







LINK Modular Trauma Heads

CE 0482

Explanation of Pictograms			
	Manufacturer		Article number
	Material (number)		Product meets the applicable requirements, which are regulated in the EU harmonization legislation for the affixing of the CE marking.

LINK Modular Trauma Heads

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System Description

LINK Modular Trauma Heads

The LINK Modular Trauma Heads are manufactured from LINK EndoDur cobalt-chromium-molybdenum alloy. A highly polished surface is provided for articulation in the bony acetabulum. The Trauma Heads are used in conjunction with femoral components of LINK Total Hip Systems with 12/14 taper.

The LINK Modular Trauma Heads are available with external diameters ranging from 38 to 62 mm. Acetabular prostheses that are too small or too large lead to bone reactions due to inadequate load distribution in the bony acetabulum. Choosing a component that fits the finely graduated range of sizes, such complication can be avoided.

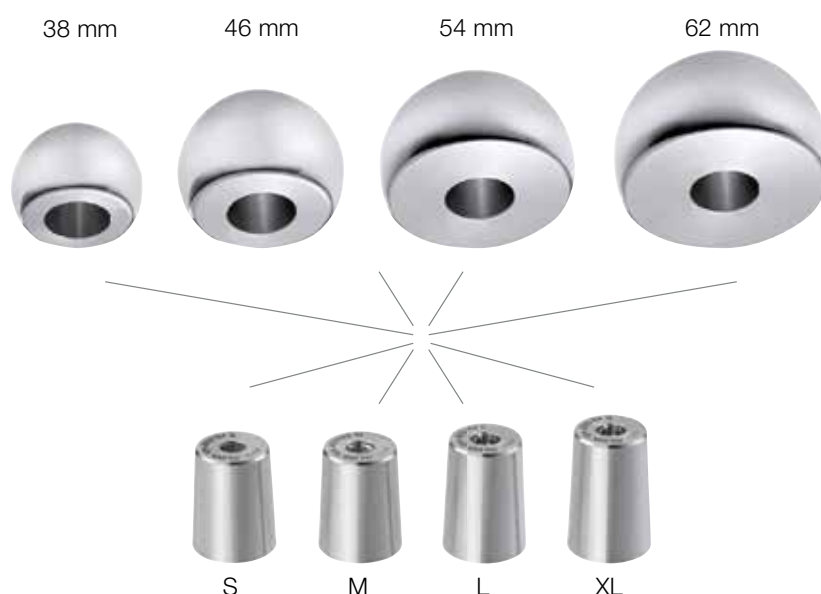
To obtain optimal stability and soft tissue balancing there are four different adapters to vary the neck length of each head. S -4 mm, M 0 mm, L +4 mm and XL +8 mm

Features and Advantages

- Instrument sets for LINK Modular Trauma Heads are easy to use
- Optimised stability and soft tissue balancing due to adapter options
- Wear is minimized because of exact size matching and precision manufacturing
- LINK Modular Trauma Heads and sleeves are made from EndoDur CoCrMo cast alloy
- Natural range of motion is restored
- Simple implantation

Note

LINK prosthesis components are manufactured to ensure compatibility within our systems allowing appropriate components to be combined. Such system parts cannot be used with hip components of other manufacturers.



Note

Specific Indications/Contraindications see page 14.

Preoperative Planning

Preoperative planning is essential for optimal surgical outcomes in order to ensure the most appropriate implant is selected for the patient. The key objectives involved are the correct positioning of the central rotational point of the hip, correct leg length and preservation or restoration of sufficient soft tissue tension by avoiding medialisation of the femur.

Achieving anatomically appropriate CCD or neck angle and head-neck length are of paramount importance. Thus femoral LINK Modular Trauma Heads come with up to four head-neck lengths providing great versatility.

Planning should ideally be based on two X-rays: an AP view of the pelvis and a mediolateral X-ray of the hip in question. When performing the pelvic X-ray it is important to ensure that:

1. Both femurs are shown in their entirety.
2. The femurs are straight and parallel and internally rotated approximately 5°.
3. Key landmarks needed for planning are visible: the inferior margins of the obturator foramen and of the acetabular teardrop.

When evaluating the X-rays, it is important to factor in any magnification incurred. Two factors are decisive:

1) Focal distance

Focal spot X-ray tube $\leftarrow x \rightarrow$ Film cassette

A focal distance of 100 cm results in magnification of about 10%.

