Pelvis Support

Type RR & Type RC

Surgical Technique

CE 0482

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

Pelvis Support
Type RR & Type RC

Philosophy

Pelvis Support Implant Type RR

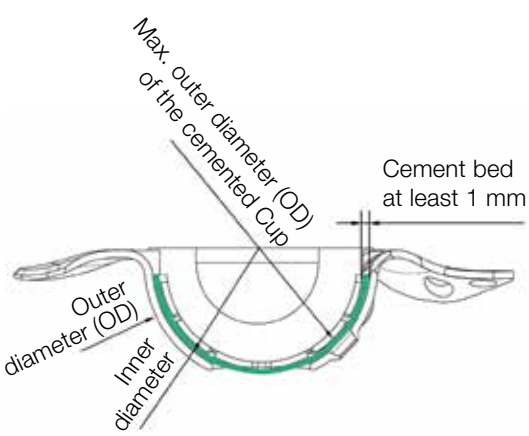
Pelvis Support Implant Type RC

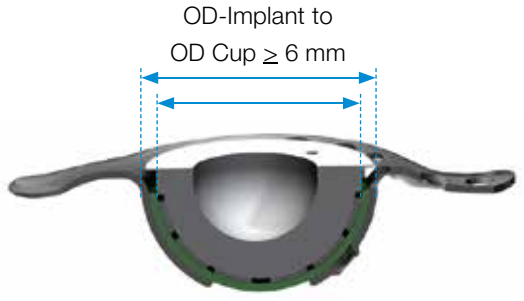
The number of primary hip operations grow due to the age increase of the world population. Consequently, the number of hip revision operations increases as well. In some cases of acetabular revision, the acetabular implants developed specifically for this purpose are not adequate. Secure and lasting fixation cannot be assured and the center of rotation of the joint cannot be reconstructed. Traditional cemented and cementless revision cups are becoming increasingly difficult to anchor because of large bone defects and inadequate bone quality. Pelvis Support Type RR and Type RC can be used to bridge those defect.

In extensive defects autologous bone material can be used to reconstruct the defect area, supporting implants need to be used complementary. They must be stable enough to transfer the forces exerted at the joint and must also offer fixation options that extend beyond the standard methods such as press-fit and additional screw fixation. Pelvis Support Type RR and Type RC allow extra screws to be used for fixation and are able to take advantage of additional support from the cranio-dorsal edge of the cup (Type RR) or the ilium and ischium (Type RC).

Once the bone defect has been reconstructed with autologous bone, both Pelvis Support implants are fixed with additional bone screws but without cement. Type RC implants can be adjusted to suit the patient's anatomy if necessary. Standard acetabular cups are then cemented into the cavity of the Pelvis Support implant.

Definition of the implant size





Example:

OD-Implant- max. Cup = at least 6 mm
OD 54 mm- OD 48 mm = 6 mm

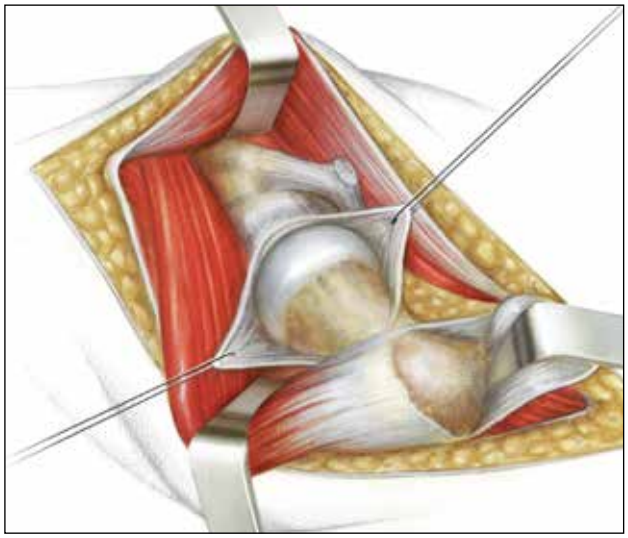
Preoperative Planning

Even with good preoperative planning, extensive bone loss represents a common and unforeseeable challenge for surgeons in revision cases. Thorough preoperative planning is essential to achieve good surgical results. The aim in preoperative planning is to determine how the center of rotation can be restored and to establish the positions of the LINK Pelvis Support and the fixation screws.

Measurement tables and X-ray templates for LINK Pelvis Support Type RR and Type RC are available to aid planning. They allow the surgeon to determine precisely which implants are to be used. Preoperative planning is based on X-ray images which are either true to scale or supplied with details of the enlargement factor employed. LINK X-ray templates show implants at a standard magnification factor of 110%. Other magnification factors can be supplied. For suppliers of digital planning software we can, on request, provide the relevant data in standard formats.

