






## Endo-Model Knee System

with Segmental Bone Replacement Components  
and MIRETO Instrument Set

Surgical Technique

Explanation of Pictograms			
	Manufacturer		Article number
	Material (number)	RX only	Caution: Federal law restricts this device to sale by or on the order of a physician

# Endo-Model Knee System

with Segmental Bone Replacement Components and MIRETO Instrument Set

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## – Tilastan

## Endo-Model Proximal Tibial Spacers for Modular Rotating and Non-Rotating Hinge Version Endo-Model

## – UHMWPE

## – Tilastan

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## Additional Instrument Set for Endo-Model Rotating Hinge and Modular Knee Prostheses

## MIRETO Surgical Technique

## Tibial Preparation

## Tibial Resection

## Femoral Preparation

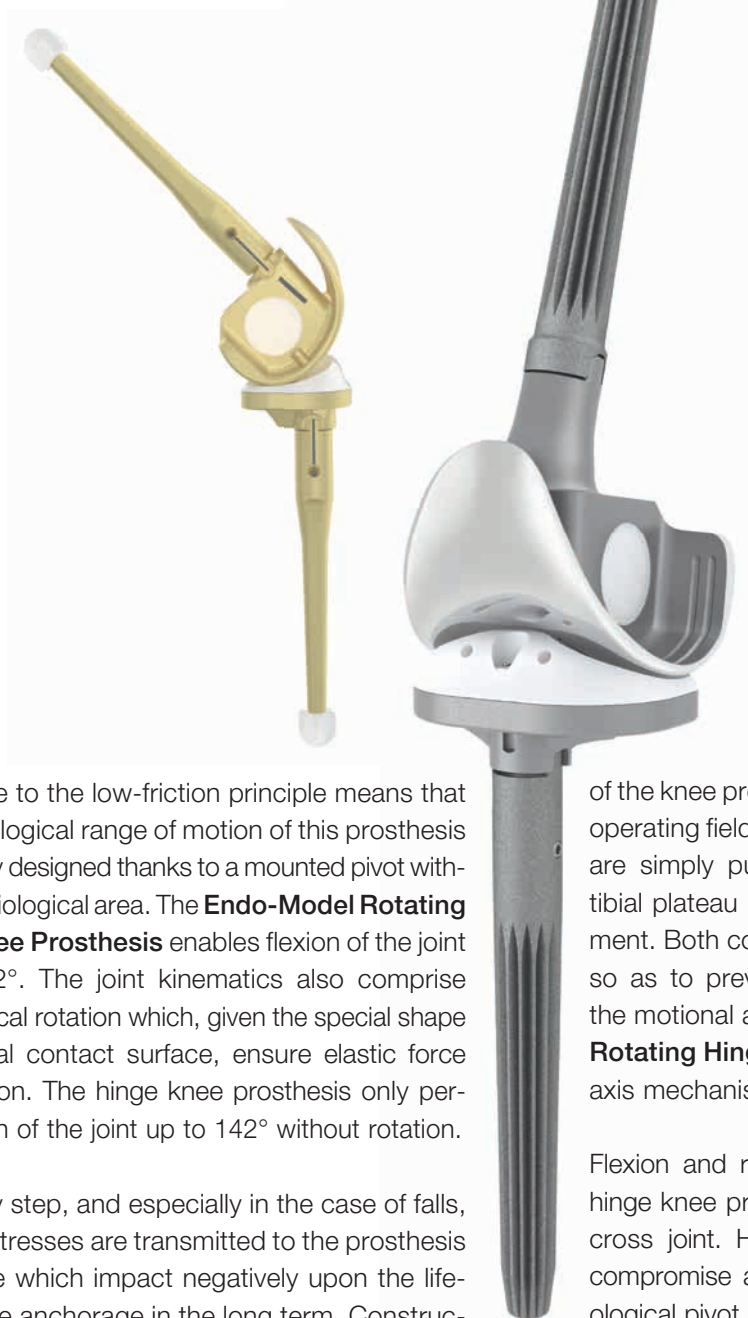
## Trial Reduction

## Implantation

## Literature

## Important Information

## Endo-Model Knee Prosthesis Systems



Adherence to the low-friction principle means that the physiological range of motion of this prosthesis is optimally designed thanks to a mounted pivot within the physiological area. The **Endo-Model Rotating Hinge Knee Prosthesis** enables flexion of the joint up to 142°. The joint kinematics also comprise physiological rotation which, given the special shape of the tibial contact surface, ensure elastic force transmission. The hinge knee prosthesis only permits flexion of the joint up to 142° without rotation.

With every step, and especially in the case of falls, torsional stresses are transmitted to the prosthesis anchorage which impact negatively upon the lifespan of the anchorage in the long term. Constructively generated, elastic force transmission ensures preservation at the prosthesis/bone cement and bone cement/bone interfaces. Because of the favorable dimensions of the **Endo-Model Rotating Hinge Knee Prosthesis**, only minimal resection of 14 mm is necessary on the tibia-femur joint plane. The medium-sized intracondylar component is only 30 mm wide. As a rule, there is thus less resection than with a total knee prosthesis. This is a key, positive factor with respect to subsequent revision surgery. The ideal design and dimensions

of the knee prosthesis offer a good overview of the operating field. The femoral and tibial components are simply pushed together and the UHMWPE tibial plateau is positioned using a special instrument. Both components are linked by the plateau so as to prevent luxation and without reducing the motional and rotational sequences. The **Non-Rotating Hinge Knee Prosthesis** is linked by the axis mechanism.

Flexion and rotational movement of the rotating hinge knee prosthesis is achieved by means of a cross joint. Hyperextension amounts to 2°. The compromise axis lies in the region of the physiological pivot point. Flexion up to 142° is possible. With arthroplasty knee replacement, advancement of the patella or of the patellar bearing surface is often seen. By moving the femoral component posteriorly relative to the tibial axis, physiological movement is also retained for the femoropatellar joint. This protects against progression of retro-patellar arthrosis. Rotation of the prosthesis ends in extension by form closure, which ensures a secure standing position. Rotation increases continuously with greater flexion. This rotation is limited primarily by the capsular ligament apparatus. The shape of

the surfaces which are in contact with each other means that further rotation is cushioned elastically by the body weight's bearing down on the joint. The femoral component of the **Endo-Model Rotating Hinge Knee Prosthesis** has a physiological valgus angle of 6°.

Both prosthesis components are broadly supported on their corresponding joint surfaces, such that the compressive strength of the cancellous bone vis-à-vis the femur and tibia is not exceeded. The runner-inspired form of the femoral component is based on the anatomical conditions. The ventral depression provides a smooth transition to the bony patellar bearing surface.

The modular prosthesis stems are available for the **Endo-Model Modular Rotating Hinge Knee Prosthesis** both as a cemented version, without structuring, and with longitudinal structuring for cementless implantation. To achieve a central position within the medullary cavity, the tips of the cemented stems are fitted with star shaped UHMWPE caps. Direct contact of the metal stems with the inner wall of the bone is thereby prevented. The stems are supplied in lengths of 50 mm up to 280 mm. Special femoral and tibial segments and spacers made of UHMWPE and Tilastan are available for revision surgery of total knee prostheses, to reconstruct condyles and the joint line as well as for tumor cases (resections). It must be noted here that these segments may only be used in combination with corresponding longer stems.

## LINK PorEx Surface Modification

### LINK PorEx (TiNbN = Titanium Niobium Nitride) Surface Modification

The LINK PorEx surface modification results in a ceramic-like surface, which significantly reduces chrome and nickel ions release.<sup>1</sup>

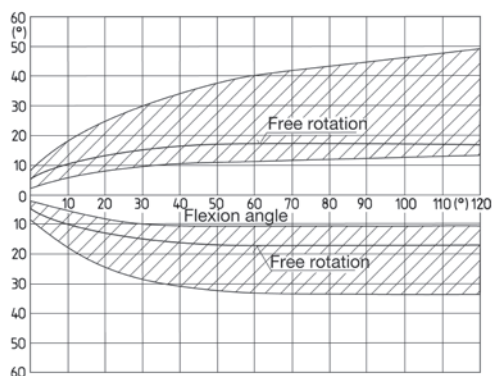
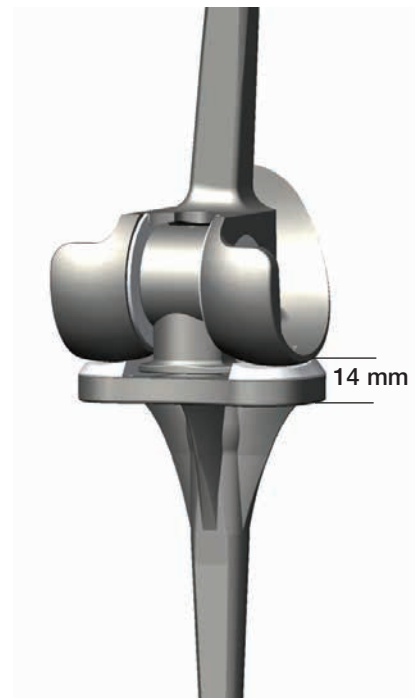
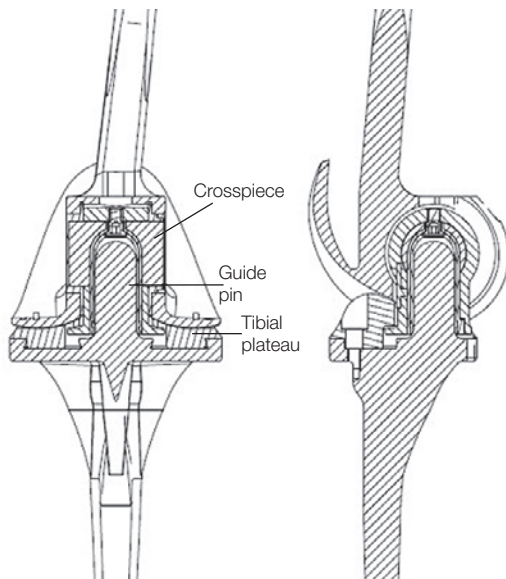
Thanks to its outstanding hardness, abrasion properties similar to ceramics and larger wetting angle, in contact with liquids the LINK PorEx surface against UHMWPE has a lower coefficient of friction compared to CoCrMo surfaces.<sup>1</sup>

<sup>1</sup> Internal technical report: Study of the influence of TiNbN-coating on the ion release of CoCrMo-alloys in SBF buffer simulator testing



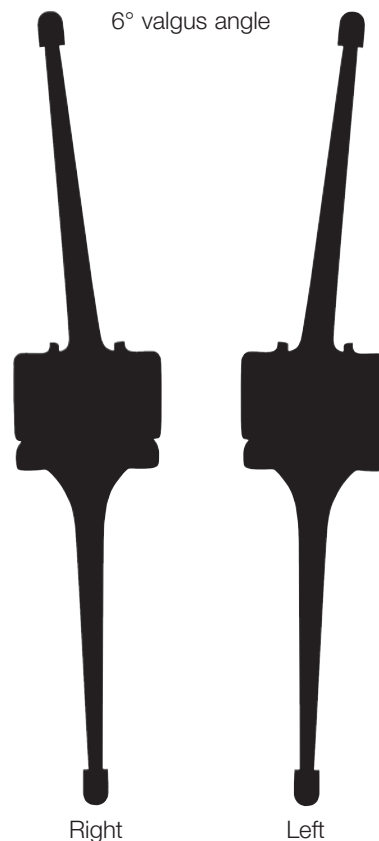
## Endo-Model Knee Prosthesis Systems

Adherence to the low-friction principle means that the physiological range of movement of the rotational knee prosthesis is optimally designed thanks to a mounted pivot within the physiological area. Flexion and rotational movement of the rotating hinge knee prosthesis is achieved by means of a cross joint.



The extent of free rotation as a function of flexion and the constructively generated smoothly slowed down rotation area are shown as the hatched area.

Engelbrecht, E.: *Die Rotationsendoprothese des Kniegelenks (Rotation prosthesis for the knee joint)*, Springer-Verlag 1984, ISBN: 978-3-642-69819-4 (print), 978-3-642-69818-7 (online)

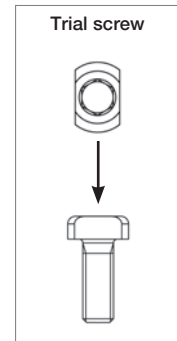


## Endo-Model Knee Prosthesis Systems

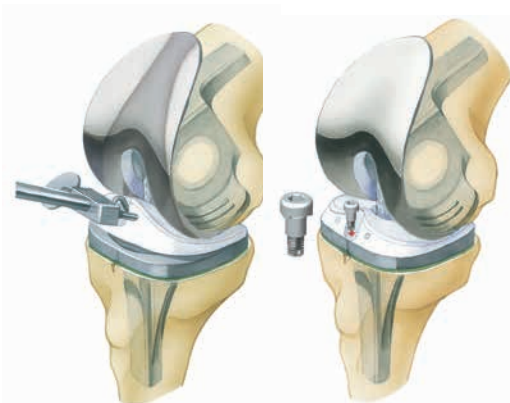
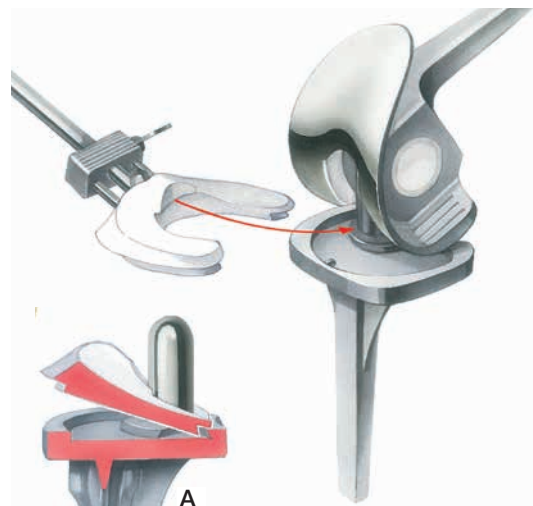
Assembly: Plateau with anti-luxation device



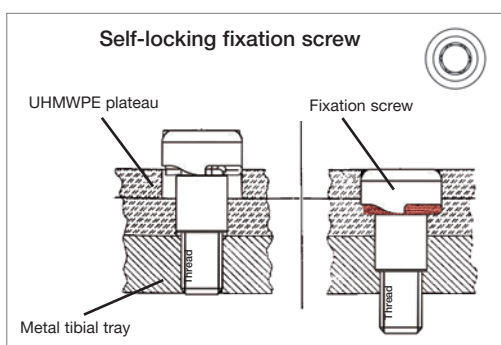
After cementation of tibial and femoral components, the UHMWPE plateau is removed from the tibial tray by loosening the trial screw. With the knee in flexion, the upper and lower components are assembled.



The tibial plateau is attached to the inserter and slid between the femoral and tibial components into the joint so that the plateau chamber grips over the flange. It must be ensured that the dovetail-shaped incision (fig. **A**) on the bottom of the UHMWPE plateau locks into the peripheral groove on the metal tibial support.



The UHMWPE plateau is pressed down and fixed into place by the self-locking fixation screw.



Implanted  
Endo-Model Modular  
Knee Prosthesis.

## Endo-Model Modular Rotating Hinge Knee Prosthesis

### Assembly: Modular Stems

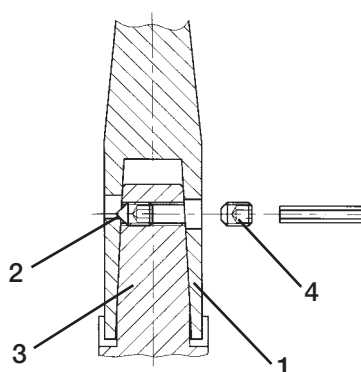
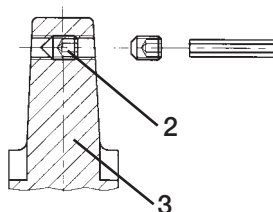


The modular stems are joined by a cone assembly. To ensure rotational stability, the stem has two opposing flanges which are inserted in the medial and lateral grooves on the femoral / tibial components.

The current version features a 6 mm groove for attachment of modular stems with female taper and flanges of 3 mm or 6 mm. When attaching modular stems with 3 mm flanges, the stem must be orientated on the taper so that the threaded hole for the counter screw is not obscured (**A**). To this end, the alignment aid (15-6096/00) for modular stems is used (**B**). Modular stems with 6 mm flanges cannot be combined with Endo-Model implants with 3 mm grooves.



The cone-shaped tip of the locking screw (2) in the taper (3) of the tibial or femoral component pushes the stem firmly against the taper as it is screwed further in (1). A counter screw (4) prevents the locking screw from becoming loose. The screw is secured from medial.



Counter Screw



## Endo-Model Non-Rotating Hinge Knee Prosthesis

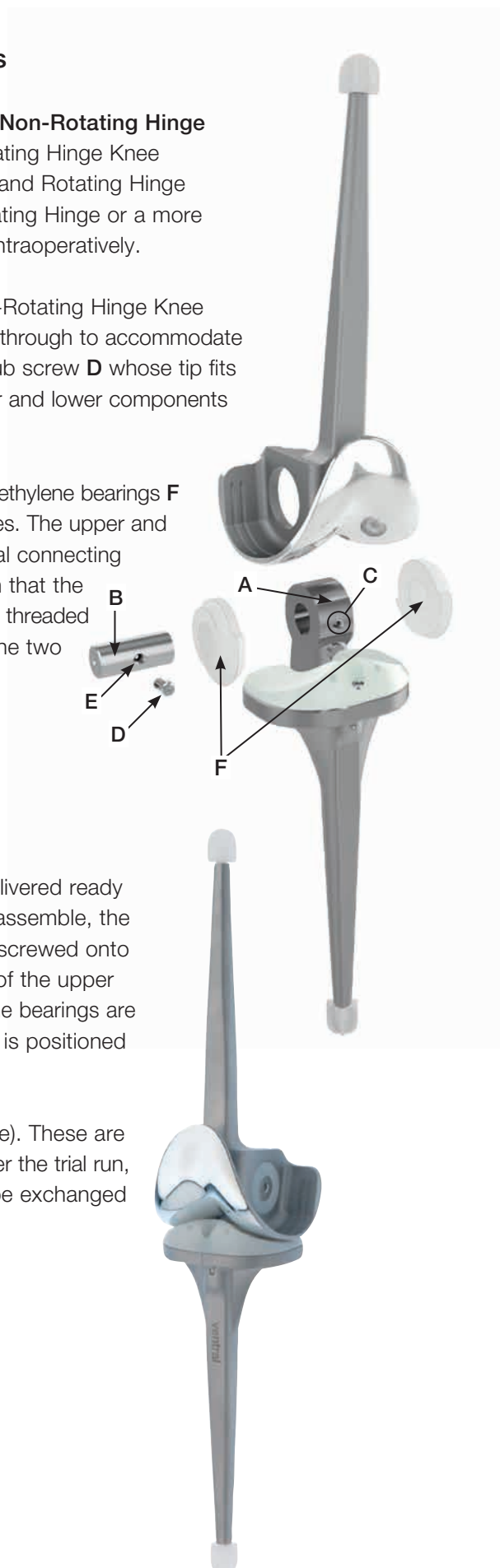
The external shape, dimensions and sizes of the **Endo-Model Non-Rotating Hinge Knee Prosthesis** correspond to those of the Endo-Model Rotating Hinge Knee Prosthesis. As the implant beds required for the Non-Rotating and Rotating Hinge versions are identical, the decision as to whether to use a Rotating Hinge or a more stabilizing Non-Rotating Hinge Knee Prosthesis can be made intraoperatively.

The connecting piece **A** which is securely attached to the Non-Rotating Hinge Knee tibial component and links it to the femoral component is drilled through to accommodate the joint axis **B**. The ventral drilled hole **C** is provided for the grub screw **D** whose tip fits into the recess **E** on the axis and locks the latter once the upper and lower components have been joined.

From inside the intracondylar box of the femoral component, polyethylene bearings **F** for the prosthesis axis are pushed into medial and lateral boreholes. The upper and lower prosthesis components are joined by introducing the tibial connecting piece into the intracondylar box of the femoral component, such that the prosthesis axis can be inserted (always from the medial) using the threaded rod. Articulation takes place between the prosthesis axis and the two bearings.

The **Endo-Model Non-Rotating Hinge Knee Prosthesis** is delivered ready assembled in a sterile condition without centering stars. To disassemble, the grub screw **D** is turned counterclockwise. The threaded rod is screwed onto the prosthesis axis **B** which is then pulled out. The bearings **F** of the upper prosthesis component are pushed inward and removed (when the bearings are subsequently refitted, it must be ensured that the open bearing is positioned medially!).

The package contains two sterile trial bearings (not autoclavable). These are inserted into the upper prosthesis component during surgery; after the trial run, they are exchanged for the definitive bearings. These too can be exchanged if necessary in a second intervention.