2) Object film distance

Femoral axis $\leftarrow x \rightarrow$ Film cassette

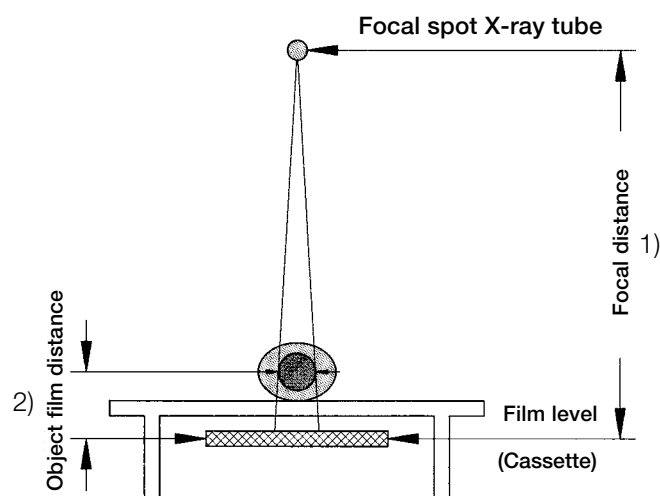


Fig. 1

Practical steps

First, geometrical measurements are taken on the basis of the pelvic radiograph. This can be done on the X-ray directly (Fig. 2), but it is better to trace the skeletal contours on tracing paper (Fig. 3).

A horizontal reference line is drawn along the inferior margins of the obturator foramen, followed by a vertical reference line along the sacral crest, ideally passing through the center of the pubic symphysis.

From these two lines, the center of rotation, difference in leg length, left/right femoral distance, distance between the left/right muscle T lever arms, etc. are defined and marked on the tracing paper.

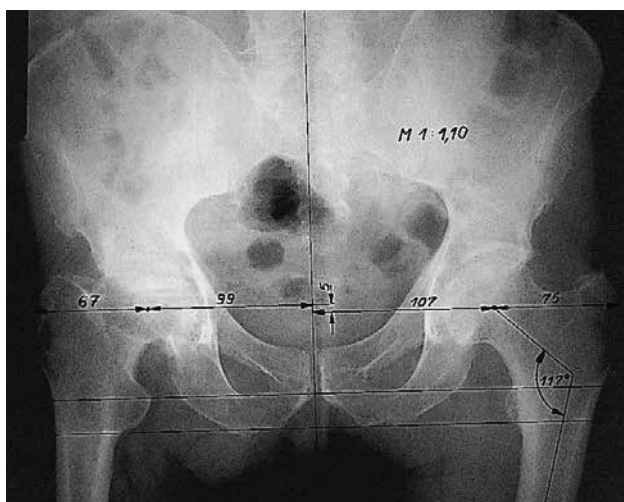


Fig. 2

Once the dimensions have been entered, the templates are used to select the best implant components for the particular case. The template is positioned on the radiograph such that the center of rotation coincides with the anatomical center of rotation as determined in the drawing. The implant components selected should correct any anatomical insufficiencies derived from the measurements.

This provides an overview and landmarks for orientation during surgery, e.g. transfer of dimensional reference to the bone. It must always be remembered that the measurements on the radiograph include a magnification effect that must be allowed for if the measurements are transferred to bone. If the magnification is 10%, measurements taken from the radiograph must be divided by 1.1. So, for example, 60 mm apparent \div 1.1 = 54.5 mm actual measurement. The same applies for other magnifications: e.g. at 15% magnification a 60 mm apparent measurement gives 60 mm \div 1.15 = 52.2 mm actual measurement.

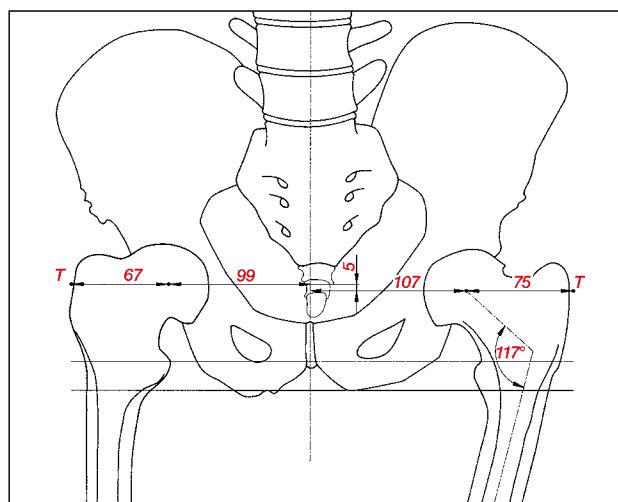


Fig. 3

In addition to pelvic radiograph, the mediolateral radiograph is used to determine the stem shape and size of the femoral prosthesis as seen from the lateral view.

