

Endo-Model Knee Systems Bushing Exchange

Surgical Technique



€€ 0482

Explanation of Pictograms					
***	Manufacturer	REF	Article number		
MAT	Matarial number	CE	Product meets the applicable requirements, which are regulated in		
mai			the EU harmonization legislation for the affixing of the CE marking.		



Endo-Model Knee Systems Bushing Exchange

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Important Information

To assist the reader of this Surgical Technique, the LINK Endo-Model EVO instruments used in the illustrated surgical steps are shown again at the bottom of each page (from 05 to 33). Take care to select the correct size of the instruments according to the individual surgical case.



Rotating Hinge Mechanism - Previous Version (V01)



Rotating Hinge Mechanism – *Current Version (V02)* for Endo-Model and LINK Endo-Model EVO





Pure Hinge Mechanism

for Endo-Model



Pure Hinge Mechanism for LINK Endo-Model EVO

Specific Indications/Contraindications

can be found in the catalog: Endo-Model Rotating Knee Prosthesis System, Surgical Technique



ıpatibility	Opening the condyles of		acement Sets V02 for Endo-Model Rotating Hinge r Information on page 33)	acement Sets for Rotating Hinge Tibial Plateaus r Information on page 35)	acement Sets V02 for Endo-Model Pure Hinge r Information on page 34)	acement Sets for LINK Endo-Model EVO Rotating Hinge r Information on page 36)	acement Sets for LINK Endo-Model EVO Rotating Hinge I Plateau with PE Plateau Screw r Information on page 37, above)	acement-Plateau-Screws r Information on page 37, below)	zteil-Sets für LINK Endo-Model EVO Hinge with Security Screw e Informationen auf Seite 38)
CO	Medial	Lateral	Repl: (furthe	Repl: (furthe	Repl: (furthe	Repls (furthe	Repla Tibia (furthe	Repl (furthe	Ersat Pure (weiter
from Endo-Model V01 to V02 (Bushing Exchange or change of the whole mechanism)	Left Knee	Right Knee	~					~	
Endo-Model V02 (Change of the whole mechanism)	Left Knee	Right Knee	~					~	
Endo-Model V02 (Bushing Exchange)			~					~	
Endo-Model Pure Hinge Knee	Left&Right Knee				~			~	
Endo-Model Plateau change				~				~	
LINK Endo-Model EVO (Change of the whole mechanism)	Left & Right Knee					~		~	
LINK Endo-Model EVO (Bushing Exchange)						~		~	
LINK Endo-Model EVO Plateau change							~	~	
LINK Endo-Model EVO Pure Hinge Knee	Left & Right Knee							~	~



Bushing Exchange – Endo-Model (V01) to Endo-Model (V02)

Removal of the previous Bushing (V01):

The plateau screw is unscrewed with the Slotted Screwdriver **(01)**.





The PE plateau is removed with the Inserter Positioner (02).



The two knee components are separated (03).











The arrow marking on the Centre Punch shows the correct position in the slot of the retaining nut. **(05)**.

To remove the retaining nut us the Centre Punch and place it in a slot of the retaining nut **(04)**.



Correct position



Incorrect position

If it is not possible to position the Centre Punch in a slot of the retaining nut, it is also possible to hit the area in between two slots **(06)**.



Instruments

99-0036/44 Center Punch





As soon as the retaining nut hits against the femoral component when it is being undone, the screw must be hit down with the Center Punch **(07)**.

The rotation bushing is pulled out with the Extraction Forceps **(08 + 09)**.

INFORMATION:

The Extraction Forceps must be inserted carefully to avoid applying excessive expansion pressure, which would cause the bushing to jam in the T-axis (10).

CAUTION:

The axis connection pin must remain in position.





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The axis connection pin must be removed inwards using forceps **(11)**.

The Drill Guide is positioned (12).

CAUTION:

<u>Endo-Model</u>: laterally for a right knee – medially for a left knee.





Fitting together the Tubular Reamer and the Inside Pusher **(13)**.

