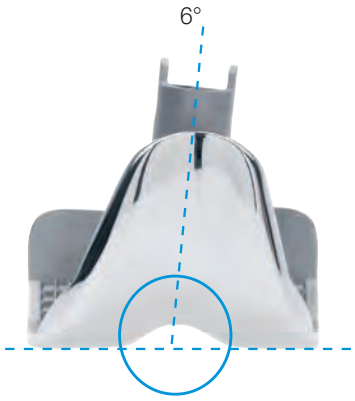
* E. Engelbrecht, E. Nieder, A. Keller (1979)
** E. Engelbrecht, H. W. Buchholz (1970)

Sparing to Bone and Soft Tissue

- Coupling of femoral with tibial components without distraction or additional release
- Preserving of substance through reduced box dimensions

Anatomically Adapted

- 6° valgus from the joint line
- 8° dorsal inclination of tibial plateau
- Anatomical patellar tracking
- 5 mm more bone preservation

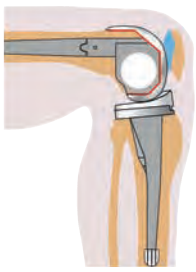


Comprehensive Range of Stems

- Modular stems cemented and cementless for femur and tibia
- Additional monoblock stem cemented for tibia

Reproducible Surgical Technique

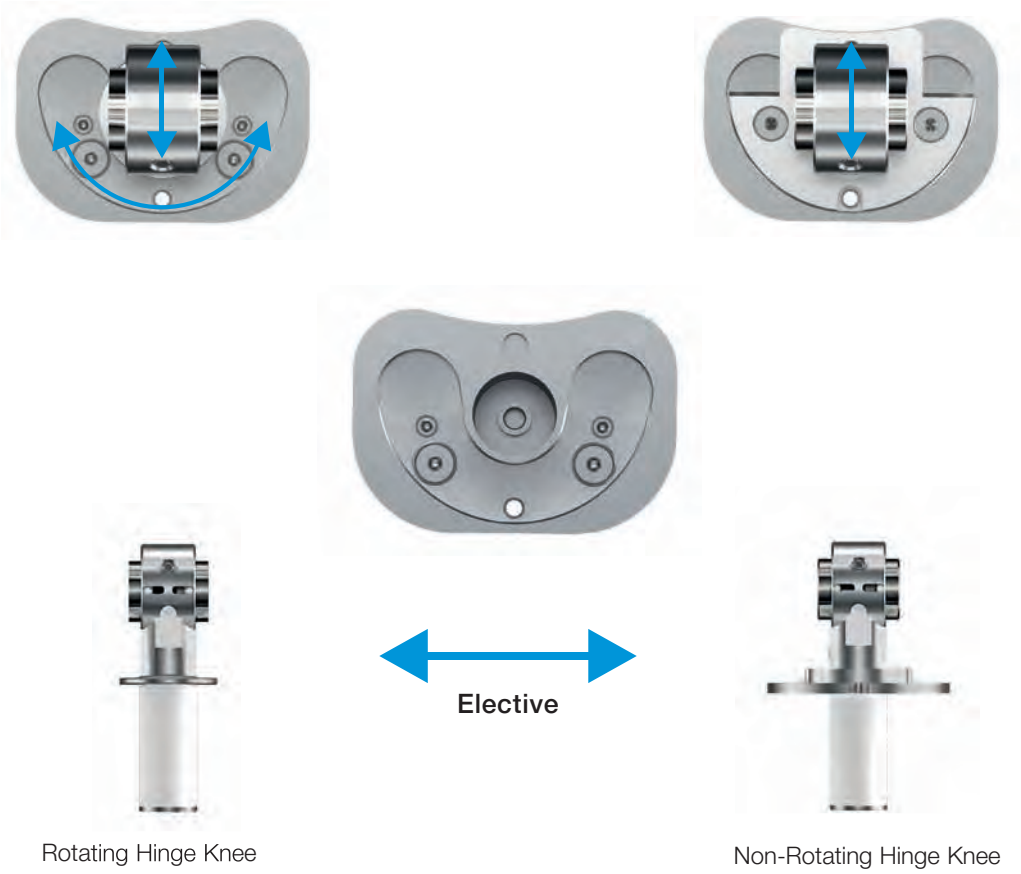
- Chamfer cuts
- Modern, modular instrumentation



Endo-Model SL

Flexible

- Intraoperative change from rotating to non-rotating hinge knee with implant components in place
- Intraoperative flexibility through complete compatibility with the MEGASYSTEM-C Tumor and Revision System

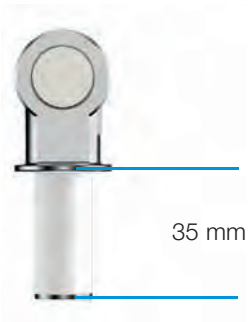


Rotating Hinge Knee

Non-Rotating Hinge Knee

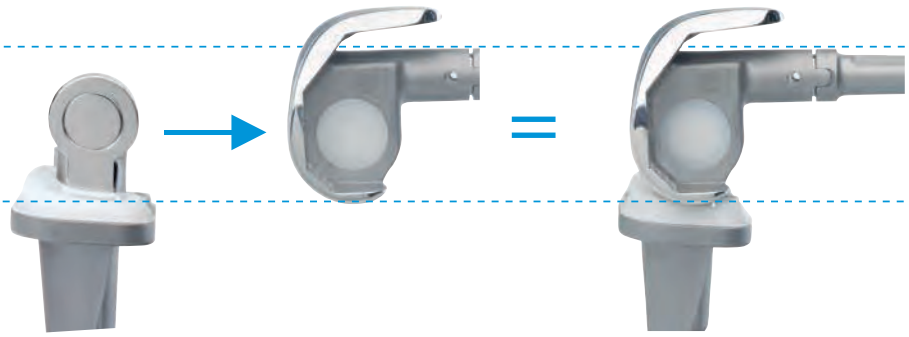
Safe and Stable

- Based on the LINK Endo-Model Rotating Hinge Knee System (since 1979)
- 67% enlarged contact surface in the rotational bearing
- Higher security against luxation
- Reduced wear due to uniform load distribution



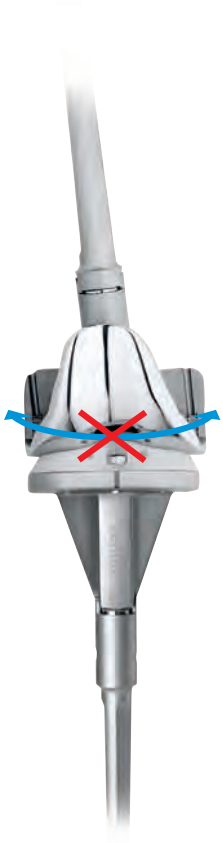
Simple Coupling or Decoupling

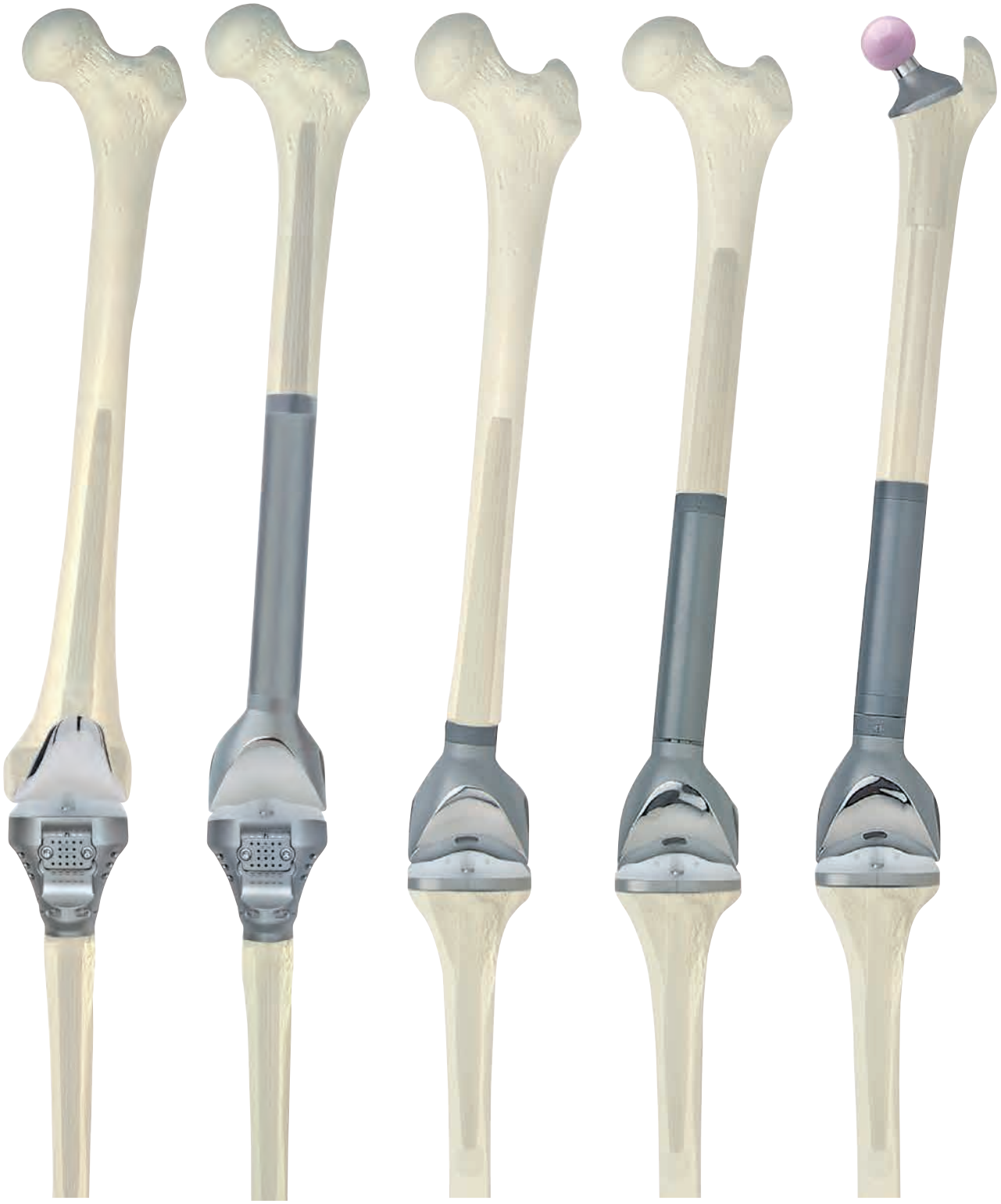
- Coupling of the joint components in the joint plane
- No soft tissue distraction

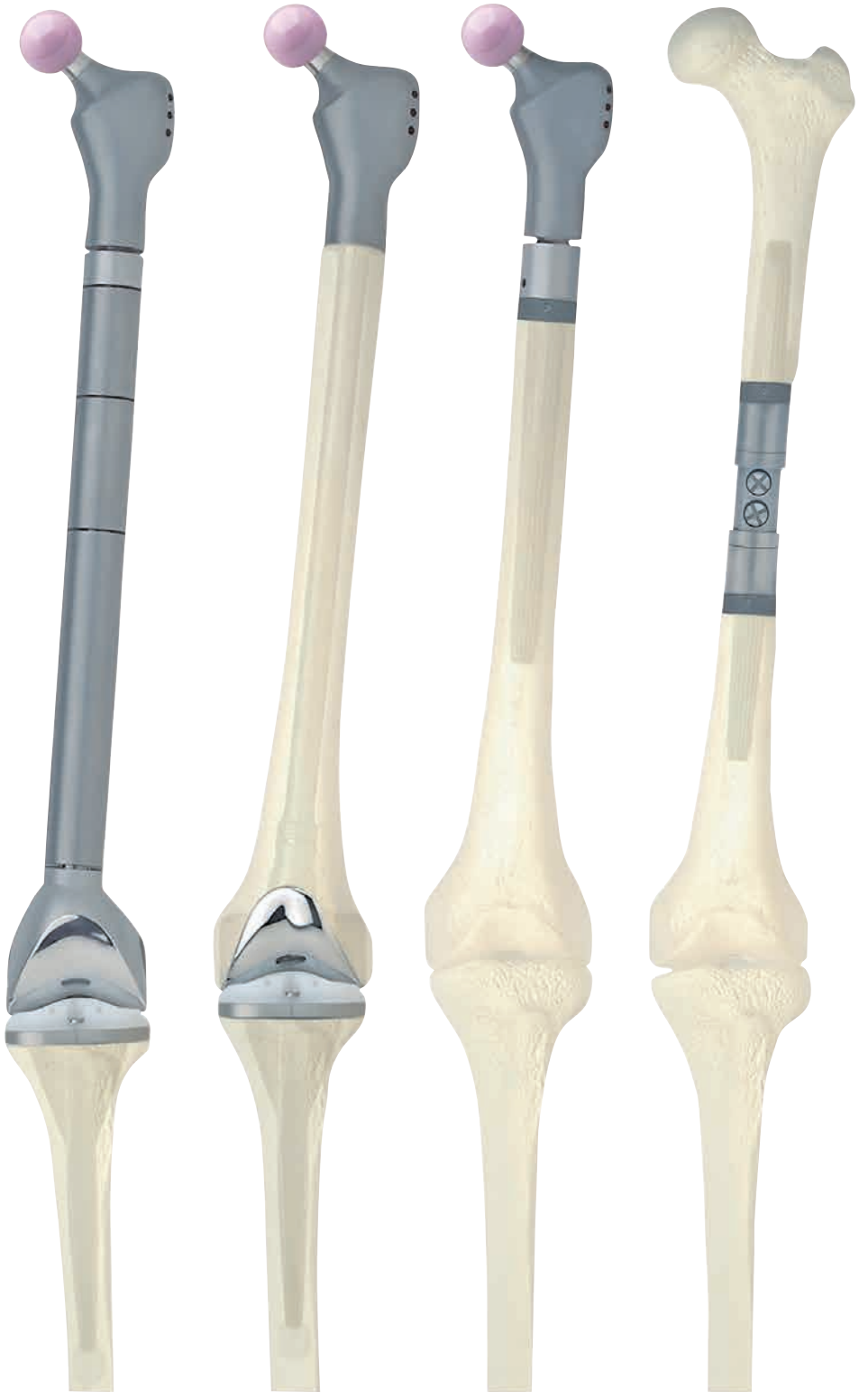


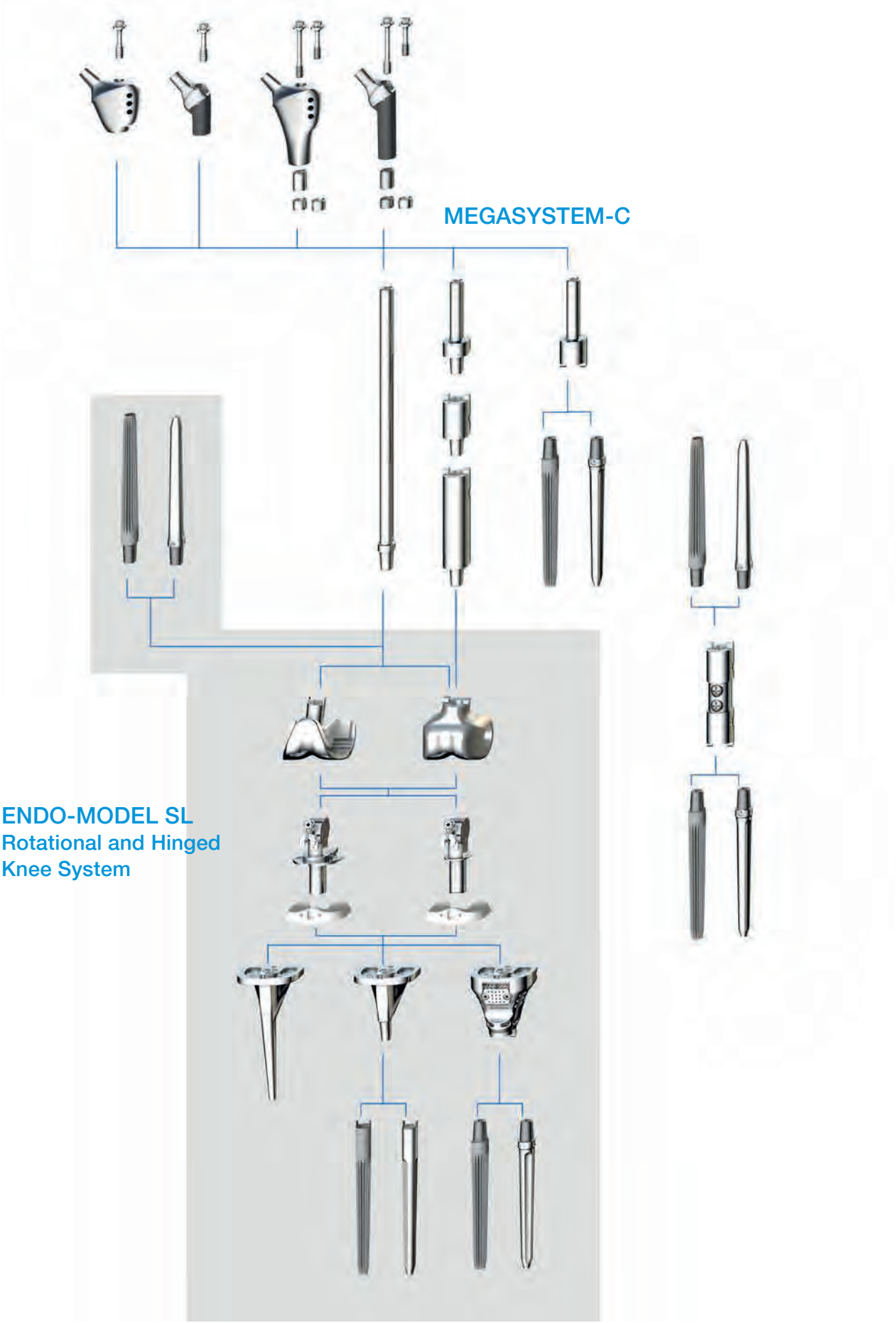
Rotational Stability in Extension

- Stable stance even with damaged soft tissue
- Physiological kinematic
- Good proprioception due to guided flexion and extension mechanism

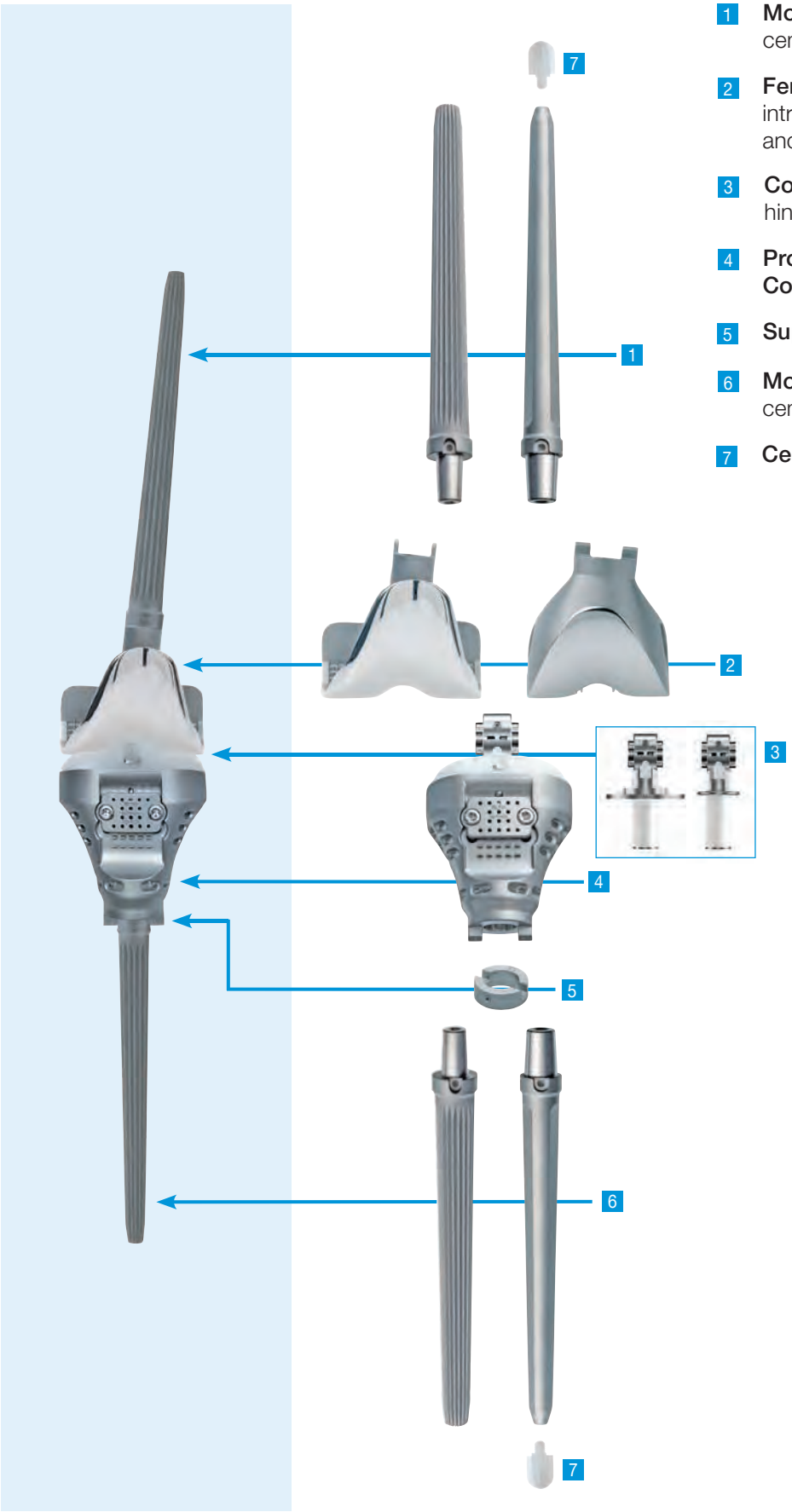







MEGASYSTEM-C
ENDO-MODEL SL
Rotational and Hinged
Knee System

Variety of Assembly 1



1 **Modular Stems**
cementless + cemented

2 **Femoral Components**
intracondylar with patella flange and distal femoral replacement

3 **Connection Components**
hinged or rotational version

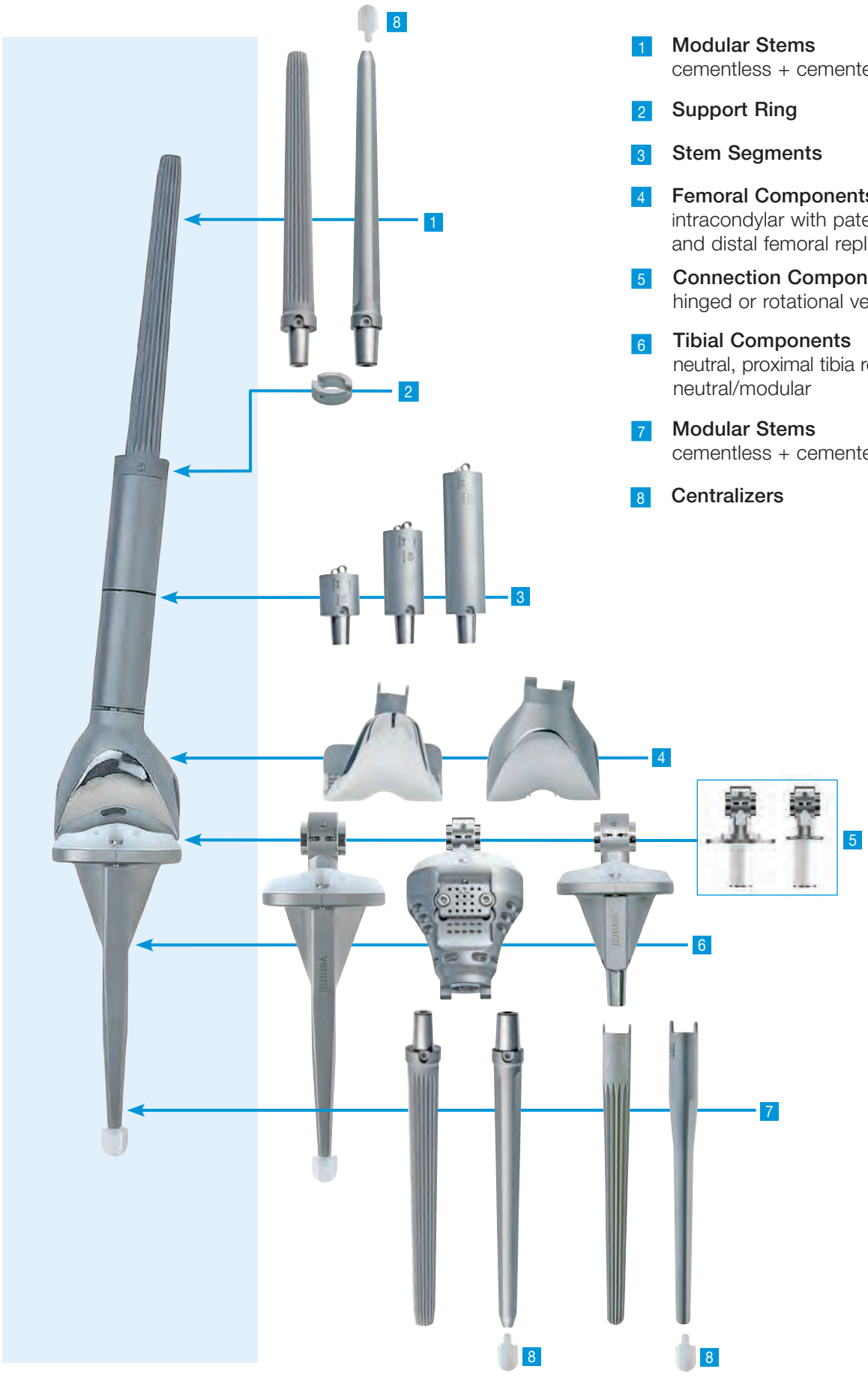
4 **Proximal Tibia Replacement Component,** modular

5 **Support Ring**

6 **Modular Stems**
cementless + cemented

7 **Centralizers**

Variety of Assembly 2



1 **Modular Stems**
cementless + cemented

2 **Support Ring**

3 **Stem Segments**

4 **Femoral Components**
intracondylar with patella flange and distal femoral replacement

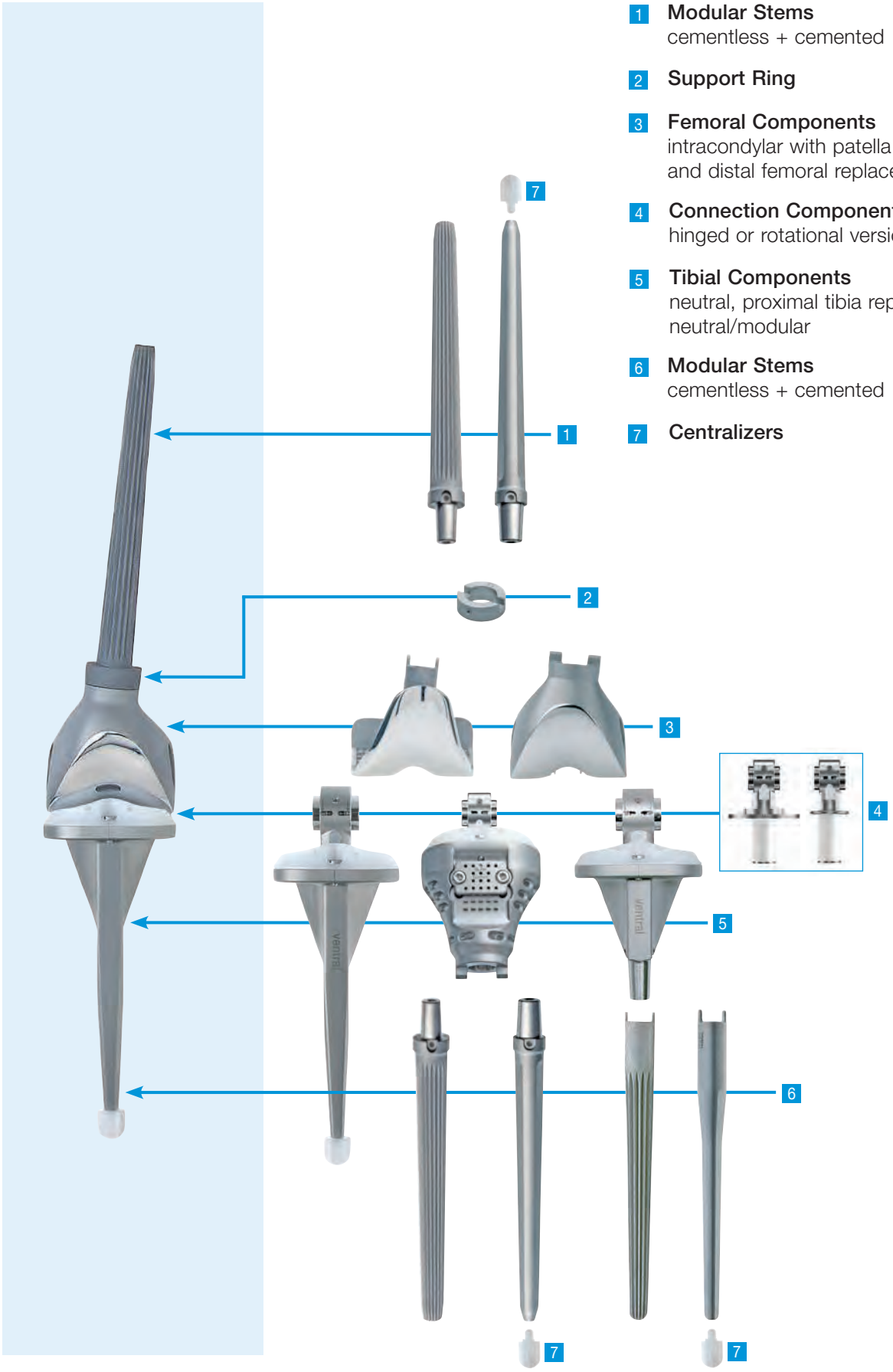
5 **Connection Components**
hinged or rotational version