The planned result becomes more apparent when the transparent sheet with the outlined skeletal contours, measurements, and sketched-in position of the acetabular cup is placed on top of the radiograph and adjusted so that the femur in the radiograph is in the desired outcome position in relation to the drawing of the pelvis. This position is then traced onto the tracing paper, preferably in a different color (Fig. 4).

The differences on the tracing paper, e.g. actual and planned positions of the femur, provide the visual overview required for surgical planning and precise selection of the implant components using the X-ray templates or, if necessary, for custom-design implants (Fig. 5).

Materials required:

1. Tracing paper
2. Transparent ruler, 1:1
3. Transparent protractor
4. Transparent radius/hole template
 \varnothing 24 to 58 mm, in 2 mm increments

Note

Preoperative planning may be time-consuming but it provides intraoperative guidance and can enhance the final result.

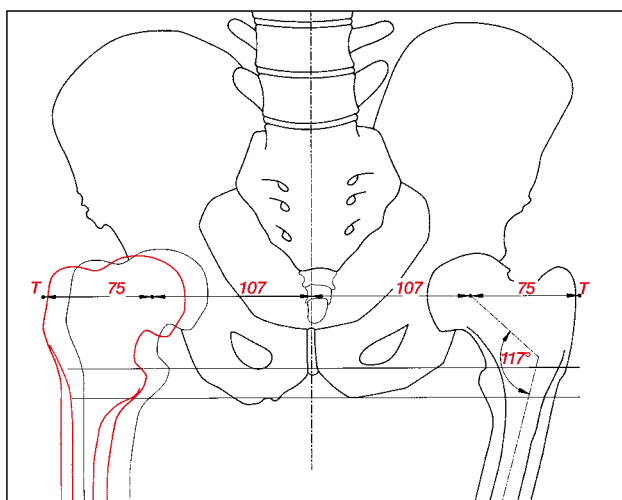


Fig. 4

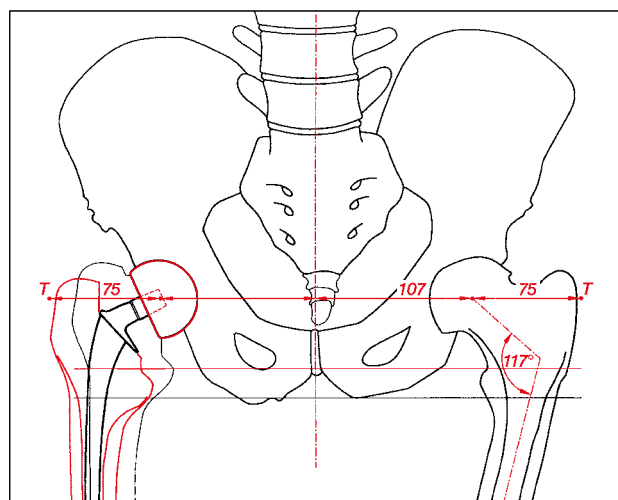


Fig. 5



Surgical Approaches

The choice depends on the surgeon's experience and his/her decision based on the individual situation.

The following approaches are usual:

- antero-lateral – **Watson Jones** (Fig. A)
- lateral – **Hardinge** (Fig. B)
- postero-lateral – **Moore** (Fig. C)