Instruments



15-2590/40 Extraction Forceps

15-0036/48 Drill Guide, XS-M

15-0036/50 Tubular Reamer, XS-M

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15-0036/52 Inside Pusher

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The Tubular Reamer is used to drill through the condyle until reaching the prosthesis **(14)**.





The polyethylene axis cover is removed and later replaced with a new one. The Hook (15-2590/52) can be used for this purpose **(16)**.

The bone cylinder can be twisted out and reinserted later **(15)**.



Instruments







15-0036/50 Tubular Reamer, XS-M

15-2590/52 Hook for remove the plastic cap of the bearings





The axis is pressed out using the Hook (151-372/00) (to lateral in the case of a right knee - to medial if it is a left knee) (17).

INFORMATION:

Optional: If it proves impossible to remove the axis, the Drill Guide is applied again.

CAUTION:

Endo-Model: medially for a right knee - laterally for a left knee.



The Drill Guide (lateral, Ø 5 mm) is inserted into the Drill Guide Rotating Hinge (18).

A Ø 5-mm-Drill is used to drill a hole in the condyles (19).



Instruments



15-0036/48 Drill Guide Rotating Hinge, XS-M







Insert the current Bushing (V02):

The replacement bearings are inserted from the inside.

CAUTION:

<u>Endo-Model</u>: The bearing with the borehole (24a) is inserted laterally for a right knee and medially for a left knee.

<u>LINK Endo-Model EVO</u>: The bearing with the borehole is always inserted from medial. (24).



The V02 T-axis is reinserted. The recess must point toward dorsal **(25)**.



The new axis is inserted (26).

CAUTION:

<u>Endo-Model</u>: from lateral for a right knee – from medial in a left knee.

LINK Endo-Model EVO: always from medial.





The axis can be adjusted using the Alignment Spike **(27)**.

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The new V02 rotation bushing is carefully inserted until the thread of the screw hits the thread of the V02 T-part.

INFORMATION:

During insertion, the lug of the rotation bushing must point towards the groove in the T-part (28).



Instruments

difficult.

a "click" is heard (29).

INFORMATION:



Screwing in is due to the self-locking screw

The fixation screw of the V02 rotation bushing is tightened with a Torque Wrench size 2.5 mm, until





The new polyethylene axis cover is inserted (30)

CAUTION: <u>Endo-Model</u>: laterally for a right knee – medially for a left knee.

LINK Endo-Model EVO: always from medial.





The bone cylinder is reinserted (31).

The knee components are assembled (32).

INFORMATION:

If the pin on the tibial component is damaged (polish), it is mandatory to change the tibial component. If the existing cement bed is left in situ, whether in its entirety or in part, the new tibial component must be used without a centralizer.









Bushing Exchange – Endo-Model/LINK Endo-Model EVO to Endo-Model/Endo-Model EVO (V02)

The plateau anchoring screw is unscrewed with the Hex Screwdriver size 3.5 mm (01).







The PE plateau is removed with the Inserter Positioner **(02)**.











The fixation screw of the V02 rotation bushing is loosened with a Hex Screwdriver size 2.5 mm (04).

INFORMATION:

The screw is self-locking, which makes it more difficult to undo.



The rotation bushing V02 is completely removed **(06)**.

INFORMATION:

If the rotation bushing does not come out automatically, the Separate Rod must be used to remove the rotation bushing. The Separate Rod must be screwed into the rotation bushing until it stops (07).





The rotation bushing V02 slides out automatically when the fixation screw is loosened from the T-part **(05)**.



Remove the rotation bushing (08).







The new V02 rotation bushing is carefully inserted until the thread of the screw hits the thread of the V02 T-axis.

INFORMATION:

During insertion, the lug of the rotation bushing must point towards the groove in the T-axis (09).



The knee components are assembled (11).

INFORMATION:

If the journal on the tibial component is damaged (polish), it is mandatory to change the tibial component. If the existing cement bed is left in situ, whether in its entirety or in part, the new tibial component must be used without a centralizer.

Instruments



The fixation screw of the V02 rotation bushing is tightened with a Torque Wrench size 2.5 mm, until a "click" is heard **(10)**.