Specified Indications and Contraindications for Endo-Model Rotational and Hinged Knee Prostheses	Product	Rotational version	Hinged version	Implant components with TiNbN surface modification
<b>General Indications</b>				
<ul style="list-style-type: none"> <li>Severe joint diseases with limitation of mobility due to degenerative, rheumatoid or post-traumatic arthrosis or arthritis. Joint fractures which disallow an osteosynthetic reconstruction.</li> </ul>		X	X	X
<b>Indications</b>				
<ul style="list-style-type: none"> <li>Bone necroses</li> </ul>		X	X	X
<ul style="list-style-type: none"> <li>Bicondylar arthrosis by partly damaged collateral ligaments</li> </ul>		X	—	X*
<ul style="list-style-type: none"> <li>Bicondylar arthrosis by completely damaged ligaments and muscular instability</li> </ul>		—	X	X*
<ul style="list-style-type: none"> <li>Revision after primary total knee replacement</li> </ul>		X	X	X
<ul style="list-style-type: none"> <li>Revision surgery after hinge knee or rotational knee joint</li> </ul>		X	X	X
<ul style="list-style-type: none"> <li>Revision surgery by insufficient / inadequate bone mass</li> </ul>		X	X	X
<b>Differential Indications</b>				
<ul style="list-style-type: none"> <li>Arthrosis of patella flange</li> </ul>		X	X	X
<ul style="list-style-type: none"> <li>Valgus/Varus deformities &lt;10°</li> </ul>		X	X	X
<ul style="list-style-type: none"> <li>Valgus/Varus deformities 10 – 15°</li> </ul>		X	X	X
<ul style="list-style-type: none"> <li>Valgus/Varus deformities 15 – 20°</li> </ul>		X	X	X
<ul style="list-style-type: none"> <li>Valgus/Varus deformities 20 – 30°</li> </ul>		—	X	X*
<b>Contraindications</b>				
<ul style="list-style-type: none"> <li>Acute or chronic infections, local and systemic</li> </ul>		X	X	X
<ul style="list-style-type: none"> <li>Allergies to (implant) materials</li> </ul>		X	X	X
<ul style="list-style-type: none"> <li>Distinctive muscular, nerve, vascular or other diseases which put the affected limb at risk</li> </ul>		X	X	X
<ul style="list-style-type: none"> <li>Insufficient/inadequate bone mass or -quality which prevents a stable anchoring of the prosthesis.</li> </ul>		X	X	X
<b>Relative Contraindications</b>				
<ul style="list-style-type: none"> <li>Adiposity</li> </ul>		X	X	X
<ul style="list-style-type: none"> <li>Insufficient musculature</li> </ul>		X	—	X*
<ul style="list-style-type: none"> <li>Lacking or foreseeable not assured compliance</li> </ul>		X	X	X
<ul style="list-style-type: none"> <li>Foreseeable overload of joint prosthesis</li> </ul>		X	X	X

\* dependent on the implant variant

This device is intended for cemented use only unless a cementless modular stem is indicated for use.

These indications/contraindications refer to standard cases. The ultimate decision on whether or not an implant is suitable for a patient must be made by the surgeon based on his/her individual analysis and his/her experience.

## MIRETO Instrument-Set

The new **MIRETO Instrument Set** allows users to perform implantation of the Endo-Model knee prosthesis system in a safe, bone-conserving, reproducible and precise manner.

### Advantages:

All intracondylar Endo-Model standard and modular implants for primary and revision indications can be implanted using the **MIRETO Instrument Set**.

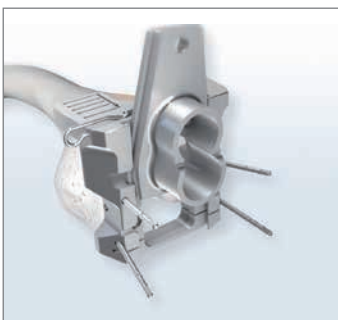
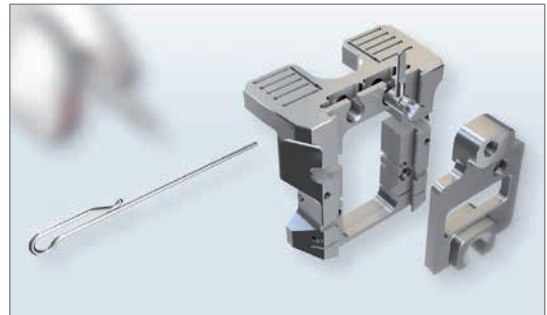
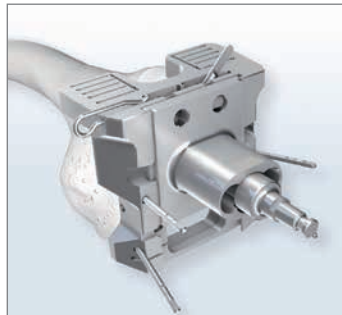
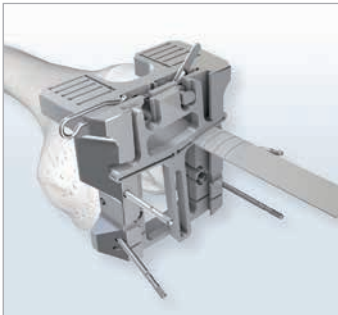
- Minimal number of instrument trays combined with enhanced application modularity.
- Low investment and preparation costs.

**MIRETO Instruments** were developed with a firm focus on ensuring optimal handling: from storage configuration through to hygienic preparation.

- Accelerated surgical sequence.
- Shorter learning curve.
- Simple hygienic preparation.

The **MIRETO Instrument Set** is characterized by its simple handling, quick and easy assembly/disassembly as well as completely guided instrumentation.

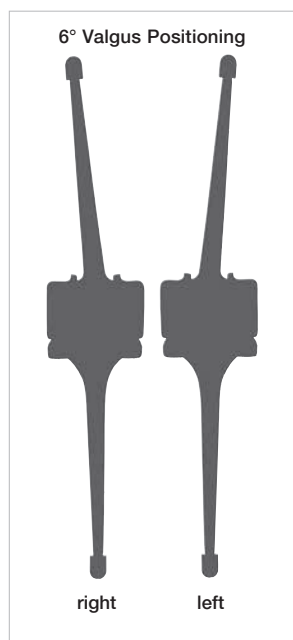
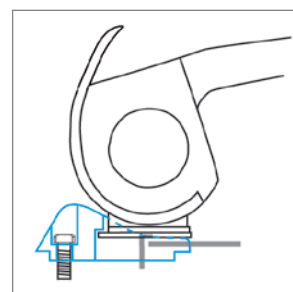
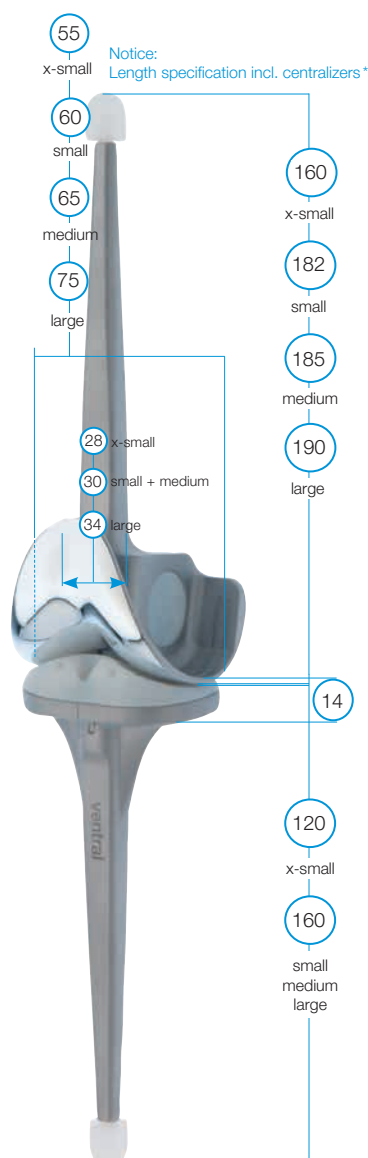
- Reproducible, reliable and precise bone resection by the user.



## Rotating Hinge Knee Prosthesis Endo-Model, with anti-luxation device

REF	with patella flange MAT EndoDur (CoCrMo)	(R) Radius*
15-8020/11	x-small/right	17 mm
15-8020/12	x-small/left	17 mm
15-8022/11	small/right	20 mm
15-8022/12	small/left	20 mm
15-8024/11	medium/right	23 mm
15-8024/12	medium/left	23 mm
15-8030/11	large/right	25 mm
15-8030/12	large/left	25 mm

\* (R) Radius in the sagittal plane: Measured from the center of axis.



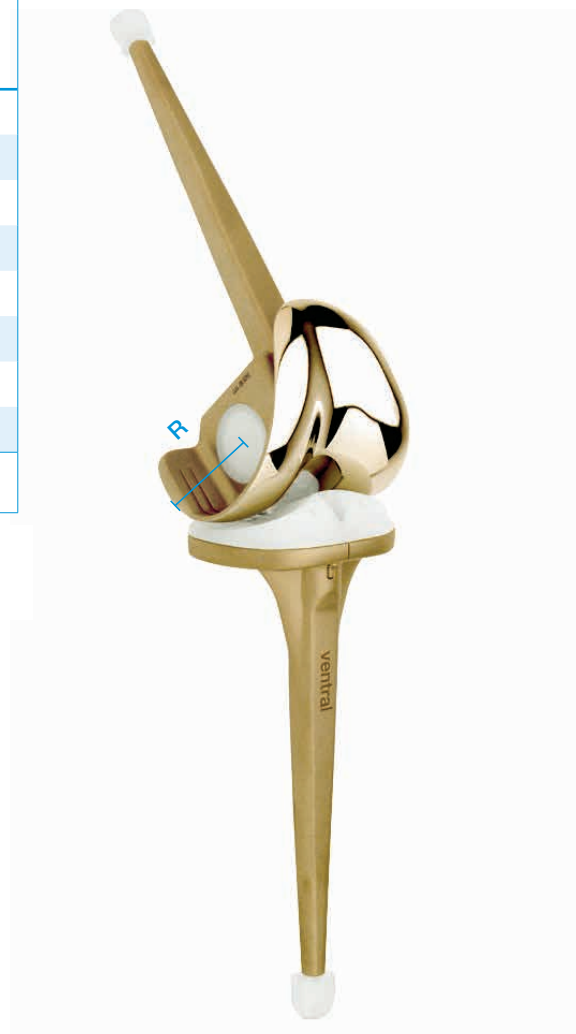
\* Centralizers are not included in prosthesis packing

## Rotating Hinge Knee Prosthesis Endo-Model, with anti-luxation device and LINK PorEx\* surface modification

REF	with patella flange MAT EndoDur (CoCrMo)/LINK PorEx*	(R) Radius**
15-9020/11	x-small/right	17 mm
15-9020/12	x-small/left	17 mm
15-9022/11	small/right	20 mm
15-9022/12	small/left	20 mm
15-9024/11	medium/right	23 mm
15-9024/12	medium/left	23 mm
15-9030/11	large/right	25 mm
15-9030/12	large/left	25 mm

\*\* (R) Radius in the sagittal plane: Measured from the center of axis.

Same dimensions as models with anti-luxation device, see pages 10 and 11.



## Replacement Set, with anti-luxation device

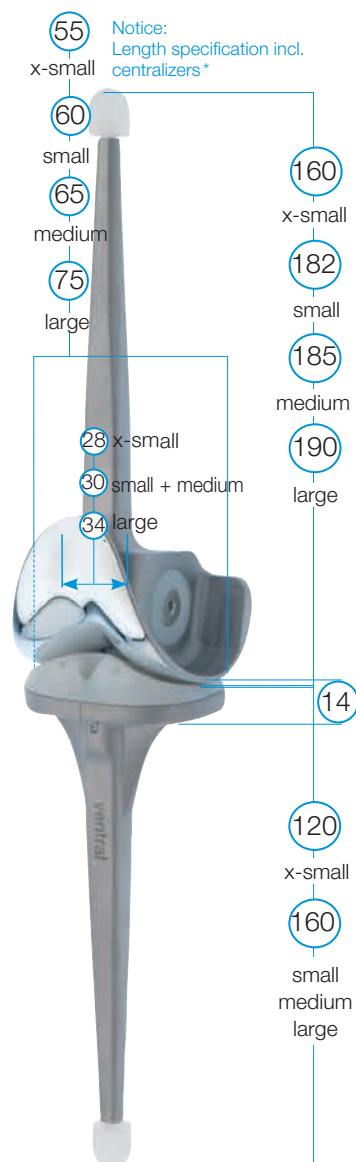
REF	MAT EndoDur –S (CoCrMo)/ LINK PorEx*, UHMWPE
15-3027/10	x-small
15-3027/11	small
15-3027/12	medium
15-3027/13	large

\* LINK PorEx: TiNbN = Titanium Niobium Nitride; surface modification (gold color).

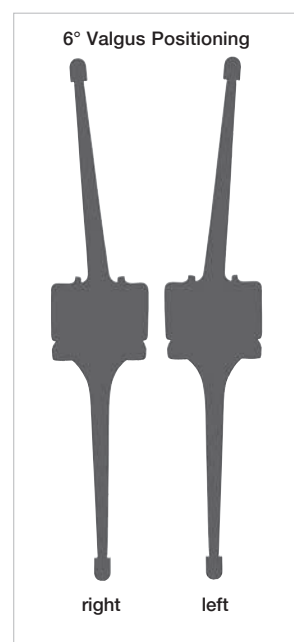
## Non-Rotating Hinge Knee Prosthesis Endo-Model, with hinge axis

REF	with patella flange MAT EndoDur (CoCrMo)	(R) Radius*
15-2459/11	x-small/right	17 mm
15-2459/12	x-small/left	17 mm
15-2460/11	small/right	20 mm
15-2460/12	small/left	20 mm
15-2461/11	medium/right	23 mm
15-2461/12	medium/left	23 mm
15-2462/11	large/right	25 mm
15-2462/12	large/left	25 mm

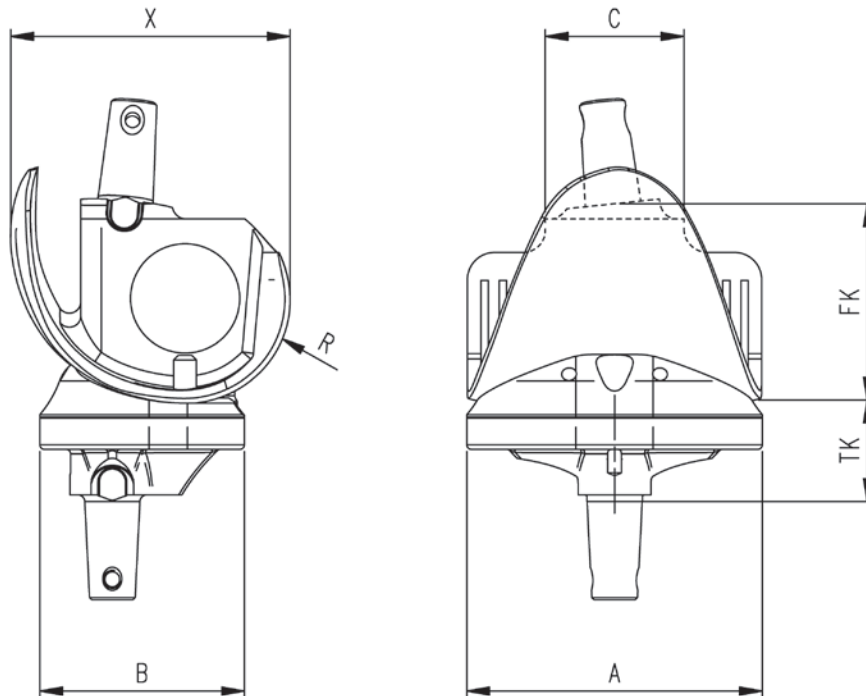
\* (R) Radius in the sagittal plane: Measured from the center of axis.



\* Centralizers are not included in prosthesis packing



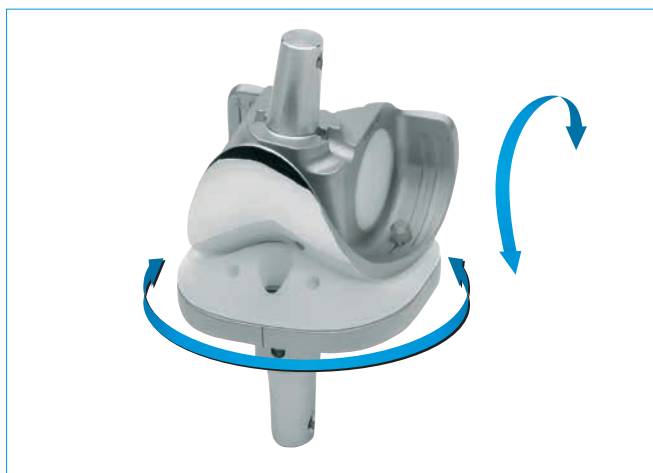
## Endo-Model Modular Knee Prosthesis System, Measurements: Joint Components



Size Version	A mm	B mm	C mm	FK mm	X mm	TK mm	R mm
x-small/right	55	42	28	39	50	22	17
x-small/left	55	42	28	39	50	22	17
small/right	60	45	30	42	57	22	20
small/left	60	45	30	42	57	22	20
medium/right	65	45	30	46	62	22	23
medium/left	65	45	30	46	62	22	23
large/right	75	48	35	50	65	22	25
large/left	75	48	35	50	65	22	25

## Endo-Model Modular Knee Prosthesis System, Joint Components Rotating Hinge Version – with anti-luxation device

### Joint Components – CoCrMo



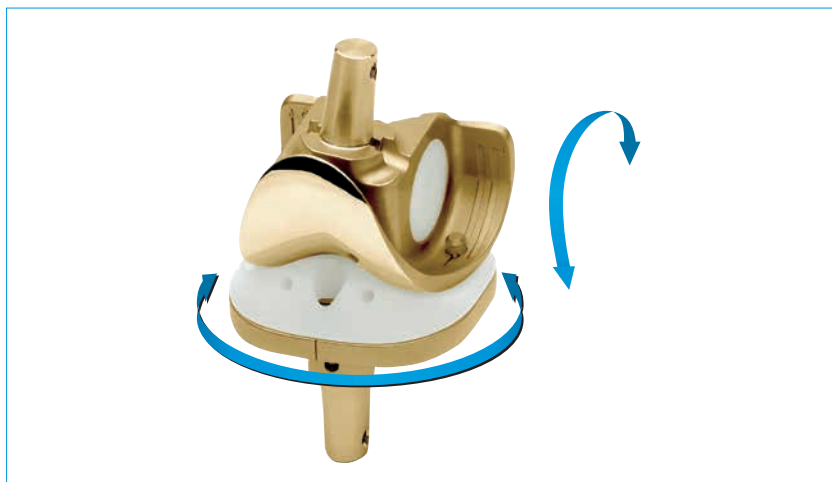
<div> <div>MAT</div> <div>EndoDur (CoCrMo), UHMWPE</div> </div>				<div> <div>MAT</div> <div>EndoDur (CoCrMo), UHMWPE</div> </div>			
<div> <div>Modular Joint Component Units</div> <div>consisting of:</div> <div>→</div> </div>				Femoral Components:		Tibial Components:	
REF	Size	Version	Width mm	REF	Version	REF	Version
15-2815/11	x-small	right	55	15-2810/11	right	15-2814/01	neutral
15-2815/12	x-small	left	55	15-2810/12	left		
15-2816/11	small	right	60	15-2811/11	right	15-2814/02	neutral
15-2816/12	small	left	60	15-2811/12	left		
15-2817/11	medium	right	65	15-2812/11	right	15-2814/03	neutral
15-2817/12	medium	left	65	15-2812/12	left		
15-2818/11	large	right	75	15-2813/11	right	15-2814/04	neutral
15-2818/12	large	left	75	15-2813/12	left		

#### Screws to secure the taper assembly between joint component and stem:

A pointed stem locking screw is already located inside the taper of each joint component. The inside packing unit of each joint component includes a counter screw (+ replacement screw) to secure the stem locking screw.

## Endo-Model – M Modular Knee Prosthesis System, Joint Components Rotational Version – with anti-luxation device

### Joint Components – CoCrMo/LINK PorEx\*



**MAT** EndoDur (CoCrMo)/LINK PorEx\*, UHMWPE

#### Modular Joint Component Units

<b>REF</b>	Size	Version	Width mm
<a href="#">15-3815/11</a>	x-small	right	55
<a href="#">15-3815/12</a>	x-small	left	55
<a href="#">15-3816/11</a>	small	right	60
<a href="#">15-3816/12</a>	small	left	60
<a href="#">15-3817/11</a>	medium	right	65
<a href="#">15-3817/12</a>	medium	left	65
<a href="#">15-3818/11</a>	large	right	75
<a href="#">15-3818/12</a>	large	left	75

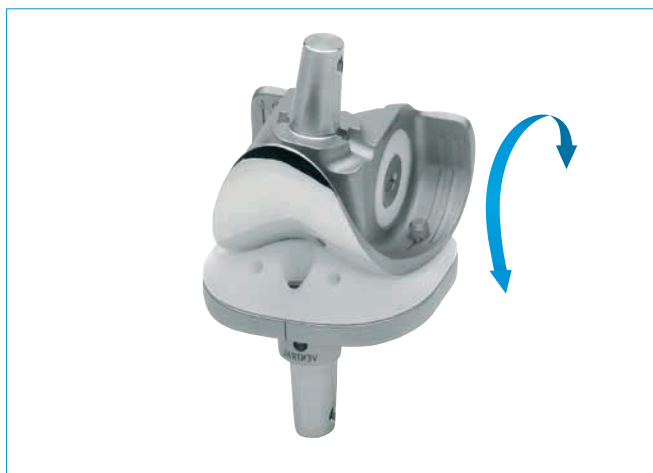
\* LINK PorEx: TiNbN = Titanium Niobium Nitride

#### Screws to secure the taper assembly between joint component and stem:

A pointed stem locking screw is already located inside the taper of each joint component. The inside packing unit of each joint component includes a counter screw (+ replacement screw) to secure the stem locking screw.