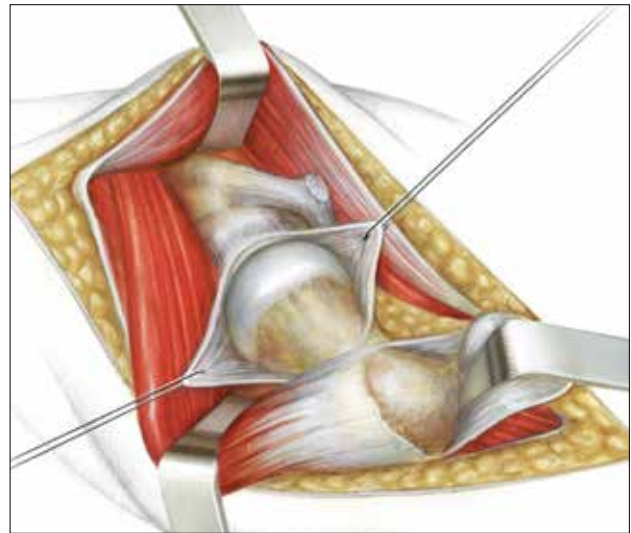


Fig. A: **Watson Jones**

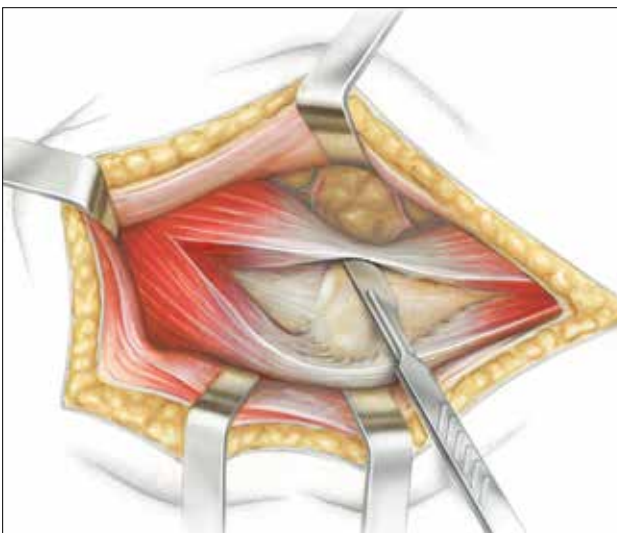


Fig. B: **Hardinge**

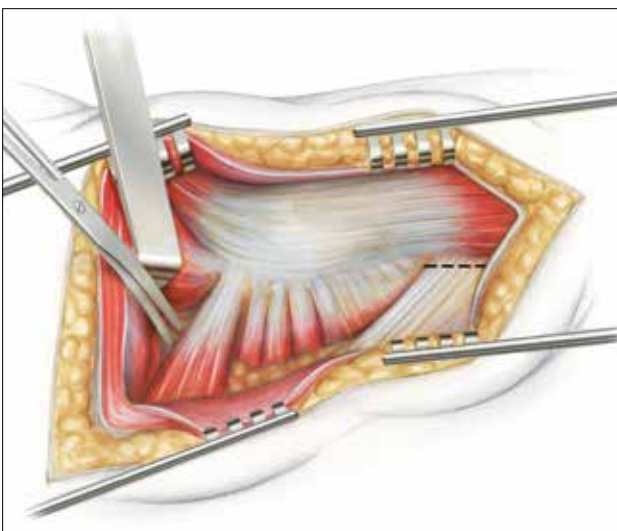
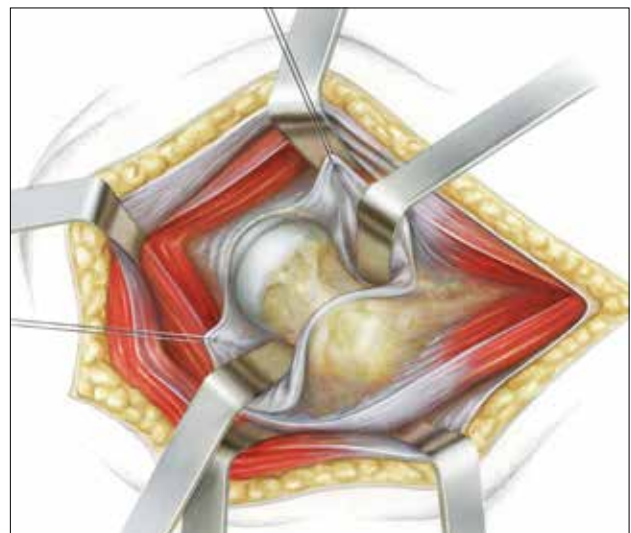
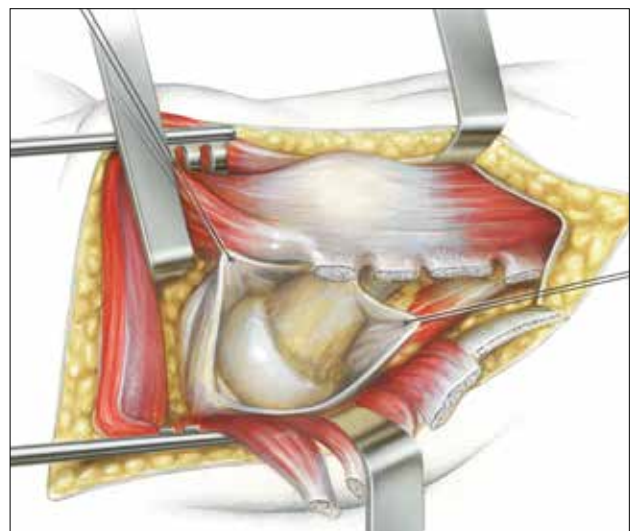