6 **Tibial Components**
neutral, proximal tibia replacement, neutral/modular

7 **Modular Stems**
cementless + cemented

8 **Centralizers**

Variety of Assembly 3



1 **Modular Stems**
cementless + cemented

2 **Support Ring**

3 **Femoral Components**
intracondylar with patella flange and distal femoral replacement

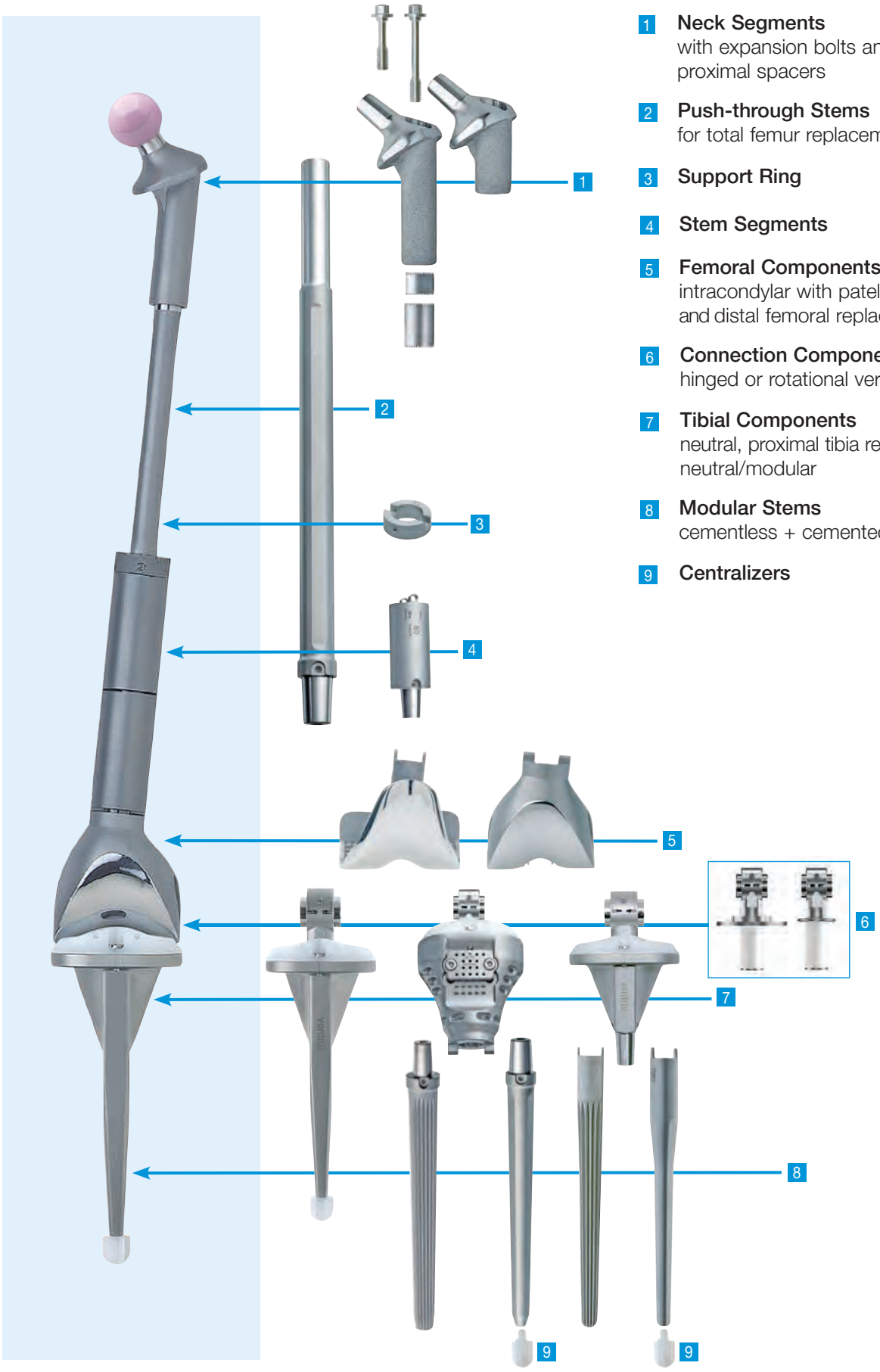
4 **Connection Components**
hinged or rotational version

5 **Tibial Components**
neutral, proximal tibia replacement, neutral/modular

6 **Modular Stems**
cementless + cemented

7 **Centralizers**

Variety of Assembly 4



1 **Neck Segments**
with expansion bolts and proximal spacers

2 **Push-through Stems**
for total femur replacement

3 **Support Ring**

4 **Stem Segments**

5 **Femoral Components**
intracondylar with patella flange and distal femoral replacement

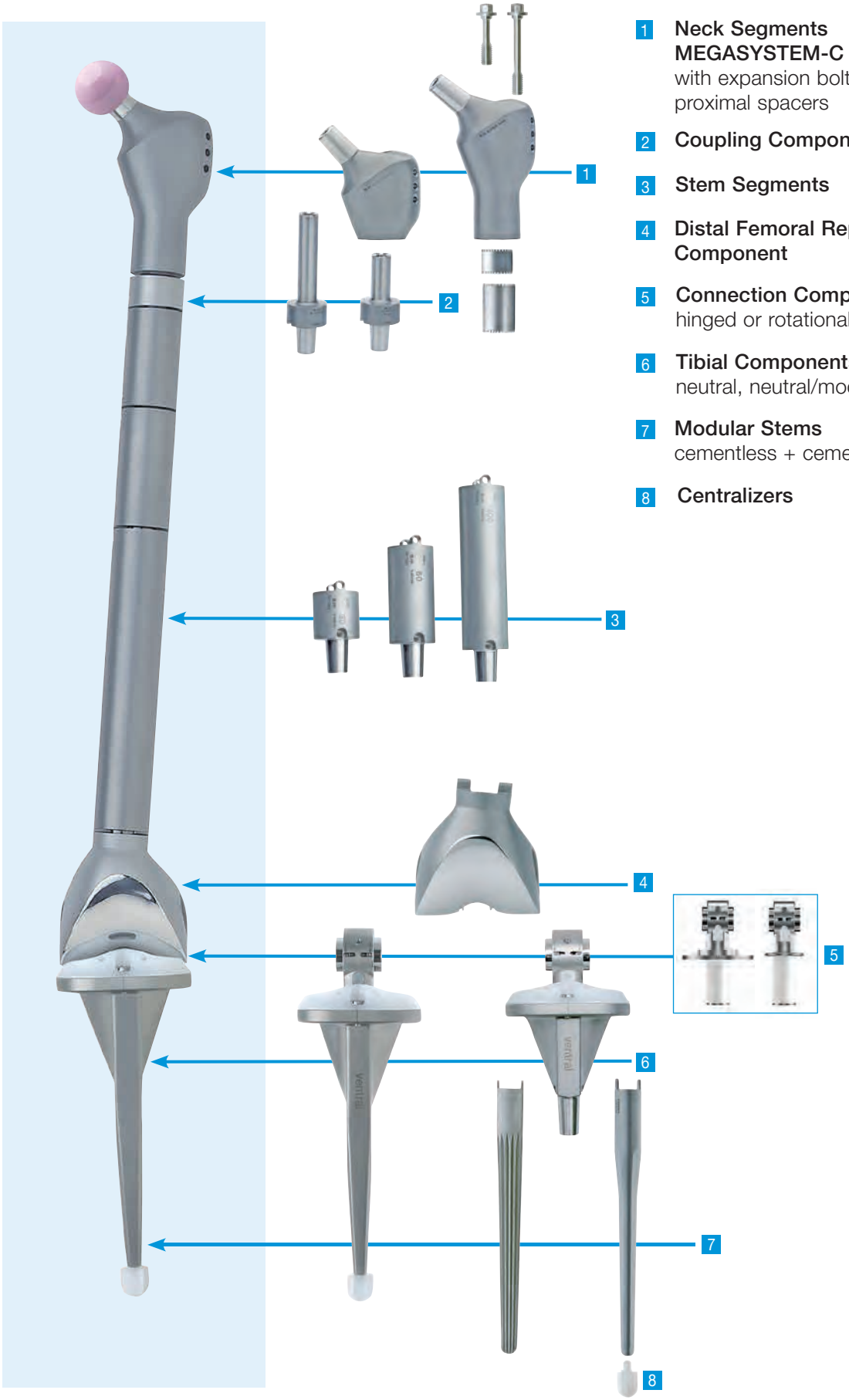
6 **Connection Components**
hinged or rotational version

7 **Tibial Components**
neutral, proximal tibia replacement, neutral/modular

8 **Modular Stems**
cementless + cemented

9 **Centralizers**

Variety of Assembly 5



1 **Neck Segments MEGASYSTEM-C**
with expansion bolts and proximal spacers

2 **Coupling Components**

3 **Stem Segments**

4 **Distal Femoral Replacement Component**

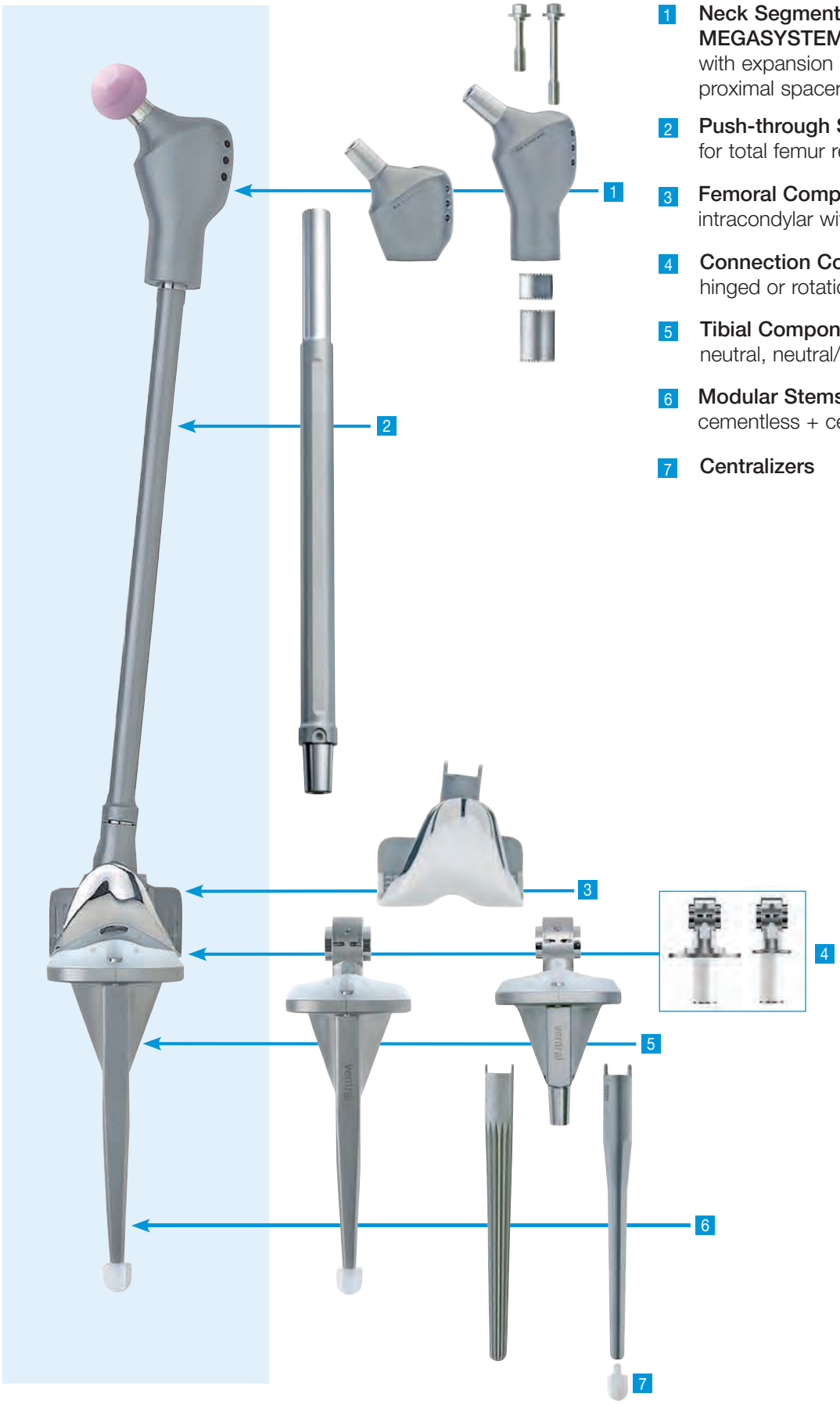
5 **Connection Components**
hinged or rotational version

6 **Tibial Components**
neutral, neutral/modular

7 **Modular Stems**
cementless + cemented

8 **Centralizers**

Variety of Assembly 6



1 **Neck Segments MEGASYSTEM-C**
with expansion bolts and proximal spacers

2 **Push-through Stems**
for total femur replacement

3 **Femoral Components**
intracondylar with patella flange

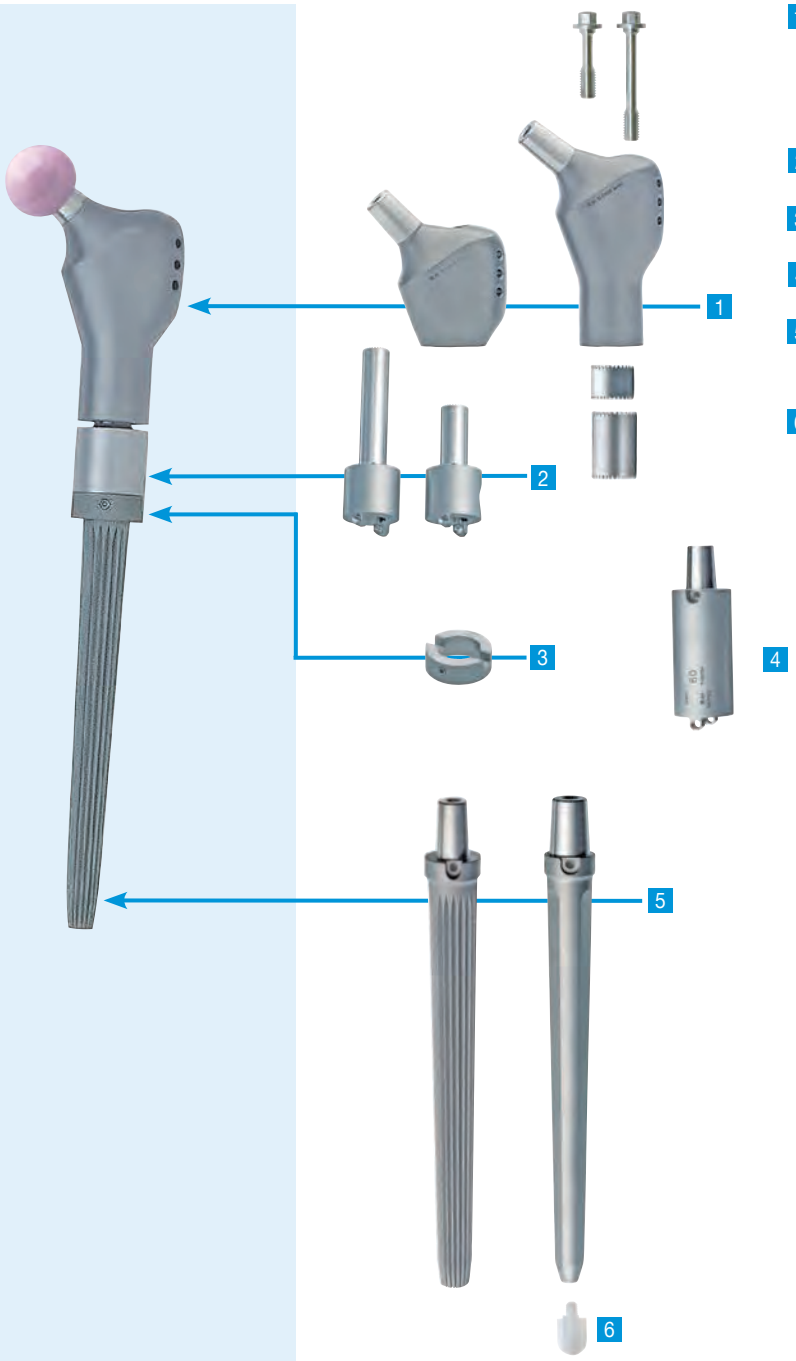
4 **Connection Components**
hinged or rotational version

5 **Tibial Components**
neutral, neutral/modular

6 **Modular Stems**
cementless + cemented

7 **Centralizers**

Variety of Assembly 7



1 **Neck Segments MEGASYSTEM-C**
with expansion bolts and proximal spacers

2 **Coupling Components**

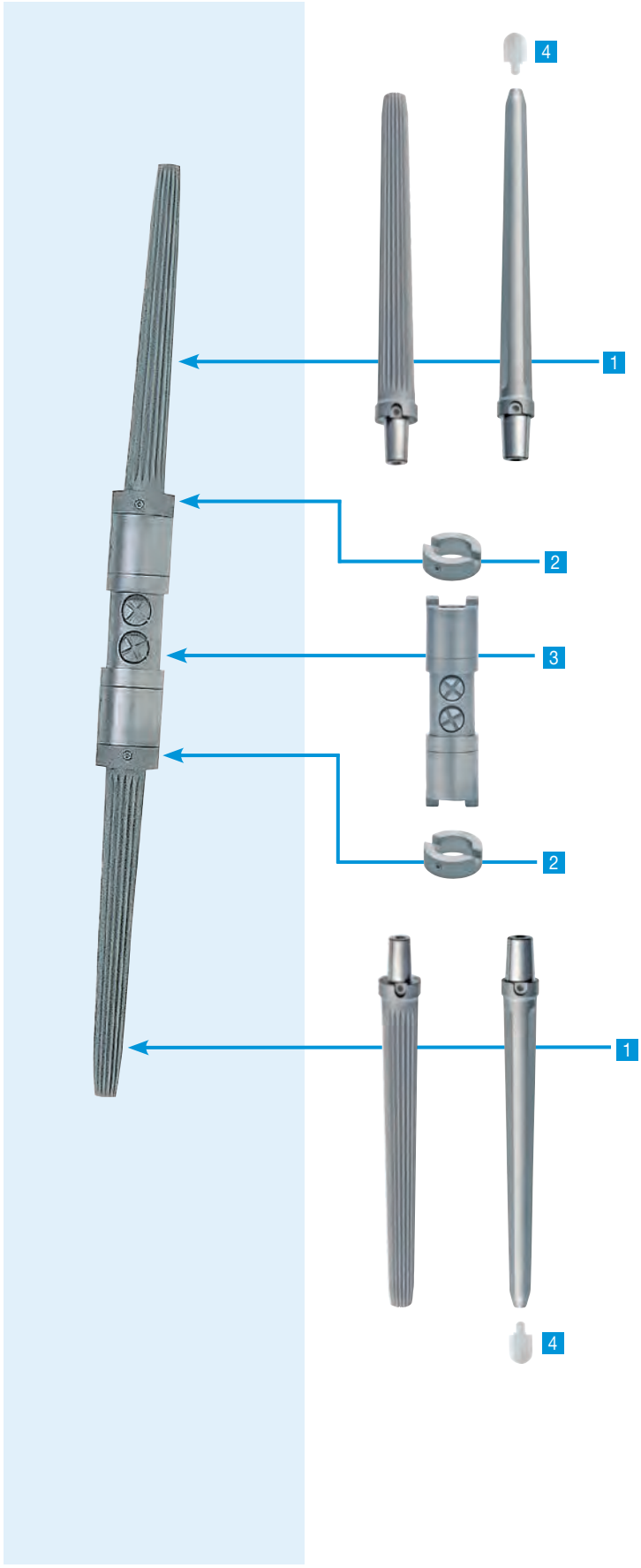
3 **Support Ring**

4 **Stem Segments**

5 **Modular Stems**
cementless + cemented

6 **Centralizers**

Variety of Assembly 8



1 **Modular Stems**
cementless + cemented

2 **Support Ring**

3 **Coupling** for diaphyseal spacer

4 **Centralizers**

Neck Segments

Neck Segments, massive, MEGASYSTEM-C
MAT Tilastan

REF	Length	CCD angle
15-8503/35	65 mm	135°
15-8503/26	65 mm	126°
15-8504/35	35 mm	135°
15-8504/26	35 mm	126°

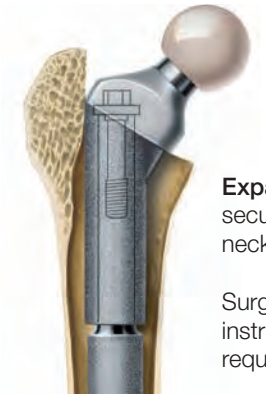
Neck Segments, microporous
MAT Tilastan

without collar REF	with collar REF	Length	CCD angle
172-964/35	172-960/35	65 mm	135°
172-964/26	172-960/26	65 mm	126°
172-965/35	172-961/35	35 mm	135°
172-965/26	172-961/26	35 mm	126°

Neck Segments XXL, 40 mm offset, microporus
MAT Tilastan

without collar REF	with collar REF	Length	CCD angle
172-984/35	172-980/35	65 mm	135°
172-984/26	172-980/26	65 mm	126°
172-985/35	172-981/35	35 mm	135°
172-985/26	172-981/26	35 mm	126°

Neck Segments



Expansion bolts serve to secure the fixation of the neck segments.

Surgical technique and instruments available on request.

Expansion Bolts, key width 8 mm
MAT CoCrMo

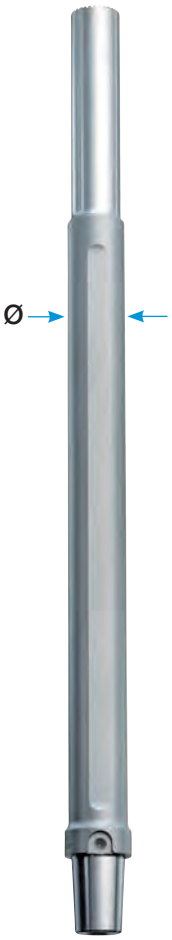
REF	Length
172-947/38	41 mm
172-947/58	61 mm

Proximal Spacers
MAT CoCrMo

REF	Length	Ø
172-950/10	10 mm	14 mm
172-950/20	20 mm	14 mm

Warning:
to be used only with 65 mm neck segments.

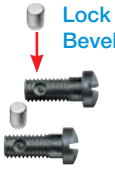
Stem Components



Push-through Stems for total femur replacement
MAT CoCrMo, UHMWPE

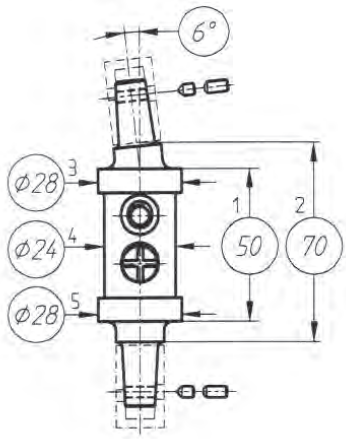
REF	Ø	Length
15-8523/70	14 mm	120 mm
15-8523/71	14 mm	160 mm
15-8523/72	14 mm	200 mm
15-8523/73	14 mm	240 mm
15-8523/74	14 mm	280 mm
15-8523/75	14 mm	320 mm
15-8523/76	14 mm	360 mm
15-8522/70	16 mm	120 mm
15-8522/71	16 mm	160 mm
15-8522/72	16 mm	200 mm
15-8522/73	16 mm	240 mm
15-8522/74	16 mm	280 mm
15-8522/75	16 mm	320 mm
15-8522/76	16 mm	360 mm

15-8522/65
Coupling for diaphyseal spacer,
length (**L**) 103 mm, Material: Tilastan

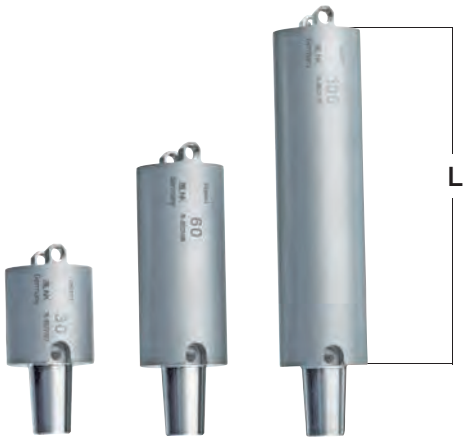


Knee Fusion Nail – Coupling Components
modular, 10/12 taper, length (**L**) 70 mm
MAT CoCrMo, UHMWPE

REF	Side
15-0028/07	left
15-0028/08	right

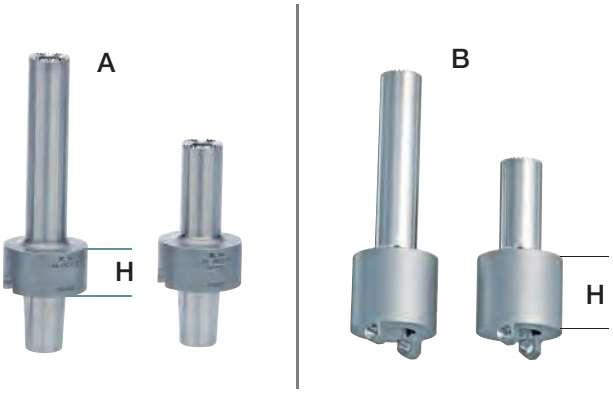


Stem Components



Stem Segments, Ø 28 mm
MAT Tilastan

REF	Length (**L**)
15-8522/02	30 mm
15-8522/04	40 mm
15-8522/06	50 mm
15-8522/08	60 mm
15-8522/10	100 mm
15-8522/12	150 mm
15-8522/14	200 mm
15-8522/16	250 mm



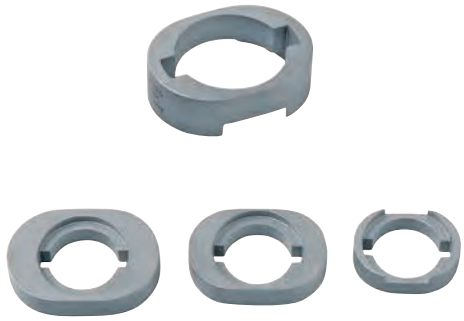
Coupling Components for total femur (**A**) and proximal femur replacement (**B**)
MAT CoCrMo

REF	For replacement:	Height (**H**)
15-8522/24	Total femur (**A**) short	20 mm
15-8522/26	Total femur (**A**) long	20 mm
15-8522/28	Proximal femur (**B**) short	30 mm
15-8522/30	Proximal femur (**B**) long	30 mm

Support Rings, height 10 mm
MAT Tilastan

REF	For stem-Ø	Height (**H**)
15-8502/66	up to Ø 18 mm	10 mm

Stem Components



Terminals Oval, height 10 mm
MAT Tilastan

REF	Dimensions:
15-8512/83	26 x 34 mm, 24 mm Inner-Ø
15-8512/84	30 x 44 mm, 24 mm Inner-Ø
15-8512/85	34 x 48 mm, 24 mm Inner-Ø

No set screw used

Endo-Model Modular Joint Components

Condylar Replacement

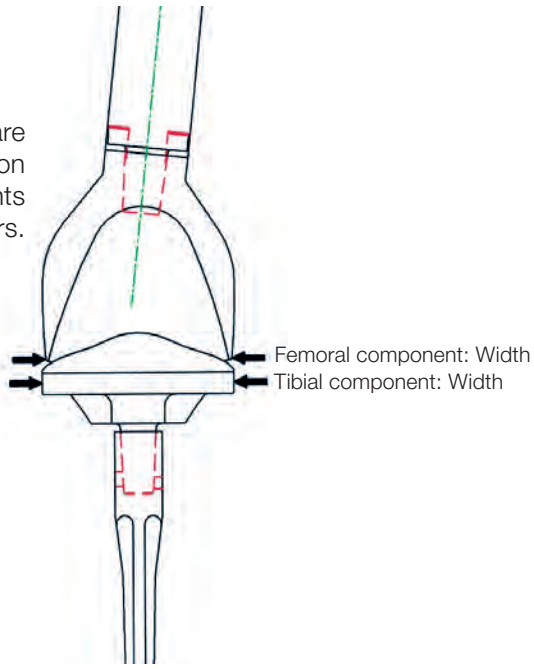
Joint Component unit

Femoral Component,
condylar replacement

Tibial Component

Unit consisting of: ▶			MAT CoCrMo, UHMWPE			
REF	Size	Side	REF	M/L - A/P	REF	M/L - A/P
15-8521/05	small (S)	right (R)	15-8521/06	60 mm - 57 mm	15-2814/02	60 mm - 45 mm
15-8521/07	small (S)	left (L)	15-8521/08	60 mm - 57 mm		
15-8521/09	medium (M)	right (R)	15-8521/10	65 mm - 62 mm	15-2814/03	65 mm - 45 mm
15-8521/11	medium (M)	left (L)	15-8521/12	65 mm - 62 mm		
15-8521/13	large (L)	right	15-8521/14	75 mm - 65 mm	15-2814/04	75 mm - 48 mm
15-8521/15	large (L)	left	15-8521/16	75 mm - 65 mm		

The joint components are equipped with an anti-luxation device. Femoral components feature female tapers.