In contrast to normal hip prosthesis implantation, cases with extensive bone loss require treatment that is tailored to each individual situation. Situations involving extensive bone loss have special problems and, as a result, a greater risk than the implantation of a standard prosthesis. The construction characteristics of the LINK Pelvis Support implants and their specially designed instruments help to reduce this risk.

Surgical Approaches



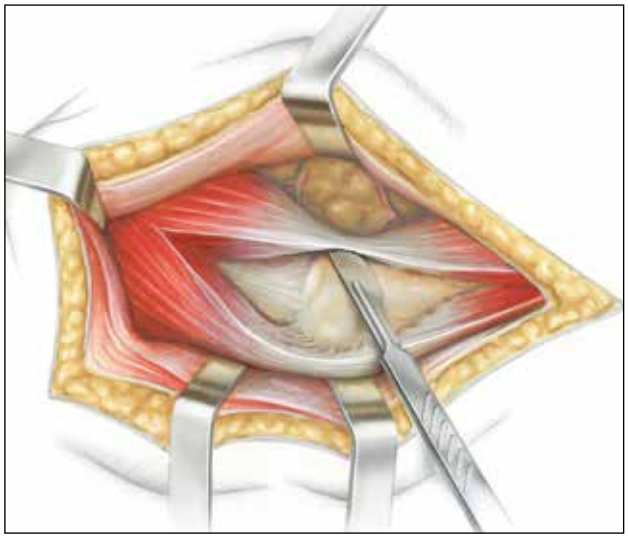
(A) **Watson Jones**

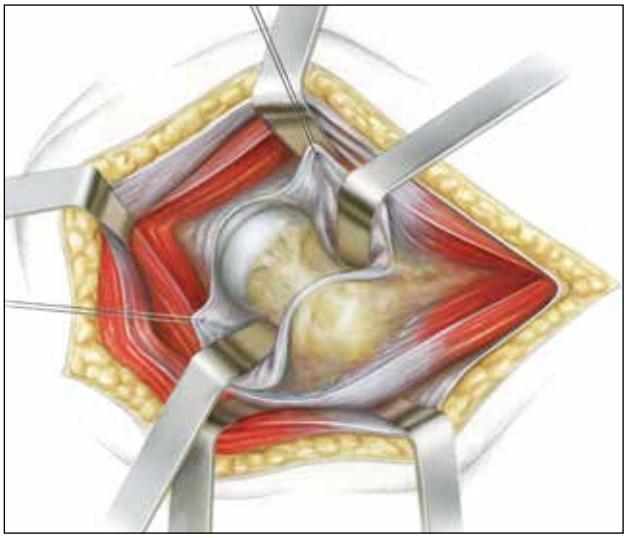
The choice of the approach depends on the surgeon‘s experience and his/her decision based on the individual situation.

The following approaches are usual:

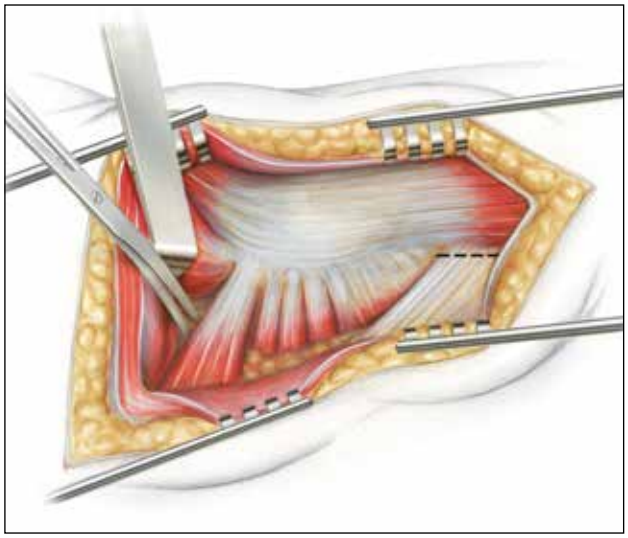
- antero-lateral **– Watson Jones** (A)
- direct lateral **– Hardinge** (B)
- postero-lateral **– Moore** (C)