Fig. C: **Moore**



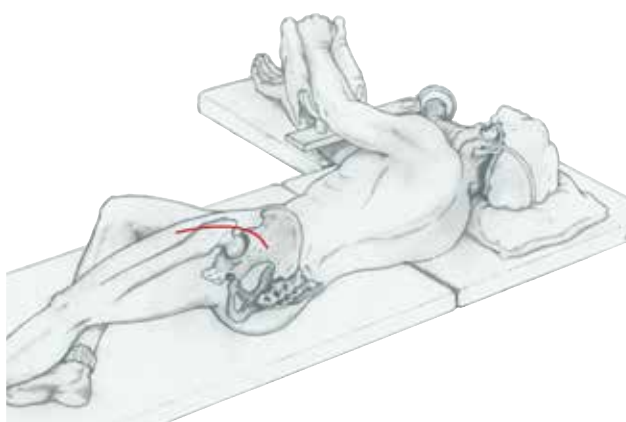


Fig. 1

The patient is placed in the lateral decubitus position. The recommended approach is dorsolateral. A different approach may be used depending on the surgeon's experience.



Fig. 2

The femoral head is luxated using internal rotation and 90° flexion of the femur.

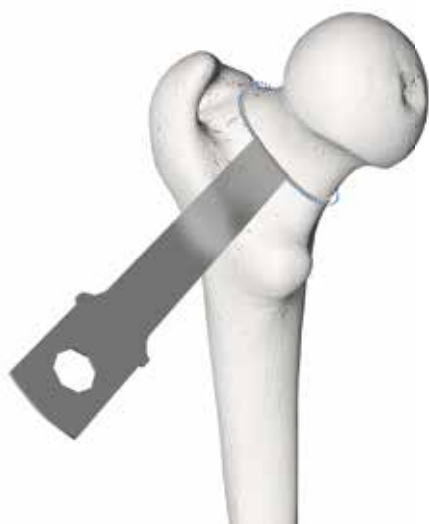


Fig. 3

The femur is prepared according to the surgical technique of the used LINK Hip stem.



Fig. 4

The acetabulum is exposed after femoral head resection.

Note

Surgical techniques of the different prosthesis-systems are described in detail in separate catalogues for each individual system (see page 13; Additional Hip Systems).



Fig. 5

Use the plastic trial heads to confirm the head size preoperatively planned. The heads can be attached to the handle to allow easy access of the trials to the acetabulum.

Note

Osteophytes at the acetabulum that could limit the ROM should be removed.

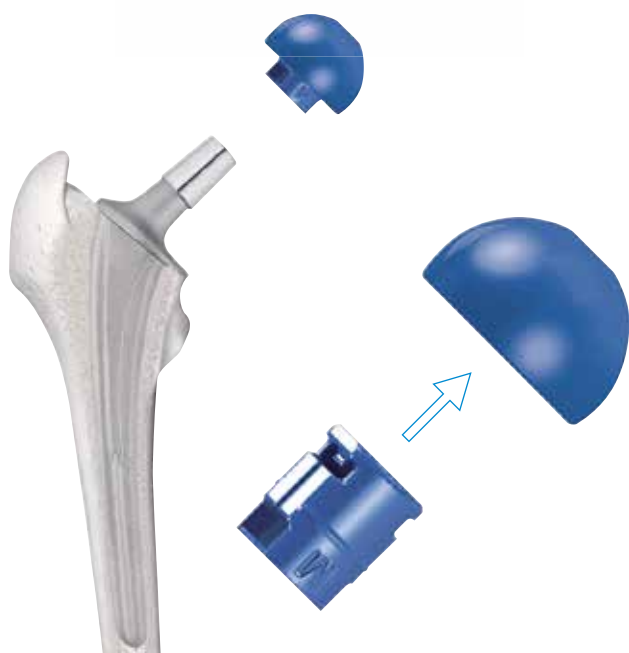


Fig. 6

Put the preplanned trial adapter and trial head on the implanted stem for a trial reduction.