## Endo-Model Modular Knee Prosthesis System, Joint Components Non-Rotating Hinge Version

### Joint Components – CoCrMo



[MAT] EndoDur (CoCrMo), UHMWPE				[MAT] EndoDur (CoCrMo), UHMWPE			
Modular Joint Component Units consisting of:							
[REF]	Size	Version	Width mm	Femoral Components:		Tibial Components:	
				[REF]	Version	[REF]	Version
15-2835/11	x-small	right	55	15-2830/11	right	15-2834/01	neutral
15-2835/12	x-small	left	55	15-2830/12	left		
15-2836/11	small	right	60	15-2831/11	right	15-2834/02	neutral
15-2836/12	small	left	60	15-2831/12	left		
15-2837/11	medium	right	65	15-2832/11	right	15-2834/03	neutral
15-2837/12	medium	left	65	15-2832/12	left		
15-2838/11	large	right	75	15-2833/11	right	15-2834/04	neutral
15-2838/12	large	left	75	15-2833/12	left		

#### Screws to secure the taper assembly between Joint Component and Stem:

A pointed stem locking screw is already located inside the taper of each joint component.

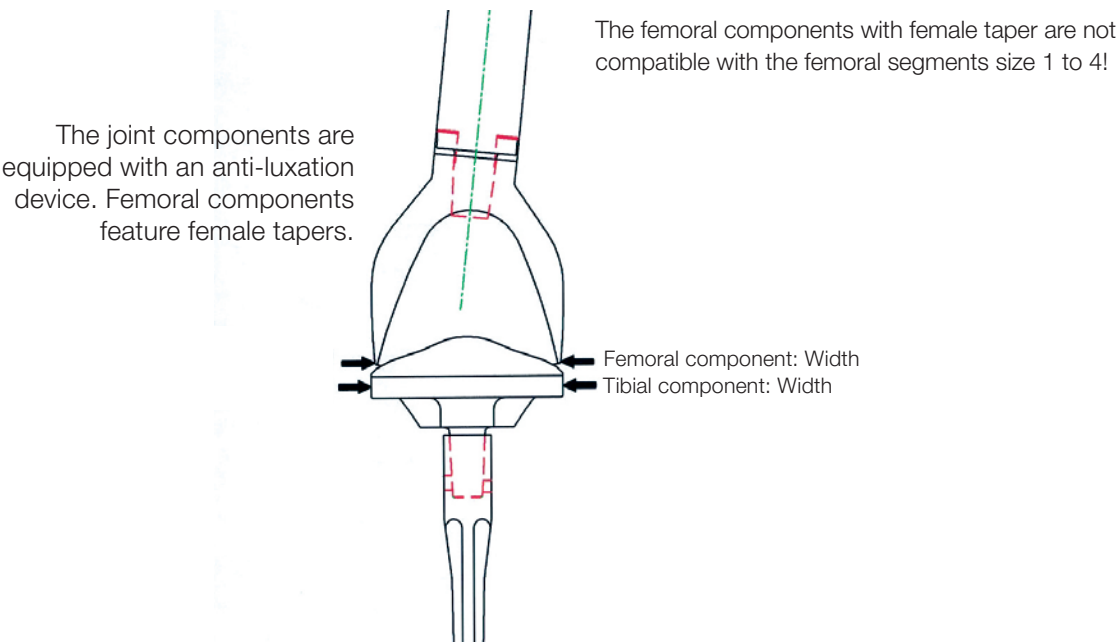
The inside packing unit of each joint component includes a counter screw (+ replacement screw) to secure the stem locking screw.

Endo-Model Modular Joint Components

Condylar Replacement



[MAT] EndoDur (CoCrMo), UHMWPE						
Modular Joint Component Units consisting of:			Femoral Components, condylar replacement:		Tibial Components:	
[REF]	Size	Sid	[REF]	Width	[REF]	Width
15-8521/05	small	right	15-8521/06	60 mm	15-2814/02	60 mm
15-8521/07	small	left	15-8521/08	60 mm		
15-8521/09	medium	right	15-8521/10	65 mm	15-2814/03	65 mm
15-8521/11	medium	left	15-8521/12	65 mm		
15-8521/13	large	right	15-8521/14	75 mm	15-2814/04	75 mm
15-8521/15	large	left	15-8521/16	75 mm		



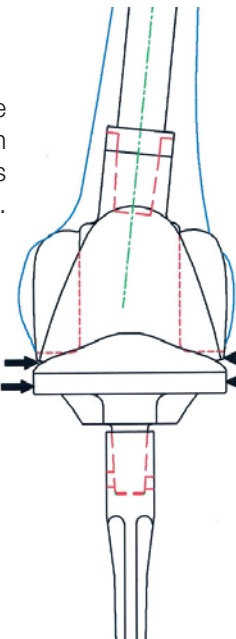
Endo-Model Modular Joint Components

Intracondylar Version



MAT EndoDur (CoCrMo), UHMWPE						
Modular Joint Component Units consisting of:			Femoral Components, intracondylar:		Tibial Components:	
REF	Size	Side	REF	Width	REF	Width
15-8521/25	small	right	15-8521/26	60 mm	15-2814/02	60 mm
15-8521/27	small	left	15-8521/28	60 mm		
15-8521/29	medium	right	15-8521/30	65 mm	15-2814/03	65 mm
15-8521/31	medium	left	15-8521/32	65 mm		
15-8521/33	large	right	15-8521/34	75 mm	15-2814/04	75 mm
15-8521/35	large	left	15-8521/36	75 mm		

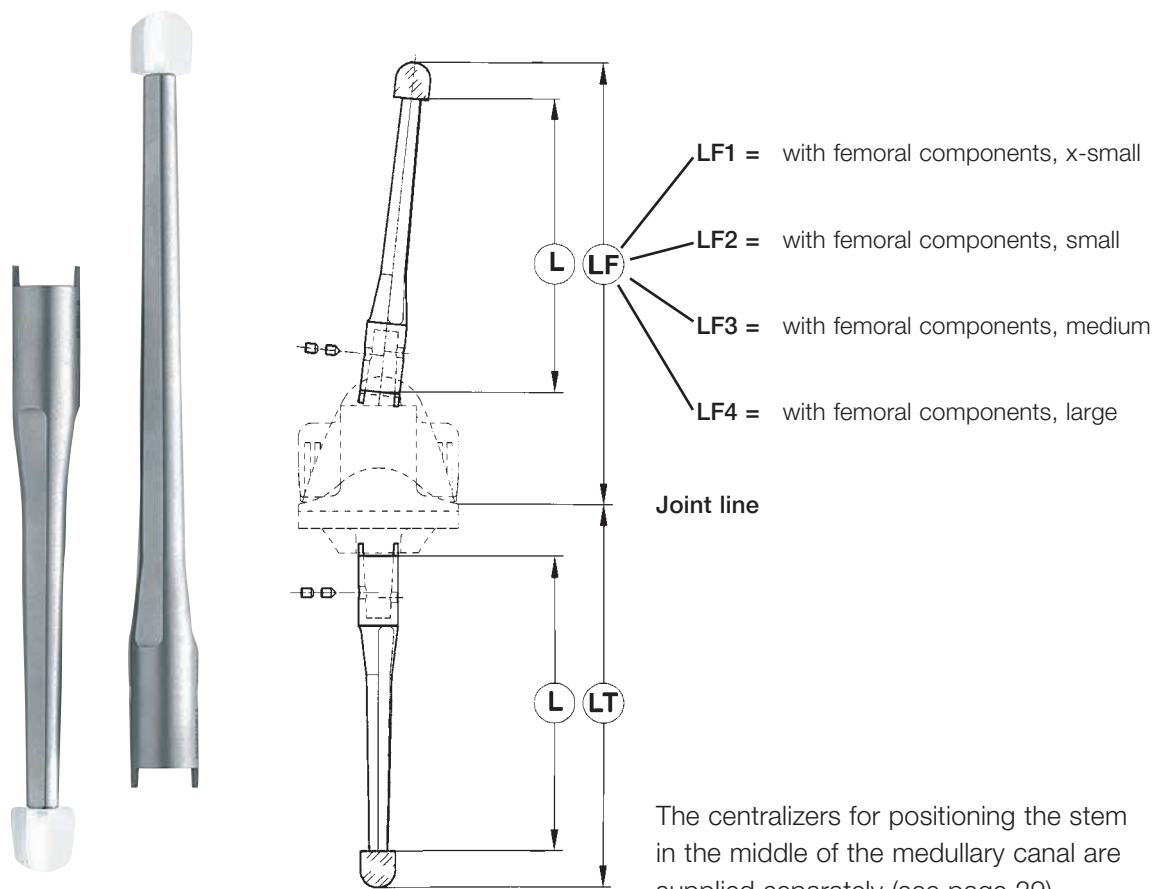
The joint components are equipped with an anti-luxation device. Femoral components feature female tapers.



The femoral components with female taper are not compatible with the femoral segments size 1 to 4!

Femoral component: Width  
Tibial component: Width

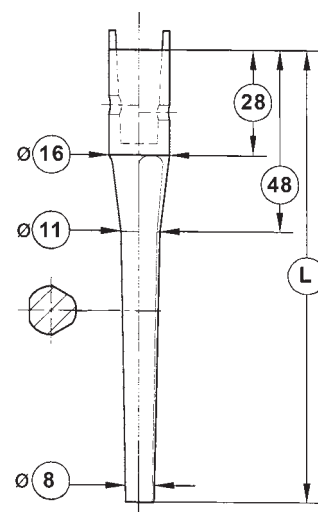
## Endo-Model Modular Stems, cemented



## Modular Stems, cemented

**MAT** EndoDur – S (CoCrMo), EndoDur – S (CoCrMo)/LINK PorEx\*

REF	REF	L mm	Tibia LT mm	Assembly length**			
				Femur			
EndoDur – S (CoCrMo)	EndoDur – S (CoCrMo)/ LINK PorEx*			LF1 mm	LF2 mm	LF3 mm	LF4 mm
15-2950/01	15-3950/01	50	87	104	107	111	114
15-2950/02	15-3950/02	80	117	134	137	141	144
15-2950/03	15-3950/03	95	132	149	152	156	159
15-2950/04	15-3950/04	120	157	174	177	181	184
15-2950/05	15-3950/05	135	172	189	192	196	199
15-2950/06	15-3950/06	160	197	214	217	221	224
15-2950/07	15-3950/07	200	237	254	257	261	264
15-2950/08	15-3950/08	240	277	294	297	301	304
15-2950/09	15-3950/09	280	317	334	337	341	344



\* LINK PorEx: TiNbN = Titanium Niobium Nitride; surface modification (gold color).  
 Available on request.

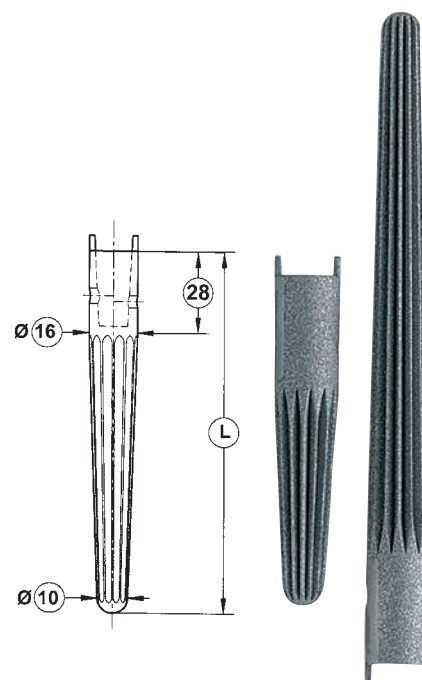
\*\* Assembly length incl. centering star unit joint line

## Endo-Model Modular Stems, cementless

### Modular Stems, cementless, conical

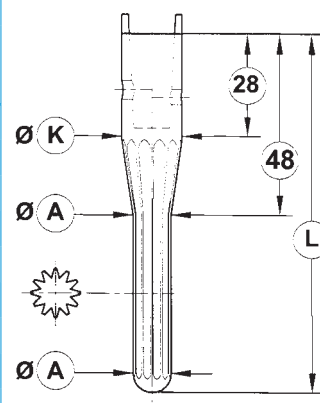
**MAT** Tilastan – S

REF	L mm	Tibia LT mm	Assembly length**			
			Femur LF1 mm	LF2 mm	LF3 mm	LF4 mm
15-2952/01	50	72	89	92	96	99
15-2952/02	80	102	119	122	126	129
15-2952/03	95	117	134	137	141	144
15-2952/04	120	142	159	162	166	169
15-2952/05	135	157	174	177	181	184
15-2952/06	160	182	199	202	206	209
15-2952/07	200	222	239	242	246	249
15-2952/08	240	262	279	282	286	289
15-2952/09	280	302	319	322	326	329



**Modular Stems, cementless, cylindrical**
**MAT** Tilastan – S

REF	L mm	Ø A mm	Ø K mm	Assembly length**				
				Tibia LT mm	Femur			
					LF1 mm	LF2 mm	LF3 mm	LF4 mm
15-2951/01	60	10	16	82	99	102	102	109
15-2951/02	60	12	16	82	99	102	102	109
15-2951/03	60	14	16	82	99	102	102	109
15-2951/04	60	16	16	82	99	102	102	109
15-2951/05	60	18	18	82	99	102	102	109
15-2951/06	120	12	16	142	159	162	162	169
15-2951/07	120	14	16	142	159	162	162	169
15-2951/08	120	16	16	142	159	162	162	169
15-2951/09	120	18	18	142	159	162	162	169
15-2951/10	160	12	16	182	199	202	202	209
15-2951/11	160	14	16	182	199	202	202	209
15-2951/12	160	16	16	182	199	202	202	209
15-2951/13	160	18	18	182	199	202	202	209
15-2951/14	200	12	16	222	239	242	242	249
15-2951/15	200	14	16	222	239	242	242	249
15-2951/16	200	16	16	222	239	242	242	249
15-2951/17	200	18	18	222	239	242	242	249
15-2951/18	240	12	16	262	279	282	282	289
15-2951/19	240	14	16	262	279	282	282	289
15-2951/20	240	16	16	262	279	282	282	289
15-2951/21	240	18	18	262	279	282	282	289
15-2951/22	280	12	16	302	319	322	322	329
15-2951/23	280	14	16	302	319	322	322	329
15-2951/24	280	16	16	302	319	322	322	329
15-2951/25	280	18	16	302	319	322	322	329




## Endo-Model Femoral Segments Tilastan, for Modular Rotating and Non-Rotating Hinge Version Endo-Model




**Femoral Segments**, for femoral components: Size 1 and 2

**MAT** Tilastan – S

REF	For Femoral Components:		
	Size	Version	Width mm
<b>Set: Size 1</b> (Height 20 mm) 			
15-2971/00	x-small	right	55
15-2971/01	small	right	60
15-2971/02	medium	right	65
15-2971/03	large	right	75
15-2971/95	x-small	left	55
15-2971/10	small	left	60
15-2971/11	medium	left	65
15-2971/12	large	left	75

REF	Side
consisting of:	
15-2971/98	medial
15-2971/99	lateral
15-2971/04	medial
15-2971/05	lateral
15-2971/06	medial
15-2971/07	lateral
15-2971/08	medial
15-2971/09	lateral
15-2971/96	medial
15-2971/97	lateral
15-2971/14	medial
15-2971/15	lateral
15-2971/16	medial
15-2971/17	lateral
15-2971/18	medial
15-2971/19	lateral

REF	For Femoral Components:		
	Size	Version	Width mm
<b>Set: Size 2</b> (Height 25 mm) 			
15-2972/00	x-small	right	55
15-2972/01	small	right	60
15-2972/02	medium	right	65
15-2972/03	large	right	75
15-2972/95	x-small	left	55
15-2972/10	small	left	60
15-2972/11	medium	left	65
15-2972/12	large	left	75


REF	Side
consisting of:	
15-2972/98	medial
15-2972/99	lateral
15-2972/04	medial
15-2972/05	lateral
15-2972/06	medial
15-2972/07	lateral
15-2972/08	medial
15-2972/09	lateral
15-2972/96	medial
15-2972/97	lateral
15-2972/14	medial
15-2972/15	lateral
15-2972/16	medial
15-2972/17	lateral
15-2972/18	medial
15-2972/19	lateral

## Endo-Model – M Femoral Segments UHMWPE, for Rotational and Hinged Version Endo-Model




**Femoral Segments**, for femoral components: Size 1 and 2

**MAT** UHMWPE

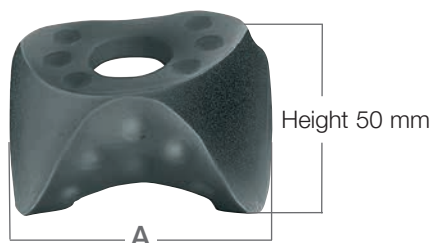
REF	For Femoral Components:		
	Size	Version	Width mm
<b>Set: Size 1</b> (Height 20 mm) 			
15-2965/01	x-small	right	55
15-2961/01	small	right	60
15-2961/02	medium	right	65
15-2961/03	large	right	75
15-2965/10	x-small	left	55
15-2961/10	small	left	60
15-2961/11	medium	left	65
15-2961/12	large	left	75

REF	Side
consisting of:	
15-2965/02	medial
15-2965/03	lateral
15-2961/04	medial
15-2961/05	lateral
15-2961/06	medial
15-2961/07	lateral
15-2961/08	medial
15-2961/09	lateral
15-2965/12	medial
15-2965/13	lateral
15-2961/14	medial
15-2961/15	lateral
15-2961/16	medial
15-2961/17	lateral
15-2961/18	medial
15-2961/19	lateral

REF	For Femoral Components:		
	Size	Version	Width mm
<b>Set: Size 2</b> (Height 25 mm) 			
15-2966/01	x-small	right	55
15-2962/01	small	right	60
15-2962/02	medium	right	65
15-2962/03	large	right	75
15-2966/10	x-small	left	55
15-2962/10	small	left	60
15-2962/11	medium	left	65
15-2962/12	large	left	75

REF	Side
consisting of:	
15-2966/02	medial
15-2966/03	lateral
15-2962/04	medial
15-2962/05	lateral
15-2962/06	medial
15-2962/07	lateral
15-2962/08	medial
15-2962/09	lateral
15-2966/12	medial
15-2966/13	lateral
15-2962/14	medial
15-2962/15	lateral
15-2962/16	medial
15-2962/17	lateral
15-2962/18	medial
15-2962/19	lateral

## Endo-Model Femoral Segments Tilastan, for Modular Rotating and Non-Rotating Hinge Version Endo-Model

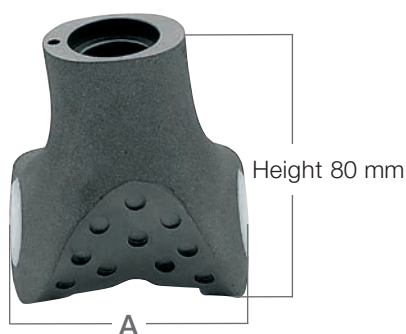


### Femoral Segments, Size 3\*

**MAT** Tilastan

REF	Version	A mm	For Femoral Components:		A mm	Version	REF
			Size	Width mm			
Size 3* (Height 50 mm)							
15-2973/01	right	60	small	60	60	left	15-2973/02
15-2973/03	right	65	medium	65	65	left	15-2973/04
15-2973/05	right	75	large	75	75	left	15-2973/06

\* Only to be used in combination with longer stems (stem length above segments at least 180 mm).



### Femoral Segments, Size 4\*

**MAT** Tilastan

REF	Version	A mm	For Femoral Components:		A mm	Version	REF
			Size	Width mm			
Size 4* (Height 80 mm)							
15-2977/01	right	60	small	60	60	left	15-2977/02
15-2978/01	right	65	medium	65	65	left	15-2978/02
15-2979/01	right	75	large	75	75	left	15-2979/02

\* Only to be used in combination with longer stems (stem length above segments at least 180 mm).