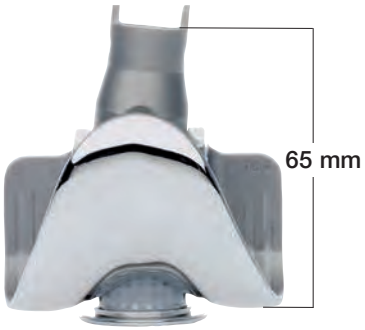


Endo-Model Modular Joint Components

Intracondylar Version

Joint Component unit

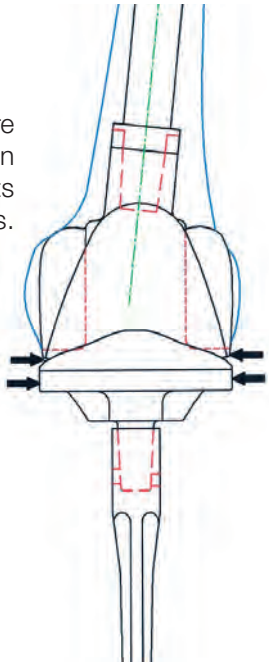
Femoral Component,
intracondylar



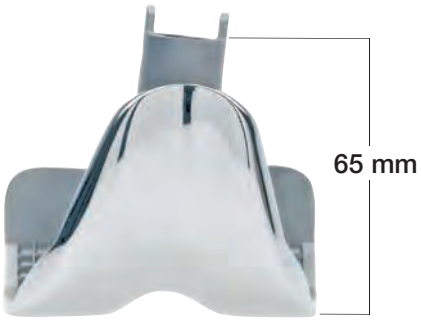
Tibial Component

Unit consisting of: ▶			MAT CoCrMo, UHMWPE			
REF	Size	Side	REF	M/L - A/P	REF	M/L - A/P
15-8521/25	small (S)	right (R)	15-8521/26	60 mm - 57 mm	15-2814/02	60 mm - 45 mm
15-8521/27	small (S)	left (L)	15-8521/28	60 mm - 57 mm		
15-8521/29	medium (M)	right (R)	15-8521/30	65 mm - 62 mm	15-2814/03	65 mm - 45 mm
15-8521/31	medium (M)	left (L)	15-8521/32	65 mm - 62 mm		
15-8521/33	large (L)	right (R)	15-8521/34	75 mm - 65 mm	15-2814/04	75 mm - 48 mm
15-8521/35	large (L)	left (L)	15-8521/36	75 mm - 65 mm		

The joint components are equipped with an anti-luxation device. Femoral components feature female tapers.

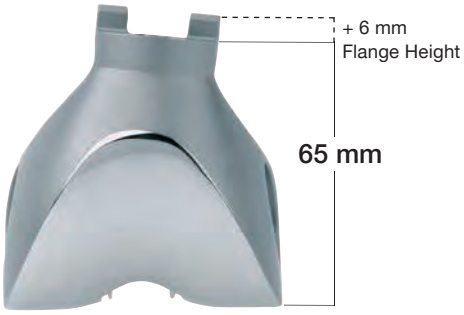


Joint Components for Endo-Model SL Rotating and Non-Rotating Hinge Knee



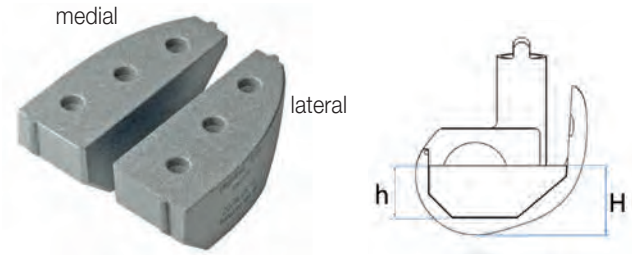
Femoral Components, intracondylar, with patellar flange, modular
MAT CoCrMo, UHMWPE

REF	Size	Side	M/L - A/P
16-2821/21	small (S)	right	63 mm - 57 mm
16-2821/22	small (S)	left	63 mm - 57 mm
16-2823/21	medium (M)	right	69 mm - 62 mm
16-2823/22	medium (M)	left	69 mm - 62 mm
16-2825/21	large (L)	right	72.5 mm - 65 mm
16-2825/22	large (L)	left	72.5 mm - 65 mm



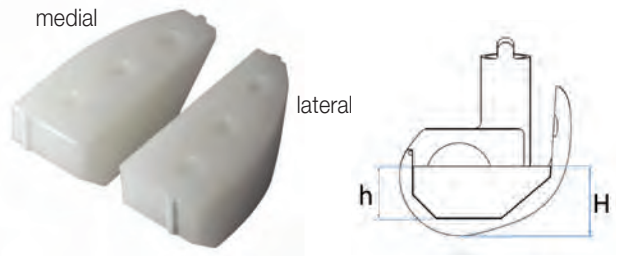
Distal Femoral Replacement Components, modular
MAT CoCrMo, UHMWPE

REF	Size	Side	M/L - A/P
16-2853/21	small (S)	right	60 mm - 57 mm
16-2853/22	small (S)	left	60 mm - 57 mm
16-2855/21	medium (M)	right	65 mm - 62 mm
16-2855/22	medium (M)	left	65 mm - 62 mm
16-2857/21	large (L)	right	75 mm - 65 mm
16-2857/22	large (L)	left	75 mm - 65 mm



Femoral Segments for femoral components, to replace distal condyles, height: **H** 25 mm
MAT Tilastan, cementless

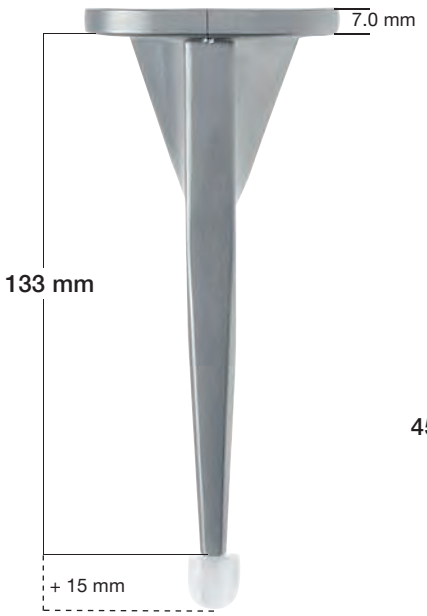
REF	Size	Side		h
15-8517/01	small	right	medial	18 mm
15-8517/02	medium	right	medial	19 mm
15-8517/03	large	right	medial	17 mm
15-8517/11	small	right	lateral	18 mm
15-8517/12	medium	right	lateral	19 mm
15-8517/13	large	right	lateral	17 mm
15-8518/01	small	left	medial	18 mm
15-8518/02	medium	left	medial	19 mm
15-8518/03	large	left	medial	17 mm
15-8518/11	small	left	lateral	18 mm
15-8518/12	medium	left	lateral	19 mm
15-8518/13	large	left	lateral	17 mm



Femoral Segments for femoral components, to replace distal condyles, height: **H** 25 mm
MAT UHMWPE, cemented

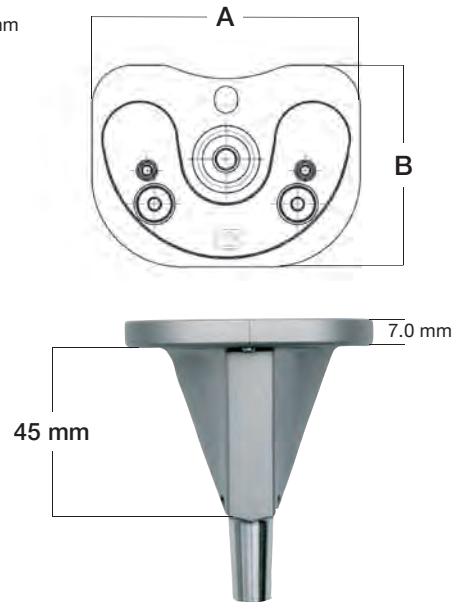
REF	Size	Side		h
15-8519/01	small	right	medial	18 mm
15-8519/02	medium	right	medial	19 mm
15-8519/03	large	right	medial	17 mm
15-8519/11	small	right	lateral	18 mm
15-8519/12	medium	right	lateral	19 mm
15-8519/13	large	right	lateral	17 mm
15-8520/01	small	left	medial	18 mm
15-8520/02	medium	left	medial	19 mm
15-8520/03	large	left	medial	17 mm
15-8520/11	small	left	lateral	18 mm
15-8520/12	medium	left	lateral	19 mm
15-8520/13	large	left	lateral	17 mm

Joint Components for Endo-Model SL Rotating and Non-Rotating Hinge Knee



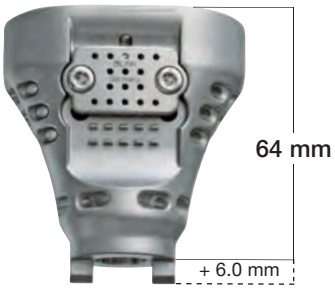
Tibial Components, neutral
MAT CoCrMo, UHMWPE

REF	Size	A x B mm
16-2817/02	small (S)	60 x 45
16-2817/05	medium (M)	65 x 45
16-2817/07	large (L)	75 x 48



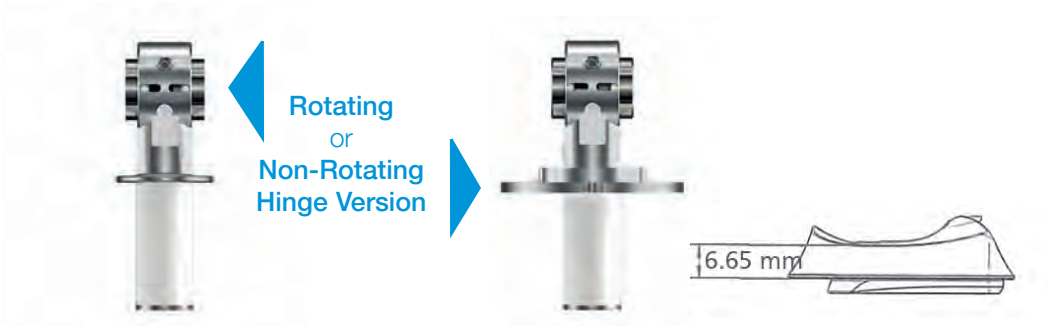
Tibial Components System SL, modular, neutral
MAT CoCrMo, UHMWPE

REF	Size	A x B mm
16-2817/32	small (S)	60 x 45
16-2817/35	medium (M)	65 x 45
16-2817/37	large (L)	75 x 48



Proximal Tibia Replacement Components, modular, neutral
MAT Tilastan, UHMWPE

REF	Size	A x B mm
16-2849/22	small (S)	60 x 45
16-2849/25	medium (M)	65 x 45
16-2849/27	large (L)	75 x 48



Connection Components, incl. Tibial Plateaus (UHMWPE)

REF	Rotating Hinge MAT CoCrMo, UHMWPE		REF	Non-Rotating Hinge MAT CoCrMo, UHMWPE	
16-2840/02	small (S)	neutral	16-2841/02	small (S)	neutral
16-2840/05	medium (M)	neutral	16-2841/05	medium (M)	neutral
16-2840/07	large (L)	neutral	16-2841/07	large (L)	neutral

Proximal Tibial Spacers, Tilastan and UHMWPE
for Endo-Model SL Rotating and Non-Rotating Hinge Knee

Proximal Tibial Spacers, full, Tilastan
for right and left, incl. 2 countersunk screws, wrench size 2.5 mm
MAT Tilastan

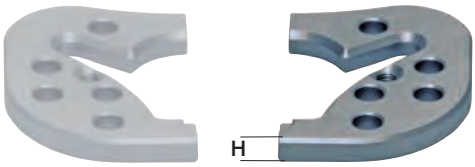
REF	Size	H Height	Width
16-2910/05	small	5 mm	60 mm
16-2910/10	small	10 mm	60 mm
16-2910/15	small	15 mm	60 mm
16-2920/05	medium	5 mm	65 mm
16-2920/10	medium	10 mm	65 mm
16-2920/15	medium	15 mm	65 mm
16-2930/05	large	5 mm	75 mm
16-2930/10	large	10 mm	75 mm
16-2930/15	large	15 mm	75 mm

Proximal Tibial Spacers, full, UHMWPE
for right and left
MAT UHMWPE

REF	Size	H Height	Width
16-3000/05	small	5 mm	60 mm
16-3000/10	small	10 mm	60 mm
16-3000/15	small	15 mm	60 mm
16-3010/05	medium	5 mm	65 mm
16-3010/10	medium	10 mm	65 mm
16-3010/15	medium	15 mm	65 mm
16-3020/05	large	5 mm	75 mm
16-3020/10	large	10 mm	75 mm
16-3020/15	large	15 mm	75 mm

Important note:
Proximal tibial spacers may not be combined!

Proximal Tibial Spacers, Tilastan
for Endo-Model SL Rotating and Non-Rotating Hinge Knee



Proximal Tibial Spacers, half,
lateral and medial usable,
incl. 1 countersunk screw, wrench size 2.5 mm
MAT Tilastan

Item no.	Size	H Height
16-2950/05	small	5 mm
16-2950/10	small	10 mm
16-2950/15	small	15 mm
16-2960/05	medium	5 mm
16-2960/10	medium	10 mm
16-2960/15	medium	15 mm
16-2970/05	large	5 mm
16-2970/10	large	10 mm
16-2970/15	large	15 mm

Important note:
Proximal tibial spacers may not be combined with each other!

Replacement Sets

Sparepart Kit Boxes for Endo-Model SL
MAT UHMWPE

REF	Side	Size
16-2011/21	right/left	small
16-2011/22	right/left	small
16-2013/21	right/left	medium
16-2013/22	right/left	medium
16-2015/21	right/left	large
16-2015/22	right/left	large

Modular Stems, with male taper

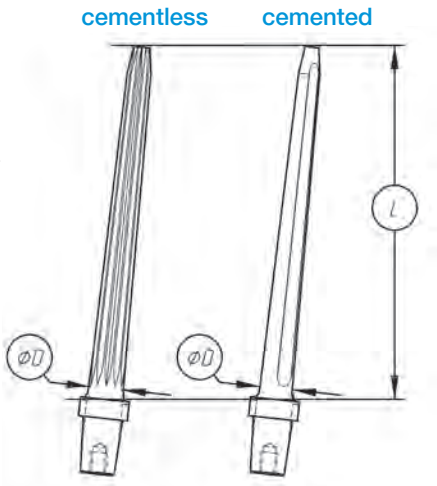
Modular Stems* with male taper (for 6 mm flanges)
MAT Tilastan

Cementless					
REF	Stem length L **100 mm**	REF	Stem length L **130 mm**	REF	Stem length L **160 mm**
15-8524/50	Ø 12/9 mm	15-8523/50	Ø 12/8 mm	15-8522/50	Ø 12/7 mm
15-8524/51	Ø 13/10 mm	15-8523/51	Ø 13/9 mm	15-8522/51	Ø 13/8 mm
15-8524/52	Ø 14/11mm	15-8523/52	Ø 14/10 mm	15-8522/52	Ø 14/9 mm
15-8524/53	Ø 15/12mm	15-8523/53	Ø 15/11 mm	15-8522/53	Ø 15/10 mm
15-8524/54	Ø 16/13mm	15-8523/54	Ø 16/12 mm	15-8522/54	Ø 16/11 mm
15-8524/55	Ø 17/14mm	15-8523/55	Ø 17/13 mm	15-8522/55	Ø 17/12 mm
15-8524/56	Ø 18/15 mm	15-8523/56	Ø 18/14 mm	15-8522/56	Ø 18/13 mm
15-8524/57	Ø 19/16 mm	15-8523/57	Ø 19/15 mm	15-8522/57	Ø 19/14 mm
15-8524/58	Ø 20/17 mm	15-8523/58	Ø 20/16 mm	15-8522/58	Ø 20/15 mm
15-8524/59	Ø 21/18 mm	15-8523/59	Ø 21/17 mm	15-8522/59	Ø 21/16 mm
15-8524/60	Ø 22/19 mm	15-8523/60	Ø 22/18 mm	15-8522/60	Ø 22/17 mm
15-8524/61	Ø 23/20 mm	15-8523/61	Ø 23/19 mm	15-8522/61	Ø 23/18 mm
15-8524/62	Ø 24/21 mm	15-8523/62	Ø 24/20 mm	15-8522/62	Ø 24/19 mm

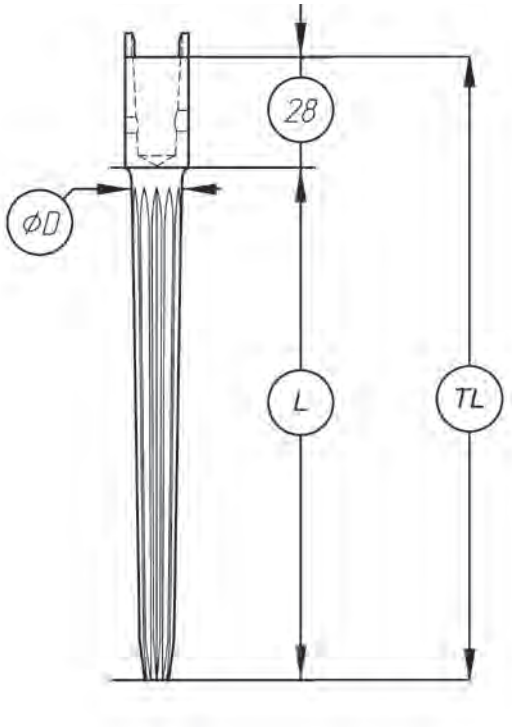
Modular Stems* with male taper (for 6 mm flanges)
MAT CoCrMo

Cemented					
REF	Stem length L **100 mm**	REF	Stem length L **130 mm**	REF	Stem length L **160 mm**
15-8524/40	Ø 12/9 mm	15-8523/40	Ø 12/8 mm	15-8522/40	Ø 12/7 mm
15-8524/42	Ø 14/11 mm	15-8523/42	Ø 14/10 mm	15-8522/42	Ø 14/9 mm
15-8524/44	Ø 16/13 mm	15-8523/44	Ø 16/12 mm	15-8522/44	Ø 16/11 mm

*** These modular stems can be combined with:**
- coupling device to assemble a proximal partial femur replacement
- femoral joint component, solid, or a stem segment attached to it to assemble a distal partial femur replacement
- coupling device for the diaphyseal spacer
- proximal tibial replacement



Modular Stems, with female taper

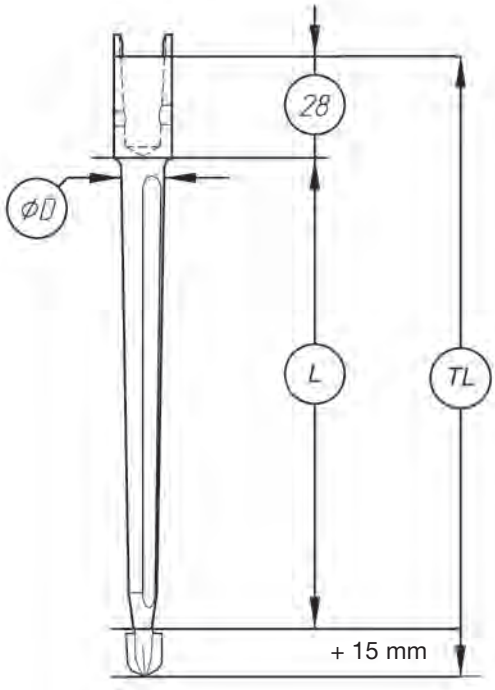


Modular Stems* with female taper (with 6 mm flanges)
MAT Tilastan

Cementless					
REF	Stem length **L 100 mm**	Total length **TL 128 mm**	REF	Stem length **L 130 mm**	Total length **TL 158 mm**
15-8517/50	Ø 12/9 mm		15-8516/50	Ø 12/8 mm	
15-8517/51	Ø 13/10 mm		15-8516/51	Ø 13/9 mm	
15-8517/52	Ø 14/11 mm		15-8516/52	Ø 14/10 mm	
15-8517/53	Ø 15/12 mm		15-8516/53	Ø 15/11 mm	
15-8517/54	Ø 16/13 mm		15-8516/54	Ø 16/12 mm	
15-8517/55	Ø 17/14 mm		15-8516/55	Ø 17/13 mm	
15-8517/56	Ø 18/15 mm		15-8516/56	Ø 18/14 mm	

REF	Stem length **L 160 mm**	Total length **TL 188 mm**
15-8515/50	Ø 12/7 mm	
15-8515/51	Ø 13/8 mm	
15-8515/52	Ø 14/9 mm	
15-8515/53	Ø 15/10 mm	
15-8515/54	Ø 16/11 mm	
15-8515/55	Ø 17/12 mm	
15-8515/56	Ø 18/13 mm	

Modular Stems, with female taper



Modular Stems[1]
with female taper (with 6 mm flanges)
MAT CoCrMo

Cemented					
REF	Stem length **L 100 mm**	Total length **TL 128 mm**	REF	Stem length **L 130 mm**	Total length **TL 158 mm**
15-8527/40	Ø 12/9 mm		15-8526/40	Ø 12/8 mm	
15-8527/42	Ø 14/11 mm		15-8526/42	Ø 14/10 mm	
15-8527/44	Ø 16/13 mm		15-8526/44	Ø 16/12 mm	

REF	Stem length **L 160 mm**	Total length **TL 188 mm**
15-8525/40	Ø 12/7 mm	
15-8525/42	Ø 14/9 mm	
15-8525/44	Ø 16/11 mm	

*** These modular stems can be combined with:**
- tibial components, neutral, modular (with 6 mm noses)

Ø 12 mm Ø 14 mm Ø 16 mm

Centering Stars, height 15 mm
MAT UHMWPE

REF	REF	Size
Set:	consisting of:	
15-2975/01	15-2975/12	small
	15-2975/14	medium
	15-2975/16	large

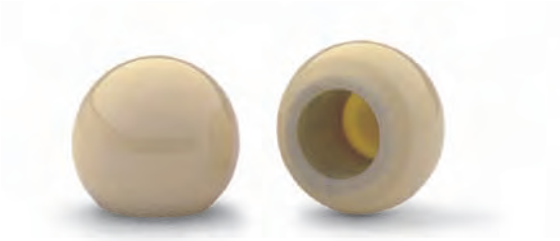
Prosthesis Heads

Prosthesis Heads B, for taper 12/14 mm
MAT CoCrMo alloy

REF	Head Ø	Neck length	
128-828/01	28 mm	short	-3.5 mm
128-828/02	28 mm	medium	0 mm
128-828/03	28 mm	long	+3.5 mm
128-828/04**	28 mm	extra long	+10.5 mm
128-832/01	32 mm	short	-4.0 mm
128-832/02	32 mm	medium	0 mm
128-832/03	32 mm	long	+4.0 mm
128-832/04**	32 mm	extra long	+8.5 mm

**on request

Prosthesis Heads A, for taper 12/14 mm
MAT BIOLOX forte*



REF	Head Ø	Neck length	
128-928/01	28 mm	short	-3.5 mm
128-928/02	28 mm	medium	0 mm
128-928/03	28 mm	long	+3.5 mm
128-932/01	32 mm	short	-4.0 mm
128-932/02	32 mm	medium	0 mm
128-932/03	32 mm	long	+4.0 mm

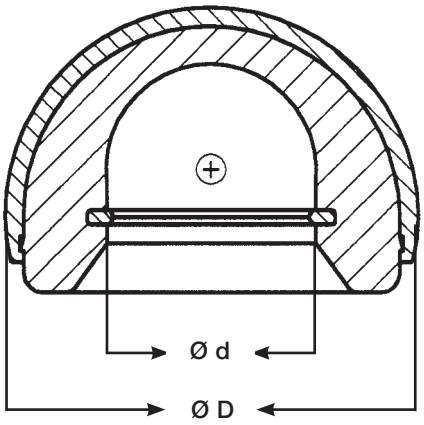
All components made of BIOLOX® forte are compatible with each other.

Prosthesis Heads A - ceramic, for taper 12/14 mm
MAT BIOLOX delta*

REF	Head-Ø	Neck length	
128-791/01	28 mm	short	- 3.5 mm
128-791/02	28 mm	medium	0 mm
128-791/03	28 mm	long	+ 3.5 mm
128-792/01	32 mm	short	- 4 mm
128-792/02	32 mm	medium	0 mm
128-792/03	32 mm	long	+ 4 mm
128-792/04	32 mm	extralong	+ 7 mm
128-793/01	36 mm	short	- 4 mm
128-793/02	36 mm	medium	0 mm
128-793/03	36 mm	long	+ 4 mm
128-793/04	36 mm	extra long	+ 8 mm

* BIOLOXforte and BIOLOXdelta are products of CeramTec, Plochingen, Germany

Vario-Cup Prosthesis



LINK Vario-Cup Prostheses, self-centering

MAT CrCoMo, UHMWPE			
REF 24.1 mm Inner-Ø (**d**)	REF 28.1 mm Inner-Ø (**d**)	REF 32.1 mm Inner-Ø (**d**)	Outer-Ø (**D**)
107-210/39*#			Ø 39 mm
107-210/40*#			Ø 40 mm
107-210/41*			Ø 41 mm
107-210/42*			Ø 42 mm
107-210/43*			Ø 43 mm
	107-220/44		Ø 44 mm
	107-220/45		Ø 45 mm
	107-220/46		Ø 46 mm
	107-220/47		Ø 47 mm
	107-220/48		Ø 48 mm
	107-220/49	107-230/49	Ø 49 mm
	107-220/50	107-230/50	Ø 50 mm
	107-220/51	107-230/51	Ø 51 mm
	107-220/52	107-230/52	Ø 52 mm
	107-220/53	107-230/53	Ø 53 mm
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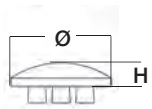
	107-220/58	107-230/58	Ø 58 mm
	107-220/59	107-230/59	Ø 59 mm
	107-220/60	107-230/60	Ø 60 mm
	107-220/61	107-230/61	Ø 61 mm
	107-220/62	107-230/62	Ø 62 mm
	107-220/63	107-230/63	Ø 63 mm
	107-220/64	107-230/64	Ø 64 mm
	107-220/65	107-230/65	Ø 65 mm

* without safety ring
\# not self-centering

Accessories:
130-915/02 **X-ray Templates,** 110% actual size, 4 sheets

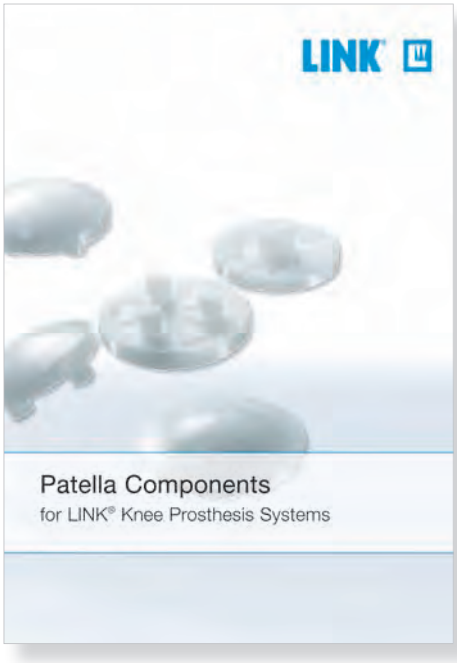
Patella Components



LINK Patella Components

REF	Size	Ø mm	Height mm
	MAT UHMWPE		
318-401/25	1	25	7
318-401/28	2	28	8
318-401/31	3	31	9
318-401/34	4	34	10

Instrument set for patella components available on request.