INFORMATION:

Screwing in is due to the self-locking screw difficult.



15-2545 Torque Wrench, hex 2.5 mm



Inserting the replacement tibial plateau with the Inserter Positioner (12).





The replacement plateau screw (V02) is screwed in with the Hex Screwdriver size 3.5 mm **(13)**.



Replacement of the complete Mechanism V02

The plateau anchoring screw is unscrewed with the Hex Screwdriver size 3.5 mm (01).





The PE plateau is removed with the Inserter Positioner **(02)**.

The two knee components are separated (03).









The fixation screw of the V02 rotation bushing is loosened with a Hex Screwdriver size 2.5 mm (04).

INFORMATION:

The screw is self-locking, which makes it more difficult to undo.



The rotation bushing V02 is completely removed (06).

INFORMATION:

If the rotation bushing does not come out auto-matically, the Separate Rod must be used to remove the rotation bushing. The Separate Rod must be screwed into the rotation bushing until it stops (07).





The rotation bushing V02 slides out automatically when the fixation screw is loosened from the T-axis **(05)**.



Remove the rotation bushing (08).







The Drill Guide Rotating Hinge (version V02) is positioned **(09)**.

CAUTION:

<u>Endo-Model</u>: laterally for a right knee – medially for a left knee.

<u>LINK Endo-Model EVO</u>: medially for a left or right knee.

See also table on page 04 .





Fitting together the Tubular Reamer and the Inside Pusher **(10)**.

The Tubular Reamer is used to drill through the condyle until reaching the prosthesis **(11)**.

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The bone cylinder can be twisted out and reinserted later **(12)**.

Instruments

12



15-0036/46 Drill Guide Rotating Hinge, version V02, XS-M

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15-0036/50 Tubular Reamer, Ø 23 mm, XS-M

15-0036/52 Inside Pusher for Tubular Reamer



The polyethylene axis cover is removed and later replaced with a new one. The Hook (15-2590/52) can be used for this purpose **(13)**.





The axis is pressed out using the Hook (151-372/00) **(14, 15)**.

CAUTION:

<u>Endo-Mode</u>l: to lateral in the case of a right knee - to medial if it is a left knee.

LINK Endo-Model EVO: always from medial.









A \emptyset 5-mm-Metal Drill is used to drill a hole in the condyles (17).

Optional: If it proves impossible to remove the

Endo-Model: laterally for a left knee - medially for

LINK Endo-Model EVO: always from medial.

The Drill Guide (lateral, Ø 5 mm) is inserted into the

axis, the Drill Guide is applied again.

INFORMATION:

CAUTION:

a right knee.

Drill Guide Rotating Hinge (16).



The axis can be knocked out using the Extractor (18+19).





The T-axis V02 is removed (20).





The bearings are pressed inwards and removed (21).





The V02 T-axis is reinserted. The recess must point toward dorsal **(23)**.

CAUTION:

<u>Endo-Model</u>: The bearing with the borehole (22a) is inserted laterally for a right knee and medially for a left knee.

<u>LINK Endo-Model EVO</u>: The bearing with the bore hole is always inserted from medial.

The replacement bearings are inserted from the inside **(22)**.





The new axis is inserted (24).

CAUTION:

<u>Endo-Model:</u> from lateral for a right knee – from medial in a left knee. <u>LINK Endo-Model EVO</u>: always from medial.





The axis can be adjusted using the Alignment Spike **(25)**.

The new V02 rotation bushing is carefully inserted until the thread of the screw hits the thread of the V02 T-axis.

INFORMATION:

During insertion, the lug of the rotation bushing must point towards the groove in the T-axis (26).







The fixation screw of the V02 rotation bushing is tightened with a Torque Wrench size 2.5 mm (27).





The new polyethylene axis cover is inserted (28).

CAUTION: <u>Endo-Model</u>: laterally for a right knee – medially for a left knee. <u>LINK Endo-Model EVO</u>: always from medial.

The bone cylinder is reinserted (29).





15-2545 Torque Wrench, hex 2.5 mm



The knee components are assembled (30).