## Endo-Model Femoral Segments Tilastan, for Modular Rotating and Non-Rotating Hinge Version Endo-Model



### Distal Femoral Segments

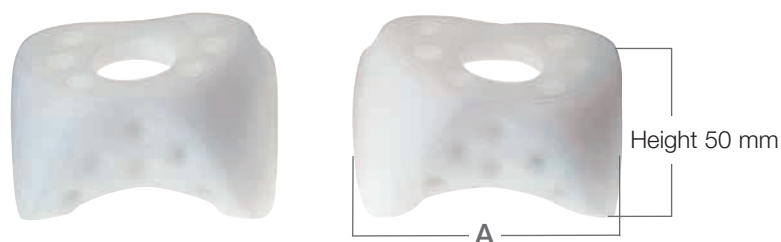
(only to be used in combination with size 4)

**MAT** Tilastan – S

<b>REF</b>	Height mm	for size
<a href="#">15-2977/10</a>	10	small
<a href="#">15-2977/20</a>	20	small
<a href="#">15-2977/40</a>	40	small
<a href="#">15-2977/60</a>	60	small
<a href="#">15-2977/80</a>	80	small
<a href="#">15-2978/10</a>	10	medium
<a href="#">15-2978/20</a>	20	medium
<a href="#">15-2978/40</a>	40	medium
<a href="#">15-2978/60</a>	60	medium
<a href="#">15-2978/80</a>	80	medium
<a href="#">15-2979/10</a>	10	large
<a href="#">15-2979/20</a>	20	large
<a href="#">15-2979/40</a>	40	large
<a href="#">15-2979/60</a>	60	large
<a href="#">15-2979/80</a>	80	large



## Endo-Model – M Femoral Segments UHMWPE, for Rotational and Hinged Version Endo-Model

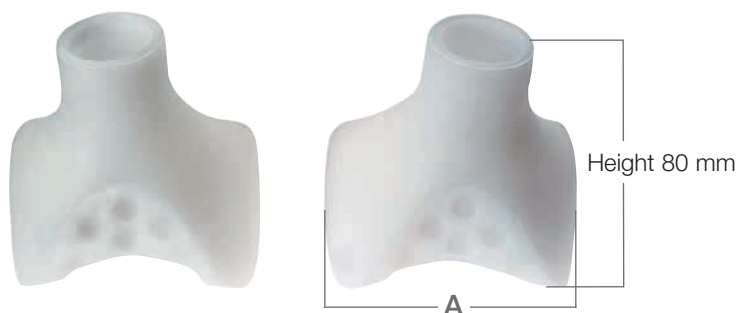


### Femoral Segments, size 3\*

**MAT** UHMWPE

REF	Version	A mm	For Femoral Components:		A mm	Version	REF
			Size	Width mm			
Size 3* (Height 50 mm)							
15-2967/01	right	55	x-small	55	55	left	15-2967/10
15-2963/01	right	60	small	60	60	left	15-2963/02
15-2963/03	right	65	medium	65	65	left	15-2963/04
15-2963/05	right	75	large	75	75	left	15-2963/06

\* Only to be used in combination with longer stems (stem length above segments at least 180 mm).  
Not compatible with LINK MEGASYSTEM-C – Modular Joint Components Endo-Model with female taper.



### Femoral Segments, size 4\*

**MAT** UHMWPE

REF	Version	A mm	For Femoral Components:		A mm	Version	REF
			Size	Width mm			
Size 4* (Height 80 mm)							
15-2964/99	right	55	x-small	55	55	left	15-2964/00
15-2964/01	right	60	small	60	60	left	15-2964/02
15-2964/03	right	65	medium	65	65	left	15-2964/04
15-2964/05	right	75	large	75	75	left	15-2964/06

\* Only to be used in combination with longer stems (stem length above segments at least 180 mm).  
Not compatible with LINK MEGASYSTEM-C – Modular Joint Components Endo-Model with female taper.

## Endo-Model – M Femoral Segments UHMWPE, for Rotational and Hinged Version Endo-Model



### Femoral Segments

(only to be used in combination with size 4)

**MAT** UHMWPE

<b>REF</b>	Height mm	Size
15-2970/10	10	1
15-2970/20	20	2

## Endo-Model Proximal Tibial Spacers UHMWPE, for Modular Rotating and Non-Rotating Hinge Version Endo-Model



### Proximal Tibial Spacers - straight -

**MAT** UHMWPE

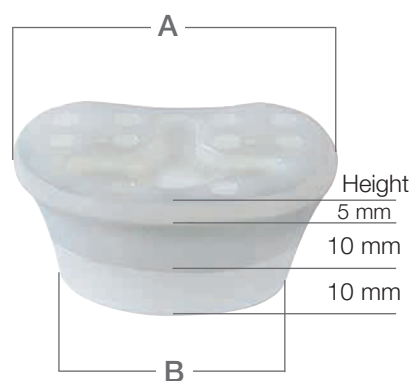
REF	Size	REF	Size	Height mm
<b>Set:</b>		consisting of:		
15-2516/70	x-small	15-2516/55	x-small	5
		15-2516/60	x-small	10
		15-2516/65	x-small	15
15-2516/29	small	15-2516/05	small	5
		15-2516/10	small	10
		15-2516/15	small	15
15-2517/29	medium	15-2517/05	medium	5
		15-2517/10	medium	10
		15-2517/15	medium	15
15-2519/29	large	15-2519/05	large	5
		15-2519/10	large	10
		15-2519/15	large	15

**\* Important Information:**  
Proximal tibial spacers  
– straight – must not be  
combined with each other!

### Proximal Tibial Spacers - anatomical -

**MAT** UHMWPE

REF	Size	A Width mm	B Width mm
15-2516/24	x-small	55	40
15-2516/25	small	60	40
15-2517/26	medium	65	45
15-2519/27	large	75	55



## Endo-Model Proximal Tibial Spacers Tilastan, for Modular Rotating and Non-Rotating Hinge Version Endo-Model

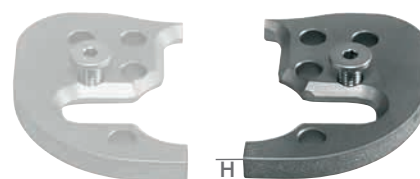


### Proximal Tibial Spacers, full

right and left, incl. 2 hexagon socket countersunks with flat head screw 2.5 mm, for lateral and medial application,

**MAT** Tilastan – S

<b>REF</b>	Size	<b>H</b> Height mm
15-2615/05	x-small	5
15-2615/10	x-small	10
15-2615/15	x-small	15
15-2616/05	small	5
15-2616/10	small	10
15-2616/15	small	15
15-2617/05	medium	5
15-2617/10	medium	10
15-2617/15	medium	15
15-2618/05	large	5
15-2618/10	large	10
15-2618/15	large	15



### Proximal Tibial Spacers, half

incl. hexagon socket countersunks with flat head screw 2.5 mm, for lateral and medial application,

**MAT** Tilastan – S

<b>REF</b>	Size	<b>H</b> Height mm
15-2990/11	x-small	5
15-2990/12	x-small	10
15-2990/13	x-small	15
15-2990/01	small	5
15-2990/04	small	10
15-2990/07	small	15
15-2990/02	medium	5
15-2990/05	medium	10
15-2990/08	medium	15
15-2990/03	large	5
15-2990/06	large	10
15-2990/09	large	15

### Important Information:

Proximal tibial spacers of Tilastan must not be combined with each other!

## Endo-Model Proximal Tibial Spacers Tilastan, for Modular Rotating and Non-Rotating Hinge Version Endo-Model

### Proximal Tibial Segments - anatomical -

**MAT** Tilastan – S

<b>REF</b>	Size	<b>B</b> Width mm	<b>H</b> Height mm
15-2981/01	x-small	55	50
15-2982/01	small	60	50
15-2983/01	medium	65	50
15-2984/01	large	75	50



### Proximal Tibial Spacers

**MAT** Tilastan – S

<b>REF</b>	<b>L</b> Length mm	for Size
15-2981/10	10	x-small
15-2981/20	20	x-small
15-2981/40	40	x-small
15-2981/60	60	x-small
15-2982/10	10	small
15-2982/20	20	small
15-2982/40	40	small
15-2982/60	60	small
15-2983/10	10	medium
15-2983/20	20	medium
15-2983/40	40	medium
15-2983/60	60	medium
15-2984/10	10	large
15-2984/20	20	large
15-2984/40	40	large
15-2984/60	60	large



Centralizers,  
Patellar Components

Centralizers

**MAT** UHMWPE

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



Ø 12 mm



Ø 14 mm

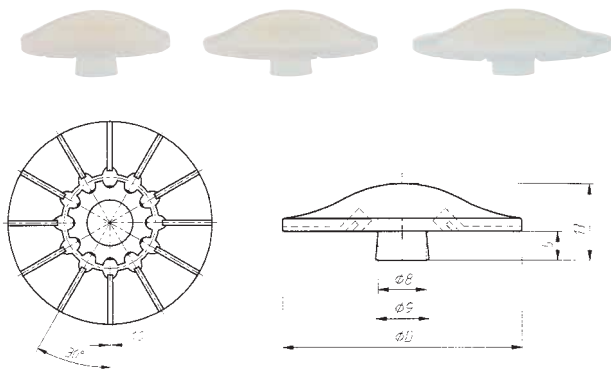


Ø 16 mm

Patellar Components  
central, circular

**MAT** UHMWPE

REF	Size	Ø mm
15-2521/30	small	30
15-2521/35	medium	35
15-2521/40	large	40



## Replacement Sets for Rotating Hinge and Non-Rotating Hinge Version Endo-Model

### Replacement Sets for Rotating Hinge Knee Prostheses, with anti-luxation device

**MAT** CoCrMo

<b>REF</b>	Side	Size
15-0027/10	right/left	x-small
15-0027/11	right/left	small
15-0027/12	right/left	medium
15-0027/13	right/left	large

Each package contains:

- complete coupling mechanism,
- bearing boxes,
- PE plateau and PE plateau anchoring screw.

Required: Additional Instrument Set see page 37.

### Replacement Sets for Rotating Hinge Tibial Plateaus, with security screw

**MAT** UHMWPE/CoCrMo/LINK PorEx\*

UHMWPE/ CoCrMo <b>REF</b>	UHMWPE/ LINK PorEx* <b>REF</b>	Size
15-0027/17	15-0037/17	x-small
15-0027/14	15-0037/14	small
15-0027/15	15-0037/15	medium
15-0027/16	15-0037/14	large

\* LINK PorEx: TiNbN = Titanium Niobium Nitride; surface modification (gold color). Available on request

Each package contains:

PE plateau and PE plateau anchoring screw.

### Replacement Sets for Non-Rotating Hinge Knee Prostheses, with security screw

**MAT** UHMWPE/CoCrMo

<b>REF</b>	Side	Size
15-0027/20	right	x-small
15-0027/21	right	small
15-0027/22	right	medium
15-0027/23	right	large
15-0027/30	left	x-small
15-0027/31	left	small
15-0027/32	left	medium
15-0027/33	left	large

Each package contains:

PE plateau and PE plateau anchoring screw.

### Replacement Set for Endo-Model Rotational Bushing

**MAT** UHMWPE/CoCrMo

<b>REF</b>	Side	Size
15-1027/10	right/left	x-small
15-1027/11	right/left	small
15-1027/12	right/left	medium
15-1027/13	right/left	large

Each package contains:

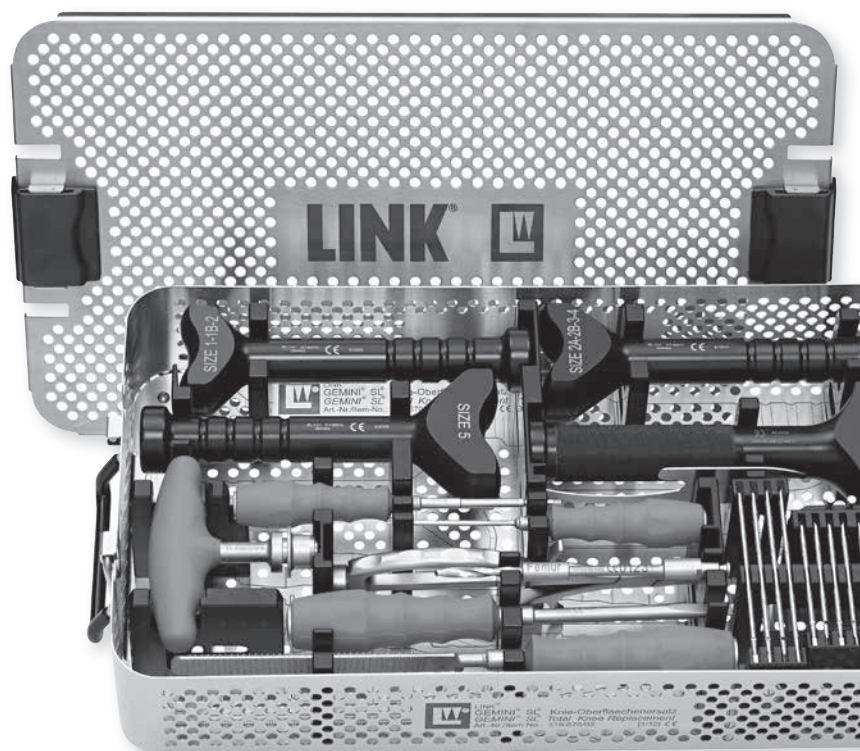
Rotational Bushing.

## MIRETO Instrument Set for Endo-Model Knee Prosthesis Systems

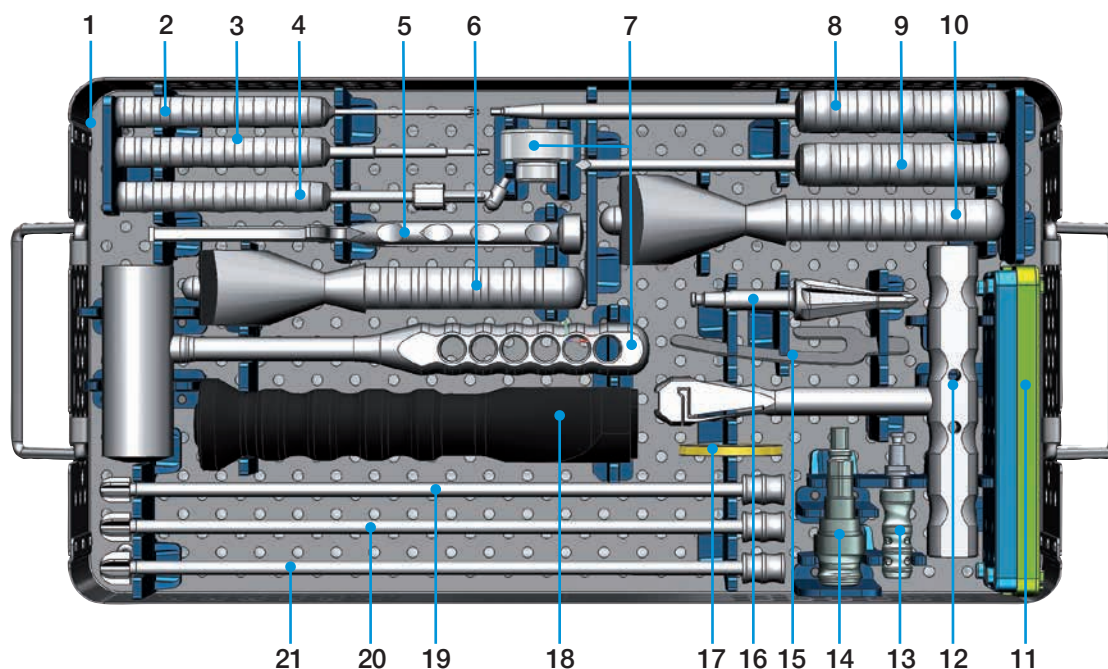
The **MIRETO Instrument Set** comprises seven instrument trays. It was developed with the focus on the following objectives:

- Instruments are securely held in their respective positions in the tray
- Ergonomic arrangement means the instruments are easy to remove, ensuring that surgery proceeds smoothly
- Optimally organized individual trays facilitate the job of the instrument nurse during the surgical procedure
- Trays are clearly marked with a picture of each instrument to ensure they can be quickly equipped with the correct instruments

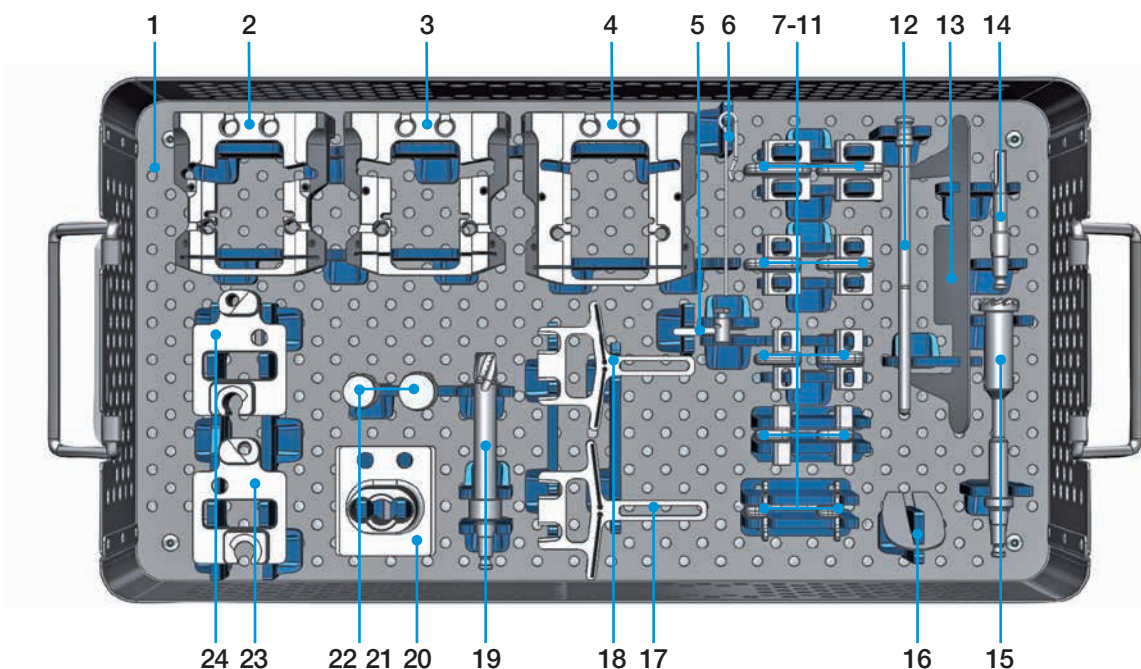
On request, pictorial templates for equipping the instrument trays can be supplied.  
Cleaning instructions for all take-apart instruments are also available.



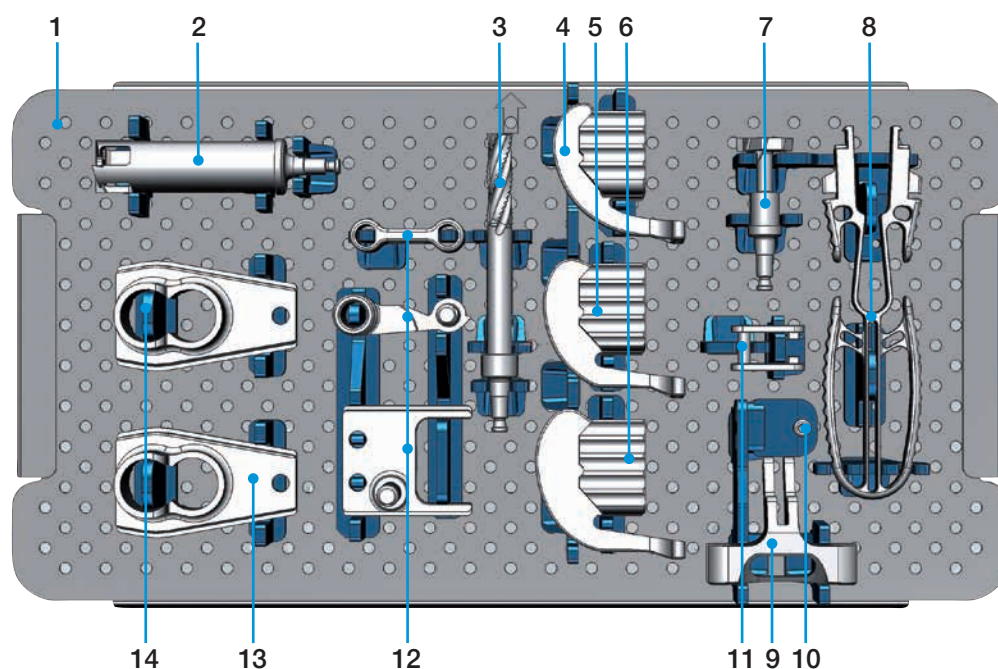
REF	MIRETO Instrument Set for Endo-Model Knee Joint Prostheses
15-6011/00	Case 1 – General Instruments
15-6012/00	Case 2 – Femoral Instruments (2 trays)
15-6013/00	Case 3 – Tibial Instruments
15-6014/00	Case 4 – Tapered Reamers conical & cylindrical
15-6015/00	Case 5 – Trial Prostheses (2 trays)
15-6016/00	Case 6 – Trial Prostheses cylindrical
15-6017/00	Case 7 – Tapered Reamers conical