Surgical Technique and Instruments for Patella Resurfacing Components
available on request

15-8710/02 Instrument Set – Tapered Reamers: 100 mm

1	15-8711/02	**Instrument Tray,** empty, 478 x 253 x 76 mm	
		Tapered Reamers: for prosthesis stems 100 mm, conical, with fitting B: Hudson	
2	16-5100/12	for: stem-Ø 12 mm	stem length 100 mm
3	16-5100/13	for: stem-Ø 13 mm	stem length 100 mm
4	16-5100/14	for: stem-Ø 14 mm	stem length 100 mm
5	16-5100/15	for: stem-Ø 15 mm	stem length 100 mm
6	16-5100/16	for: stem-Ø 16 mm	stem length 100 mm
7	16-5100/17	for: stem-Ø 17 mm	stem length 100 mm
8	16-5100/18	for: stem-Ø 18 mm	stem length 100 mm
9	16-5100/19	for: stem-Ø 19 mm	stem length 100 mm
10	16-5100/20	for: stem-Ø 20 mm	stem length 100 mm
11	16-5100/21	for: stem-Ø 21 mm	stem length 100 mm
12	16-5100/22	for: stem-Ø 22 mm	stem length 100 mm
13	16-5100/23	for: stem-Ø 23 mm	stem length 100 mm
14	16-5100/24	for: stem-Ø 24 mm	stem length 100 mm

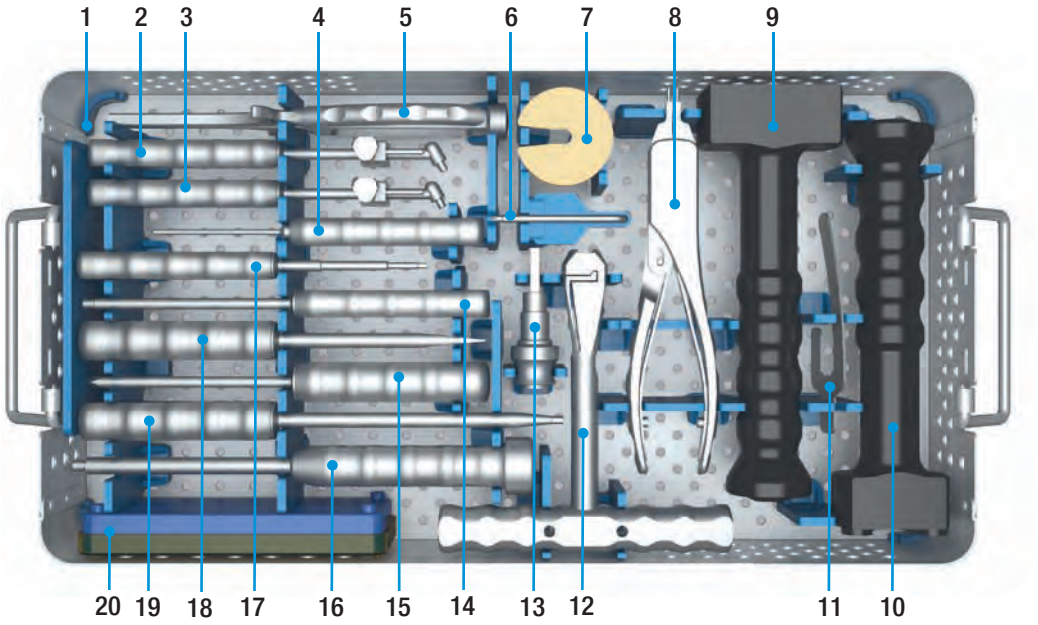
15-8720/02 Instrument Set – Tapered Reamers: 130 mm

1	15-8721/02	**Instrument Tray,** empty, 478 x 253 x 76 mm	
		Tapered Reamers: for prosthesis stems 130 mm, conical, with fitting B: Hudson	
2	16-5130/12	for: stem-Ø 12 mm	stem length 130 mm
3	16-5130/13	for: stem-Ø 13 mm	stem length 130 mm
4	16-5130/14	for: stem-Ø 14 mm	stem length 130 mm
5	16-5130/15	for: stem-Ø 15 mm	stem length 130 mm
6	16-5130/16	for: stem-Ø 16 mm	stem length 130 mm
7	16-5130/17	for: stem-Ø 17 mm	stem length 130 mm
8	16-5130/18	for: stem-Ø 18 mm	stem length 130 mm
9	16-5130/19	for: stem-Ø 19 mm	stem length 130 mm
10	16-5130/20	for: stem-Ø 20 mm	stem length 130 mm
11	16-5130/21	for: stem-Ø 21 mm	stem length 130 mm
12	16-5130/22	for: stem-Ø 22 mm	stem length 130 mm
13	16-5130/23	for: stem-Ø 23 mm	stem length 130 mm
14	16-5130/24	for: stem-Ø 24 mm	stem length 130 mm

15-8730/02 Instrument Set – Tapered Reamers: 160 mm

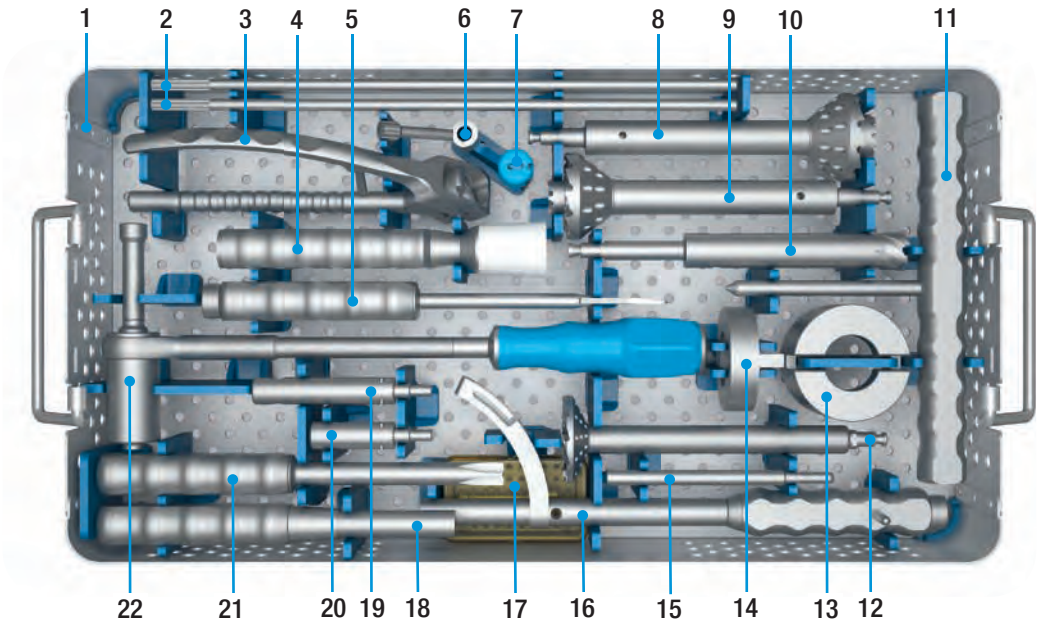
1	15-8731/02	**Instrument Tray,** empty, 478 x 253 x 76 mm	
		Tapered Reamers: for prosthesis stems 160 mm, conical, with fitting B: Hudson	
2	16-5160/12	for: stem-Ø 12 mm	stem length 160 mm
3	16-5160/13	for: stem-Ø 13 mm	stem length 160 mm
4	16-5160/14	for: stem-Ø 14 mm	stem length 160 mm
5	16-5160/15	for: stem-Ø 15 mm	stem length 160 mm
6	16-5160/16	for: stem-Ø 16 mm	stem length 160 mm
7	16-5160/17	for: stem-Ø 17 mm	stem length 160 mm
8	16-5160/18	for: stem-Ø 18 mm	stem length 160 mm
9	16-5160/19	for: stem-Ø 19 mm	stem length 160 mm
10	16-5160/20	for: stem-Ø 20 mm	stem length 160 mm
11	16-5160/21	for: stem-Ø 21 mm	stem length 160 mm
12	16-5160/22	for: stem-Ø 22 mm	stem length 160 mm
13	16-5160/23	for: stem-Ø 23 mm	stem length 160 mm
14	16-5160/24	for: stem-Ø 24 mm	stem length 160 mm

15-8740/02 Instrument Set – General Instruments I



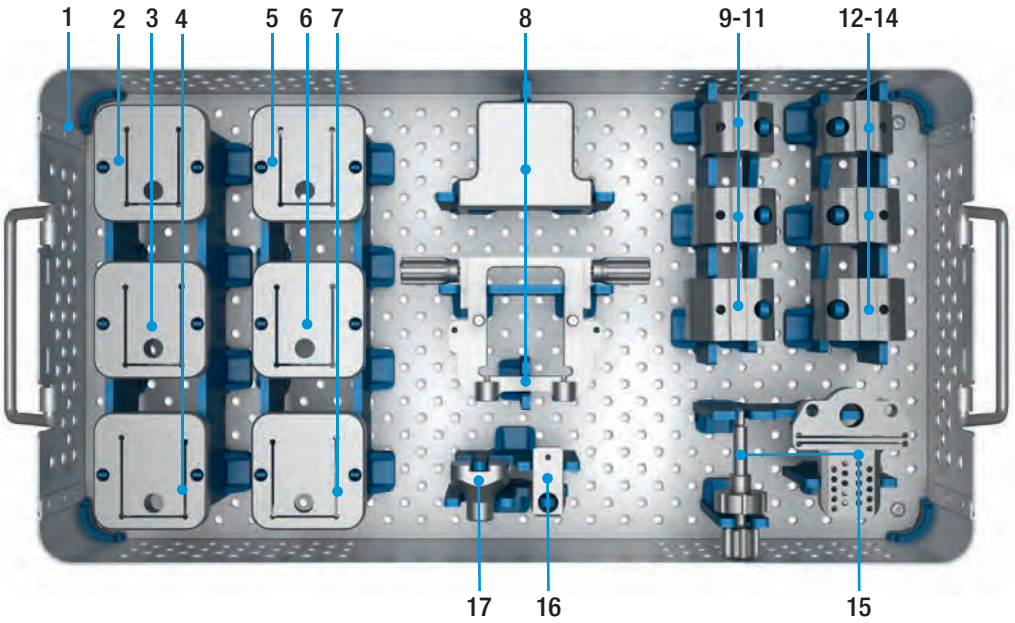
1	15-8741/02	**Instrument Tray,** empty, 478 x 253 x 76 mm
2	15-8035/02	**Insertion Instrument** for PE plateaus Endo-Model S, M and L
3	15-8035/03	**Insertion Instrument** for PE plateaus Endo-Model XS and Endo-Model SL
4	15-2546	**Hex Screwdriver**, torque limiting, hex 2.0 mm, 205 mm
5	317-586	**Extraction Forceps** for fixation pins, 210 mm
6	16-0116/01	**Hex Screwdriver,** wrench size 2.5 mm
7	16-3203/00	**Impaction Plate** for tapered reamers
8	16-0020/01	**Connecting/Disconnecting Forceps,** 175 mm
9	317-646/01	**Grooved Driver** for femoral components, 210 mm
10	16-0018/02	**Grooved Driver** für tibial components SL
11	317-607/50	**Cutting Template**
12	15-6053/00	**T-Handle,** with Hudson fitting
13	16-3283/01	**Adapter** with fitting: Hudson female/Jacobs male
		Adapter fitting optional (not included in instrument set):
	16-3284/00	Hudson female/AO male
	16-3285/00	Hudson female/Harris male
14	16-0017/01	**Separate Rod M5**, 220 mm
15	317-658/01	**Bone Awl,** with trocar point, 215 mm
16	15-8516/45	**Driver Extractor**, for modular stems, 365 mm
17	10-5373/01	**Hex Screwdriver**, wrench size 2.5 mm, 180 mm
18	322-145/01	**Screwdriver**, blade width 8 mm, 210 mm
19	64-8008/02	**Hex Screwdriver**, wrench size 3.5 mm, 250 mm
	317-585/65	**Wire Pins,** Ø 3 mm, 65 mm (4 ea. included)
20	317-585/95	**Wire Pins,** Ø 3 mm, 95 mm (4 ea. included)
	319-602/30	**Sterilizing Box**

15-8750/02 Instrument Set – General Instruments II



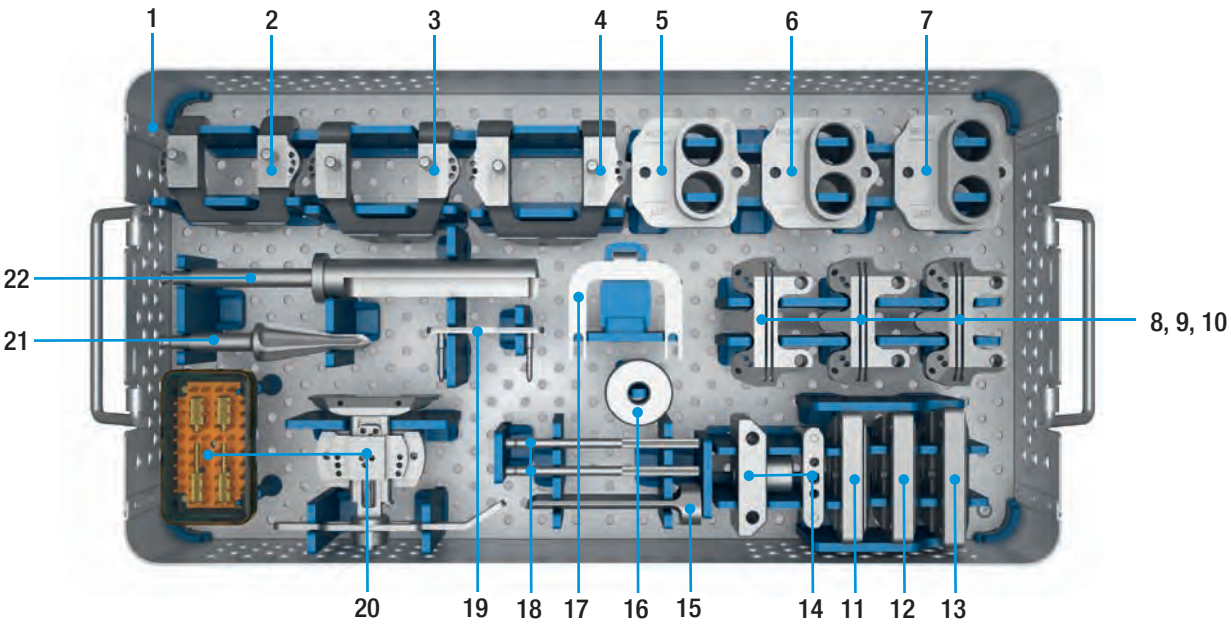
1	15-8751/02	**Instrument Tray,** empty, 478 x 253 x 76 mm
2	16-3235/00	**Guide Rod** for saw guide for notching (2 ea. included)
3	134-141/00	**Insertion Forceps** for MP neck segments
4	130-600	**Driver** for prosthesis heads
5	15-8516/41	**Seperator** with metal handle, 235 mm
6	134-202/00	**Caliper**
7	131-830/04	**Taper Cap**
8	16-3204/18	**Step Reamer,** Ø 18 mm, with Hudson fitting
9	16-3204/24	**Step Reamer,** Ø 24 mm, with Hudson fitting
10	134-200/00	**Hollow Reamer,** with Hudson fitting
11	15-8506/52	**Distraction Instrument** with metal handle
12	16-3205/30	**Reamer**, Ø 46 mm, with Hudson fitting, 85 mm
13	16-3236/00	**Adapter Ring** for saw guide for notching
14	16-3237/00	**Saw Guide** for notching
15	134-201/00	**Guide Rod**
16	131-379/00	**Insertion Instrument** for neck segments standard and XXL
17	319-601/30	**Sterilizing Box** incl. screws, for insertion instrument 131-379/00
18	131-385/01	**Screwdriver,** hex 8 mm, 185 mm
19	134-204/35	**Reamer Guide** for neck segment standard
20	134-204/65	**Reamer Guide** for neck segment short
21	16-3290/00	**Cross Slot Screwdriver** with metal handle, 210 mm
22	134-140/00	**Torque Wrench,** hex 8 mm, 380 mm

15-8760/02 Instrument Set – Femur I



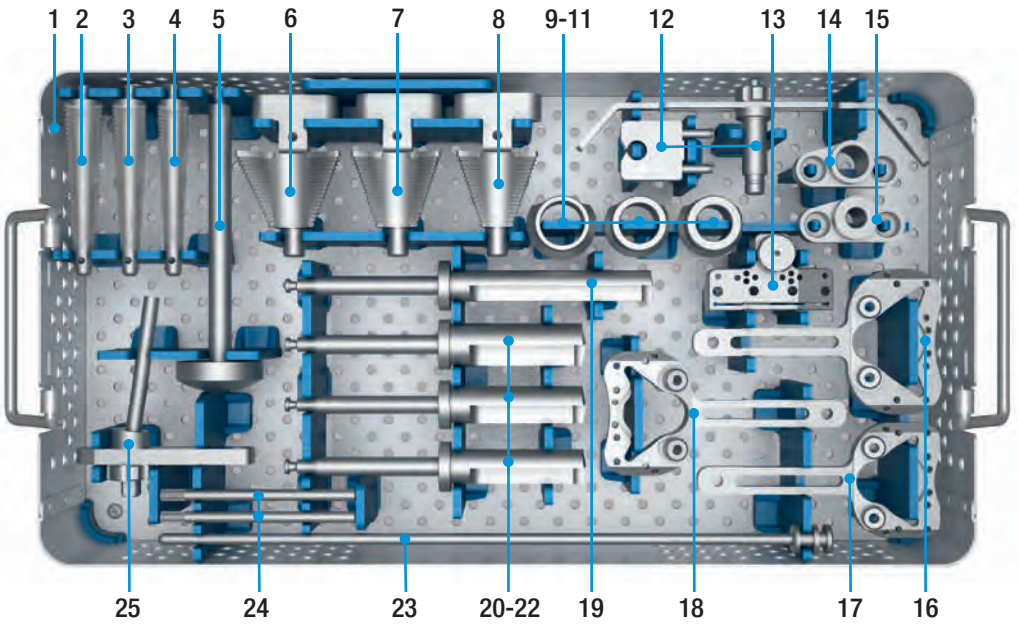
1	15-8761/02	**Instrument Tray,** empty, 478 x 253 x 76 mm	
		Saw Attachments for femoral components SL	
2	16-3221/01	small S	right
3	16-3223/01	medium M	right
4	16-3225/01	large L	right
5	16-3221/02	small S	left
6	16-3223/02	medium M	left
7	16-3225/02	large L	left
8	16-3278/00	**Revision Alignment Gauge,** distal, for femoral components SL (2 parts)	
		Femoral Trial Box for femoral components SL	
9	16-3261/01	small S	right
10	16-3263/01	medium M	right
11	16-3265/01	large L	right
12	16-3261/02	small S	left
13	16-3263/02	medium M	left
14	16-3265/02	large L	left
15	16-3277/00	**Revision Cutting Block,** distal, for femoral components SL (2 parts)	
16	16-3282/00	**Aligment Instrument** for femoral trial box	
17	16-3271/00	**Adapter** for femoral trial box	

15-8770/03 Instrument Set – Femur II



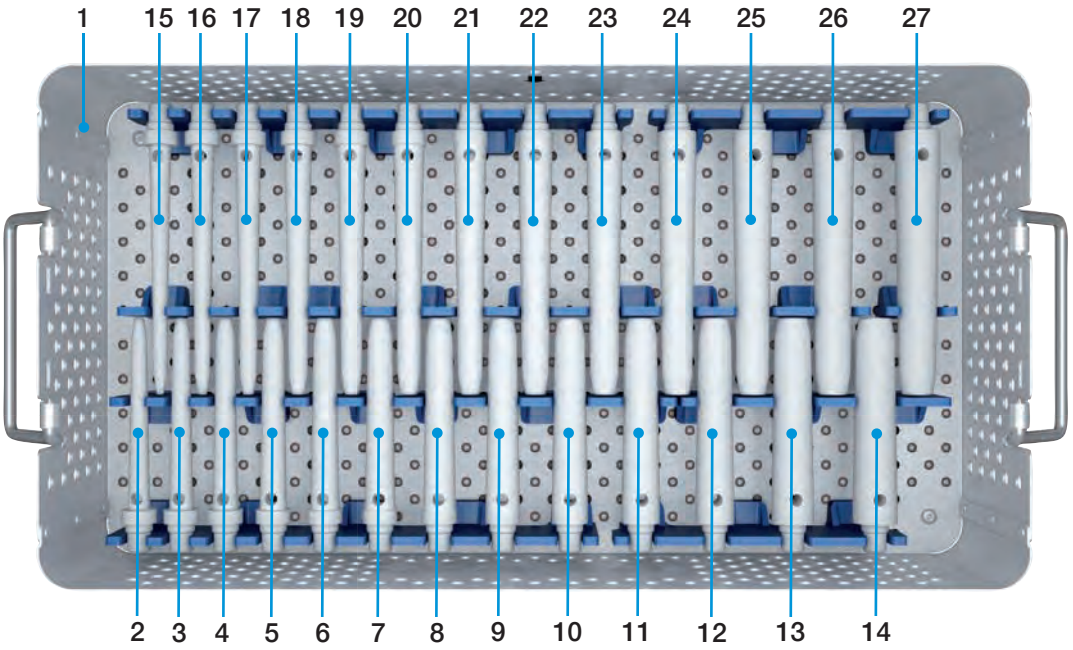
1	15-8771/03	**Instrument Tray,** empty, 478 x 253 x 76 mm	
		Condyles Caps Femur	
2	16-3240/02	size 2	right/left
3	16-3240/03	size 3	right/left
4	16-3240/04	size 4	right/left
		Drill Caps Femur, Ø 20 mm	
5	16-3213/02	size 2	right/left
6	16-3213/03	size 3	right/left
7	16-3213/04	size 4	right/left
		Femur Cutting Blocks for distal cut	
8	16-3228/02	size 2	
9	16-3228/03	size 3	
10	16-3228/04	size 4	
		Femur Cutting Blocks for chamfer cuts	
11	16-3250/02	size 2	
12	16-3250/03	size 3	
13	16-3250/04	size 4	
14	16-3275/00	**Alignment Instrument** for valgus angulation (2 parts)	
15	317-802/32	**Chisel** for patella glide, 80 mm	
16	16-3281/00	**Center Sleeve** for drill cap femur	
17	16-3279/00	**Holding Clamp**	
18	317-802/58	**Alignment Rod** for epicondyles, 100 mm (2 ea. included)	
19	317-802/36	**Dove Tail Adapter,** neutral, for femoral cutting blocks	
20	16-3276/00	**Alignment Instrument** for determination of external rotation (5 parts)	
	319-601/30	**Sterilizing Box** incl. screws, for alignment instrument 16-3276/00	
21	15-6037/00	**Drill,** conical, to open femoral and tibial cavity, with Hudson fitting	
22	16-3206/20	**Drill,** with stop, with Hudson fitting, Ø 20 mm	

15-8780/02 Instrument Set – Tibia



1	15-8781/02	**Instrument Tray,** empty, 478 x 253 x 76 mm
		Stem Compressors for tibial components SL
2	16-3201/04	large L
3	16-3201/03	medium M
4	16-3201/02	small S
5	16-3197/00	**Handle** for tibial compressor/femoral trial box
		Compressors for tibial components SL
6	16-3199/14	large L
7	16-3199/13	medium M
8	16-3199/12	small S
		Drill Guides for drill templates
9	16-3270/22	large L
10	16-3270/20	medium M
11	16-3270/18	small S
12	317-802/52	**Stylus** for tibial saw guide, adjustable (2 parts)
13	16-3241/00	**Tibial Saw Guide** for tibial components SL
14	16-3267/00	**Drill Guide,** tibia, for ventral cut, Ø 16 mm
15	16-3266/00	**Alignment Gauge,** tibia, for drill templates
		Drill Templates for tibial components SL
16	16-3198/14	large L
17	16-3198/12	small S
18	16-3198/13	medium M
19	16-3207/16	**Drill** with stop, for tibial components SL, ventral side, Ø 16 mm
		Drill with stop, for tibial components SL
20	16-3208/22	large L Ø 22 mm
21	16-3208/20	medium M Ø 20 mm
22	16-3208/18	klein S Ø 18 mm
23	16-3242/00	**Alignment Rod Tibia**
24	16-3211/00	**Guide Rod,** tibia, for drill template (2 ea. included)
25	16-3212/08	**Connector,** size 8°, for tapered reamer/tibial saw guide

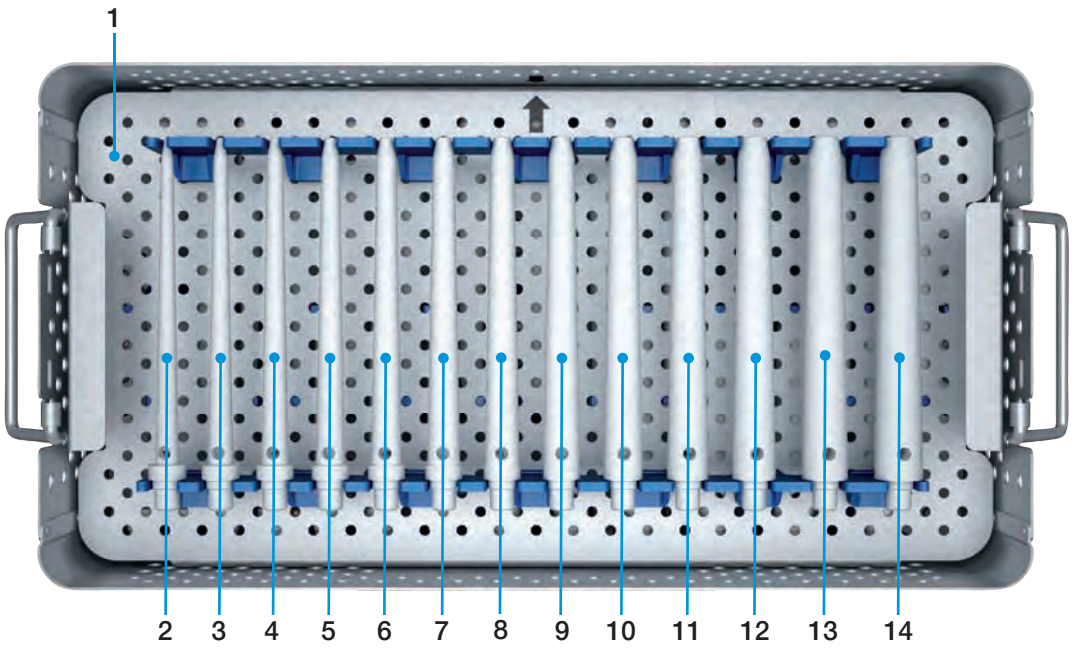
15-8790/02 Instrument Set (1) – Femur Trial Stems: 100 mm and 130 mm



1	15-8791/02	**Instrument Tray, below,** empty, 478 x 253 x 106 mm	
		Trial Stems for prosthesis stems 100 mm, conical	
2	16-3101/12	for: stem-Ø 12 mm	stem length 100 mm
3	16-3101/13	for: stem-Ø 13 mm	stem length 100 mm
4	16-3101/14*	for: stem-Ø 14 mm	stem length 100 mm
5	16-3101/15	for: stem-Ø 15 mm	stem length 100 mm
6	16-3101/16*	for: stem-Ø 16 mm	stem length 100 mm
7	16-3101/17	for: stem-Ø 17 mm	stem length 100 mm
8	16-3101/18*	for: stem-Ø 18 mm	stem length 100 mm
9	16-3101/19	for: stem-Ø 19 mm	stem length 100 mm
10	16-3101/20	for: stem-Ø 20 mm	stem length 100 mm
11	16-3101/21	for: stem-Ø 21 mm	stem length 100 mm
12	16-3101/22	for: stem-Ø 22 mm	stem length 100 mm
13	16-3101/23	for: stem-Ø 23 mm	stem length 100 mm
14	16-3101/24	for: stem-Ø 24 mm	stem length 100 mm
		Trial Stems for prosthesis stems 130 mm, conical	
15	16-3131/12	for: stem-Ø 12 mm	stem length 130 mm
16	16-3131/13	for: stem-Ø 13 mm	stem length 130 mm
17	16-3131/14*	for: stem-Ø 14 mm	stem length 130 mm
18	16-3131/15	for: stem-Ø 15 mm	stem length 130 mm
19	16-3131/16*	for: stem-Ø 16 mm	stem length 130 mm
20	16-3131/17	for: stem-Ø 17 mm	stem length 130 mm
21	16-3131/18*	for: stem-Ø 18 mm	stem length 130 mm
22	16-3131/19	for: stem-Ø 19 mm	stem length 130 mm
23	16-3131/20	for: stem-Ø 20 mm	stem length 130 mm
24	16-3131/21	for: stem-Ø 21 mm	stem length 130 mm
25	16-3131/22	for: stem-Ø 22 mm	stem length 130 mm
26	16-3131/23	for: stem-Ø 23 mm	stem length 130 mm
27	16-3131/24	for: stem-Ø 24 mm	stem length 130 mm

* also for cemented stems 12, 14 and 16 mm

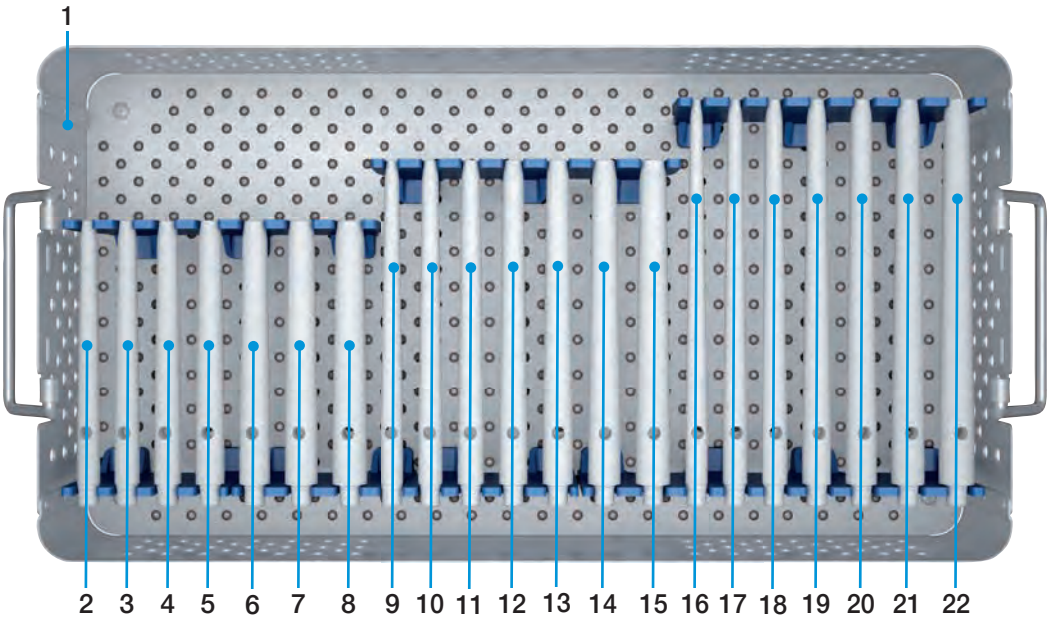
15-8790/02 Instrument Set (2) – Femur Trial Stems: 160 mm