The different trial sleeves and heads are then used to check for optimal offset and correct leg length and to test whether stability is adequate. The range of movement is also checked to avoid impingement of bone and implant and rule out any instability. When all checks have been made, the trial head and trial sleeve are removed by hand.



Fig. 7

Take the final Implant head and hold it with the flat surface facing up parallel to the floor. Put the final adapter in the head and gently press the adapter down with light finger pressure.

The sleeve is placed correctly when the rim of the sleeve is parallel to the flat surface of the head. Carefully turn the head with the adapter in place upside down to verify that the sleeve is fixed in the head and does not fall down.

Note

All tapers are to be connected in dry and clean condition.



Fig. 8

Place the combined head and adaptor on the carefully cleaned taper of the stem. Fix the head with light tap on the impactor.

Note

All tapers are to be connected in dry and clean condition.



Fig. 9

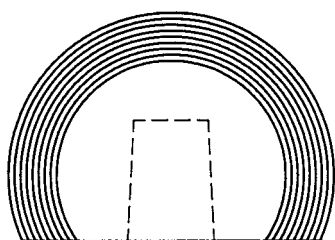
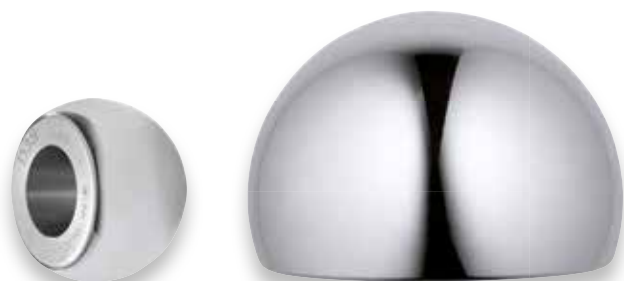
Final reduction

Note

The articulating surfaces are not to be damaged during reduction.

LINK Modular Trauma Heads

MAT EndoDur CoCrMo alloy



Head Ø 38 - 62 mm

REF	Head Ø mm
106-001/38	38
106-001/40	40
106-001/42	42
106-001/44	44
106-001/46	46
106-001/48	48
106-001/50	50
106-001/52	52
106-001/54	54
106-001/56	56
106-001/58	58
106-001/60	60
106-001/62	62

Note

LINK Modular Trauma Heads must be used with sleeves.

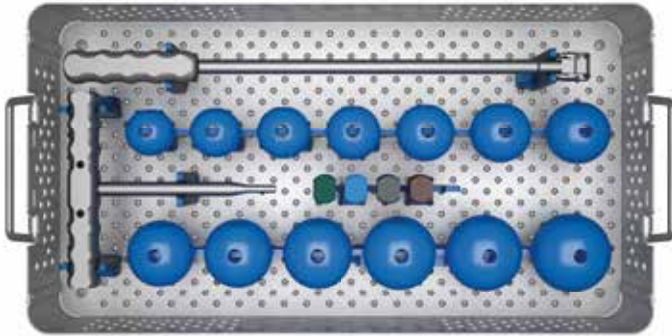
Sleeves

MAT EndoDur CoCrMo alloy



REF	Size mm	Neck length mm
106-002/01	S	-4
106-002/02	M	0
106-002/03	L	+4
106-002/04	XL	+8

Instrument Set for LINK Modular Trauma Heads



106-003/00

Instrument Set, complete

consisting of:

106-004/00

Tray, empty

perforated stainless steel

106-006/00

Extractor

106-007/00

Handle for Cup Trial

106-010/38 through 106-010/62

Plastic Trial Heads

106-020/01 through 106-020/04

Plastic Trial Sleeves

05-2002/03 N21 Standard Container, 575 x 275 x 130 mm

Plastic Trial Heads

REF	Ø mm	REF	Ø mm
106-010/38	38	106-010/52	52
106-010/40	40	106-010/54	54
106-010/42	42	106-010/56	56
106-010/44	44	106-010/58	58
106-010/46	46	106-010/60	60
106-010/48	48	106-010/62	62
106-010/50	50		

Plastic Trial Sleeves

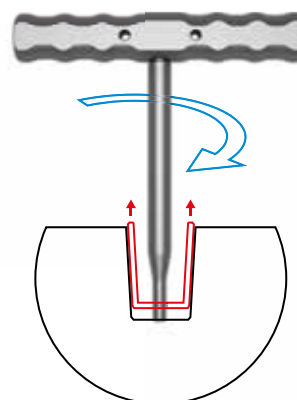


REF	Neck length	Version	Color
106-020/01	short	S	green
106-020/02	medium	M	blue
106-020/03	long	L	black
106-020/04	extra long	XL	brown

Extractor for sleeves

106-006/00

If a sleeve has to be extracted from the stem or head, the Extractor can be used. The connection thread at the tip of the Extractor can be screwed into the thread of the sleeve. After inserting the Extractor, and by gentle pulling, the sleeve gets pulled off the taper.