**15-6011/00 Case 1 – General Instruments**


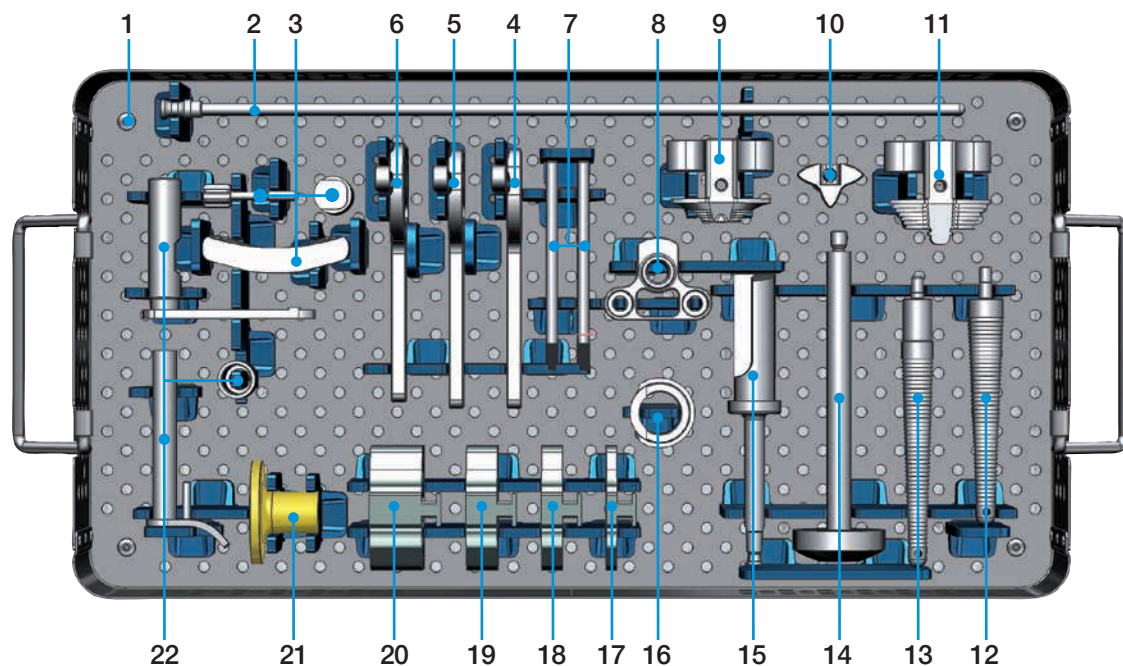
1	15-6001/00	<b>Instrument Tray, Case 1</b> , empty, 485 x 253 x 80 mm
2	64-1181/16	<b>Hex Screwdriver</b> , with metal handle, hex. 2 mm
3	10-5373/01	<b>Hex Screwdriver</b> , with metal handle, hex. 2.5 mm
4	15-8035/02	<b>Insertor Positioner</b> for PE plateaus
5	317-586	<b>Insertor/Extraction Forceps</b> for fixation pins Ø 3 mm, 210 mm
6	15-2537	<b>Impactor Handle</b> , small/medium, for femoral components
7	16-0115/01	<b>Mallet</b> , blow-back proof, incl. Spare Part Polyethylene
8	64-8008/02	<b>Hex Screwdriver</b> , hex 3.5 mm
9	317-658/01	<b>Bone Awl</b> with trocar point, 215 mm
10	15-2537/02	<b>Impactor Handle</b> , large, for femoral components
11	317-585/65	<b>Wire Pins</b> , Ø 3 mm, 65 mm (4 pieces)
	317-585/95	<b>Wire Pins</b> , Ø 3 mm, 95 mm (4 pieces)
	optional	
	319-581/00	<b>Drill Pins</b> , Ø 3 mm, 65/80 mm (4 pieces)
	319-582/00	<b>Drill Pins</b> , Ø 3 mm, 95/110 mm (4 pieces)
	15-6096/00	<b>Alignment Device</b> for modular stems with female taper (1 piece)
12	15-6053/00	<b>T-Handle</b> , with Hudson fitting
13	16-3287/00B	<b>Adapter</b> , for LINK power tool snap lock adapter, with Hudson fitting
14		<b>Adapter</b> , optional with fitting:
	16-3283/00	Hudson female/Jacobs male
	16-3284/00	Hudson female/AO male
	16-3285/00	Hudson female/Harris male
15	317-607/50	<b>Cutting Template</b>
16	15-6037/00	<b>Drill</b> , to open the femoral and tibial canal
17	16-3203/00	<b>Impaction Plate</b> for reamers
18	15-6098/00	<b>Grooved Driver Tibia</b>
19	15-6060/00	<b>Stylus</b> , for centralizer Ø 12 mm
20	15-6060/01	<b>Stylus</b> , for centralizer Ø 14 mm
21	15-6060/02	<b>Stylus</b> , for centralizer Ø 16 mm

**15-6012/00 Case 2 – Femoral Instruments (Tray 1)**


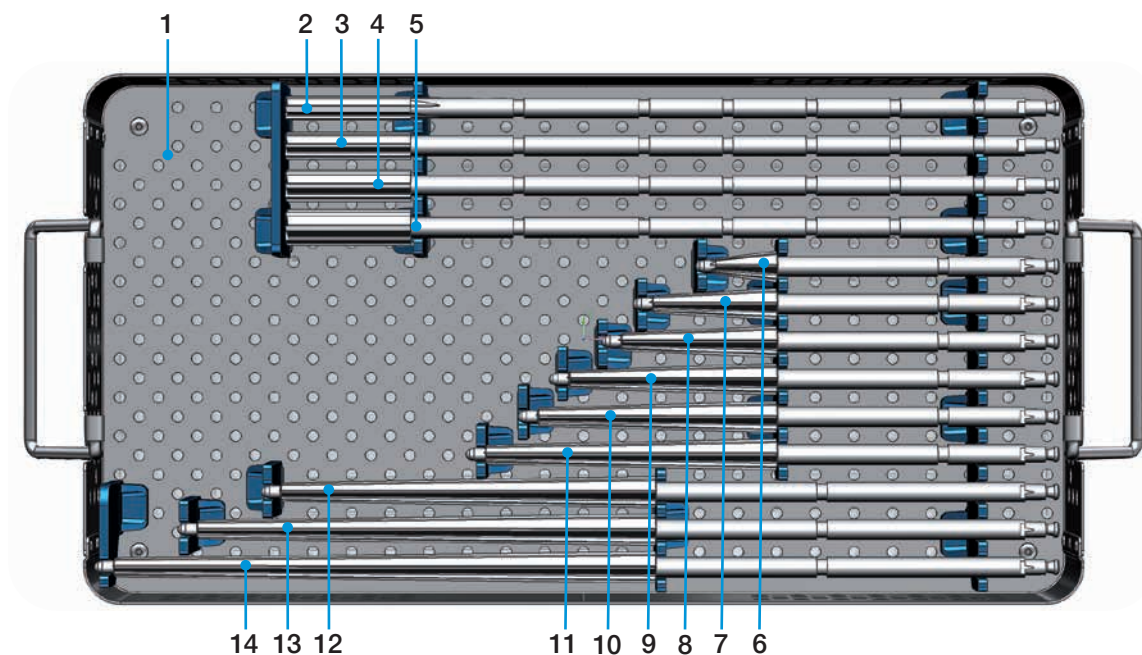
1	15-6002/00	Instrument Tray, Case 2 (Tray 1), empty below, 485 x 253 x 80 mm
		<b>Basic Frame</b>
2	15-6030/01	Size S
3	15-6030/02	Size M
4	15-6030/03	Size L
5	15-6111/00	Interlocking Pin for basic frame
6	15-6110/00	Interlocking Spring for basic frame
		<b>Spacer, complete, 2 pieces</b>
7	15-6045/00	Height 2 mm
8	15-6045/01	Height 10 mm
9	15-6045/02	Height 15 mm
10	15-6045/03	Height 20 mm
11	15-6045/04	Height 25 mm
12	15-6033/00	Alignment Rod, Ø 6 mm, 150 mm
13	15-6040/01	Alignment Gauge, for sizes S/M/L
14	15-6032/00	Drill for pin holes, Ø 6 mm
15	15-6038/00	Depth Mill for taper coupling
16	15-6049/00	Stylus, anterior
17	15-6039/01	Saw Guide, for ventral rim, size M/L
18	15-6039/00	Saw Guide, for ventral rim, size XS/S
19	15-6042/00	Reamer, for box profile milling, Ø 12 mm, 74 mm
20	15-6034/00	Slide-In Module, for ventral bone rim
21	15-6046/00	Protective Cap, Ø 12 mm, 54 mm
22	15-6046/01	Protective Cap, Ø 14 mm, 54 mm
23	15-6031/00	Alignment Insert, right
24	15-6031/01	Alignment Insert, left

**15-6012/00 Case 2 – Femoral Instruments (Tray 2)**


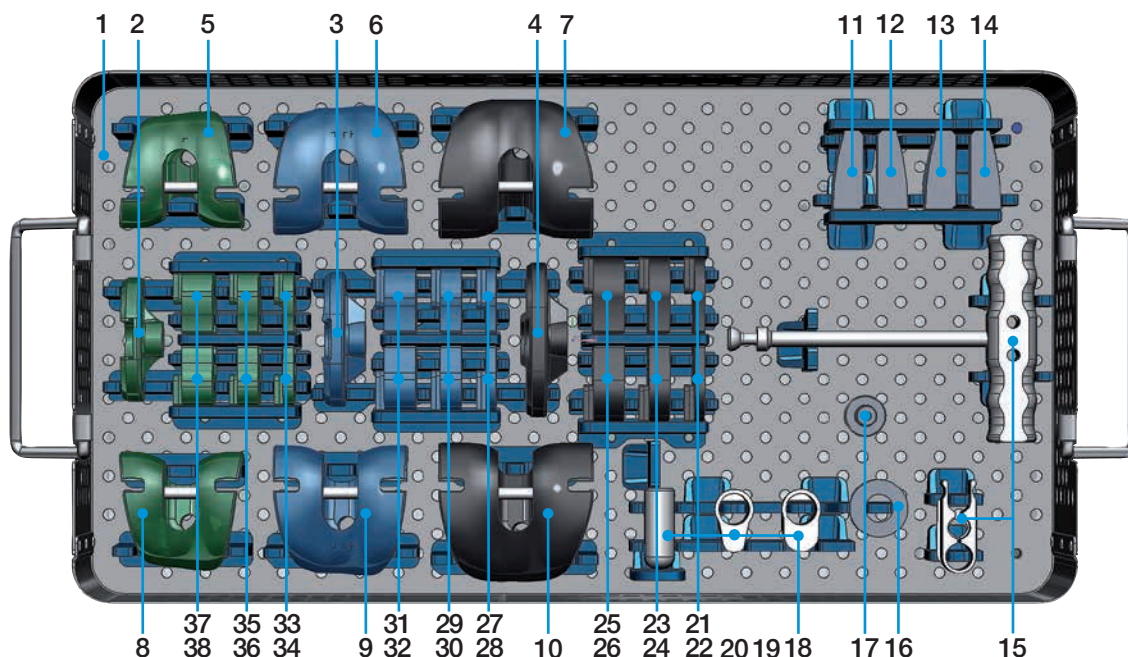
1	15-6002/00	Instrument Tray, Case 2 (Tray 2), empty above, 485 x 253 x 80 mm
2	15-6036/00	Reamer for box pre-milling, Ø 24 mm
3	15-6042/01	Reamer for box profile milling, Ø 12 mm, 100 mm
		Basic Milling Guidances for condyle milling, complete
4	15-6043/01	Size S
5	15-6043/02	Size M
6	15-6043/03	Size L
7	15-6044/02	Reamer for condyle milling, Ø 26 mm
8	15-6044/01	Inserting Forceps for condyle milling guidance
9	15-6044/00	Condyle Milling Guidance for condyle milling
10	15-6044/20	Screw for condyle milling guidance
11	15-6044/30	Lever for condyle milling guidance
12	15-6041/00	Slide-In Module for box profile milling (3 parts)
13	15-6035/00	Slide-In Module for box pre-milling Endo-W
14	15-6035/01	Slide-In Module for box pre-milling Endo-M Standard

**15-6013/00 Case 3 – Tibial Instruments**


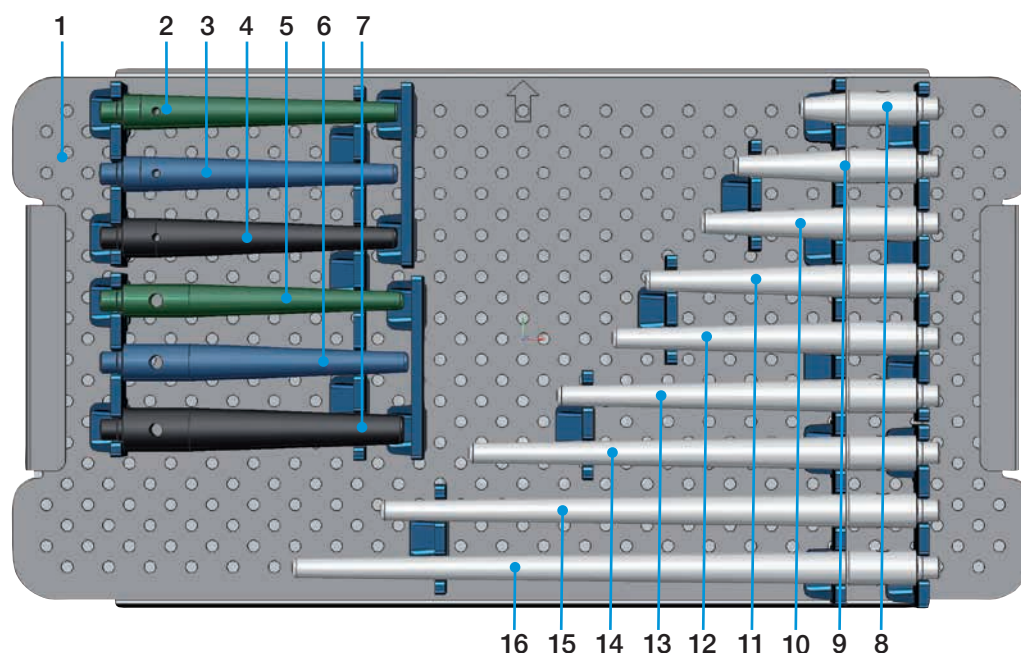
1	15-6003/00	Instrument Tray, Case 3, empty, 485 x 253 x 80 mm
2	16-3242/00	Alignment Rod Tibia
3	15-6058/00	Tibial Saw Guide, 3 parts
		Drill Templates Tibia
4	15-6050/01	Size S
5	15-6050/02	Size M
6	15-6050/03	Size L
7	16-3211/00	Guide Rod (2 pieces)
8	15-6051/00	Alignment Gauge
9	15-6054/01	Compressor, for Endo-Model – M, size XS/S
10	15-6055/02	Compressor Extension, for Endo-Model, size M/L
11	15-6054/02	Compressor, for Endo-Model – M, size M/L
12	15-6056/02	Stem Compressor, size M/L
13	15-6056/01	Stem Compressor, size S
14	16-3197/00	T-Handle
15	15-6052/00	Drill, Ø 20 mm
16	16-3271/20	Drill Guide
		Spacer, Tibial Alignment, for sizes S/M/L
17	15-6059/00	Height 5 mm
18	15-6059/01	Height 10 mm
19	15-6059/02	Height 15 mm
20	15-6059/03	Height 25 mm
21	15-6062/00	Impaction Plate Tibia
22	15-6057/00	Alignment Gauge, for tibia resection (3 parts)

**15-6014/00 Case 4 – Tapered Reamers conical & cylindrical**


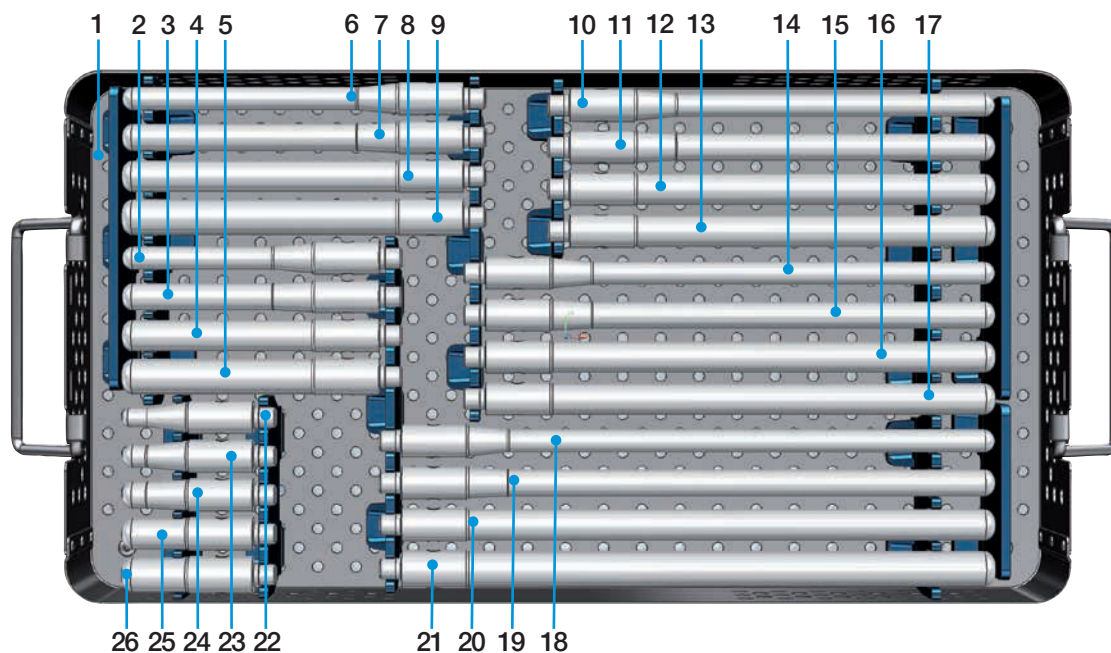
1	15-6004/00	<b>Instrument Tray, Case 4, empty, 485 x 253 x 80 mm</b>	
		<b>Tapered Reamers, cylindrical, with Hudson fitting B</b>	
2	15-6048/00	Ø 12 mm	
3	15-6048/01	Ø 14 mm	
4	15-6048/02	Ø 16 mm	
5	15-6048/03	Ø 18 mm	
		<b>Tapered Reamers, conical, with Hudson fitting B</b>	
6	15-6047/01	Ø 16 mm	50 mm
7	15-6047/02	Ø 16 mm	80 mm
8	15-6047/03	Ø 16 mm	95 mm
9	15-6047/04	Ø 16 mm	120 mm
10	15-6047/05	Ø 16 mm	135 mm
11	15-6047/06	Ø 16 mm	160 mm
12	15-6047/07	Ø 16 mm	200 mm
13	15-6047/08	Ø 16 mm	240 mm
14	15-6047/09	Ø 16 mm	280 mm

**15-6015/00 Case 5 – Trial Prostheses (Tray 1)**


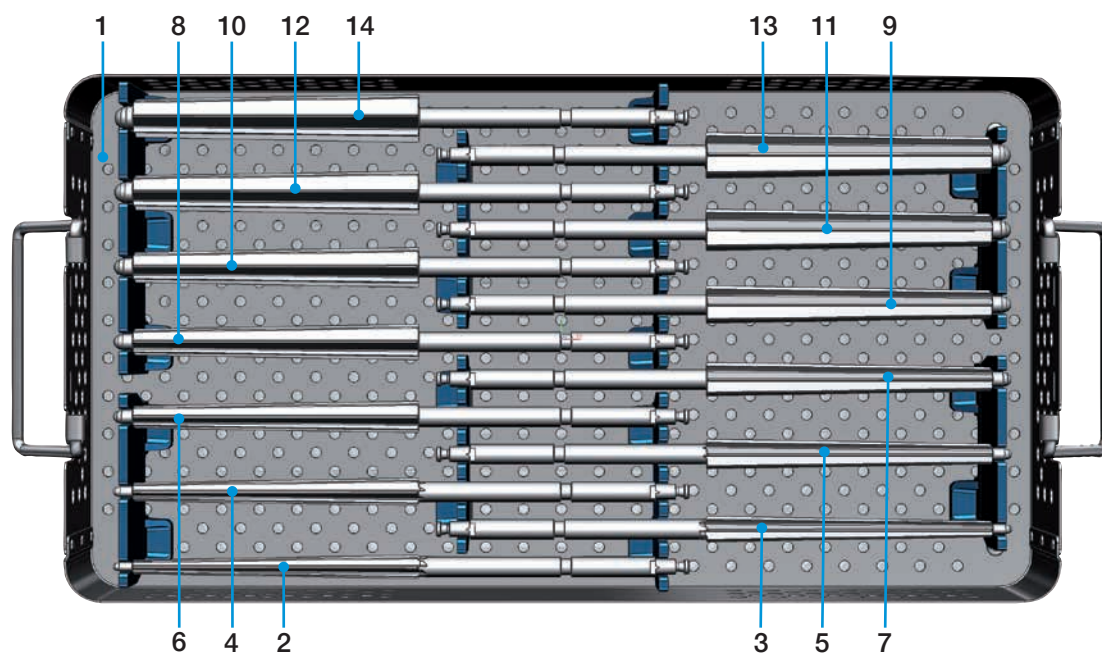
1	15-6005/00	Instrument Tray, Case 5 (Tray 1), empty below, 485 x 253 x 80 mm		
2	15-6065/01	Tibia Trial Prostheses, intracondylar		
3	15-6065/02	Size S		
4	15-6065/03	Size M		
5	15-6067/01	Femur Trial Prostheses, intracondylar		
6	15-6067/02	Size S left		
7	15-6067/03	Size M left		
8	15-6068/01	Size L left		
9	15-6068/02	Size S right		
10	15-6068/03	Size M right		
11	15-6088/01	Size L right		
12	15-6088/02	Femoral Trial Segments, universal		
13	15-6093/01	Height 20 mm right		
14	15-6093/02	Height 20 mm left		
15	15-6061/00	Height 25 mm right		
16	15-6094/00	Height 25 mm left		
17	15-6061/00	Extraction Instrument for trial prostheses (2 parts)		
18	15-6094/00	Trial Support Ring, height 10 mm, Ø 28 mm		
19	15-6070/00	Femoral Trial Adapter, for modular stems M10/M12		
20	15-6066/01	Trial Connection Component for hinged knee versions sizes S/M/L		
21	15-6066/00	Trial Connection Component for rotational knee versions sizes S/M/L		
22	15-6066/20	Trial Axis, for sizes S/M/L		
23	15-6078/03	Trial Segments Tibia		
24	15-6079/03	Height 5 mm Sizes L right		
25	15-6080/03	Height 5 mm Sizes L left		
26	15-6081/03	Height 10 mm Sizes L right		
27	15-6082/03	Height 10 mm Sizes L left		
28	15-6083/03	Height 15 mm Sizes L right		
29	15-6078/02	Height 15 mm Sizes L left		
30	15-6079/02	Height 5 mm Size M right		
31	15-6080/02	Height 5 mm Size M left		
32	15-6081/02	Height 10 mm Size M right		
33	15-6082/02	Height 10 mm Size M left		
34	15-6083/02	Height 15 mm Size M right		
35	15-6078/01	Height 15 mm Size M left		
36	15-6079/01	Height 5 mm Size S right		
37	15-6080/01	Height 5 mm Size S left		
38	15-6081/01	Height 10 mm Size S right		
	15-6082/01	Height 10 mm Size S left		
	15-6083/01	Height 15 mm Size S right		
	15-6083/01	Height 15 mm Size S left		