1	15-8791/02	**Instrument Tray, above,** empty, 478 x 253 x 106 mm	
		Trial Stems for prosthesis stems 160 mm, conical	
2	16-3161/12	for: stem-Ø 12 mm	stem length 160 mm
3	16-3161/13	for: stem-Ø 13 mm	stem length 160 mm
4	16-3161/14*	for: stem-Ø 14 mm	stem length 160 mm
5	16-3161/15	for: stem-Ø 15 mm	stem length 160 mm
6	16-3161/16*	for: stem-Ø 16 mm	stem length 160 mm
7	16-3161/17	for: stem-Ø 17 mm	stem length 160 mm
8	16-3161/18*	for: stem-Ø 18 mm	stem length 160 mm
9	16-3161/19	for: stem-Ø 19 mm	stem length 160 mm
10	16-3161/20	for: stem-Ø 20 mm	stem length 160 mm
11	16-3161/21	for: stem-Ø 21 mm	stem length 160 mm
12	16-3161/22	for: stem-Ø 22 mm	stem length 160 mm
13	16-3161/23	for: stem-Ø 23 mm	stem length 160 mm
14	16-3161/24	for: stem-Ø 24 mm	stem length 160 mm

* also for cemented stems 12, 14 and 16 mm

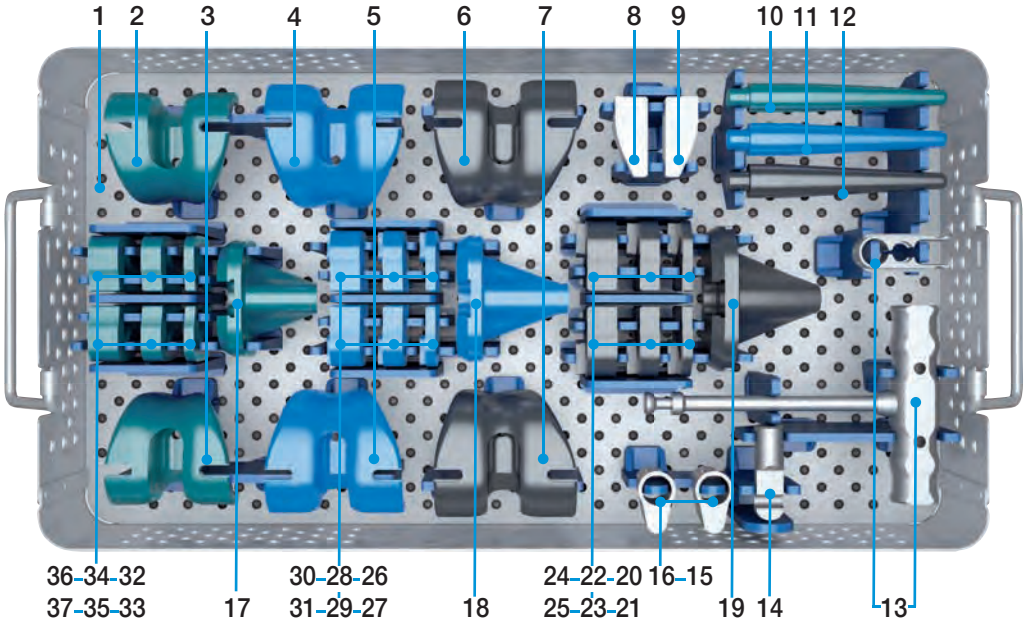
15-8810/02 Instrument Set – Tibial Trial Stems: 100, 130 and 160 mm



1	15-8811/02	**Instrument Tray,** empty, 478 x 253 x 76 mm	
		Trial Stems for modular tibia: 100 mm, conical	
2	16-4101/12	for: stem-Ø 12 mm	for modular tibia 100 mm
3	16-4101/13	for: stem-Ø 13 mm	for modular tibia 100 mm
4	16-4101/14*	for: stem-Ø 14 mm	for modular tibia 100 mm
5	16-4101/15	for: stem-Ø 15 mm	for modular tibia 100 mm
6	16-4101/16*	for: stem-Ø 16 mm	for modular tibia 100 mm
7	16-4101/17	for: stem-Ø 17 mm	for modular tibia 100 mm
8	16-4101/18*	for: stem-Ø 18 mm	for modular tibia 100 mm
		Trial Stems for modular tibia: 130 mm, conical	
9	16-4131/12	for: stem-Ø 12 mm	for modular tibia 130 mm
10	16-4131/13	for: stem-Ø 13 mm	for modular tibia 130 mm
11	16-4131/14*	for: stem-Ø 14 mm	for modular tibia 130 mm
12	16-4131/15	for: stem-Ø 15 mm	for modular tibia 130 mm
13	16-4131/16*	for: stem-Ø 16 mm	for modular tibia 130 mm
14	16-4131/17	for: stem-Ø 17 mm	for modular tibia 130 mm
15	16-4131/18*	for: stem-Ø 18 mm	for modular tibia 130 mm
		Trial Stems for modular tibia: 160 mm, conical	
16	16-4161/12	for: stem-Ø 12 mm	for modular tibia 160 mm
17	16-4161/13	for: stem-Ø 13 mm	for modular tibia 160 mm
18	16-4161/14*	for: stem-Ø 14 mm	for modular tibia 160 mm
19	16-4161/15	for: stem-Ø 15 mm	for modular tibia 160 mm
20	16-4161/16*	for: stem-Ø 16 mm	for modular tibia 160 mm
21	16-4161/17	for: stem-Ø 17 mm	for modular tibia 160 mm
22	16-4161/18*	for: stem-Ø 18 mm	for modular tibia 160 mm

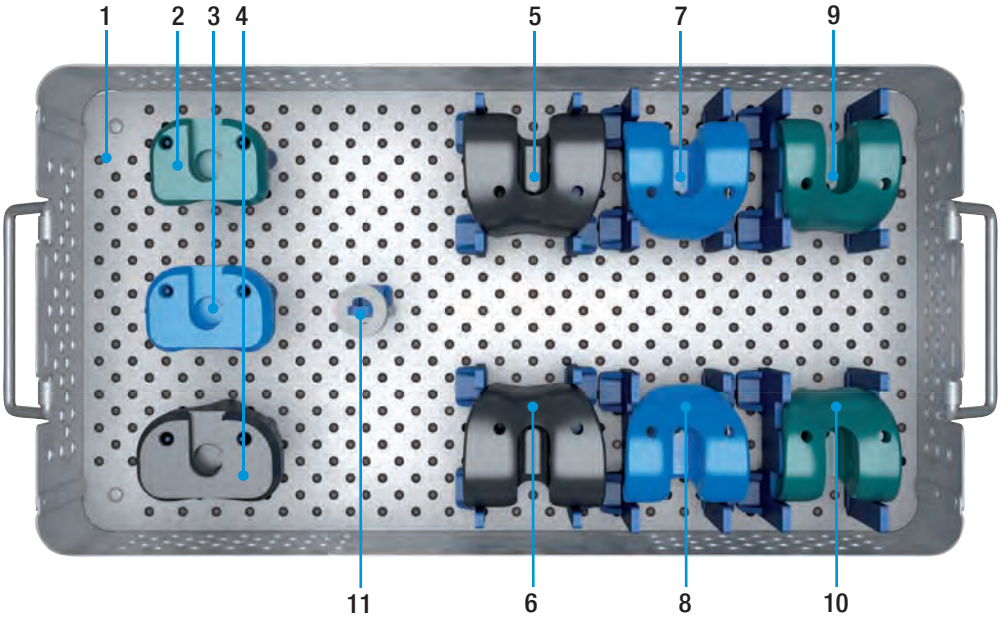
* also for cemented stems 12, 14 and 16 mm

15-8820/02 Instrument Set – Trial Prostheses: Femur/Tibia, intracondylar



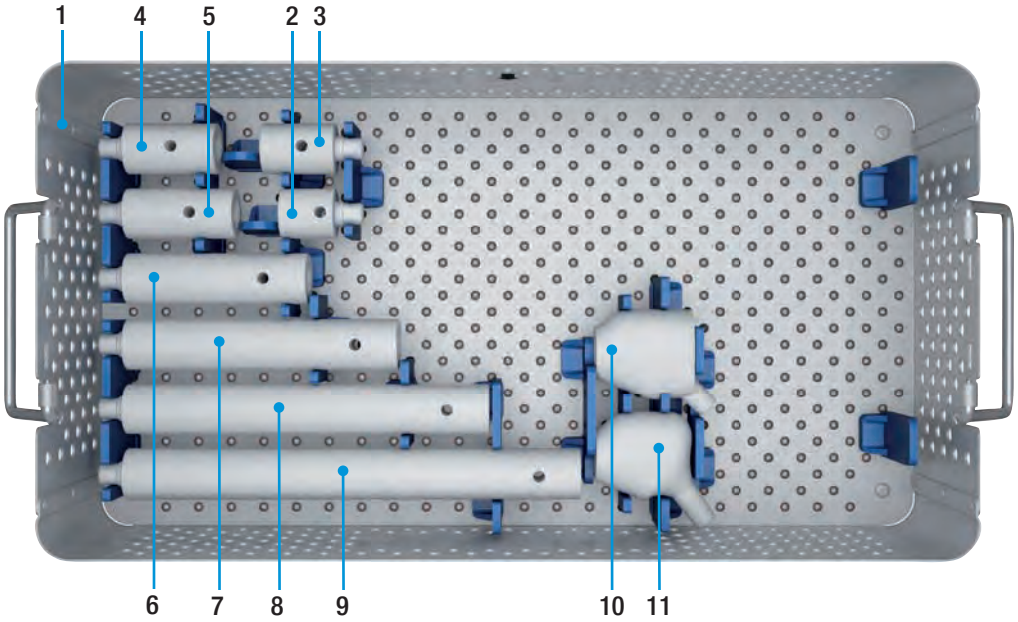
1	15-8821/02	**Instrument Tray,** empty, 478 x 253 x 76 mm			
		Femur Trial Prostheses, intracondylar			
2	16-3181/12	left	small S		green
3	16-3181/11	right	small S		green
4	16-3183/12	left	medium M		blue
5	16-3183/11	right	medium M		blue
6	16-3185/12	left	large L		black
7	16-3185/11	right	large L		black
8	16-4368/01	**Femur Trial Segment,** right, size S/M/L, 25 mm height			
9	16-4368/02	**Femur Trial Segment,** left, size S/M/L, 25 mm height			
10	16-3170/12	**Tibial Trial Stems,** small S			green
11	16-3170/13	**Tibial Trial Stems,** medium M			blue
12	16-3170/14	**Tibial Trial Stems,** large L			black
13	15-6061/00	**Extraction Instrument** for trial prostheses			
14	16-4367/20	**Trial Axis** for mobile and hinged versions			
15	16-4367/00	**Trial Connection Component** for hinge knee			
16	16-4367/10	**Trial Connection Component** for rotational knee			
17	16-3175/12	**Tibial Trial Prostheses,** intracondylar, small S			green
18	16-3175/13	**Tibial Trial Prostheses,** intracondylar, medium M			blue
19	16-3175/14	**Tibial Trial Prostheses,** intracondylar, large L			black
		Tibial Trial Spacers, intracondylar			
20	16-4361/03	right	large L	5 mm height	black
21	16-4362/03	left	large L	5 mm height	black
22	16-4363/03	right	large L	10 mm height	black
23	16-4364/03	left	large L	10 mm height	black
24	16-4365/03	right	large L	15 mm height	black
25	16-4366/03	left	large L	15 mm height	black
26	16-4361/02	right	medium M	5 mm height	blue
27	16-4362/02	left	medium M	5 mm height	blue
28	16-4363/02	right	medium M	10 mm height	blue
29	16-4364/02	left	medium M	10 mm height	blue
30	16-4365/02	right	medium M	15 mm height	blue
31	16-4366/02	left	medium M	15 mm height	blue
32	16-4361/01	right	small S	5 mm height	green
33	16-4362/01	left	small S	5 mm height	green
34	16-4363/01	right	small S	10 mm height	green
35	16-4364/01	left	small S	10 mm height	green
36	16-4365/01	right	small S	15 mm height	green
37	16-4366/01	left	small S	15 mm height	green

15-8840/02 Instrument Set – Trial Instruments: Distal Femur and Proximal Tibia Replacement



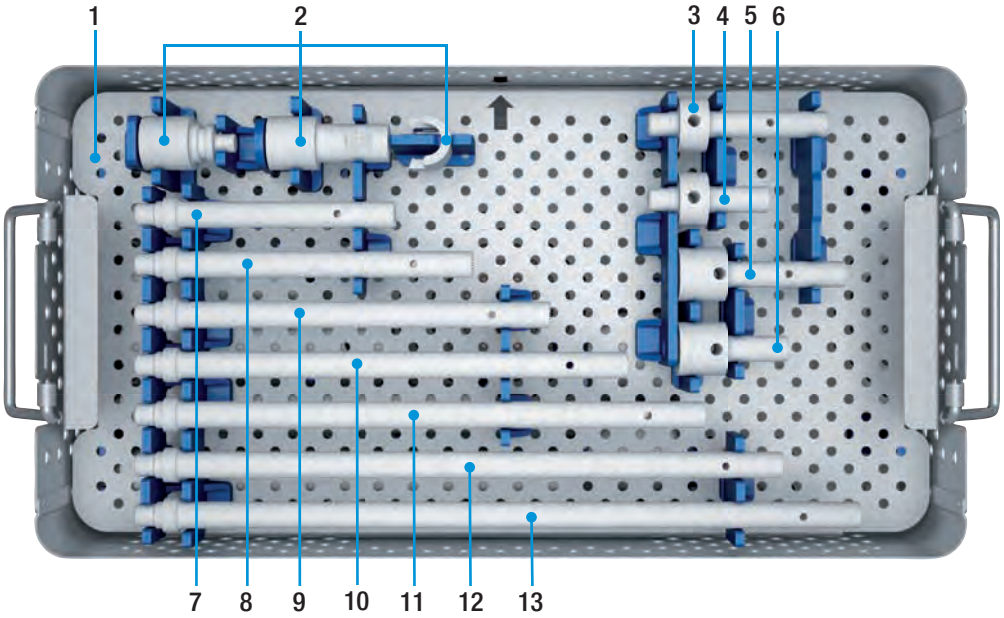
1	15-8841/02	**Instrument Tray,** empty, 478 x 253 x 76 mm			
		Trial Prostheses for proximal tibia replacement			
2	16-3180/12	small S	green		
3	16-3180/13	medium M	blue		
4	16-3180/14	large L	black		
		Trial Prostheses for distal femur replacement			
5	16-3195/11	large L		right	black
6	16-3195/12	large L		left	black
7	16-3193/11	medium M		right	blue
8	16-3193/12	medium M		left	blue
9	16-3191/11	small S		right	green
10	16-3191/12	samll S		left	green
11	15-6094/00	**Trial Support Ring**, Ø 28 mm, Height 10 mm			

15-8830/02 Instrument Set (1) – Trial Prostheses: Total Femur Replacement



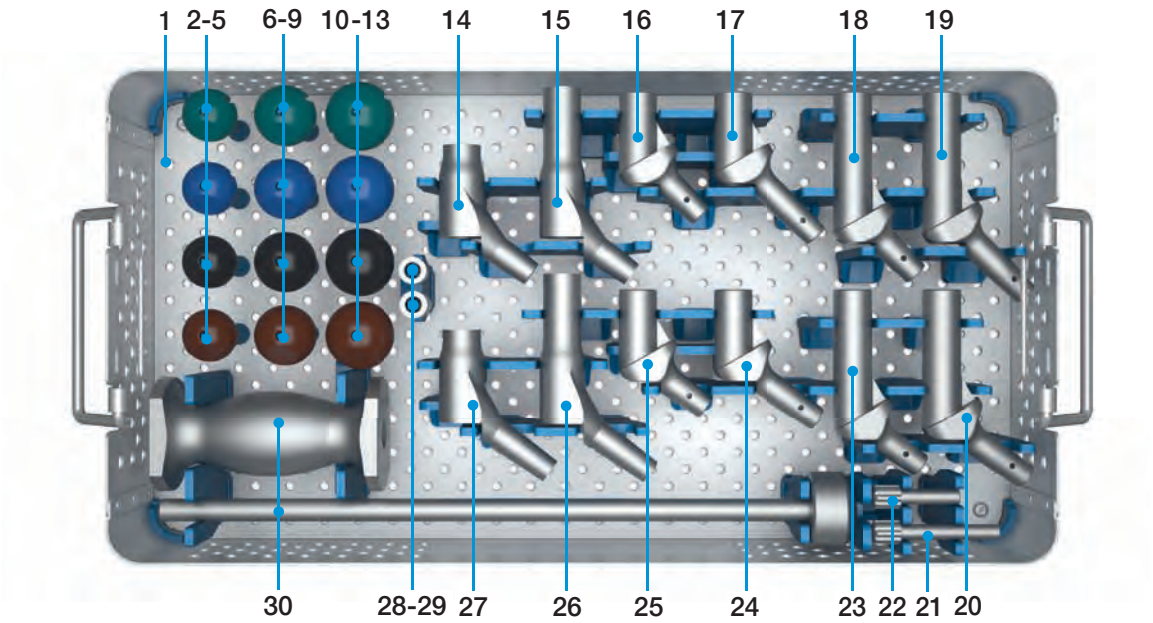
1	15-8831/02	**Instrument Tray, below,** empty, 478 x 253 x 106 mm
		Trial Prostheses for stem segments
2	16-3030/01	30 mm
3	16-3040/01	40 mm
4	16-3050/01	60 mm
5	16-3060/01	60 mm
6	16-3100/01	100 mm
7	16-3150/01	150 mm
8	16-3200/01	200 mm
9	16-3250/01	250 mm
		Trial Neck Segments
10	16-3213/35	135° CCD-Angle
11	16-3213/26	126° CCD-Angle

15-8830/02 Instrument Set (2) – Trial Prostheses: Total Femur Replacement



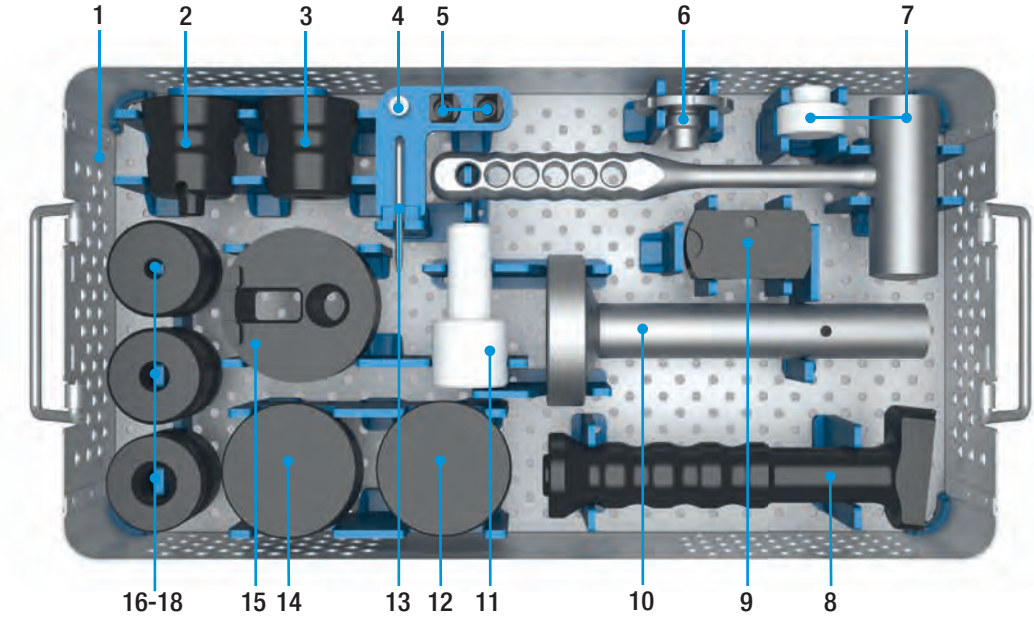
1	15-8831/02	**Instrument Tray, above,** empty, 478 x 253 x 106 mm
2	16-3204/01	**Trial Prostheses** for coupling for diaphyseal spacer (3 parts)
		Couplings
3	16-3212/26	for total femur replacement, long
4	16-3212/24	for total femur replacement, short
5	16-3212/30	for proximal femur replacement, long
6	16-3212/28	for proximal femur replacement, short
		Trial Prostheses for push-through stems
7	16-4120/01	120 mm
8	16-4160/01	160 mm
9	16-4200/01	200 mm
10	16-4240/01	240 mm
11	16-4280/01	280 mm
12	16-4320/01	320 mm
13	16-4360/01	360 mm

134-020/00 Instrument Set – MP Trial Prostheses



1	134-021/00	**Instrument Tray,** empty, 478 x 253 x 76 mm
		Trial Heads, Ø 28 mm
2	175-928/11	size S
3	175-928/12	size M
4	175-928/13	size L
5	175-928/14	size XL
		Trial Heads, Ø 32 mm
6	175-932/11	size S
7	175-932/12	size M
8	175-932/13	size L
9	175-932/14	size XL
		Trial Heads, Ø 36 mm
10	175-936/11	size S
11	175-936/12	size M
12	175-936/13	size L
13	175-936/14	size XL
14	99-0984/33	**Trial Neck Segment,** 35 mm, 126° with suture hole
15	99-0984/31	**Trial Neck Segment,** 65 mm, 126° with suture hole
16	131-395/35	**Trial Neck Segment,** 35 mm, 135°
17	131-393/35	**Trial Neck Segment XXL,** 35 mm, 135°
18	131-396/35	**Trial Neck Segment,** 65 mm, 135°
19	131-394/35	**Trial Neck Segment XXL,** 65 mm, 135°
20	131-394/26	**Trial Neck Segment XXL,** 65 mm, 126°
21	134-100/61	**Trial Fixation Screw,** long
22	134-100/41	**Trial Fixation Screw,** short
23	131-396/26	**Trial Neck Segment,** 65 mm, 126°
24	131-393/26	**Trial Neck Segment XXL,** 35 mm, 126°
25	131-395/26	**Trial Neck Segment,** 35 mm, 126°
26	99-0984/27	**Trial Neck Segment,** 65 mm, 126° with suture hole
27	99-0984/29	**Trial Neck Segment,** 35 mm, 126° with suture hole
28	131-398/10	**Trial Proximal Spacer,** 10 mm
29	131-398/20	**Trial Proximal Spacer,** 20 mm
30	317-661	**Threaded Rod with Slap Hammer,** 365 mm

16-0100/02 Instrument Set – Assembling



1	16-0100/03	**Instrument Tray,** empty, 478 x 253 x 76 mm
2	16-0111/02	**Assembling Protector** for male taper
3	16-0111/01	**Assembling Protector** for female taper
4	16-0113/01	**Metal Core** for assembling protector, for modular stem (size 1 – 3)
5	16-0114/02	**Block,** spare part for femur assembling protector 16-0114/01 (2 ea. included)
6	16-0114/04	**Screw** for assembling protectors femur
7	16-0115/01	**Mallet,** non-resilient, 800g, complete
8	16-0114/01	**Handle** for femur assembling protector
9	16-0114/03	**Plate,** spare part for femur assembling protector 16-0114/01
10	16-0118/01	**Assembling Table: upper part**
11	16-0118/03	**Assembling Table: silencer**
12	16-0110/02	**Tibia Assembling Plate** for Endo-Model SL knee prostheses
13	16-0116/02	**Hex Screwdriver,** wrench size 5 mm, conical
14	16-0110/01	**Femur Assembling Plate**
15	16-0110/03	**Tibia Assembling Plate** für Endo-Model knee prostheses
16	16-0112/01	**Assembling Protectors,** size 1
17	16-0112/02	**Assembling Protectors,** size 2
18	16-0112/03	**Assembling Protectors,** size 3
	16-0118/02*	**Assembling Table:** lower part

* Not included in container 16-0100/02

Assembling Instruments

16-0118/01

Assembling Table: Superior Component

16-0118/02

AssemblingTable: Inferior Component

with fixed base plate

16-0118/03

Assembling Table: Silence

16-0110/01
Femur Assembling Plate

16-0110/02
Tibia Assembling Plate
for Endo-Model SL Knee Prostheses

16-0110/03
Tibia Assembling Plate
for Endo-Model Knee Prostheses

16-0111/01
Assembling Protector for female taper

16-0111/02
Assembling Protector for male taper

Assembling Protectors
16-0112/01 for modular stem, size 1
16-0112/02 for modular stem, size 2
16-0112/03 for modular stem, size 3

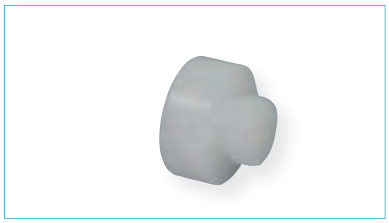
16-0113/01
Metal Core for assembling protector,
for modular stem (size 1-3)

16-0114/01
Femur Assembling Protector,
complete

16-0114/02
Block, spare part,
for femur assembling protector
16-0114/01

16-0114/03
Plate, spare part,
for femur assembling protector
16-0114/01

16-0115/01
Mallet, non-resilient proof,
800g



16-0115/02
Spare Mallet Head,
plastic, for 16-0115/01

16-0116/02
Hex Screwdriver,
Ø 5 mm

Description of Use: Mounting the Assembling Table

The assembling table is mounted before the operation as illustrated below.

The superior component 16-0118/01 and the silencer 16-0118/03 are assembled in sterile condition. The inferior component 16-0118/02 with fixed base plate may be kept non-sterile.

The silencer is screwed onto the inferior component.

The superior component is attached.

In use of the assembling table, place foot on base plate to prevent the table from toppling over. The table is dismantled in reverse order.

Description of Use: Connecting Modular Stems to Modular Femoral and Tibial Components

The femur assembling plate 16-0110/01 is placed into the reception of the superior component of the assembling table 16-0118/01.

According to the chosen size of modular stem, the metal core 16-0113/01 is screwed into assembling protector modular stem, size 1-3 (16-0112/01-03).

Prosthesis stem and femoral joint component are connected by hand (the taper surfaces must be clean and dry) and, observing the 6° valgus alignment of the femoral implant, placed on the assembling plate so that the prosthesis stem is vertical. If not, the implant assembly must be rotated 180°.

As shown in the picture, the components are struck with two powerful blows of the non-resilient mallet 16-0115/01 in order to firmly engage the taper connection (the second blow is a safety measure). The metal face of the mallet must only be used.

When using modular tibial implants, the tibial assembling plate 16-0110/02 or /03 is first placed into the reception of the superior table component.

Proceed according to the assembly of modular femoral implant. Before using the locking screws, the taper connections must be connected firmly as described, using the assembling instruments.

Description of Use: Connecting Stem Elements

The assembling protector for female taper 16-0111/01 is placed into the reception of the assembling table superior component.

Attaching the selected stem element.

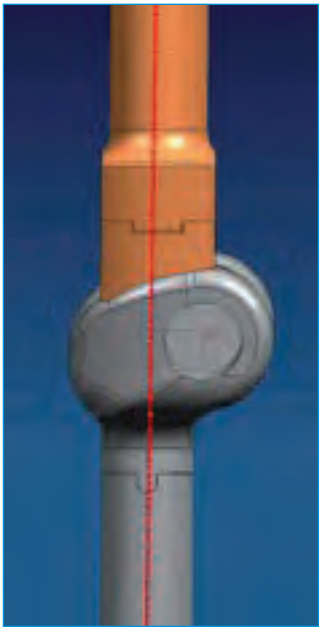
Attaching the stem element to be connected and the assembling protector for male taper 16-0111/02.

Assemble the elements with two blows of the non-resilient mallet, using the metal face of the mallet only.

Use and Mounting of the Femur Assembling Protector

Use

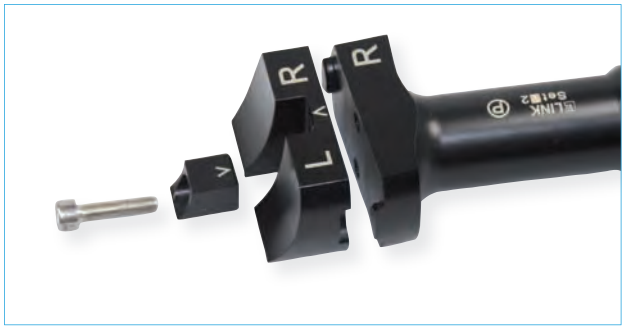
The femur assembling protector is always used if the surgical procedure does not permit assembly of implant components outside the operating field (e.g. connecting femoral joint components to push-through stems). The instrument compensates for the valgus geometry of the knee implant and permits the engagement of the tapers in axial alignment in the transverse and sagittal plane.