INFORMATION:

If the pin on the tibial component is damaged (polish), it is mandatory to change the tibial component. If the existing cement bed is left in situ, whether in its entirety or in part, the new tibial component must be used without a centralizer.





Inserting the replacement tibial plateau with the Inserter Positioner **(31)**.

The replacement plateau screw (V02) is screwed in with the Hex Screwdriver size 3.5 mm (32).









Changing the Hinge Axis

With grub screw

The cement above the grub screw must be removed **(01)**.



With self-locking screw (LINK Endo-Model EVO)

Remove the self-locking screw with the Torque Wrench **(03)**.

INFORMATION:

The screw is self-locking, which makes it more difficult to undo.





The grub screw is removed with the Screwdriver **(02)**. Continue at Step 04.



The Revision Drill Guide is inserted medially into the thread of the grub screw or self-locking screw (04).

Instruments







15-2550 Screwdriver, for slotted head screws

15-2583/00 Revision Drill Guide

15-2545 Torque Wrench, for self-locking screw



Fitting together the Tubular Reamer and the Inside Pusher **(05)**.





The bone cylinder is twisted out and reinserted later **(07)**.

The Tubular Reamer is used to drill through the condyle until reaching the prosthesis **(06)**.





The Revision Drill Guide is removed again (08).

Instruments



15-2582/15 Tubular Reamer, Ø 15 mm



15-2583/00 Revision Drill Guide





The axis is removed with the Separate Rod (09, 10).





The knee components are separated (11).

Instruments



15-2540 Separate Rod



The existing bearings are replaced with the new ones (12).

CAUTION:

The bearing with the borehole must be positioned medially because the prosthesis axis is inserted from medial.





The tibial component is inserted into the femoral component and adjusted with the Trial Axis. A test is then carried out **(13)**.

Then the top and bottom parts of the prosthesis are locked together with the final prosthesis axis, which is installed on the Separate Rod.

When doing this, make sure that the arrow on the axis is pointing toward the screw hole **(14).** In the next step, the grub screw can be screwed in.



Instruments





15-2540 Separate Rod

15-2596 Trial Axis



With Grub Screw

The grub screw is screwed in with the Screwdriver to secure the axis position **(15)**. If the grub screw cannot be screwed fully into the T-axis, this means that the screw hole in the axis is not correctly aligned. The alignment must be checked and, if necessary, corrected.

In order to prevent the screw from working loose, the end screw hole must be sealed with bone cement above the grub screw **(16)**. The reamed bone cylinder is reinserted into the medial femoral condyle.

With self-locking Screw (LINK Endo-Model EVO)

Screw in the self-locking screw with a Torque Wrench (17). This secures the axis position. If the self-locking screw cannot be screwed fully into the T-part, this means that the screw hole in the axis is not correctly aligned. The self-locking screw (18) must be screwed in until it is located under the peripheral chamfer (19).

INFORMATION:

The screw is self-locking, which makes it more difficult to tighten.

The reamed bone cylinder is reinserted into the medial femoral condyle (20).









Replacement Sets V02 for Endo-Model Rotating Hinge

Replacement Sets, for Rotating Hinge Version V02,

with anti-luxation device **MAT** CoCrMo, UHMWPE

REF	Side	Size
15-0027/10	right/left	x-small (XS)
15-0027/11	right/left	small (S)
15-0027/12	right/left	medium (M)
15-0027/13	right/left	large (L)

Version V02

Each package contains:

- Complete coupling mechnism
- Bearings
- PE plateau und plateau anchoring screw

Replacement Sets, for Rotating Hinge Version V02,

with anti-luxation device

REF	Side	Size
15-3027/10	right/left	x-small (XS)
15-3027/11	right/left	small (S)
15-3027/12	right/left	medium (M)
15-3027/13	right/left	large (L)

Version V02

Each package contains:

- Complete coupling mechnism
- Bearings
- PE plateau und plateau anchoring screw





* LINK PorEx: TiNbN = Titanium-Niobium-Nitride; hypoallergenic coating (gold colour).