**15-6015/00 Case 5 – Trial Prostheses (Tray 2)**


1	15-6005/00	Instrument Tray, Case 5 (Tray 2), empty, 485 x 253 x 80 mm
<b>Tibial Trial Stems, for Endo-Model prosthesis stems</b>		
2	15-6063/01	Size S
3	15-6063/02	Size M
4	15-6063/03	Size L
<b>Femoral Trial Stems, for Endo-Model prosthesis stems</b>		
5	15-6064/01	Size S
6	15-6064/02	Size M
7	15-6064/03	Size L
<b>Trial Stems, conical, for femoral and tibial components, cemented/cementless</b>		
8	15-6071/01	Length 50 mm
9	15-6071/02	Length 80 mm
10	15-6071/03	Length 95 mm
11	15-6071/04	Length 120 mm
12	15-6071/05	Length 135 mm
13	15-6071/06	Length 160 mm
14	15-6071/07	Length 200 mm
15	15-6071/08	Length 240 mm
16	15-6071/09	Length 280 mm

**15-6016/00 Case 6 – Cylindrical Trial Stems**


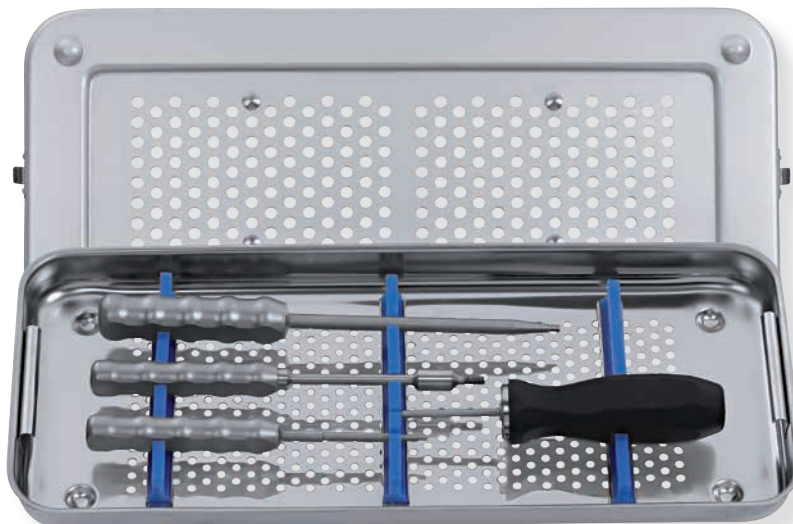
1	15-6006/00	<b>Instrument Tray, Case 6, empty, 485 x 253 x 80 mm</b>	
		<b>Trial Stems, cylindrical, cementless</b>	
2	15-6073/01	Ø 12 mm	Length 120 mm
3	15-6073/02	Ø 14 mm	Length 120 mm
4	15-6073/03	Ø 16 mm	Length 120 mm
5	15-6073/04	Ø 18 mm	Length 120 mm
6	15-6074/01	Ø 12 mm	Length 160 mm
7	15-6074/02	Ø 14 mm	Length 160 mm
8	15-6074/03	Ø 16 mm	Length 160 mm
9	15-6074/04	Ø 18 mm	Length 160 mm
10	15-6075/01	Ø 12 mm	Length 200 mm
11	15-6075/02	Ø 14 mm	Length 200 mm
12	15-6075/03	Ø 16 mm	Length 200 mm
13	15-6075/04	Ø 18 mm	Length 200 mm
14	15-6076/01	Ø 12 mm	Length 240 mm
15	15-6076/02	Ø 14 mm	Length 240 mm
16	15-6076/03	Ø 16 mm	Length 240 mm
17	15-6076/04	Ø 18 mm	Length 240 mm
18	15-6077/01	Ø 12 mm	Length 280 mm
19	15-6077/02	Ø 14 mm	Length 280 mm
20	15-6077/03	Ø 16 mm	Length 280 mm
21	15-6077/04	Ø 18 mm	Length 280 mm
22	15-6072/00	Ø 10 mm	Length 60 mm
23	15-6072/01	Ø 12 mm	Length 60 mm
24	15-6072/02	Ø 14 mm	Length 60 mm
25	15-6072/03	Ø 16 mm	Length 60 mm
26	15-6072/04	Ø 18 mm	Length 60 mm

**15-6017/00 Case 7 – Conical Tapered Reamers**


1	15-6007/00	Instrument Tray, Case 7, empty, 485 x 253 x 80 mm	
		Tapered Reamers: conical, with fitting B: Hudson	
2	16-5130/12	Ø 12 mm	Stem length 130 mm
3	16-5130/13	Ø 13 mm	Stem length 130 mm
4	16-5130/14	Ø 14 mm	Stem length 130 mm
5	16-5130/15	Ø 15 mm	Stem length 130 mm
6	16-5130/16	Ø 16 mm	Stem length 130 mm
7	16-5130/17	Ø 17 mm	Stem length 130 mm
8	16-5130/18	Ø 18 mm	Stem length 130 mm
9	16-5130/19	Ø 19 mm	Stem length 130 mm
10	16-5130/20	Ø 20 mm	Stem length 130 mm
11	16-5130/21	Ø 21 mm	Stem length 130 mm
12	16-5130/22	Ø 22 mm	Stem length 130 mm
13	16-5130/23	Ø 23 mm	Stem length 130 mm
14	16-5130/24	Ø 24 mm	Stem length 130 mm

**Additional Instrument Set**

for Endo-Model Rotating Hinge Knee and Endo-Model Modular Knee Prostheses



REF	for Endo-Model Rotating Hinge Knee and Modular Knee Prostheses
15-2529/90	<b>Set</b> , complete, in 1 small container K1, on 1 tray with storage racks
05-1000/01	<b>Small Container K1</b> , only, 460 x 190 x 92 mm
15-2529/91	<b>Tray</b> , empty, 405 x 165 x 50 mm
64-8008/02	<b>Hex Screwdriver</b> with metal handle, hex 3.5 mm, 250 mm
15-2544	<b>Separate Rod</b> for removal of the rotating bushing version V02, Ø M5, 210 mm
10-5373/01	<b>Hex Screwdriver</b> with metal handle, hex 2.5 mm, 180 mm
15-2545	<b>Torque Wrench</b> , hex 2.5 mm, 205 mm

## Tibial Preparation



### 01

Mark the entry point and open the tibial canal with the drill (15-6037/00) at the point of attachment of the anterior cruciate ligament. The drill can either be used manually with the T-handle (15-6053/00) or driven mechanically.

### 02

Assemble the tapered reamer with the T-handle (15-6053/00). The tibial stop plate (15-6062/00) is clicked into the designated groove on the tapered reamer stem. When using cementless modular stems: Ream with increasing diameters until the awl has achieved contact with the cortical bone over a continuous distance of approx. 50 mm. The implant must correspond with the tapered reamer last used in terms of diameter and length.

In the case of cemented modular stems, the tapered reamer should be at least 2 mm larger than the planned stem diameter.

### Important information:

The position of the stop plate represents the lower edge of the tibial metal tray. The tapered reamers must not be used with a drive.

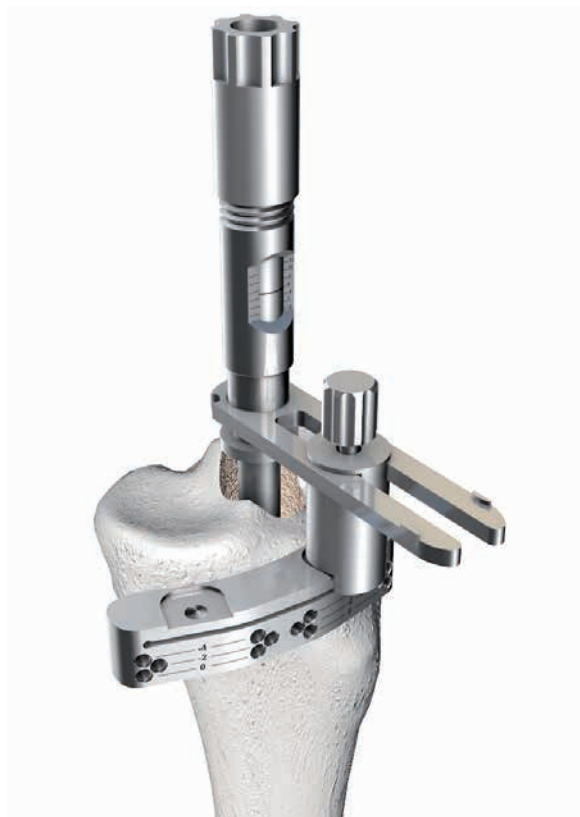


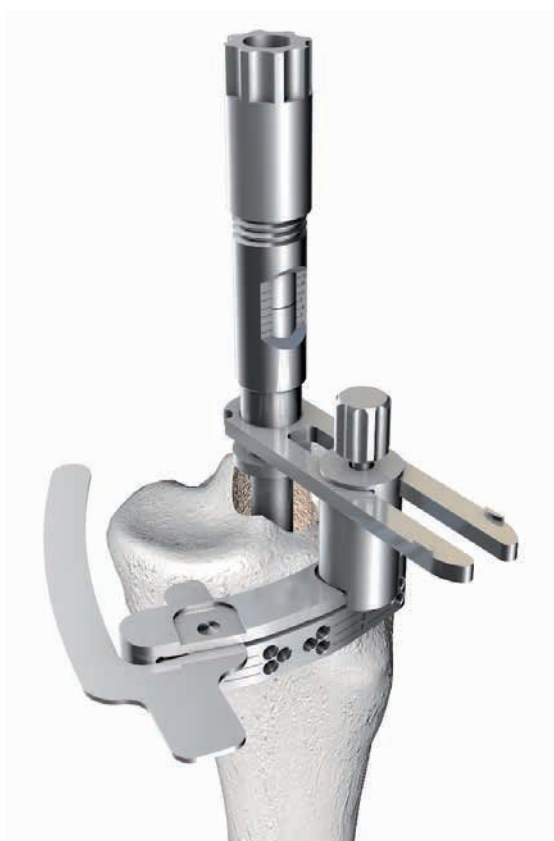
**03**

Once the tapered reamer is securely positioned by means of contact with the cortical bone, the T-handle and the stop plate are both removed. The tapered reamer remains in the medullary space. The tibial resection alignment instrument (15-6057/00) is attached, in a pre-assembled state (scale setting "0"), onto the tapered reamer. It must be ensured here that the stylus pin, which can be positioned medially or laterally, is guided in the designated groove.

**04**

The saw guide (15-6058/00) is attached to the alignment guide and placed on the ventral tibia. Ideally, the saw guide is pre-assembled in such a way that tibial resection can be performed from medial.





## 05

By turning the setting screw on the alignment guide, the desired resection height can be set and read off the scale. The cutting template (317-607/50) can be used to check the resection height. For first-time surgery, the resection height should not be greater than 10 mm. For revision surgery, as far as possible very little or no bone should be additionally resected. Resection is performed without a dorsal slope at a 90° angle to the tibial axis (default setting due to instrument design).

## 06

After setting the desired resection height, the saw guide is fixed in place using two fixation pins (317-585/65 or /95) or drill pins (319-581/00 or 319-582/00). For this, the pins are initially inserted into the holes on the line marked "0" in the medial holes groups (results in parallel alignment of the pins). After removing the tapered reamer, a third fixation pin or drill pin is inserted at an angle in one of the neighboring hole groups to secure the saw guide in place.





## 07

After removing the tapered reamer, the bone can be resected. To achieve an optimal cutting result, saw blades with a width of 1.24 – 1.27 mm are recommended. The fixation pin inserted at an angle is then removed and the saw guide is pulled off toward the front. The two parallel fixation or drill pins can remain in place. These allow the saw guide to be reattached at the +2 or +4 mm level in order to repeat resection later on.

## 08

The tapered reamer used last is again inserted in the medullary canal with the stop plate attached. The final implant size is determined by applying a drill template (15-6050/01, /02, /03) which corresponds exactly in size with the respective implant. Since the Endo-Model implants are also anchored by the diaphysis, full cortical bone support of the prosthesis is not necessary. The implant must not project over the bone margin.

The alignment guide (15-6051/00) is guided over the stem of the tapered reamer and connected to the cylindrical elevations of the drill template.

For revision surgery, the level of the tibial preparation can be raised to the level of the planned and to be reconstructed joint line. For this, spacers (15-6059/00, /01, /02, /03) of the relevant implant heights can be pushed on the drill template.





## 09

For rotational alignment, the alignment rod (16-3242/00) can be pushed from ventral onto the drill template. The ventral alignment rod must be aligned in the area between the middle of the tibial tuberosity and its medial margin.

## 10

After rotational alignment, the drill template is fixed with four fixation pins or drill pins. Mark the rotary alignment on the ventral cortical bone of the tibial head.





**11**

Remove the alignment guide, alignment rod and tapered reamer.

**12**

Attach the drill guide (16-3271/20) to the drill template. The lower collar must sit flush. The collarless area points toward dorsal.





**13**

Insert the drill (16-6052/00) into the proximal tibia as far as it will go.

**14**

Screw the guide rods (16-3211/00) into the dorsal thread holes of the drill template.





## 15

### For Endo-Model– M and Endo-Model Standard tibial components, sizes XS and S

- Screw the stem compressor (15-6056/00, /01) onto the corresponding compressor (15-6054/01, /02).
- Attach the handle (16-3197/00).

### For Endo-Model Standard tibial components, sizes M and L

- Attach the compressor addition (15-6055/02) onto the compressor (15-6054/02).
- Screw the stem compressor (15-6056/02) onto the compressor and attach the handle.

## 16

Insert the compressor via the guide rods as far as possible on the drill template. Finally remove all instruments.





**17**

Assemble the tibial trial.

If necessary, push in trial washers from medial and/or lateral.

**18**

Insert the trial prosthesis.



## Femoral Preparation



### 01

Mark the entry point and open the femoral canal with the drill (15-6037/00). The drill can either be used manually with the T-handle (15-6053/00) or driven mechanically.

### 02

Assemble the tapered reamer with the T-handle (15-6053/00). The femoral stop plate (16-3203/00) is clicked into the designated groove on the tapered reamer stem. When using cementless modular stems: Ream with increasing diameters until the awl has achieved contact with the cortical bone over a continuous distance of approx. 50 mm. The implant must correspond with the tapered reamer last used in terms of diameter and length.

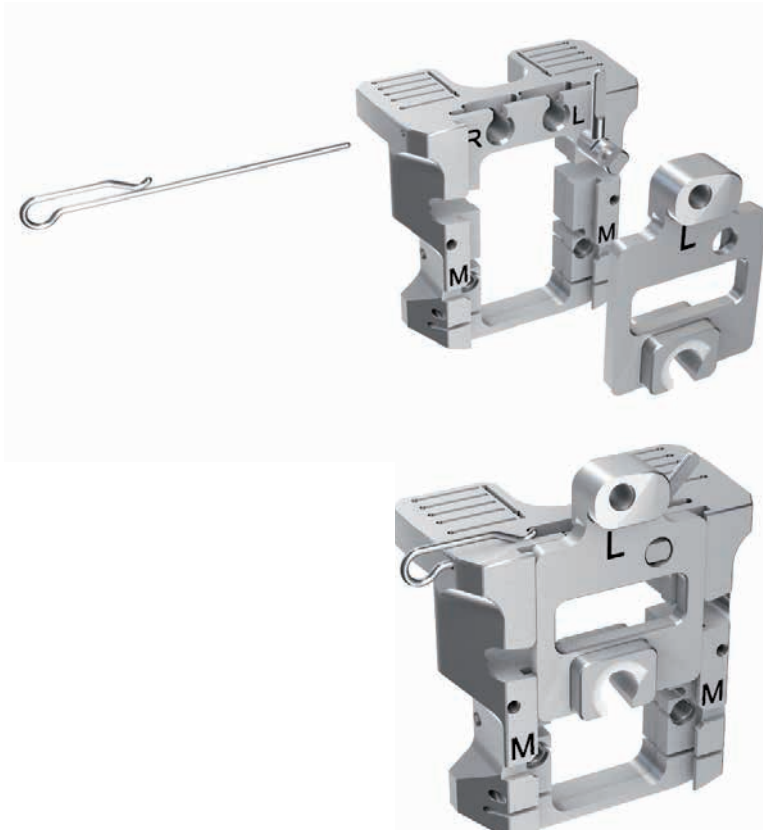
In the case of cemented modular stems, the tapered reamer should be at least 2 mm larger than the planned stem diameter.

Once the tapered reamer is securely positioned by means of contact with the cortical bone, the T-handle and the stop plate are both removed. The tapered reamer remains in the medullary canal.

### Important information:

The position of the stop plate represents the level of the joint line. The tapered reamers must not be used with a drive.





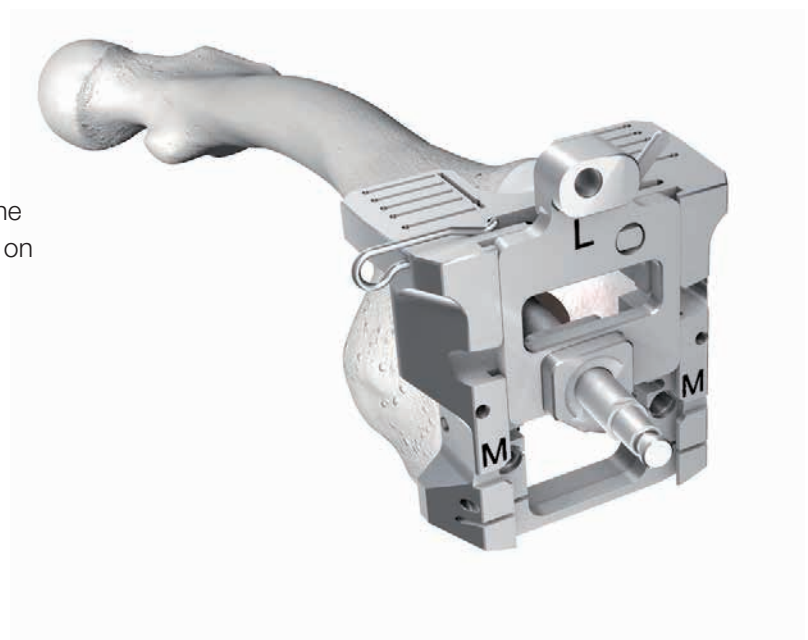
## 03

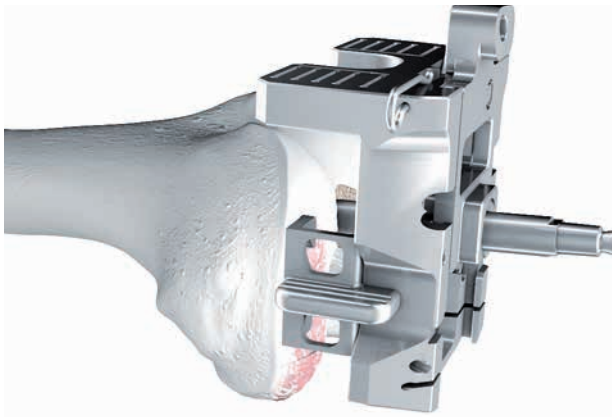
Assemble the base frame (15-6030/01, /02, /03) in line with the size of the tibial preparation:

- Insert the locking pin (15-6111/00) into the groove on the relevant side **L** (left) or **R** (right).
- Insert the locking spring (15-6110/00) into the outer drill hole opposite the locking pin.
- The alignment insert (15-6031/00, /01) is then attached to the front of the base frame and secured in place by closing the locking pin.