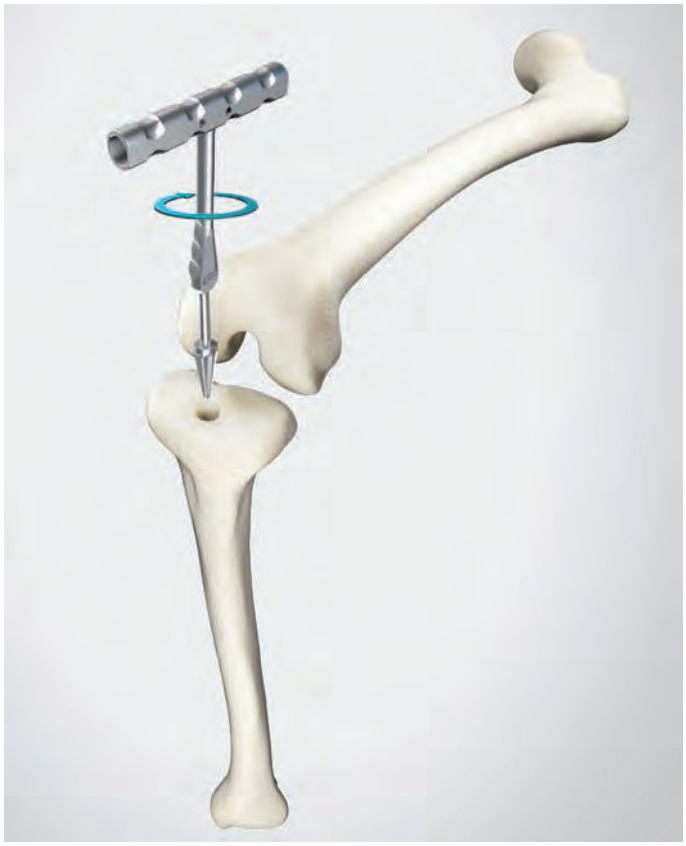
Its use enables taper engagement in axial alignment.

Assembly

The femur assembling protector is mounted as shown in below illustration. First the plate is connected to the handle so that, depending on the side being operated on, the letters “**R**” for the right side or the letters “**L**” for the left side are lined up. In the illustration the right side is choosen. Consecutively the block for assembling protector is secured using the hex screwdriver. The two arrows (of block and plate) must point toward each other.

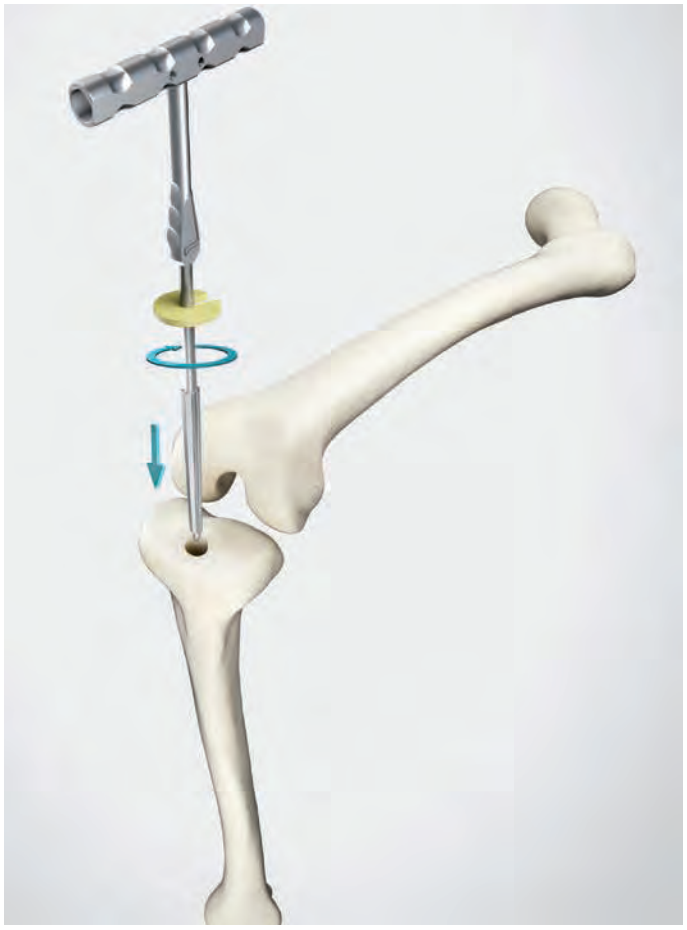


Standard Preparation – Tibia



Intramedullary Alignment

01
Mark the entry site with the awl (317-658/01) and open the tibial canal with the conical drill (15-6037/00).

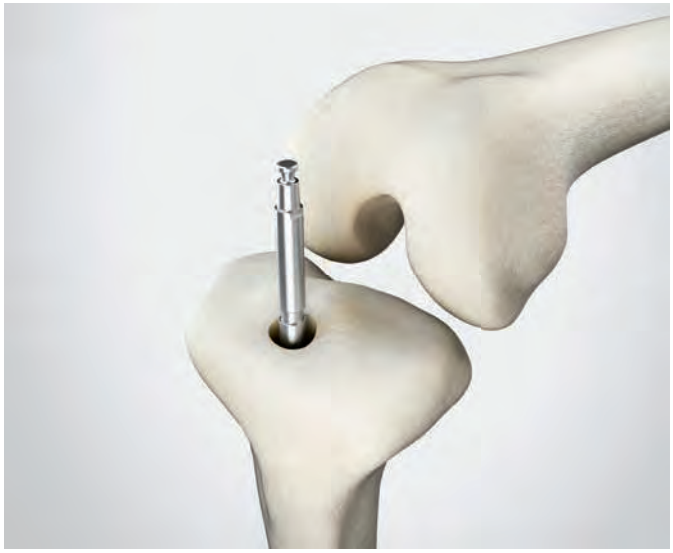


02
Mount the awl of the previously planned length (100, 130 or 160 mm) at the handle (16-3210/00). The impaction plate (16-3203/00) latches into the slot on the shaft of the awl.

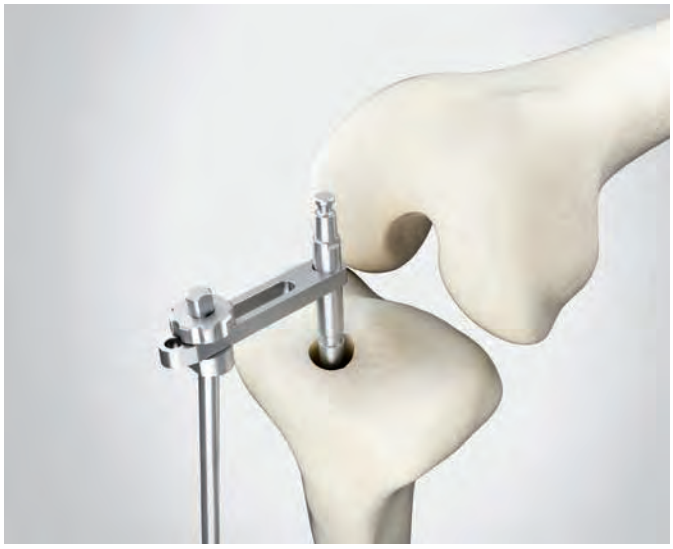
When uncemented modular stems are used, ream with an increasing diameter until the awl makes cortical contact over a continuous distance of approx. 50 mm. The uncemented implant that will be used must correspond in length and diameter to the last awl used.

For cemented modular stems, the awl should be at least 2 mm larger than the planned stem diameter.

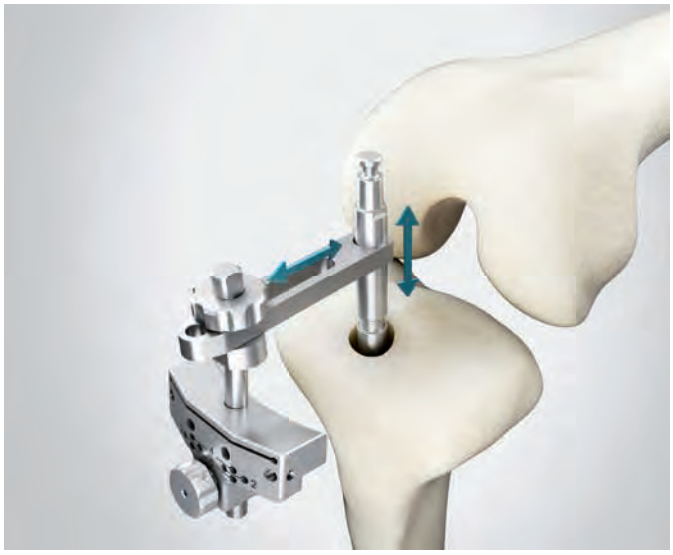
Important notes:
The position of the impaction plate represents the level of the joint line. Using the awls with a power tool is not permitted.



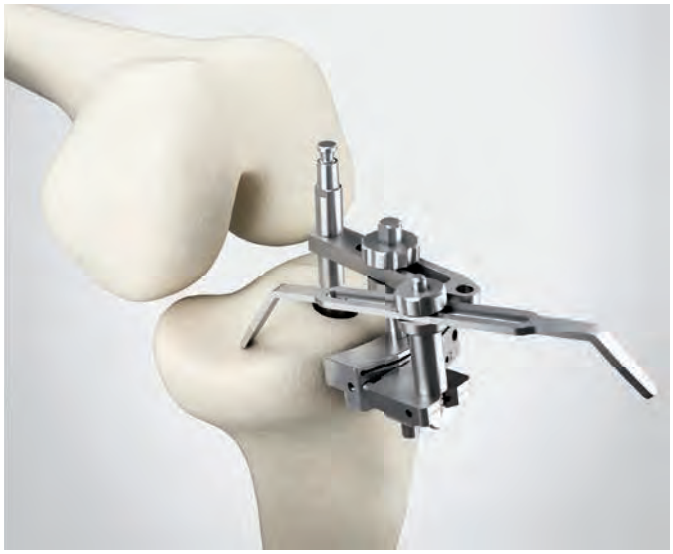
03
After the desired stability is achieved, the handle (16-3210/00) and the impaction plate (16-3203/00) are removed.



04
Attach the connector (16-3212/08) to the shaft of the awl.

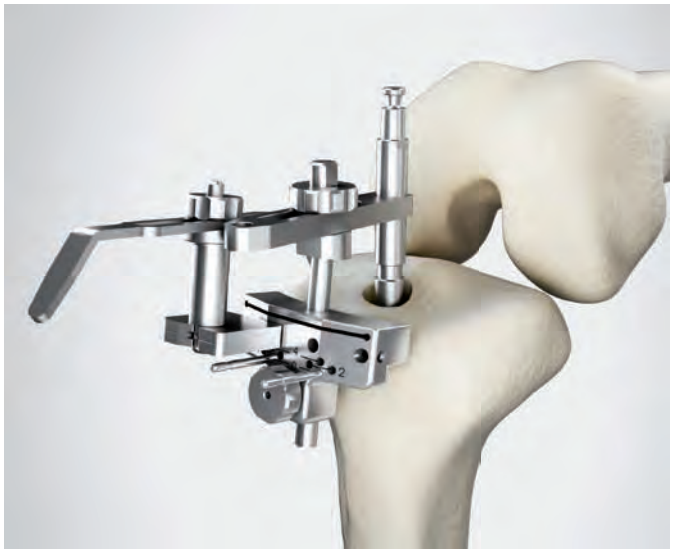


05
Attach the tibial saw guide (16-3241/00) to the anterior shaft of the connector and fix it provisionally by tightening the knurled screw.



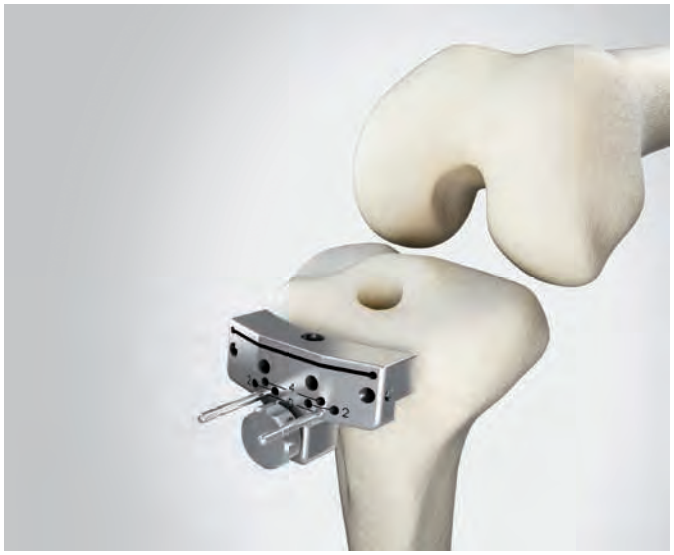
06

Attach the stylus for the tibial saw guide (317-802/52), preferably medially. The stylus tip marked 10 marks the resection level in the primary procedure (10 mm resection level).The stylus tip marked 2 can be used in revision surgery and marks a resection level of 2 mm. Alternatively, the stylus can be omitted and the resection level can be set using the cutting template (317-607/50).



07

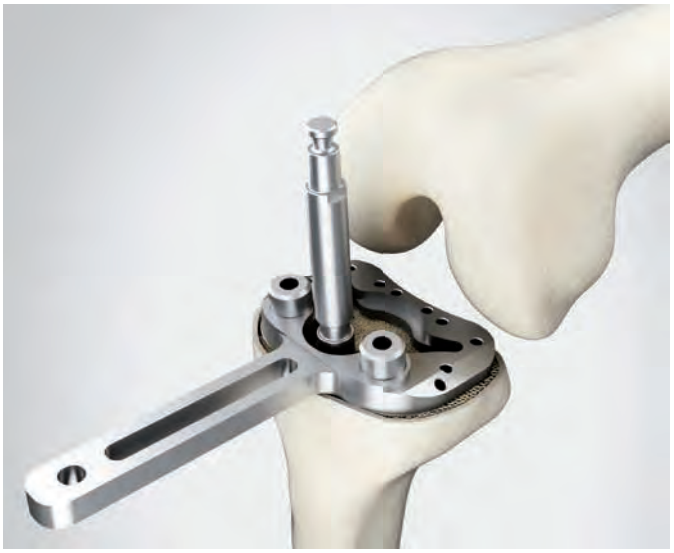
The tibial saw guide (16-3241/00) is fixed to the proximal tibia by means of two wire pins (317-585/65 or /95) through the lower row of parallel holes.



08

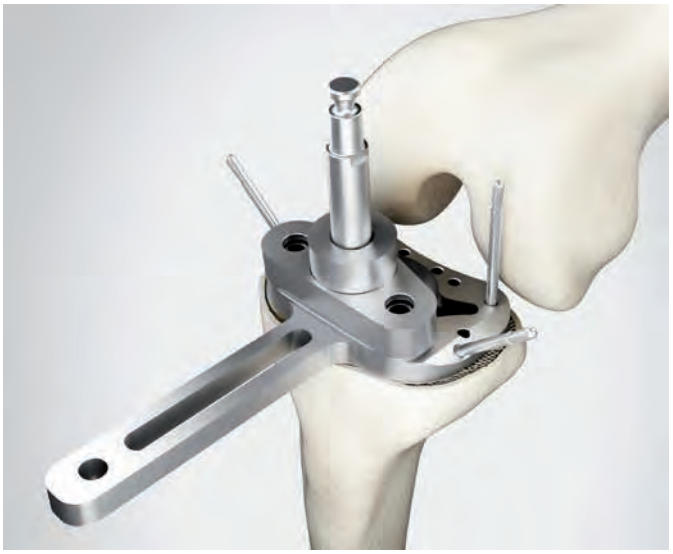
The bone is resected following removal of the stylus, connector and awl. The resection can be extended distally by 2- or 4-mm by shifting the tibial saw guide.

To achieve the correct resection geometry, saw-blades with a thickness between 1.24 mm and 1.27 mm must be used.



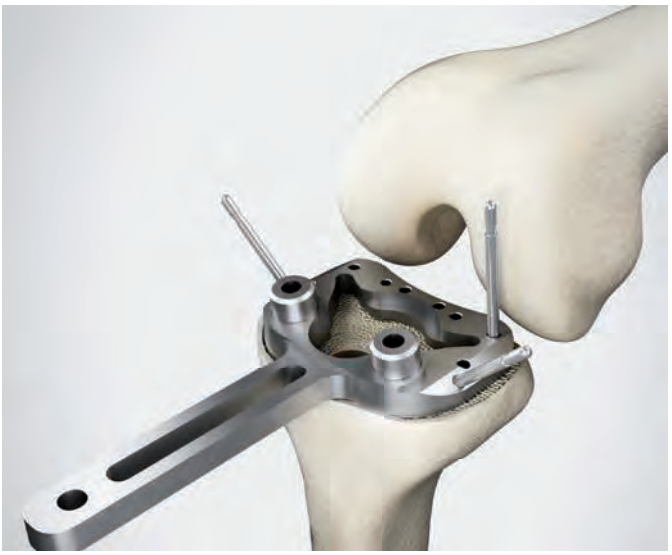
09

The last-used awl is inserted into the medullary cavity again. By placing the drill template (16-3198/12, /13, /14) that corresponds exactly to the implant size, the definitive implant size is determined. It is important that the implant covers the resection surface as far as possible. Projection over the cortical margin of the tibia must be avoided.



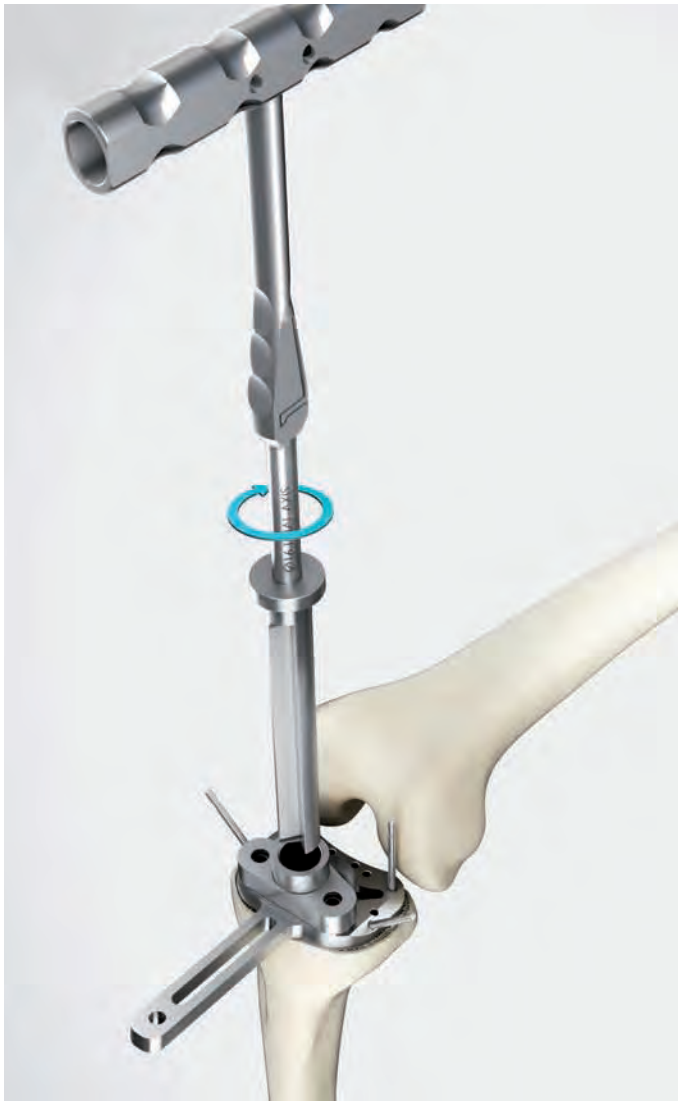
10

The alignment gauge (16-3266/00) is placed over the shaft of the awl and connected to the pegs of the drill template. After rotational alignment of the drill template, it is fixed to the resection surface with at least two wire pins.



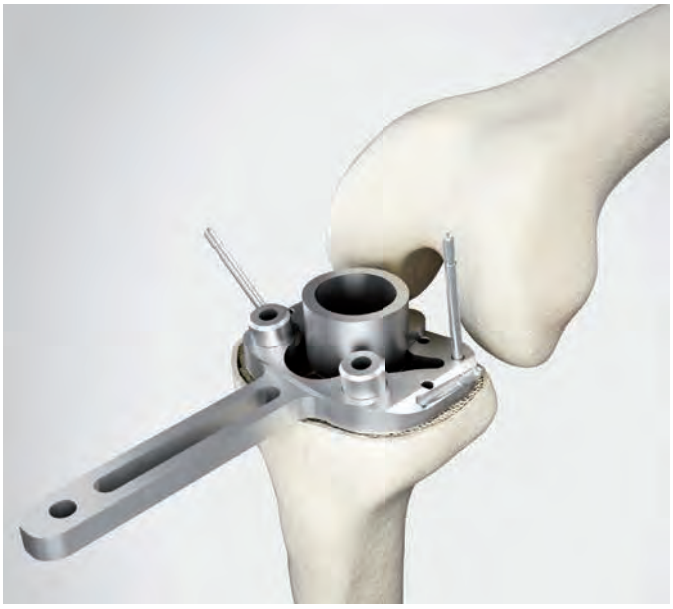
11

Remove al of the alignment gauge. The awl Ø 24 mm must also be removed temporarly and then reinstalled.



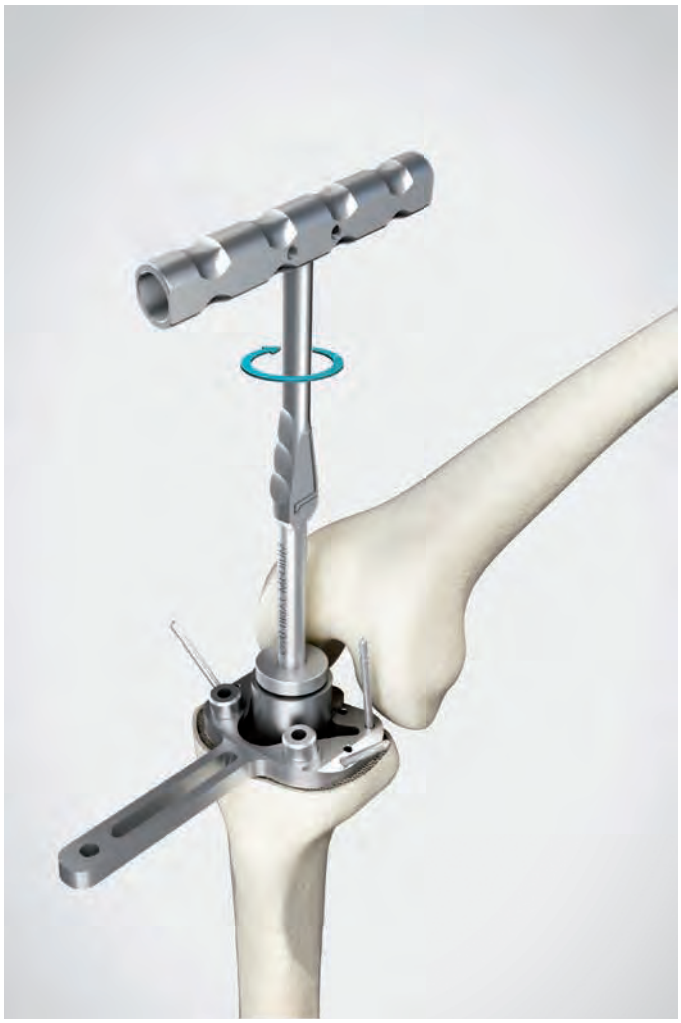
12

Attached 16 mm diameter drill guide (16-3267/00) and drill the proximal tibia (manually or machine-operated) with the 16 mm drill (16-3207/16) until stop.

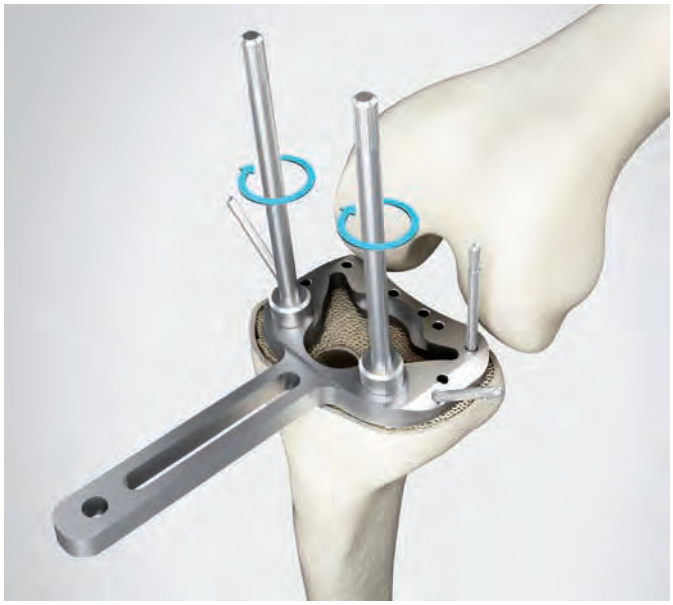


13

After removing the 16 mm drill guide, the drill guide (16-3270/18, /20, /22) is attached to drill the central tibial opening. The drill guide must correspond to the size of the drill template.

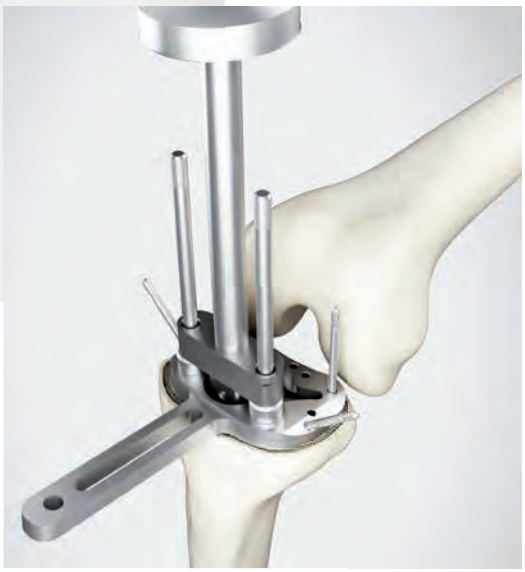


14
Drill the central tibial opening with the drill corresponding in diameter to the drill guide (16-3208/18, /20, /22) until stop.

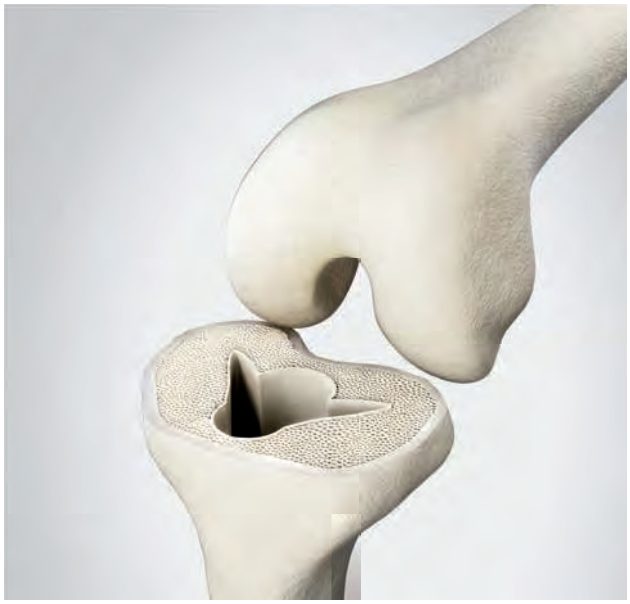


15
Screw the guide rods (16-3211/00) into the anterior threaded holes of the drill template.

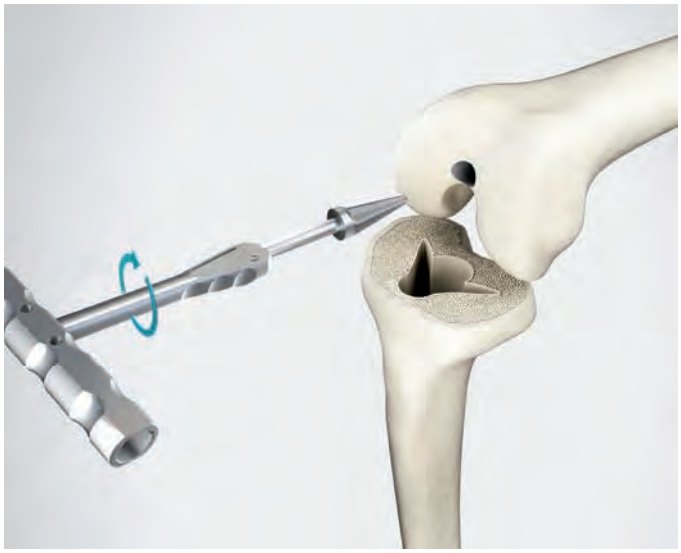
16
Screw the stem compressor (16-3201/02, /03, /04 to the corresponding compressor (16-3199/12, /13, /14) for the proximal contour. Attach the handle (16-3197/00).