Replacement Sets V02 for Endo-Model Pure Hinge

Replacement Sets, for Pure Hinge Version V02,

with anti-luxation device MAT CoCrMo, UHMWPE

REF	Side	Size
15-0027/20	right	x-small (XS)
15-0027/21	right	small (S)
15-0027/22	right	medium (M)
15-0027/23	right	large (L)
15-0027/30	left	x-small (XS)
15-0027/31	left	small (S)
15-0027/32	left	medium (M)
15-0027/33	left	large (L)



Version V02

Each package contains:

- Complete coupling mechnism
- Bearings
- PE plateau und plateau anchoring screw



Replacement Sets V02 for Endo-Model Rotating Hinge – Tibial Plateaus V02

Replacement Sets, for Rotating Hinge – Tibial Plateaus V02, with security screw MAT CoCrMo, UHMWPE

REF	Size	
15-0027/17	x-small (XS)	
15-0027/14	small (S)	
15-0027/15	medium (M)	
15-0027/16	large (L)	

Version V02

Each package contains:

• PE plateau und plateau anchoring screw



Replacement Sets, for Rotating Hinge – Tibial Plateaus V02, with security screw MAT CoCrMo/LINK PorEx*, UHMWPE

REF	Size	
15-0037/17	x-small (XS)	
15-0037/14	small (S)	
15-0037/15	medium (M)	
15-0037/16	large (L)	

Version V02

Each package contains:

• PE plateau und plateau anchoring screw



* LINK PorEx: TiNbN = Titanium-Niobium-Nitride; hypoallergenic coating (gold colour).



Replacement Sets for LINK Endo-Model EVO Rotating Hinge Version



MAT CoCrMo, UHMWPE

REF	Side	Size
15-0037/10	right	x-small (XS)
15-0037/11	right	small (S)
15-0037/12	right	medium (M)
15-0037/13	right	large (L)
15-0037/06	left	x-small (XS)
15-0037/07	left	small (S)
15-0037/08	left	medium (M)
15-0037/09	left	large (L)

Each package contains:

- Complete coupling mechnism
- Bearings
- PE plateau und plateau anchoring screw
- Plastic strip



MAT CoCrMo/LINK PorEx*, UHMWPE

REF	Side	Size
15-9537/10	right	x-small (XS)
15-9537/11	right	small (S)
15-9537/12	right	medium (M)
15-9537/13	right	large (L)
15-9537/06	left	x-small (XS)
15-9537/07	left	small (S)
15-9537/08	left	medium (M)
15-9537/09	left	large (L)

Each package contains:

- Complete coupling mechnism
- Bearings
- PE plateau und plateau anchoring screw
- Plastic strip

* LINK PorEx: TiNbN = Titanium-Niobium-Nitride; hypoallergenic coating (gold colour).

Implants



Replacement Sets for LINK Endo-Model EVO Rotating Hinge Tibial Plateau with Plateau Screw



MAT CoCrMo, UHMWPE

REF	Side	Size
15-0037/18	neutral	x-small (XS)
15-0037/19	neutral	small (S)
15-0037/20	neutral	medium (M)
15-0037/21	neutral	large (L)

Each package contains:

• PE plateau and plateau screw

MAT CoCrMo/LINK PorEx*, UHMWPE

REF	Side	Size
15-9537/14	neutral	x-small (XS)
15-9537/15	neutral	small (S)
15-9537/16	neutral	medium (M)
15-9537/17	neutral	large (L)

Each package contains:

• PE plateau and plateau screw

Replacement Sets for Plateau Screw





REF	Side	Size	
15-0037/30	neutral	neutral	

MAT CoCrMo/LINK PorEx*

REF	Side	Size
15-0037/31	neutral	neutral



* LINK PorEx: TiNbN = Titanium-Niobium-Nitride; hypoallergenic coating (gold colour).