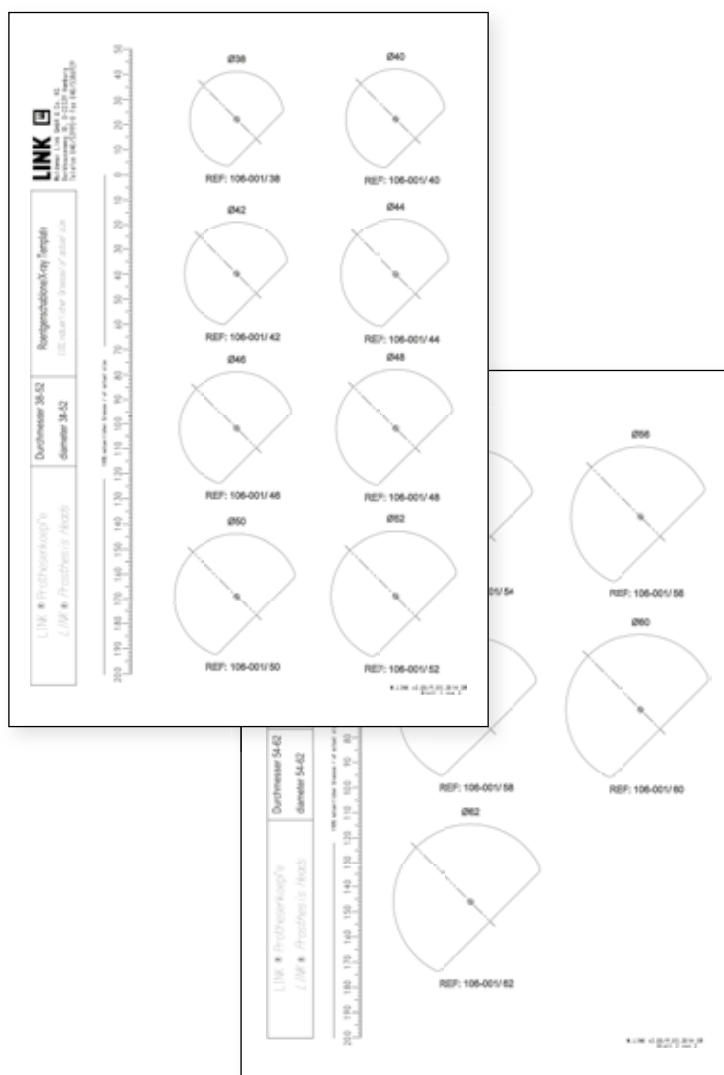


X-ray Templates

106-030/01

X-ray templates for LINK Modular Trauma Head Prostheses
 Ø 38-62 mm, taper 12/14, set of 2 sheets, 110% actual size

The point in the templates marks the geometrical center of the head.
 To adjust the neck length, when planning, this point has to be positioned on the corresponding point (S, M, L or XL) on the template of the stem.



Literature

Siegel, A., Rückert, U., Wenzl, M.