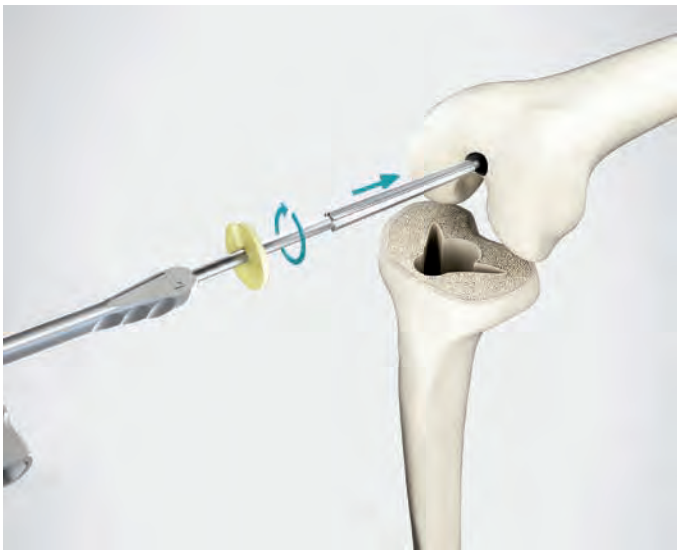
17
Drive in the compressor over the guide rods until the compressor touches the drill template.



18
Preparation of the tibia is now complete.



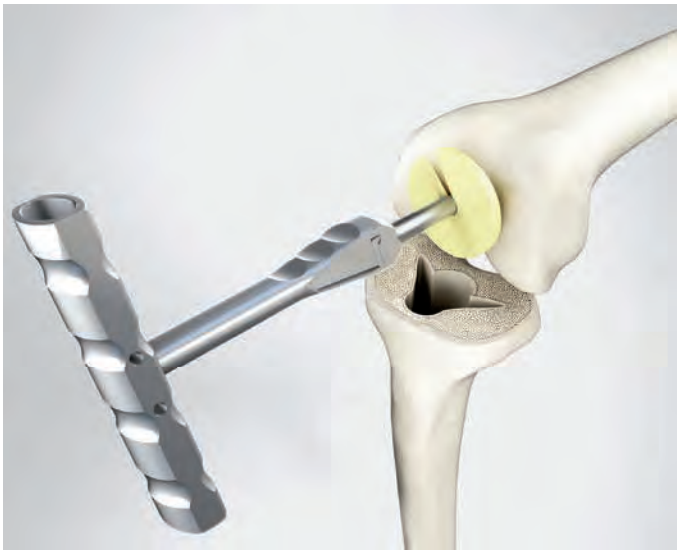
19
Mark the entry site with the awl (317-658/01) and open the femoral canal with the conical drill (15-6037/00).



20 + 21
Mount the awl in the planned length (100, 130 or 160 mm) in the handle (16-3210/00). The impaction plate (16-3203/00) latches into the slot on the shaft of the awl.

When uncemented modular stems are used, ream with an increasing awl diameter until the awl makes cortical contact over a continuous distance of approx. 50 mm. The uncemented implant that will be used must correspond in length and diameter to the last awl used.

For cemented modular stems, the awl should be at least 2 mm larger than the planned stem diameter.



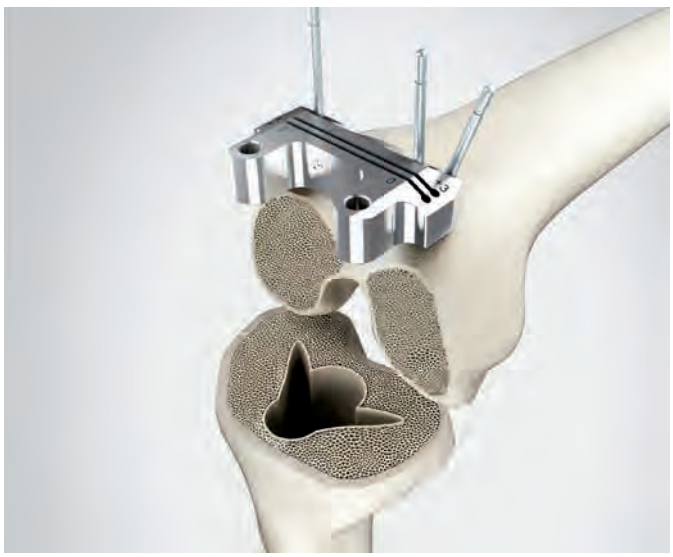
Important notes:
The position of the impaction plate represents the level of the joint line. Using the awls with a power tool is not permitted.

Standard Preparation – Femur

22
Remove the impaction plates and attach the alignment instrument for valgus angulation (16-3275/00). Ensure that the correct instrument for the right or left side is attached. The word “Left“ or “Right“ must face upward.

23
The appropriate saw block (16-3228/02, /03, /04) for the distal saw cut – according to the previously determined size – is fixed to the valgus alignment instrument using the clamp. The cut can be simulated with the cutting template (317-607/50).

There is a +3 mm slot for proximal offset of the cut or the instrument can be moved by +2 mm after it is fixed by wire pins.



24
After fixing the saw guide by means of two parallel and one oblique wire pins, the valgus alignment instrument and the awl are removed and the distal cut is made.

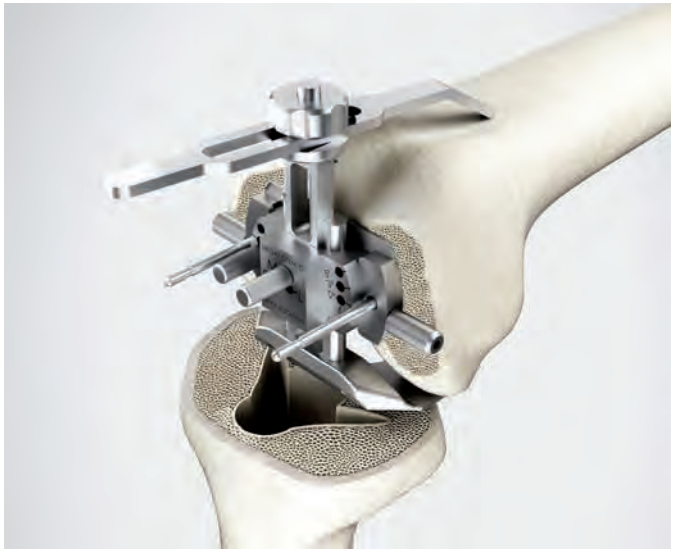
To achieve the correct resection geometry, saw-blades with a thickness between 1.24 mm and 1.27 mm must be used.

25

With the alignment instrument for determination of external rotation (16-3276/00), the selected femoral size is first set and fixed with a pin.

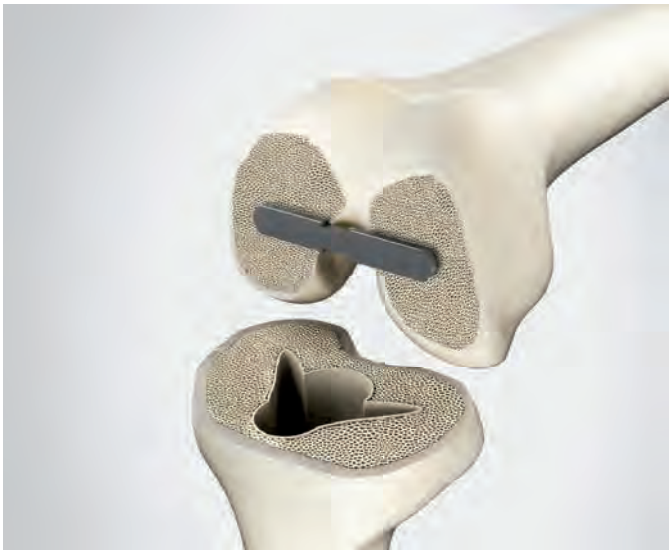
The alignment instrument allows external rotation to be set to 0°, 3° and 5° with reference to the posterior condylar tangent. Alternatively, external rotation can also be aligned using the Whiteside line with the small dipstick in the center of the instrument. Small alignment rods can be attached medially and laterally for orientation to the epicondylar line (Insall line).

Deficits in flexion and extension gap can be balanced by using femoral segments or tibial spacers.



26

Once the correct position is found, the instrument is fixed with two wire pins through the medial and lateral holes.



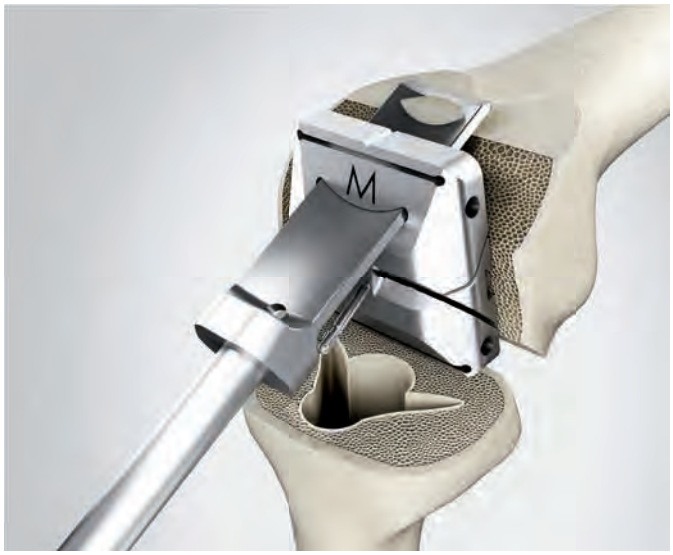
27

After the wire pins and alignment instrument have been removed, the dovetail adapter (317-802/36) is inserted in the depressions created by the wire pins.

28

The cutting block for chamfer cuts (16-3250/02, /03, 04) is pushed onto the side of the dovetail adapter and the central hex screw is fixed in the selected position with the hex screwdriver, wrench size 2.5 mm (10-5373/01). 2 wire pins can then be inserted for additional fixation. The anterior cut is made first, then the dorsal and finally the anterior and posterior oblique cut.

To achieve the correct resection geometry, saw-blades with a thickness between 1.24 mm and 1.27 mm are to be used.



29

Before the trochlea is prepared with the chisel (317-802/32) for the patellar gliding groove, the cutting block for chamfer cuts is aligned somewhat lateral to the center. Then the chisel is connected to the handle (15-8516/45), and the trochlea is then prepared with it.

30

Following preparation of the distal femur, the last used awl is inserted into the medullary canal again.

31
The condyle cap (16-3240/02, /03, /04) is placed on the prepared bone surfaces. The shaft of the awl forms the center.

32
A drill cap (16-3213/02, /03, /04) of the same size as the condyle cap is placed on the pegs of the condyle cap. The word “Left“ or “Right“ must be situated horizontally.

33
Using the center sleeve (16-3281/00), the instruments are aligned and centered on the shaft of the awl.

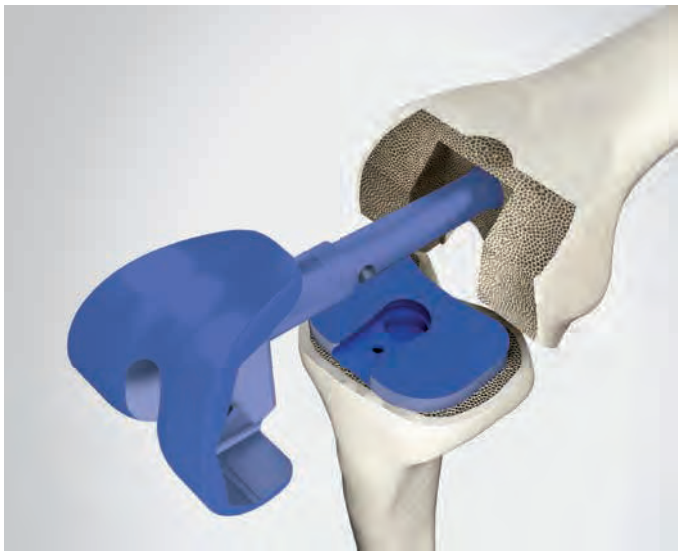
34
Following alignment, the drill cap is fixed to the condyle cap with the holding clamp (16-3279/00). The condyle cap is fixed to the bone with 2 wire pins. The center sleeve and awl are removed. If necessary, the drill cap must also be removed temporarly and then re-attached again.

35
The drill for femur Ø 20 mm (16-3206/20) is inserted as far as stop.

36
After removing the holding clamp, the drill cap is removed, the saw attachment matching the selected prosthesis size (e.g.16-3223/02) is attached and secured again with the holding clamp. The femur box is then prepared with an oscillating saw.

37
Preparation of distal femur is complete.

38
The tibial trial stem and trial prosthesis are joined by screwing them together and inserted into the prepared tibia.



39
The femoral trial stem and trial prosthesis are joined by screwing them together and inserted into the prepared femur.

40

Connect the two joint pieces by inserting the dorsal recess of the trial axis into the axis of the femoral component and then pushing the tibia up. Fix the screw with the hex screwdriver (64-8008/02).

Test the prosthesis. Deficits in the flexion and extension gap are compensated for with trial femoral segments and/or trial tibial washers. The components are separated by proceeding in reverse order.

41

Remove the trial femoral and tibial components with the extraction instrument for trial prostheses (15-6061/00).

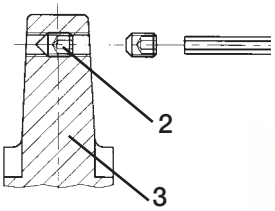
Assembling the Tibial Components

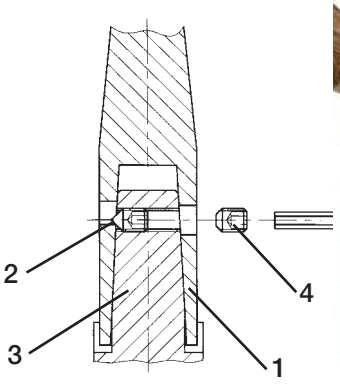
42

The tibial stems are fixed by means of a tapered connection on the tibial component. It should be ensured that the flanges of the prosthetic stems are inserted into the intended slots. The stem is then fixed to the tibial component with screw assembly.

After the underside of the tibial prosthetic component has been coated with a thin layer of bone cement, the prosthesis is inserted into the tibia with the impactor (16-0018/02).

By tightening the locking screw (**2**) located in the taper (**3**) of the tibial or femoral component, its pointed tip presses the stem (**1**) firmly onto the taper. A counter screw (**4**) secures the stem locking screw against loosening. The screw fixation is performed medially.





Counter Screw

Important Information:
The locking screw (optionally pre-assembled), the counter screw and one replacement screw each are included separately in the packaging.

43
Until the bone cement has set, the trial screw remains in the prosthesis thread in order to protect it. After the cement has set, the screw is removed with the screwdriver (322-145/01).

Trial Screw
(flattened screw head)

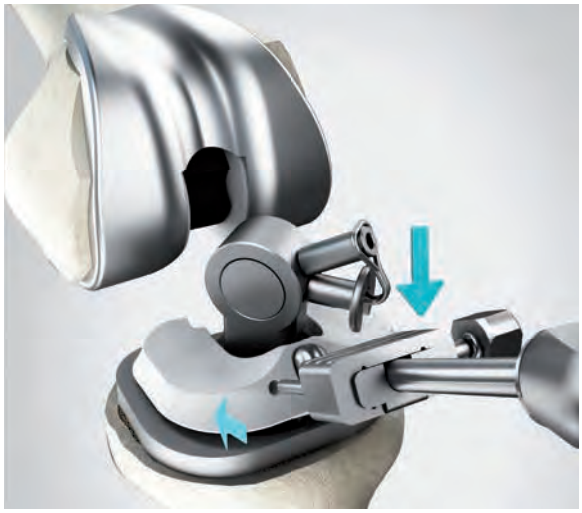
The femoral prosthetic component coated with bone cement is placed on the femur and gently tapped home with the impactor (317-646/01) until the implant fits snugly (excess bone cement is removed).

Note:
Remove and discard the polyethylene sleeve and tension plate from the tibial component (see figure). These components are not used with connection component V02 because they are preassembled to connection component V02.

Note:
Bone cement must be used to fix femoral segments onto the intracondylar femoral components.

44
After the bone cement has set, the transport lock is removed by loosening the screw joint with the screwdriver (10-5373/01) and withdrawing the lock with slight rotation. The plateau securing screw is removed.

Assembling the Connection Components

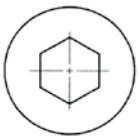


45

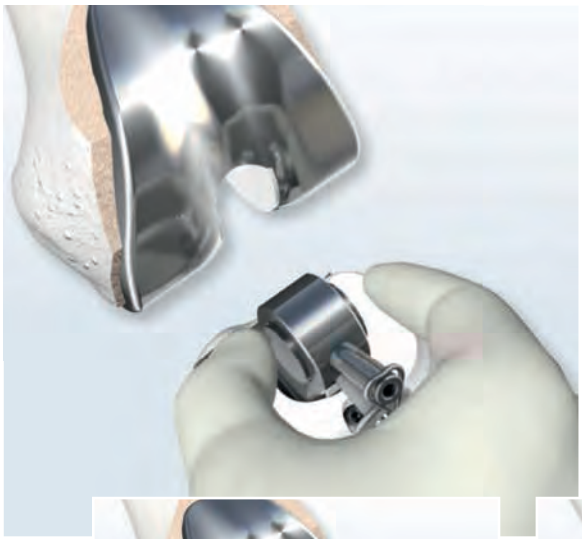
The connector with the rotation axis is put on the tibial component, and the PE plateau is then inserted and screwed on.w

For easier access to the plateau retaining screw, the connector is rotated slightly.

Self-locking Screw
(round screw head)



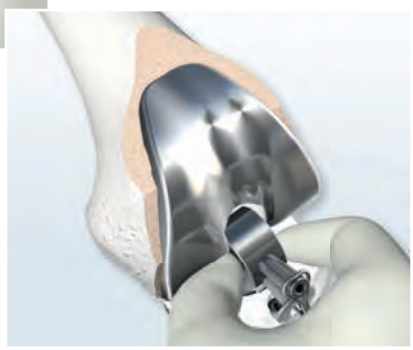
Caution!
The self-locking fixation screw may only be used during the final assembly of the plateau. Loosening the fixation screw destroys the screw retention system in the polyethylene plateau, and a new plateau must then be inserted.



46

The axis of the connector is compressed to be flush with the bearing using the thumb and the index finger. The axis is held in place while the connector is inserted into the intracondylar slot of the femoral component.

The connector axis is released when the connector is inserted. To assist in alignment, the tibia is placed as far posteriorly as possible, relative to the femur. The connection component axis is inserted into the femoral component axis bushings by slightly lifting the connecting component and carefully moving the joint components.



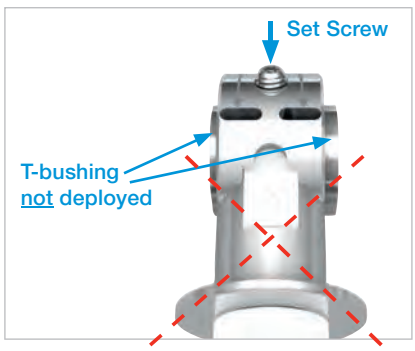
An audible "click" indicates that the connector axis has been successfully deployed into the rotational axis of the femoral component.

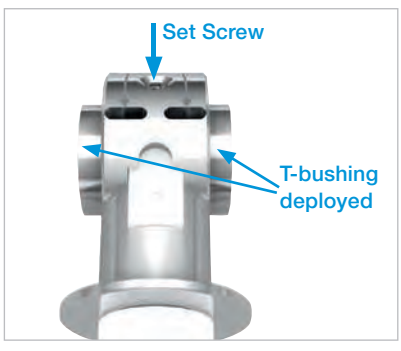
47

To fully deploy and lock the connection component axis, the U-shaped opening of the securing sleeve is rotated 180° until the opening faces upwards. The securing sleeve can then be pulled upwards along the spring wire, thereby unloading the spring so that it presses the axis halves of the connection compoent fully outward. A 2 mm torque-limiting hex screwdriver (15-2546) has been provided, and must be used to tighten the securing screw, which is already in the sleeve. The screw must be tightened until an audible “click” is heard that indicates that the required torque has been applied, locking the connection component in place.

48

When assembly is complete, the two drill holes in the prosthetic axis are located exactly under the arrow marks. Confirm the the set screw is slightly recessed. If it is not, remove the set screw, deploy the T-bushing with the connecting and separating forceps (16-0020/01- or /02) to fully expand the connection component and reinsert the set screw using the provided 2.0 torque-limiting screwdriver (15-2546), tightening until an audible “click” indicates that the required torque has been applied. The screw must be fully recessed (flush or below flush) to ensure appropriate final locking of the connection component.





To remove the connecting component, in the event of a revision, the securing screw is removed, the connecting and separating forceps (16-0020/01- or /02) are inserted, and the prosthetic axis is squeezed together. Then the connecting component can be decoupled anteriorly.

Assembling the Connection Components – Special Instruction for Fixed Hinge

49

It the intention is to use a fixed hinged joint version, the two small screws in the tibial plateau must first be removed with the hex screwdriver (64-1181/16).

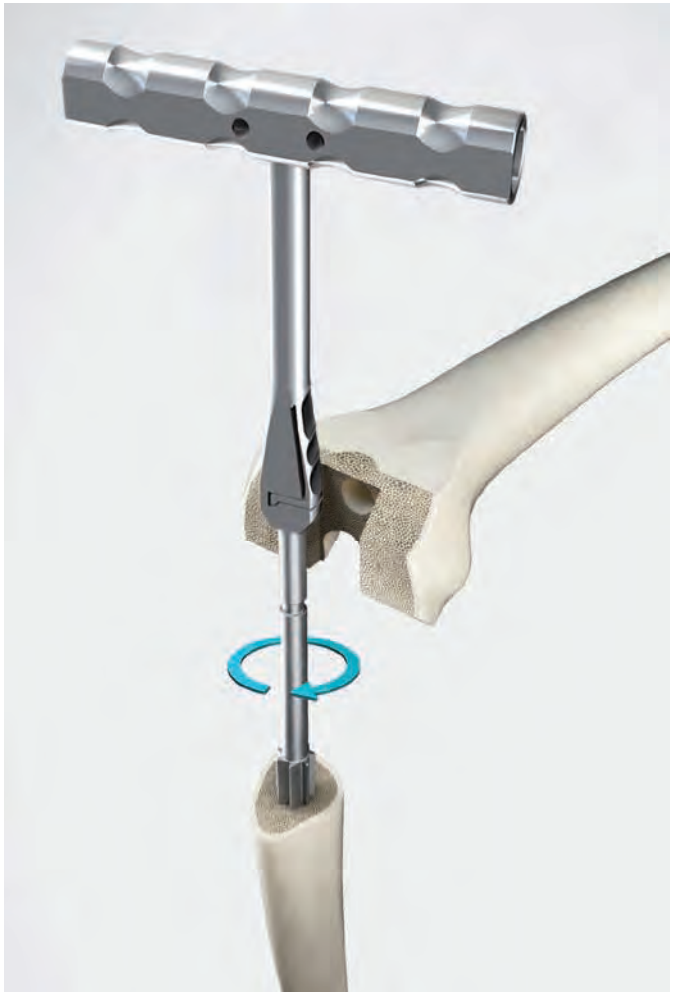
The connector with hinge axis is placed on the tibial component.

The connector is then screwed in place using the hex screwdriver (10-5373/01) and the PE plateau is inserted.

Proceed to step 46 for connection assembly.

Proximal Tibial Replacement

50
Resection of the proximal tibia at the planned level.



51
Mount the awl in the planned length (100, 130 or 160 mm) in the handle (16-3210/00). When uncemented modular stems are used, ream with an increasing diameter until the awl makes cortical contact over a continuous distance of approx. 50 mm. The uncemented implant that will be used must correspond in length and diameter to the last awl used.

For cemented modular stems, the awl should be at least 2 mm larger than the planned stem diameter.

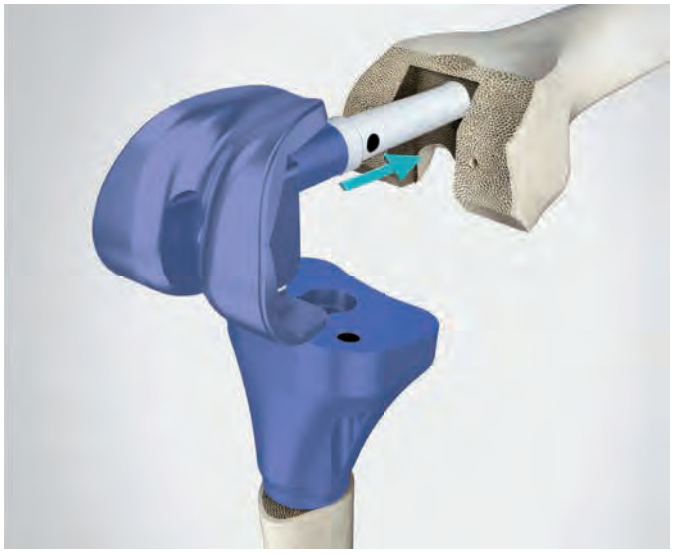
Important notes:
Using the awls with a drive motor is not permitted.

52
When use of a recess ring is planned as a flat attachment of the extramedullary part of the implant to the bone, the awl is inserted deeply into the medullary canal until the cutting edges of the awl are at the same level as the resection level. The handle is removed and connected to the reamer (16-3205/30).

53
The resection surface is reamed flat with the reamer, which is guided by the shaft of the awl.

54
The reamer and awl are removed.

55
The trial stem and trial prosthesis for proximal tibial replacement are joined by screwing them together and inserted into the prepared tibia.

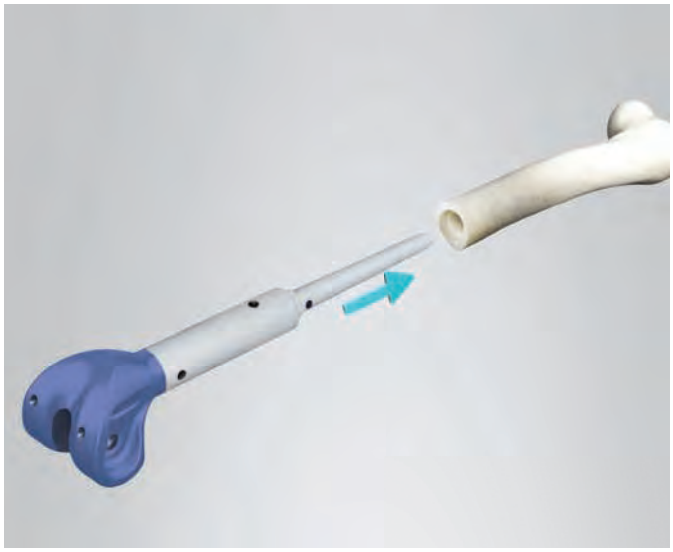


56
The femoral trial stem and trial prosthesis are joined by thread attachment and inserted into the prepared femur.

57
The femoral trial prosthesis is assembled, inserted and connected as described under “Standard Preparation of the Femur“. By extending, flexing and rotating the treated limb, it is possible to estimate the leg length and degrees of rotation and flexion.

Distal Femoral Replacement

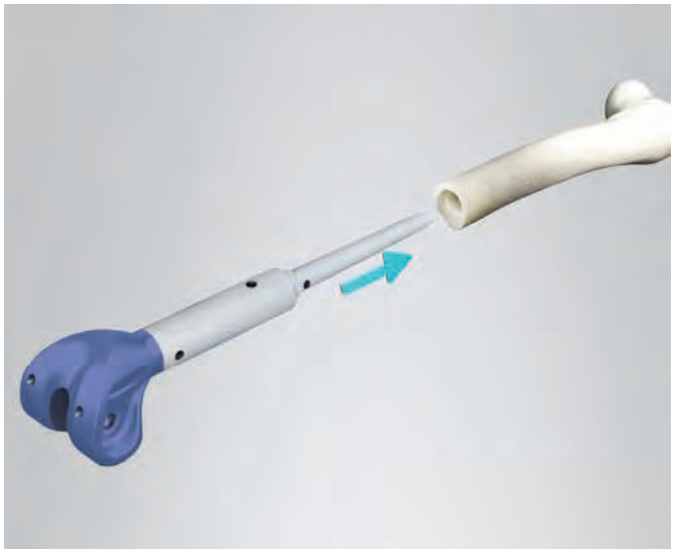
58
Depending on the indication, the distal femoral replacement can be extended in 10 mm increments after an initial further resection of 30 mm. Bone preparation is performed as described above.



59
In this situation, trial prostheses for stem elements (e.g. 16-3100/00) are assembled between the trial stem and trial prosthesis for distal femoral replacement. Depending on the resection length, different trial prostheses for stem elements can be combined together to represent the desired leg length.