Replacement Sets for LINK Endo-Model EVO Pure Hinge with Security Screw*



MAT CoCrMo, UHMWPE, Ti6Al4V

REF	Side	Size
15-0037/22	right	x-small (XS)
15-0037/23	right	small (S)
15-0037/24	right	medium (M)
15-0037/25	right	large (L)
15-0037/26	left	x-small (XS)
15-0037/27	left	small (S)
15-0037/28	left	medium (M)
15-0037/29	left	large (L)

Each package contains:

- Complete coupling mechanism (Axis, Security Screw)
- Bearings
- Assembly bearings
- PE plateau and plateau anchoring screw
- * with LINK PorEx surface modification available on request as custom-made implant.





151-19/00 Bushing Exchange Instrument Set, Rotating Hinge

1	151-19/19	Instrument Tray, Rotating Hinge, empty, upper tray
2	64-8008/02	Hex Screwdriver, hex 3.5 mm, 250 mm
3	10-5373/01	Hex Screwdriver, hex 2.5 mm, 180 mm
4	15-2544	Separate Rod for removal of the Rotating Bushing Version V02, Ø M5, 210 mm
5	151-372/00	Hook to remove the axis
6	15-2590/52	Hook to remove the plastic cap of the bearings
7	15-2545	Torque Wrench, hex 2.5 mm, 205 mm
8	15-2590/40	Extraction Forceps for Rotating Hinge Bushing
9	15-8035/03	Inserter Positioner for PE plateaus, XS
10	15-8035/02	Inserter Positioner for PE plateaus, S-L
11	15-0036/50	Tubular Reamer, Ø 23 mm, XS-M
12	15-0036/51	Tubular Reamer, Ø 26 mm, L
13	15-0036/52	Inside Pusher for Tubular Reamer
14	99-0036/44	Center Punch
15	15-1436/09	Drill, Ø 5 mm, 85 mm





151-19/00 Bushing Exchange Instrument Set, Rotating Hinge

1	151-19/19	Instrument Tray, Rotating Hinge, empty, lower tray
2	15-0036/46	Drill Guide, for Rotating Hinge Version V02, XS-M
3	15-0036/47	Drill Guide, for Rotating Hinge Version V02, L
4	151-129/00	Drill Guide, lateral, Ø 5 mm, XS-M
5	151-129/03	Drill Guide, lateral, Ø 5 mm, L
6	151-012/00	Extractor, for axis
7	322-145/01	Screwdriver, for plateau screw V01
8	15-0036/42	Alignment Spike, for axis and T-axis small/medium
9	15-0036/43	Alignment Spike, for axis and T-axis large
10	15-0036/48	Drill Guide, for Rotating Hinge Version V01, XS-M
11	15-0036/49	Drill Guide, for Rotating Hinge Version V02, L



151-20/00 Bushing Exchange Instrument Set, Pure Hinge



1	151-20/20	Instrument Tray, Pure Hinge, empty
2	15-2583/00	Revision Drill Guide, Pure Hinge (2 pieces)
3	151-013/00	Drill Guide, Pure Hinge, XS-M
4	151-013/01	Drill Guide, Pure Hinge, L
5	15-2545	Torque Wrench, hex 2.5 mm, 205 mm
6	322-145/01	Screwdriver, for plateau screw V01
7	64-8008/02	Hex Screwdriver, hex 3.5 mm, 250 mm
8	15-2540	Separate Rod, 210 mm
9	15-2596	Trial Axis, 250 mm
10	15-2042	Inserting Forceps, 215 mm
11	15-8035/03	Inserter Positioner, for PE plateaus, XS
12	15-8035/02	Inserter Positioner, for PE plateaus, S-L
13	15-2550	Screwdriver, 198 mm
14	151-130/00	Trial Plateau, Pure Hinge, XS
15	151-130/01	Trial Plateau, Pure Hinge, S
16	151-130/02	Trial Plateau, Pure Hinge, M
17	151-130/03	Trial Plateau, Pure Hinge, L
18	15-0036/52	Inside Pusher, for Tubular Reamer
19	15-2582/15	Tubular Reamer, Ø 15 mm







For more information please register for our LINK Media Library (linkorthopaedics.com)





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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Waldemar Link GmbH & Co. KG Barkhausenweg 10 · 22339 Hamburg · Germany Phone +49 40 53995-0 · info@linkhh.de www.linkorthopaedics.com