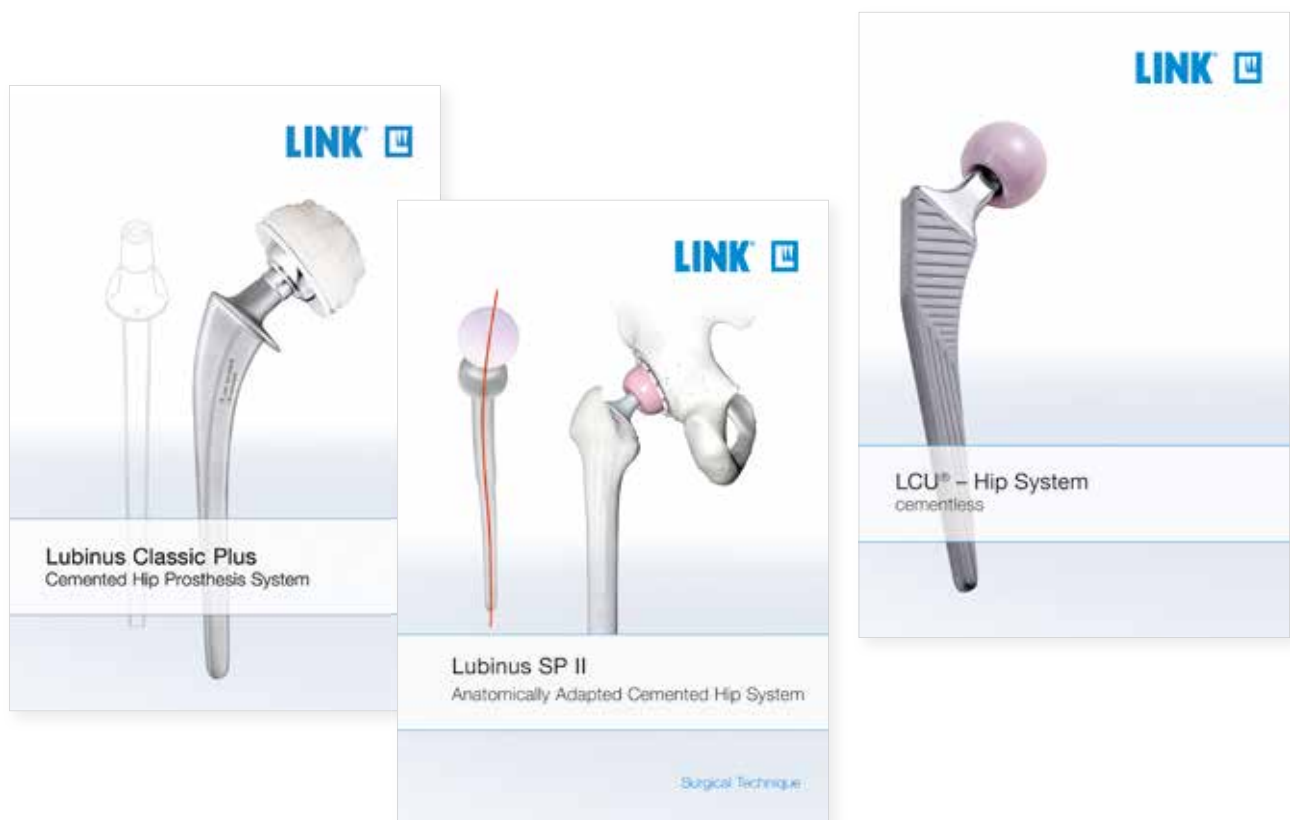
Seltene Indikation zur Anwendung einer einfachen Hüftgelenkdrothese mit übergroßem Kopf nach zahlreichen unbefriedigenden Wechseloperationen. Sonderdruck aus Chirurg 70: 1353-1356 (1999)

Niebuhr, H., Nahrstedt, U., Brüning, M., Rückert, K.

Die Variokopfdoprothese in der Behandlung der Schenkelhals- und schenkelhalsnahen Fraktur. Unfallchirurgie, Sonderdruck 17:146-151 (1991)

Additional Hip Systems

The **LINK Modular Trauma Heads** can be combined with all hip stems of LINK Hip Systems:



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

Indications/Contraindications

Indicated indications and contraindications: LINK Modular Trauma Heads Prostheses
General Indications
Mobility-limiting diseases, fractures or defects which cannot be treated by conservative or osteosynthetic procedures.
Indications
Primary and secondary coxarthrosis
Osteoarthritis
Necrosis of the femoral head*
Femoral neck fractures*
Revision after implant loosening
Contraindications
Poor general state of health
Acute and chronic infections, local and systemic
Allergies to (implant) materials
Distinctive muscular, nerve, vascular or other diseases which put the affected limb at risk
Insufficient/inadequate bone mass- or quality which prevents a stable anchor of the prosthesis
Acetabulum fracture
Relative Contraindications
Adiposity
Lacking or foreseeable not assured compliance
Foreseeable overload/overstressing of the joint prosthesis
Acetabular defects

*for older, less mobile or immobile patients

Please note

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.

However, the following side effects/complications:

- periprosthetic fracture of the acetabulum if the head is too large
- damage of the sciatic nerve

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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