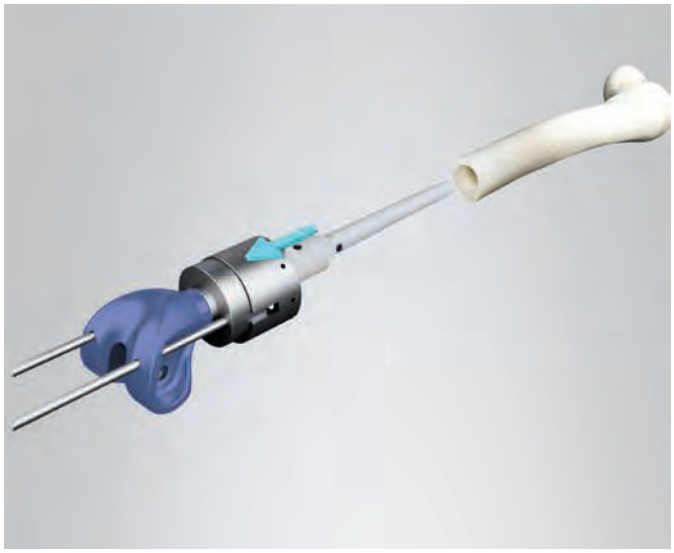
Bone Preparation without using a recess ring (optional procedure)

60
Resection of the bone at the desired site. The cutting edges of the awl are then inserted in the medullary canal 10 mm deeper than the resection level and the resection level is prepared with the step reamer (16-3204/18 up to a stem diameter of 18 mm, 16-3204/24 for 19 mm or more).

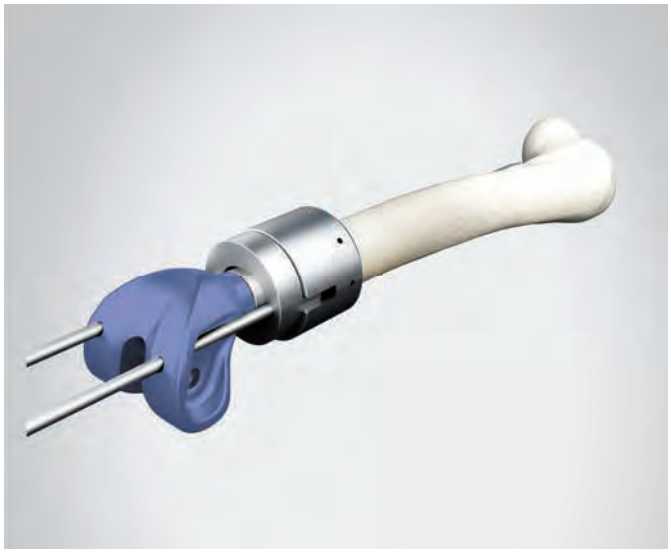


61
Assembling the selected trial prostheses.

62
The two guide rods (16-3235/00) are screwed into the adapter ring (16-3236/00) and placed from proximal to distal (vice versa in the tibia) through the two holes of the trial joint component.



63
The saw guide for notching (16-3237/00) is placed on the adapter ring in such a way that the notch and spring engage.



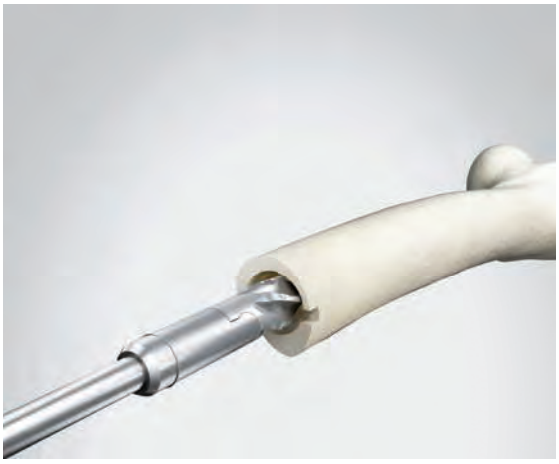
64
The trial prosthesis is inserted into the bone as far as its final position. It is essential to ensure correct rotational alignment of the trial prosthesis. The adapter ring must sit flush on the resection surface.

65
The saw guide for notching is fixed with two wire pins. The trial implant with the adapter ring is then removed.

66
Preparing the notches with the oscillating saw.

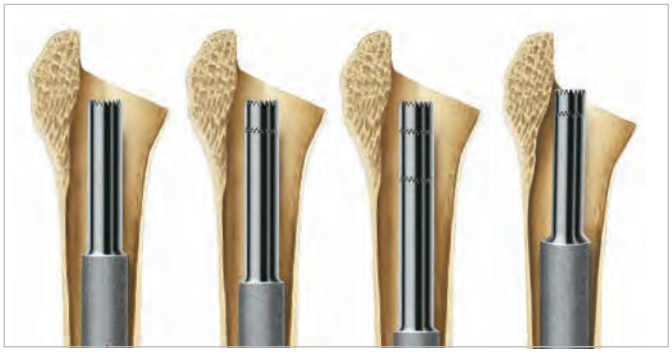
67
Prepared notches.

Push-through Prosthesis

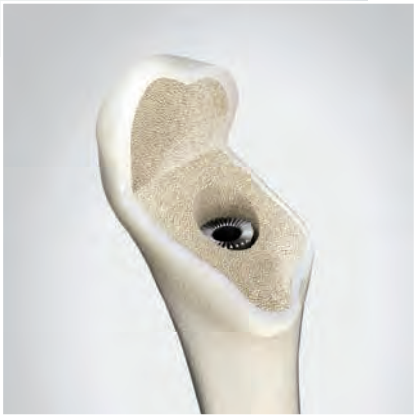


68
Prior to implantation of the push-through stems for total femoral replacement, the medullary cavity is reamed with ball reamers or flexible medullary reamers approx. 1 – 2 mm larger than the diameter of the selected prosthesis (available in 14 mm or 16 mm).

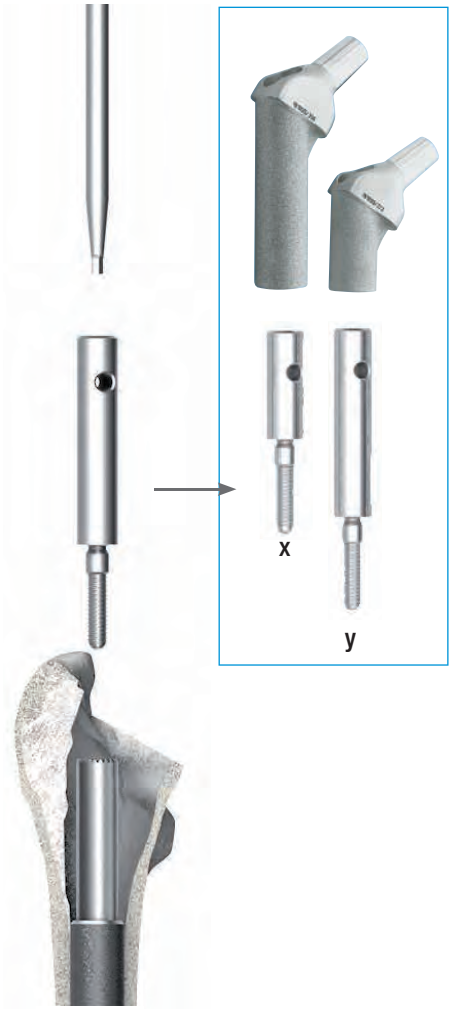
The length of the push-through prosthesis and the level of the femoral shaft resection should be chosen so that the sprocket for accepting the neck components is approximately 15 – 20 mm above the lesser trochanter. If necessary to adjust the length, this can be done by means of the proximal spacers (172-950/10-20).



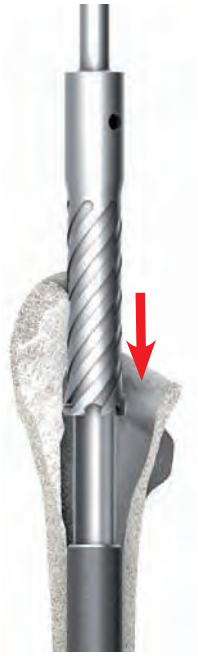
69
The push-through stems can be inserted directly with the femoral components, as described in example 4 in the brochure “Implants and Instruments“, or, as shown here, in combination with shaft elements. Fixation at the resection site is again optional (recess ring or notches).



The proximal part of the push-through prosthesis after implantation.



01



02

70
Preparation of the Metaphyseal Medullary Space

If required, a special hollow reamer (134-200/00) is used to prepare the implant bed for the neck segment (Fig **02**).

There are two guides and stops available for positioning the reamer on the in-situ stem. Their length must be selected according to the neck segment being used (Fig **01**).

Short reamer guide --> long neck segment (**x**)
Long reamer guide --> short neck segment (**y**)

The reamer guide can be screwed into the stem by hand or using the hex screwdriver (64-8008/02).

The reamer guide also serves as a stop to avoid the teeth of the hollow reamer (134-200/00) from coming into contact with the edge of the lower portion of the stem.

Irrigation is recommended to avoid overheating of the bone.

71
With the tubular reamer (131-384/01) the implant bed is prepared for the neck component.

The selected neck component is then pushed on the sprocket of the push-through stem, the desired anteversion is obtained and the neck component is fixed with the trial fixation screw (134-100/41 or /61) using the hex screwdriver (64-8008/02).

72

Trial Reduction

The guide rod (**G** 134-201/00), which simplifies positioning of the trial neck segment (**H**) and, where used, the trial proximal spacers, is screwed into the thread of the implanted stem and fixed in place using a hex screwdriver (64-8008/02) (Fig. **03**).

For the functional test, a trial neck segment (**H**) is mounted on the inserter (**I** 131-379/00), then pushed over the guide rod (**G**) and onto the implanted prosthesis stem. The teeth inside the trial neck segment must fit into the toothing on the stem.

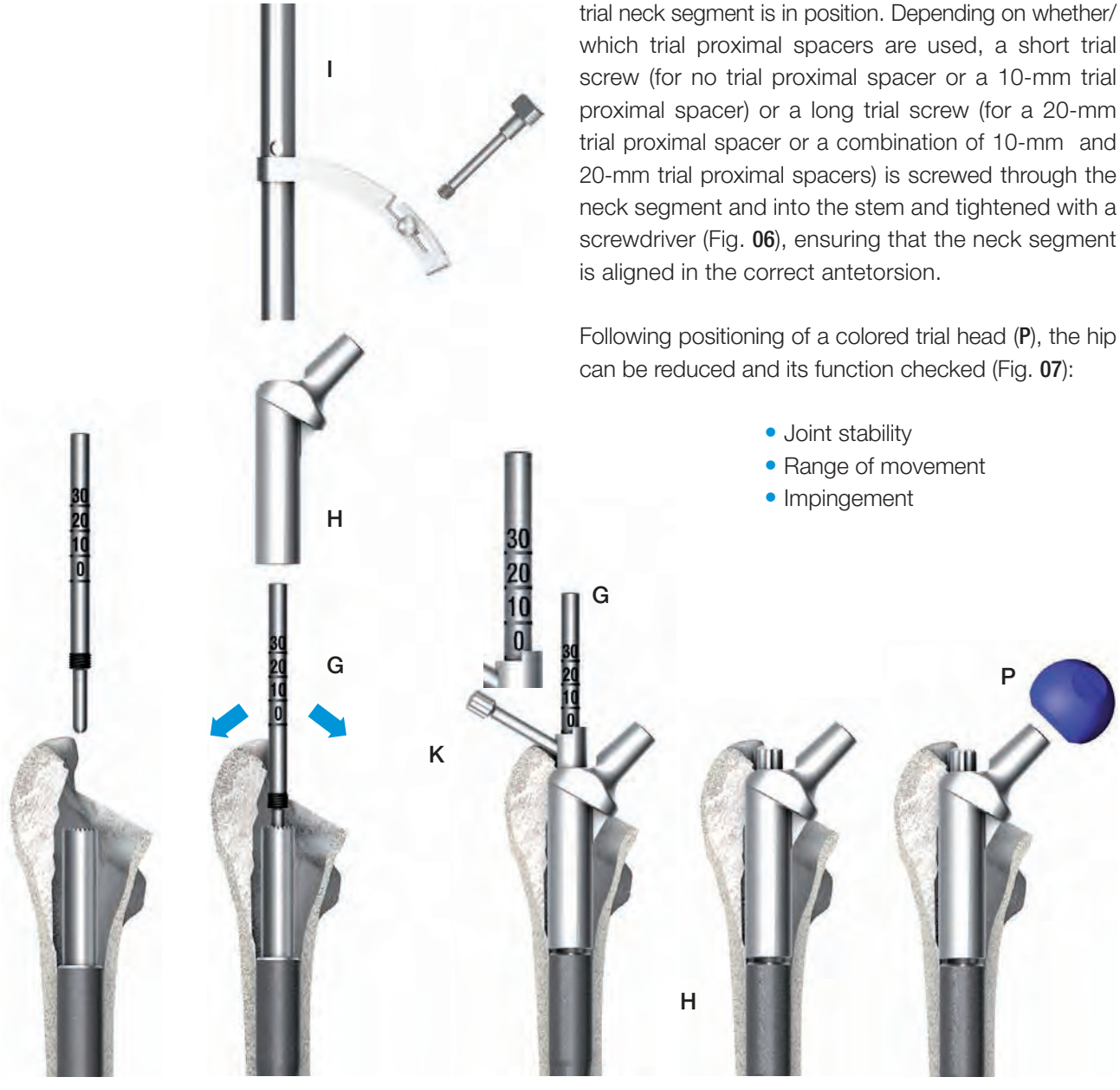
The trial neck segment can be simply tested by turning it backward and forward (Fig. **04**).

The secure seating should be checked with the caliper (**K** 134-202/00), which is placed on the trial neck segment (**H**). The connection is secure if – when no trial proximal spacers are used – the "0" gauge mark on the scale of the guide rod is visible in the recess on the caliper. The same applies accordingly for the "10" gauge mark when a 10 mm trial proximal spacer is used (Fig. **05**).

The caliper and the guide rod are removed once the trial neck segment is in position. Depending on whether/which trial proximal spacers are used, a short trial screw (for no trial proximal spacer or a 10-mm trial proximal spacer) or a long trial screw (for a 20-mm trial proximal spacer or a combination of 10-mm and 20-mm trial proximal spacers) is screwed through the neck segment and into the stem and tightened with a screwdriver (Fig. **06**), ensuring that the neck segment is aligned in the correct antetorsion.

Following positioning of a colored trial head (**P**), the hip can be reduced and its function checked (Fig. **07**):

- Joint stability
- Range of movement
- Impingement



03 04 05 06 07

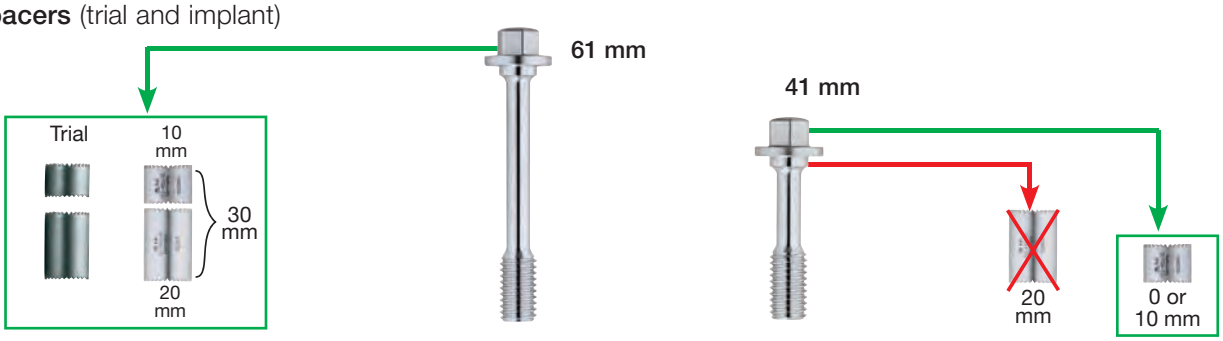
73

Colored plastic trial heads (175-928/11-14, 175-932/11-14, 175-936/11-14) in diameters 28, 32 or 36 mm and neck lengths short, medium, long and extra long are used for trial reduction.

If leg lengthening is necessary, spacers can be used in the illustrated combination (see images 74 and 75) when using neck components with a length of 65 mm. Trial spacers (131-398/10 or /20) are available for trial reduction.

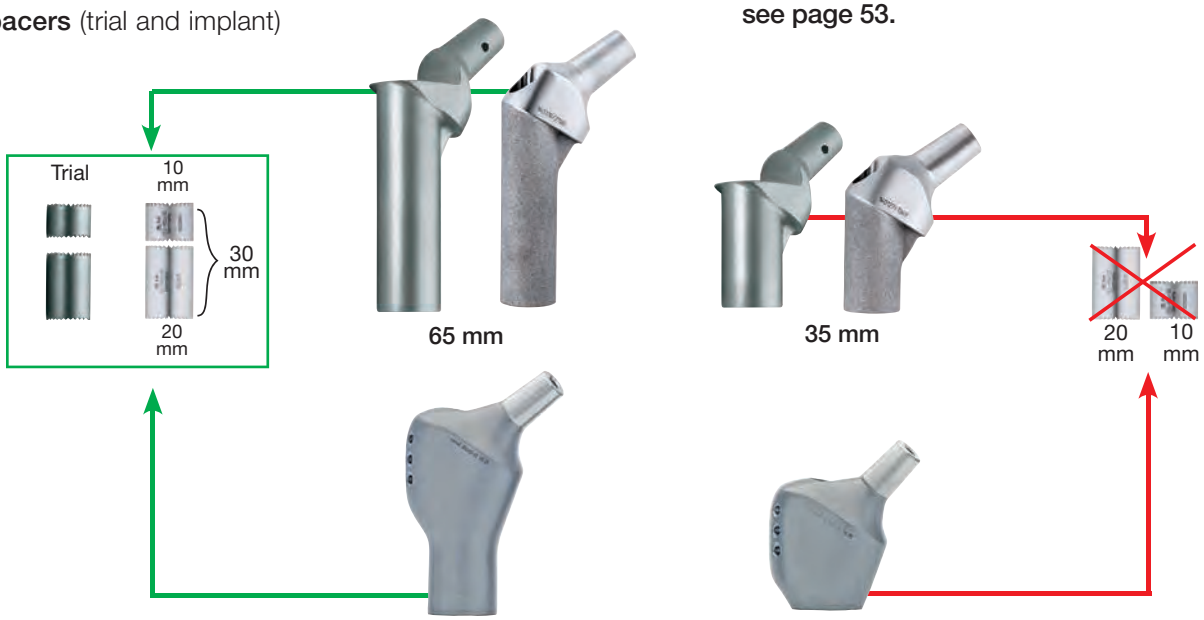
74

Fixation Screws (trial and implant)
Spacers (trial and implant)



75

Neck Components (trial and implant)
Spacers (trial and implant)



Note:
Overview of the combination possibilities see page 53.

Note:
Only the 65-mm neck segment may be used in combination with proximal spacers. A 35-mm neck segment may only be used without proximal spacers.

- Use of the short screw (41 mm):
  no proximal spacer or a 10-mm proximal spacer
- Use of the long screw (61 mm):
  a 20-mm proximal spacer or combination of a 10-mm and a 20-mm proximal spacer (30 mm in total)

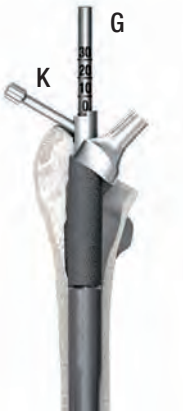
76

After final leg length, antetorsion and joint stability are checked, the trial prostheses are removed. To assemble the final MP neck segment the same procedure should be used as for the trial prostheses. The guide rod (**G**) is screwed onto the stem again (Fig. **09**). The neck segment and proximal spacers (if used) are placed over the guide rod (**G**) onto the stem using the inserter (**I**) (Fig. **08**). A marking made on the bone during the trial run is used to align the neck segment in the correct antetorsion position. The secure seating of the neck segment is checked with the caliper (**K**) in the same way as for the trial implant (Fig. **10**). The connection is secure if, when no proximal spacers are used, the "0" mark on the scale of the guide rod is visible in the "window" of the caliper.

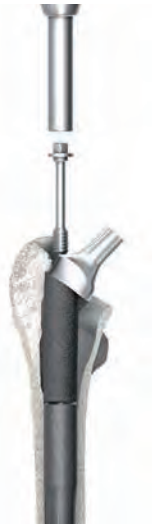
The "10", "20", or "30" scale marking must be visible when 10 mm, 20 mm, or a combination of 10 mm and 20 mm, proximal spacers are used.

08

09



10

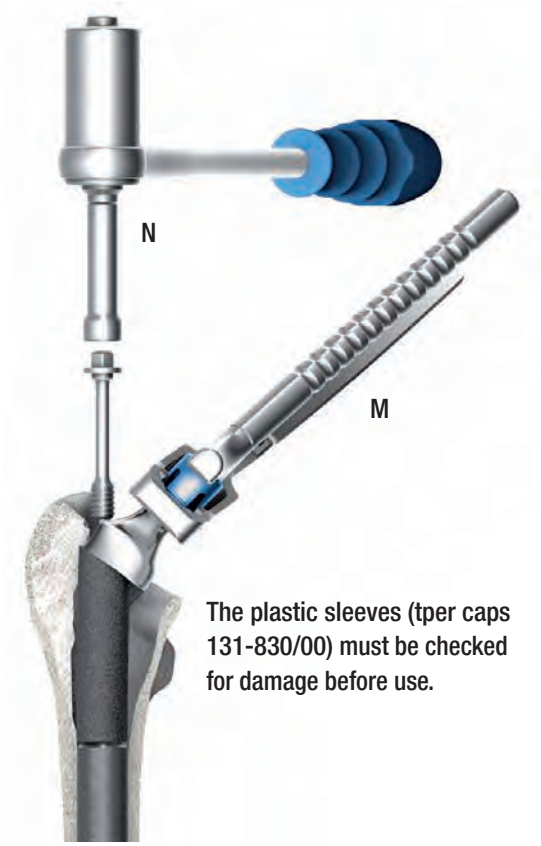


11

77

Expansion bolts (172-947/38 or /58) are used for finally joining the neck component to the push-through stems. The screwdriver is used to screw the expansion bolt in all the way and tighten it gently (Fig. **11**).

With loss of the proximal femur, the push-through stems can be combined with the neck segments (massiv). The correct position of the implant and fixation with expansion bolts are checked as described previously.



The plastic sleeves (tper caps 131-830/00) must be checked for damage before use.

78

Expansion Bolts

The stem, proximal spacers if used, and neck segment are connected with a short (41 mm) or long (61 mm) expansion bolt (172-947/38 or /58), depending on the selected neck segment length and the number of proximal spacers. The bolt fixes the MP neck segments or neck segments (massive) securely to the modular MEGASYSTEM-C components.

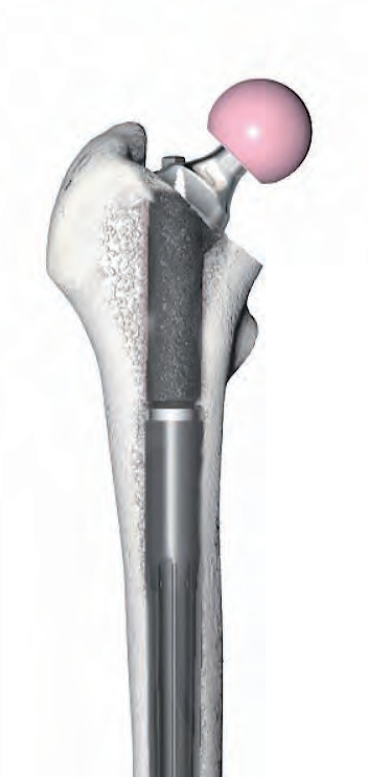
Note:

LINK implants and expansion bolts can only be used once. It is not possible to reuse them because no expansion occurs when the bolt is tightened a second time. The torque wrench (**N** 134-140/00) is supplied with a calibration certificate and separate instructions for use, and must be subjected to a functional test after 250 uses. To this end, the instrument should be sent to Waldemar Link GmbH & Co. KG. The torque wrench must never be used to loosen screw connections, as this could have a negative effect on its function.

Important

There are two screw lengths available:
41 and 61 mm

- Use of the short screw (41 mm):
  no proximal spacer or a 10-mm proximal spacer
- Use of the long screw (61 mm):
  a 20-mm proximal spacer or combination of
  a 10-mm and a 20-mm proximal spacer (30 mm
  in total)



79

The neck segment is then gripped by the taper using the insertion forceps (**M** 134-141/00) and the expansion bolt is tightened using the torque wrench (**N** 134-100/00). The final prosthesis head is positioned on the carefully cleaned and dried taper of the neck segment and secured in place with a gentle blow on the inserter (130-600).

Proximal Femoral Replacement

80
Resection of the proximal femur at the planned site and preparation of the medullary cavity to accept the selected stem model as described under “Proximal Tibial Replacement“.

After implantation of the modular stem, attachment of stem elements is optional.

81
Attachment of the coupling component for proximal femur replacement, short or long (15-8512/28 or /30).

Attachment of the neck (solid). Fix the implant as described under “Push-through Prosthesis“.

Total Femur Replacement

The total femur replacement is a combination of the previously described treatments:

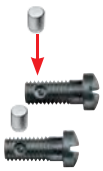
- Proximal femoral replacement
- Optional push-through prosthesis or bone replacement with stem segments
- Distal femoral replacement or intracondylar joint component
- Proximal tibial replacement as needed

Interposition Implant

82
Resection of the femoral diaphysis at the planed sites and preparation of the medullary cavity to accept the selected modular stems as described under “Proximal Tibial Replacement“.

Situation after implantation of the interposition components as described in example 8 on page 18. The two interposition components are joined with the aid of the cross-slot screwdriver (16-3290/00) and enclosed screws.

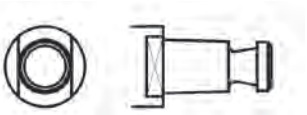
Note for lock bolts:
Bevelled side is inserted first!



Additional Instruments

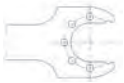
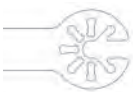
Adapter for Snap Lock Chuck with Hudson Fitting (B)
Various adapters to enable compatibility with other equipment connections.

REF	Fitting	
16-3283/01	Jacobs Fitting (E)	
16-3284/00	AO Fitting (D)	
16-3285/00	Harris Fitting (C)	



Hudson Fitting (B)
Basic tool connection

Sawblades,
without offset teeth, 1.24 mm thick

REF Wide (**A**) 25 mm	REF Wide (**A**) 13 mm	Fitting	
317-654/10	317-656/10	Synthes	
317-654/11	317-656/11	Aesculap Combi	
317-654/13	317-656/13	Zimmer / Hall Combi	
317-654/14	317-656/14	Stryker System 4	

Additional Instruments

Revision Drill Guide
for mobile and hinged version, to support the axis decoupling when changing the Endo-Model SL connection components

REF	
16-3295/00	consisting of 4 components: Retainer, Drill Rod, 2 Rods with handle

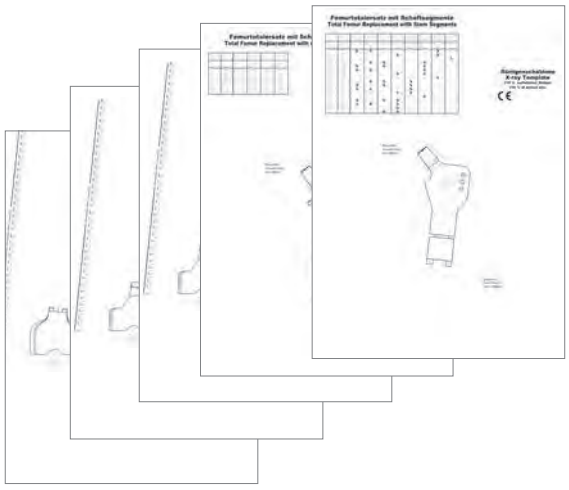
Extractor
for modular stems with female taper, taper 12/10 mm (for 3 mm + 6 mm noses)

REF	Length
15-0036/81	230 mm

Guide Rod with Slaphammer
(without illustration)
(optional for stem extraction: Guide Rod 317-661 in combination with Driver Extractor 15-8516/45)

REF	Length
317-661	365 mm

Accessories



X-ray Templates,
110% of actual size, set = 5 sheets

REF	
15-8516/61	for LINK MEGASYSTEM-C with SL knee components

Important Information

Please note the following regarding the use of our implants:

1. **Choosing the right implant is very important.**
   The size and shape of the human bone determines the size and shape of the implant and also limits the load capacity. Implants are not designed to withstand unlimited physical stress. Demands should not exceed normal functional loads.

2. **Correct handling of the implant is very important.**
   Under no circumstances should the shape of a finished implant be altered, as this shortens its life span. Our implants must not be combined with implants from other manufacturers. The instruments indicated in the Surgical Technique must be used to ensure safe implantation of the components.

3. **Implants must not be reused.**
   Implants are supplied sterile and are intended for single use only. Used implants must not be used again.

4. **After-treatment is also very important.**
   The patient must be informed of the limitations of the implant. The load capacity of an implant cannot compare with that of healthy bone!

5. **Unless otherwise indicated, implants are supplied in sterile packaging.**
   Note the following conditions for storage of packaged implants:
- Avoid extreme or sudden changes in temperature.
- Sterile implants in their original, intact protective packaging may be stored in permanent buildings up until the “Use by” date indicated on the packaging.
- They must not be exposed to frost, dampness or direct sunlight, or mechanical damage.
- Implants may be stored in their original packaging for up to 5 years after the date of manufacture. The “Use by” date is indicated on the product label.
- Do not use an implant if the packaging is damaged.

6. **Traceability is important.**
   Please use the documentation stickers provided to ensure traceability.

7. **Further information** on the material composition is available on request from the manufacturer.

Follow the instructions for use!

Waldemar Link GmbH & Co. KG, Hamburg

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