## 04

Attach the base frame onto the stem of the tapered reamer and guide the instrument on the joint surface.



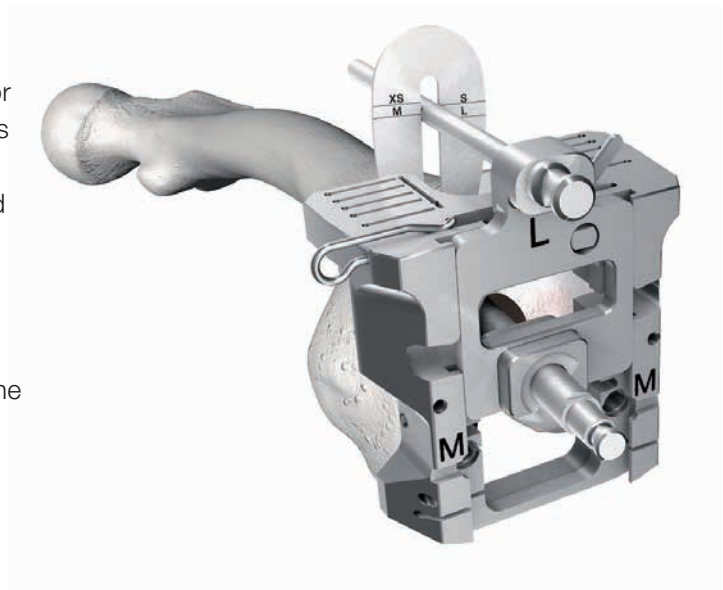


## 05

With revision surgery or extreme varus or valgus deformities, different or same-sized spacers (15-6045/00 to/04) can be inserted laterally into the base frame medially, laterally or on both sides for a more stable fixation and distalization of the joint line.

## 06

Check the emergence point of the angled anterior saw cut. Insert the alignment rod (15-6033/00) as far as possible into the alignment insert. Position the anterior stylus (16-6049/00) in the designated groove in the alignment rod and push up to the ventral bone. If the marking line of the selected prosthesis size is around the middle of the alignment rod, the saw blade will emerge precisely at the contact point of the ventral cortical bone. If the marking is significantly below the lower third or below the alignment rod, the position of the tapered reamer must be corrected to ventral and the emergence point checked again.



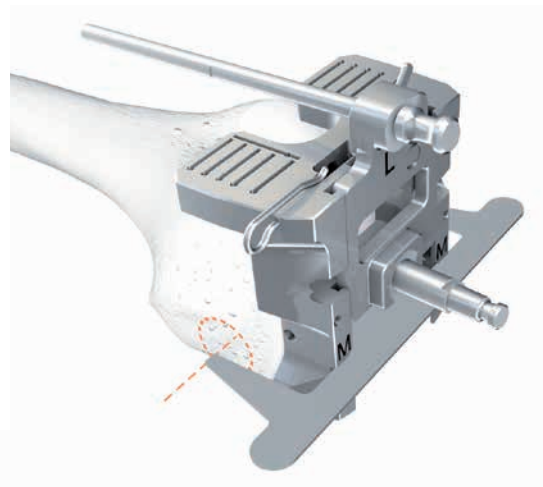


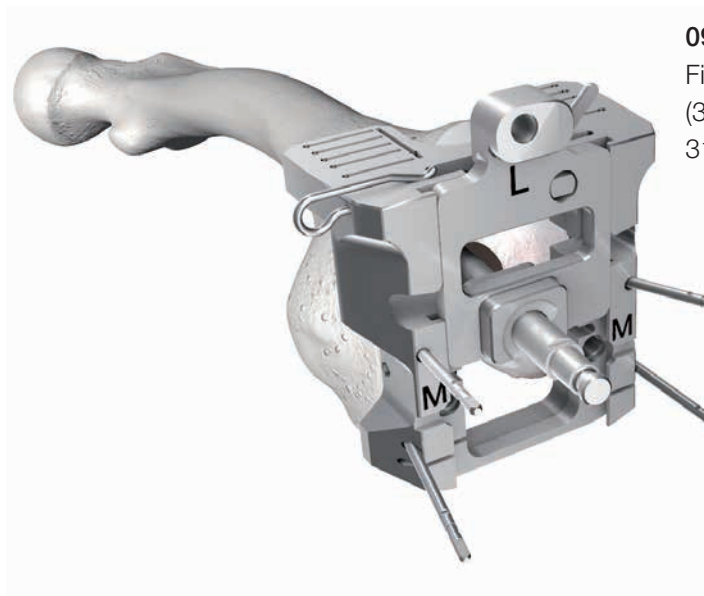
## 07

Check the incision for femoral segments (optional) and the anterior and posterior saw cuts using the cutting template (317-607/50).

## 08

Insert the alignment guide (15-6040/01) into the slot of both cylindrical drill holes in the base frame as far as possible. Check and determine the rotation/position of the prosthesis axis with respect to the epicondyles. The position of the tips of the alignment guide represents the distance of the prosthesis axis in relationship to the position of the joint line.

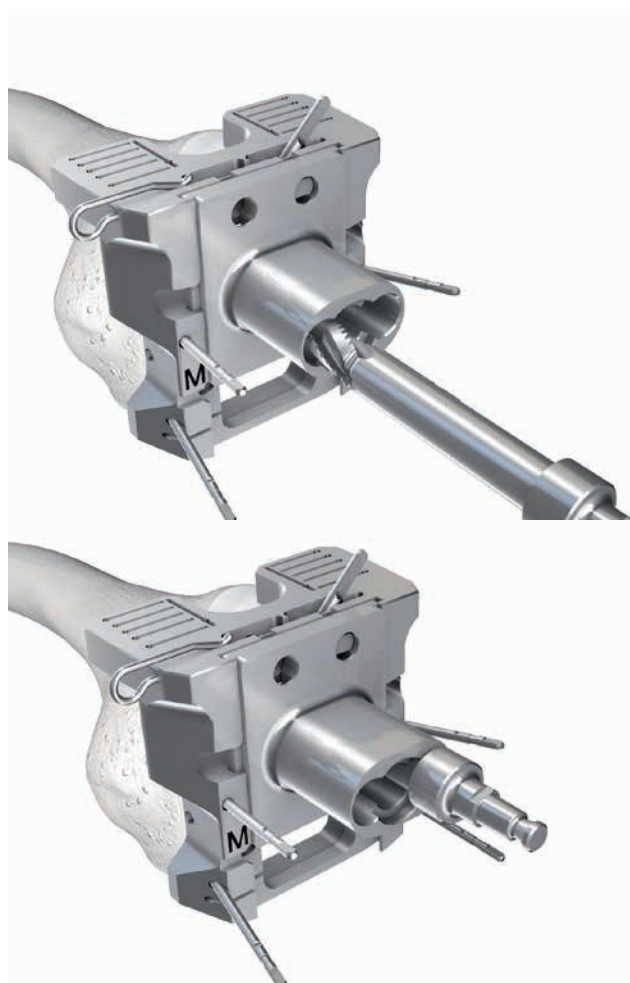


**09**

Fix the base frame by inserting four fixation pins (317-585/65 or /95) or drill pins (319-581/00 or 319-582/00) in the medial and lateral drill holes.

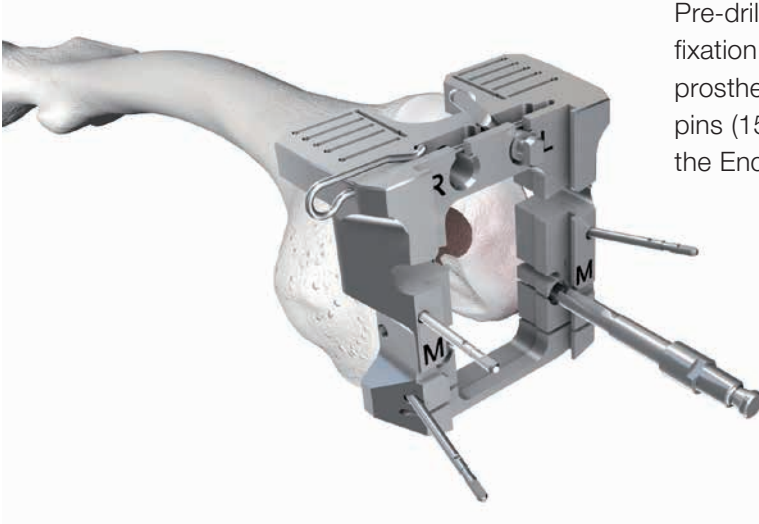
**10**

Remove the alignment insert and the tapered reamer. Attach and secure the slide-in unit for the ventral bone margin (15-6034/00) in the T-groove of the base frame from above. Insert the short reamer (15-6042/00) three times as far as it will go.

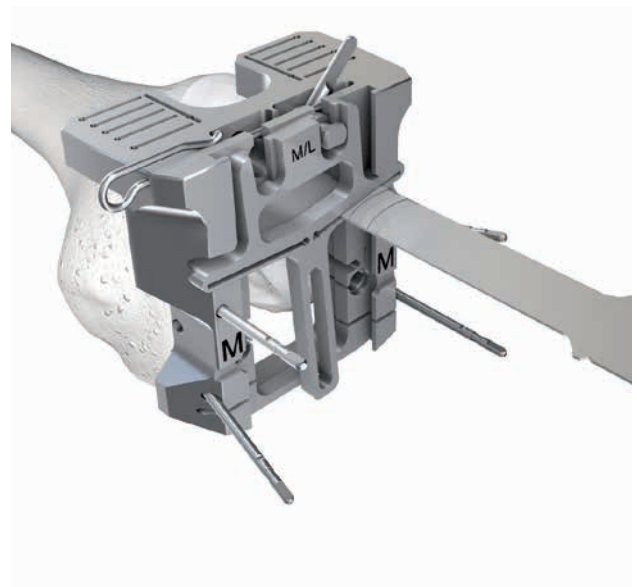


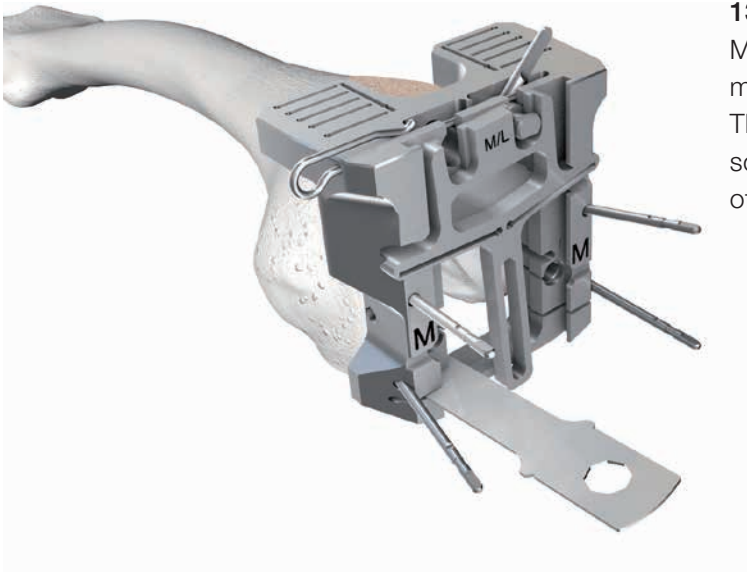
**11**

Pre-drill two recesses for the medial and lateral fixation pegs for the Endo-Model-M or -W knee prostheses using the drill for making drill holes for pins (15-6032/00). This step is not necessary for the Endo-Model Standard prosthesis.

**12**

Remove the previous insert. Attach and secure the saw guide for the ventral margin (15-6039/00, /01) of the same size in relation to the base frame. Make the anterior saw cut. To achieve an optimal cutting result, saw blades with a width of 1.24–1.27 mm are recommended.



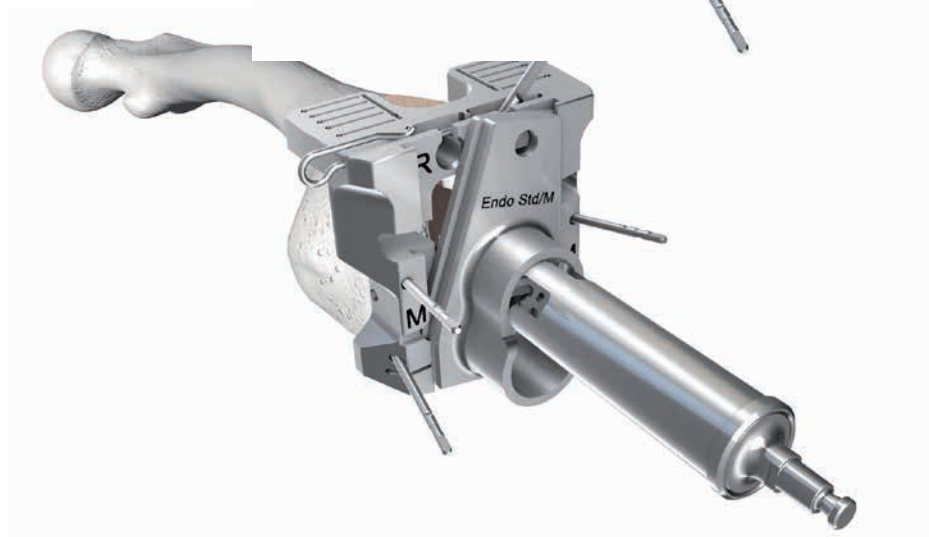
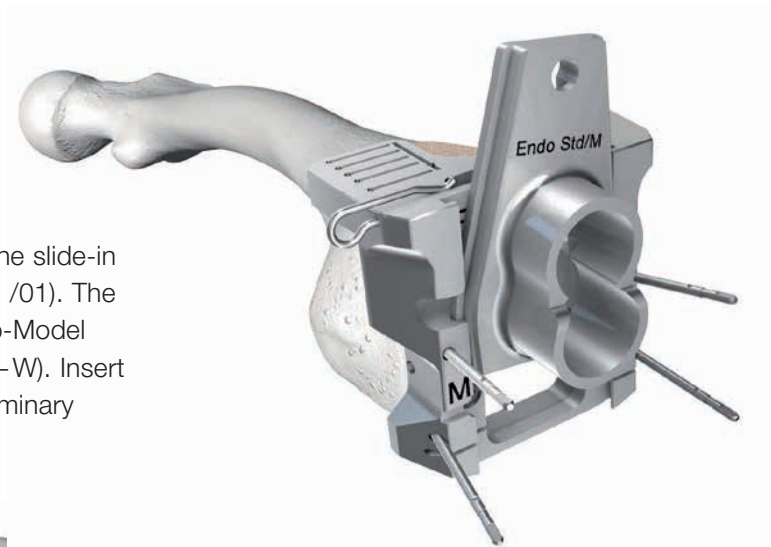


**13**

Make the posterior saw cuts through the two medial and lateral saw slots in the base frame. The saw guide is to remain in the base frame so as to stop the saw blade from slipping out of the guide and inwards.

**14**

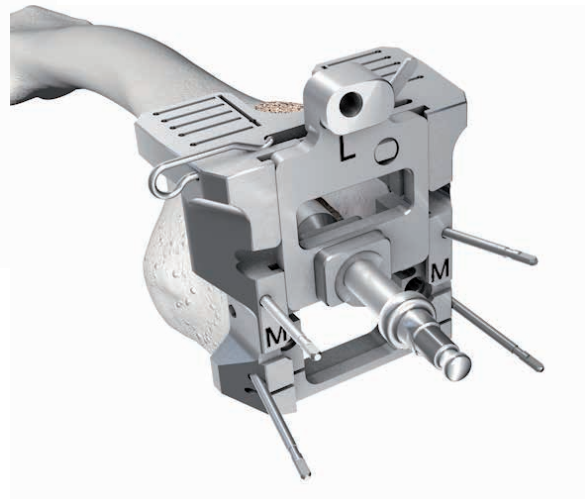
Remove the saw guide. Insert and secure the slide-in unit for box preliminary milling (15-6035/00, /01). The choice of slide-in unit depends on the Endo-Model prosthesis used (Standard–M or Standard–W). Insert the reamer twice as far as it will go for preliminary milling (15-6036/00).





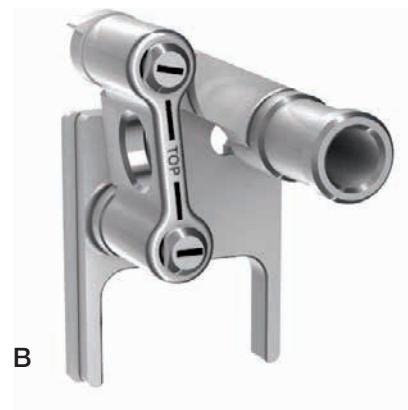
**15**

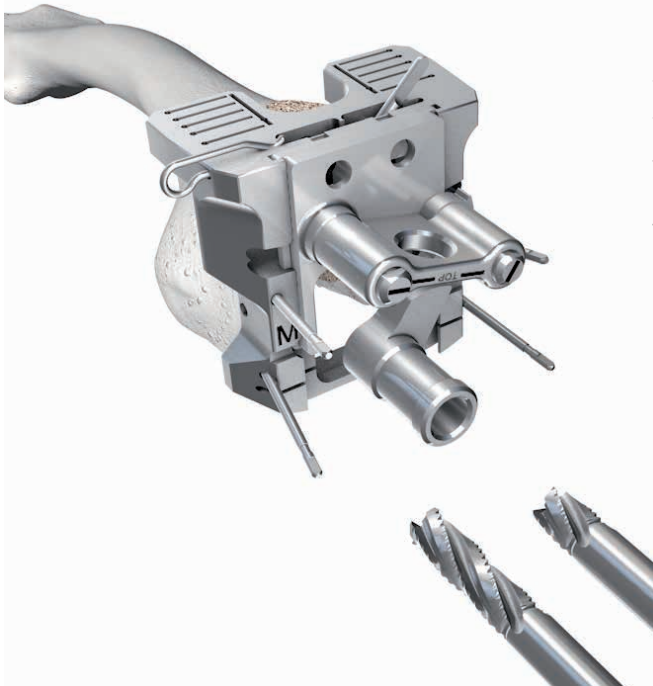
Pre-drill the cylindrical part of the tapered coupling when using the Endo-Model–W knee prosthesis. Attach and secure the alignment insert (15-6031/00, /01). Insert the drill (15-6038/00) in the alignment insert with the narrowest part of the drill shank. With the Endo-Model Standard and Endo-Model Standard–M prosthesis this step is not necessary.



**16**

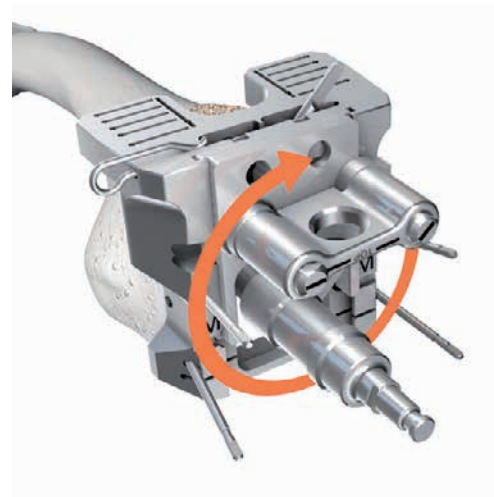
Assemble the slide-in unit for box preliminary milling (15-6041/00) as described in fig. **A** and **B**. The black marking lines must be parallel when assembled.





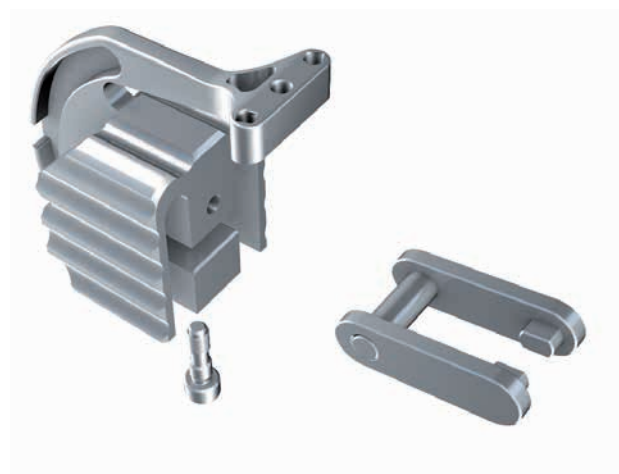
## 17

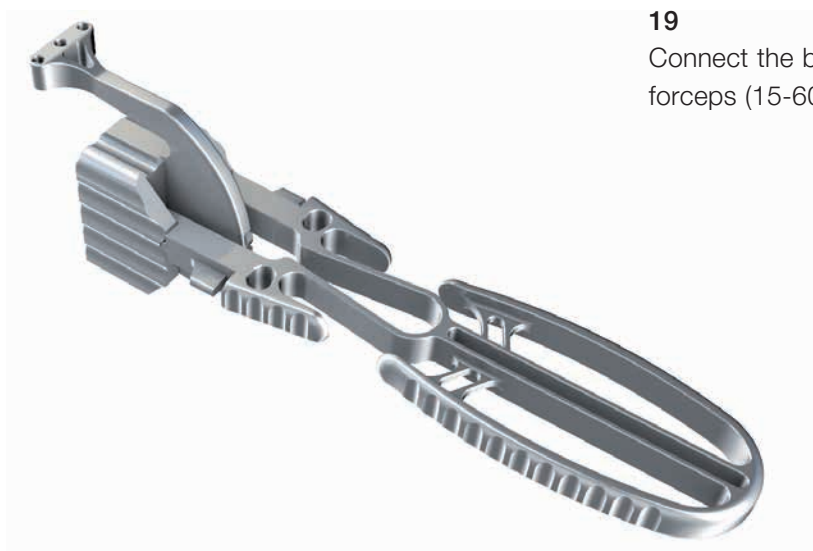
For preliminary milling of the box: Attach and secure the slide-in unit from above in the T-groove of the base frame. Starting with the short reamer (15-6042/00) – inserted as far as it will go – the remaining intra-condylar bone is milled in a clockwise direction. The individual steps are then repeated with the long reamer (15-6042/01). The bone must be prepared carefully to ensure that the next instrument fits perfectly when inserted.



## 18

Pre-assemble the base reamer guide to mill the condylar (15-6043/01, /02, /03). Insert the U-shaped lever and tighten the screw using the 3.5 mm hex socket screwdriver (64-8008/02).



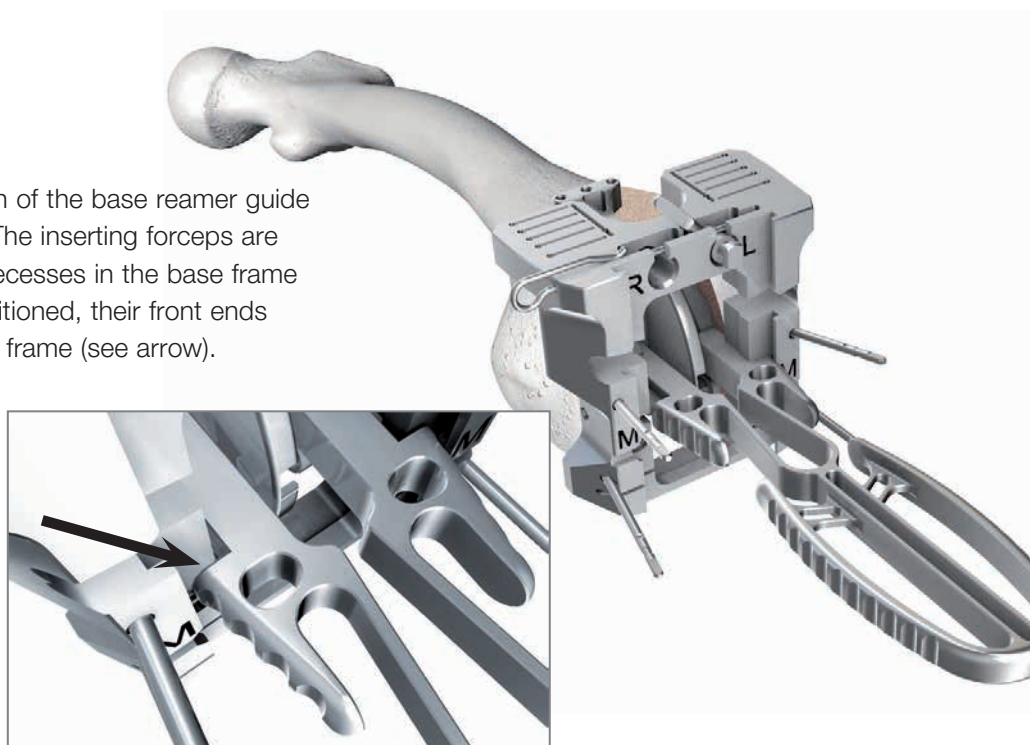


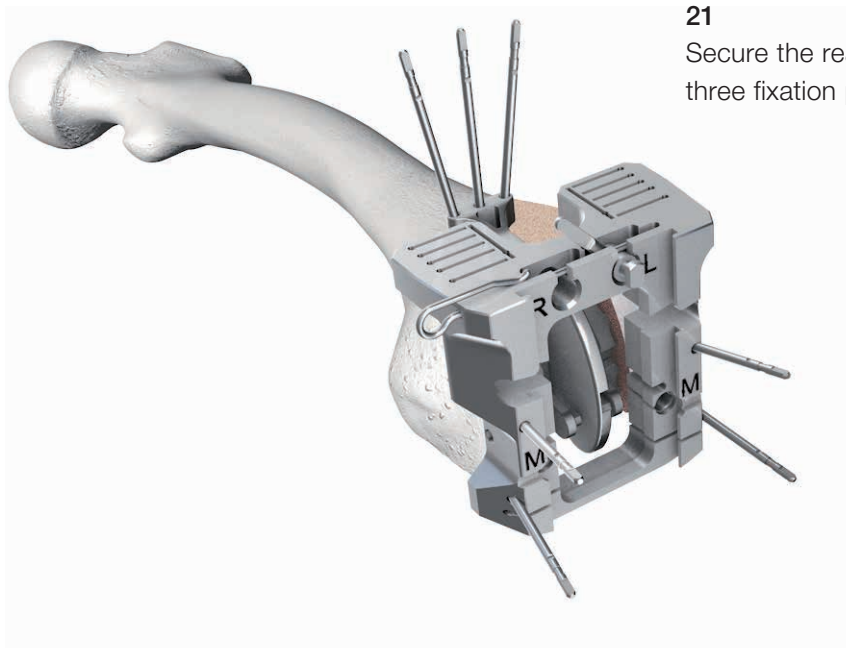
**19**

Connect the base reamer guide with the inserting forceps (15-6044/01) to mill the condylar.

**20**

Intracondylar insertion of the base reamer guide to mill the condylar. The inserting forceps are guided through the recesses in the base frame and, when finally positioned, their front ends must rest against the frame (see arrow).



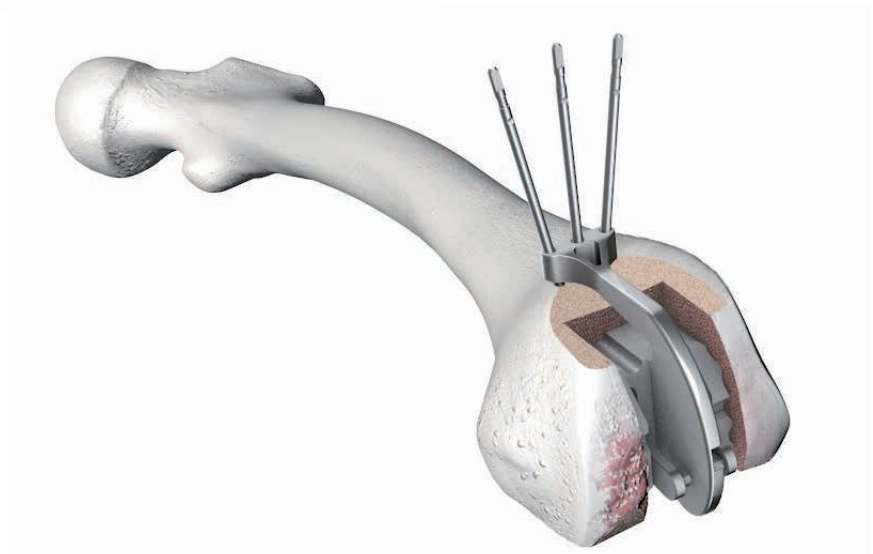


**21**

Secure the reamer guide in place with three fixation pins or drill pins.

**22**

Remove the base frame.



**23**

Attach the reamer guide (15-6044/00).



**24**

Insert the reamer for condylar milling (15-6044/02) into the left-hand side of the reamer guide. Once started, the reamer is guided as far as it will go and moved from dorsal to ventral. It may be necessary to repeat this step several times until no more cartilage is removed. The reamer is then reset and the individual steps are repeated on the right-hand side. Here work is from ventral to dorsal.

**25**

Remove the instruments for condylar milling.



## Trial Reduction



**26**

Assemble and insert the trial femoral component.

**27**

Insert the trial axis (15-6066/20) in the trial connecting component for the rotational and hinged versions (15-6066/00, /01) and push onto the trial tibial component as far as possible.





**28**

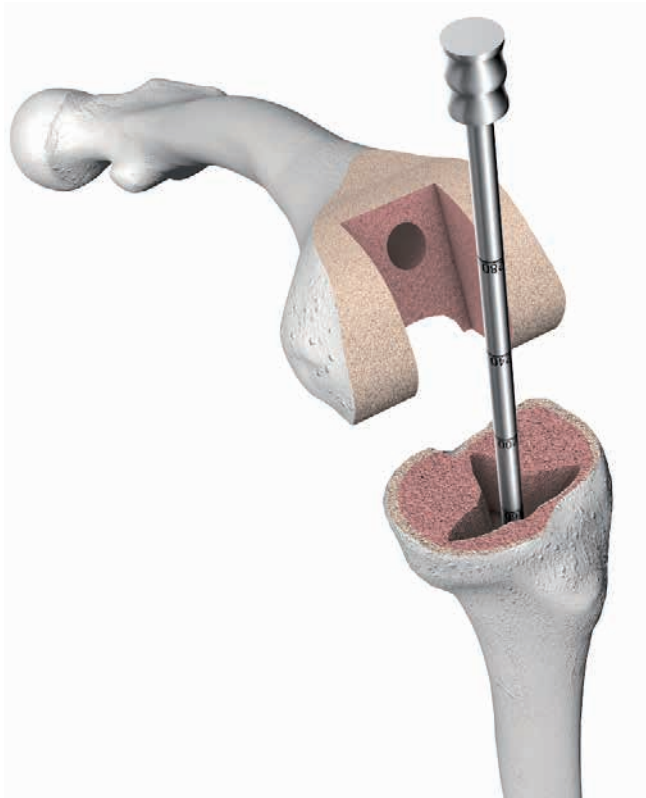
Connect the two joint pieces by inserting the dorsal recess of the trial axis into the axis of the femoral component and then pushing the tibia up. Test the prosthesis. Deficits in the flexion and extension gap are compensated for with trial femoral segments and/or trial tibial washers. The components are separated by proceeding in reverse order.

**29**

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



## Implantation

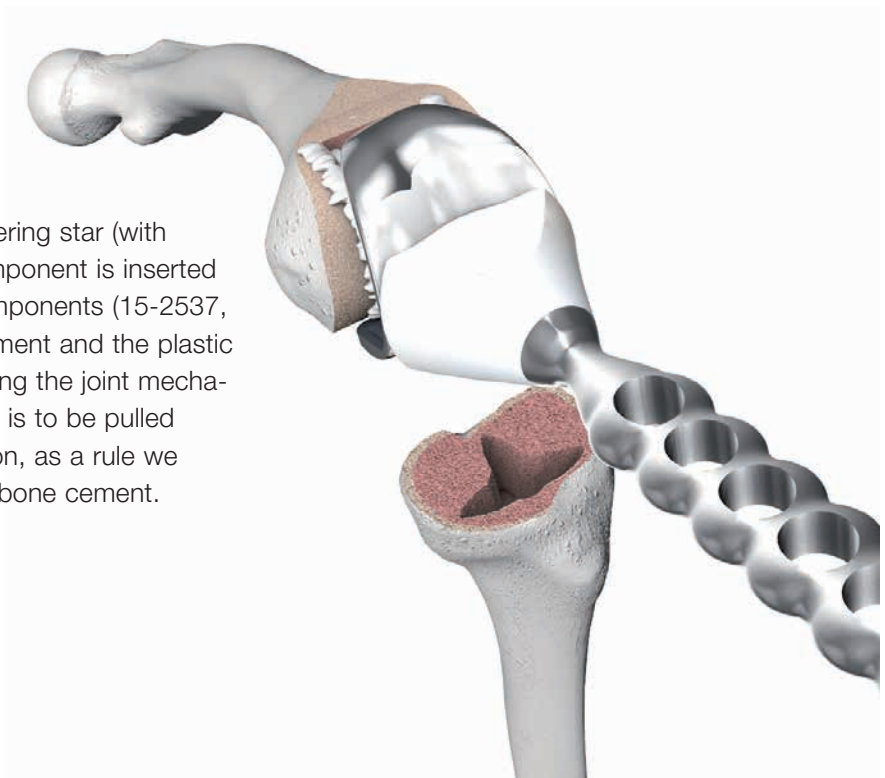


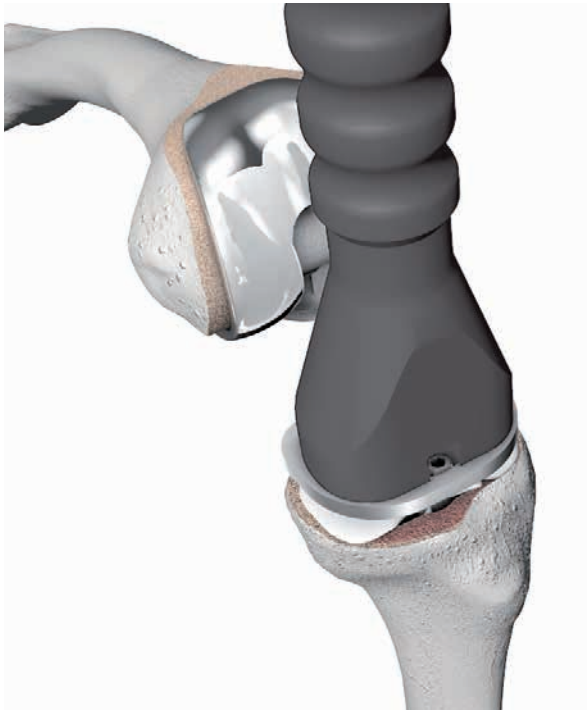
**30**

Before inserting the cemented stems, check the depth and suitable diameter of the centering stars (12, 14 or 16 mm) with the stylus for centering stars (15-6060/00, /01, /02).

**31**

After assembling the suitable centering star (with cemented stems), the femoral component is inserted using the impactor for femoral components (15-2537, 15-2537/02). Then any excess cement and the plastic connector (prevents cement entering the joint mechanism) are removed. The connector is to be pulled toward dorsal. With full cementation, as a rule we recommend using at least 80 g of bone cement.



**32**

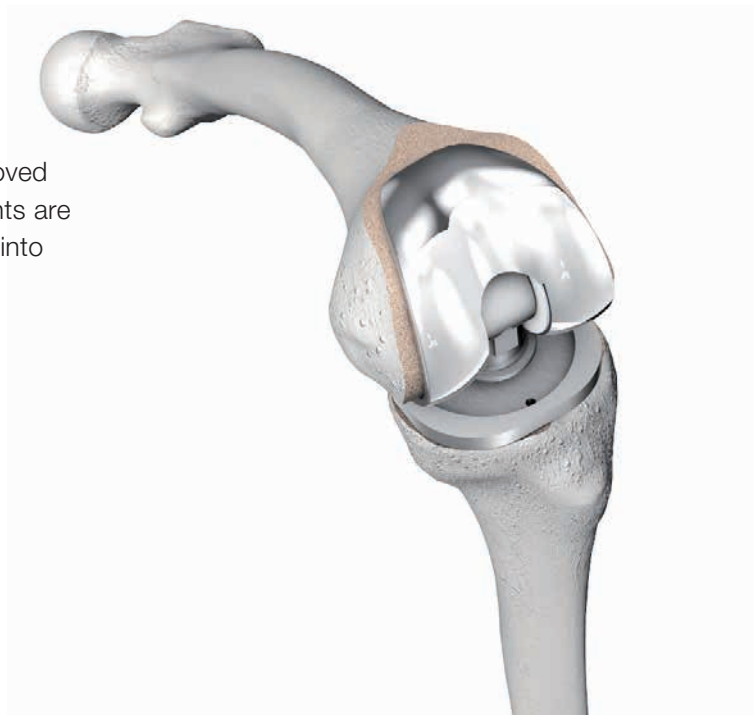
After assembling the appropriate centering star (for cemented stems), the tibial component is positioned using the tibial driver (15-6098/00). When aligning the prosthesis, the previously marked rotation setting must be taken into account.

**Important:**

The tibial component may only be implanted without a polyethylene plateau with a trial screw screwed in as far as possible. To remove the polyethylene plateau, the trial screw is undone with the 3.5 mm hex socket screwdriver (64-8008/02) and the polyethylene plateau is removed using the inserter (15-8035/02). After that, the trial screw is screwed in as far as it will go. This is the only way to prevent cement entering the drill hole in the metal plateau. Any excess cement is removed. For complete cementation, as a rule we recommend using at least 40 g of bone cement.

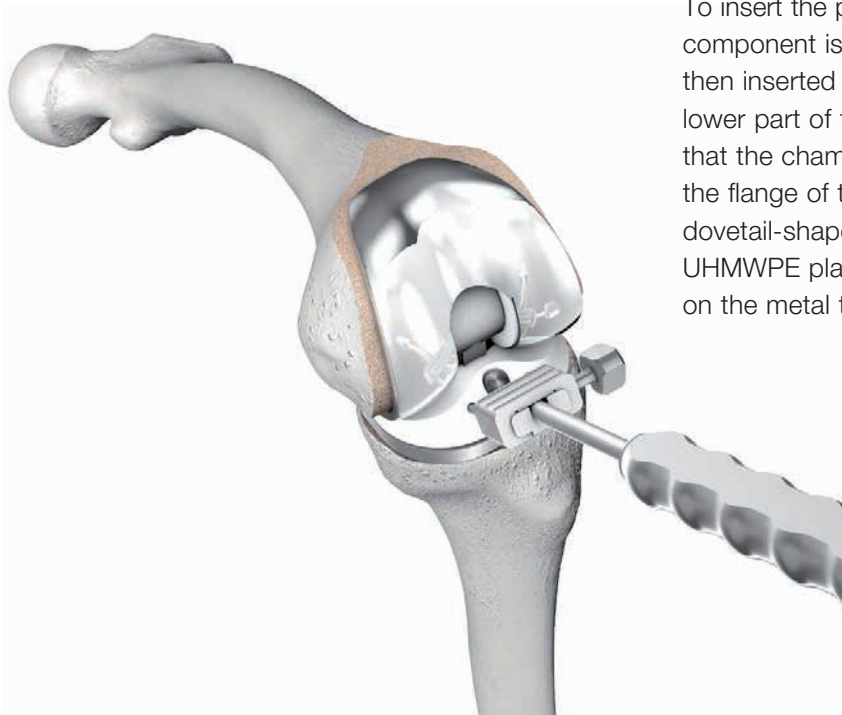
**33**

The polyethylene plateau also has to be removed from the tibial metal tray when the components are fitted together. The lower part pin is inserted into the femoral component with the knee flexed.



**34**

To insert the polyethylene tibial plateau, the femoral component is lifted slightly. The tibial plateau is then inserted from ventral between the upper and lower part of the prosthesis. It must be ensured that the chamber of the plastic plateau grips over the flange of the femoral component and that the dovetail-shaped incision on the bottom of the UHMWPE plateau fits into the peripheral groove on the metal tibial support.

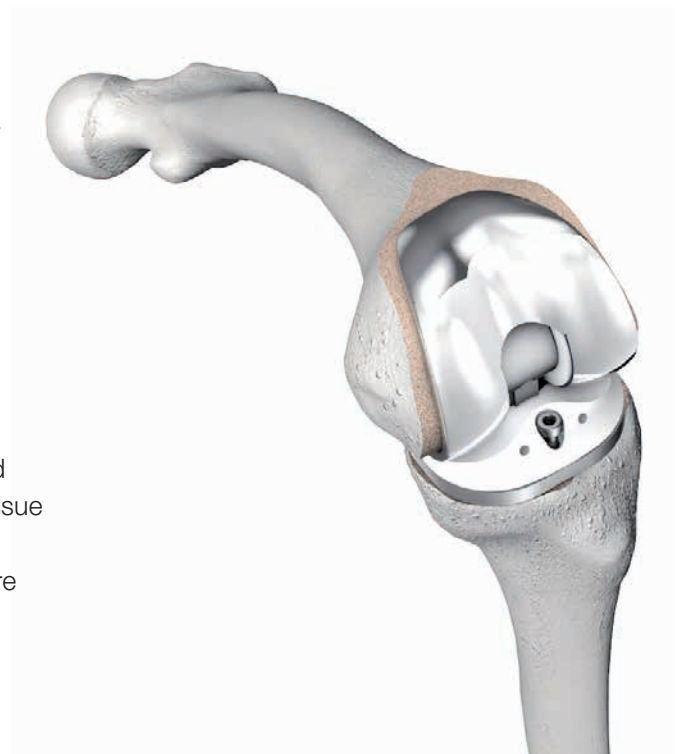
**35**

The PE plateau is secured into place on the tibial metal tray using the 3.5 mm hex socket screwdriver (64-8008/02) and the self-locking fixation screw.

**Important:**

A self-locking fixation screw may only be used for the final assembly of the plateau. If the fixation screw is undone, the screw lock in the PE plateau is destroyed and a new plateau must be inserted.

The implanted rotating hinge knee prosthesis should enable flexion of up to 90° providing that the soft tissue allows this. When extended, slight elastic extension restriction of around 5° is ideal. This serves to ensure the reliable closure of both prosthesis components.



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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.**

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