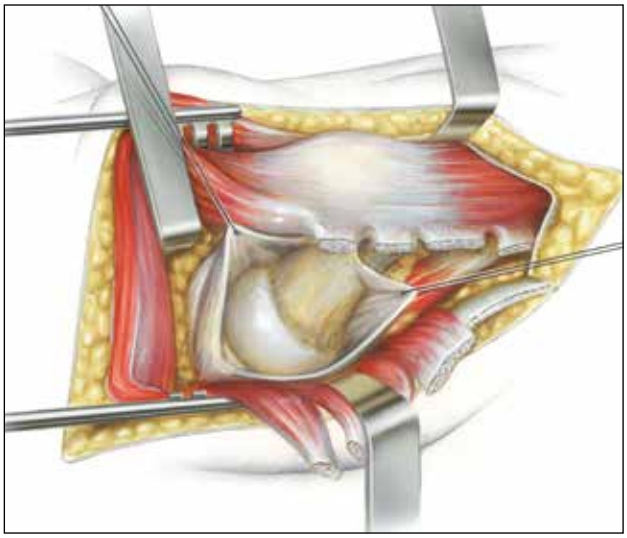
Posterolateral access is often preferred because the posterior, superior and inferior acetabular landmarks are clearly visible.





(B) **Hardinge**





(C) **Moore**

Surgical Technique

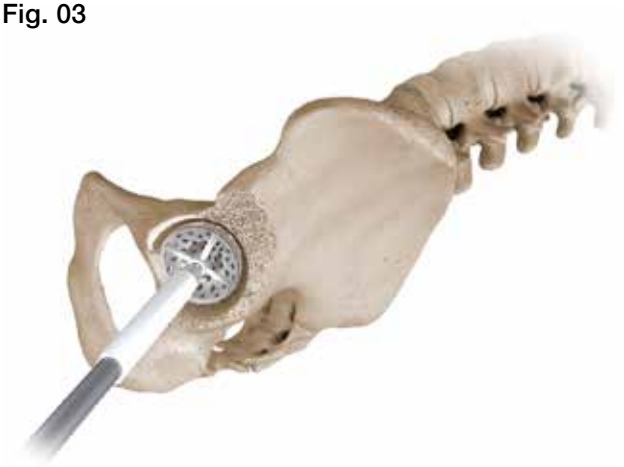
Fig. 01

Preparing the acetabulum
After gaining access and, if necessary, removal of the previous implant, debride the acetabulum and ream up to slightly bleeding cancellous bone with a small spherical acetabulum reamer.

Fig. 02

Evaluation of defects
Following debridement, evaluate the situation with regard to defects and determine the size of the implant to be used. For the LINK Pelvis Support Type RR, spherical actabulum reamers can be used to help verify the choice of implant size made during preoperative planning. For the LINK Pelvis Support Type RC, right- and left-sided Trial Prostheses (15-8360/44-62, 15-8370/44-62) are available to aid determination of the required implant size. Unlike the implant itself, these do not have a caudal flange and can be inserted right to the floor of the acetabulum. The point at which the caudal flange is to be inserted can be marked with the aid of the Trial Prosthesis. After insertion the Trial Prosthesis can also be helpful when judging the defect and estimating the amount of bone material needed to fill in.

Fig. 03



Reaming the acetabulum
Ream the acetabulum stepwise with the spherical acetabulum reamers until the implant size is reached. The last acetabulum reamer used must have the same outer diameter as the implant selected.

Fig. 04

Adjusting the implant

Use the Rod Bender (15-8262/01) and the Bending Iron (64-8060) to adjust the cranial flanges of the LINK Pelvis Support Type RC to suit the patient's anatomy. To prevent material fatigue, one may only bend the flange once (in one direction) and up to a maximum of 15°.

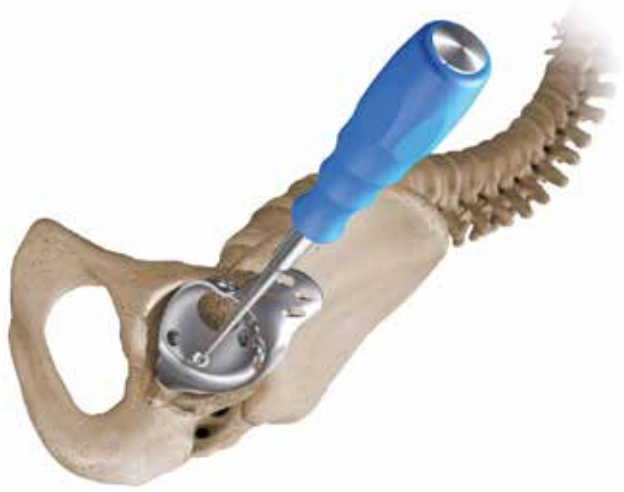
Reverse adjustment is not allowed.

Fig. 05

Opening the entry point on the ischium

For the LINK Pelvis Support Type RC, use the angled osteotome (15-8387/01) to open and deepen the entry point for the caudal flange that was marked on the ischium with the aid of the Trial Prosthesis. The triangular tip of the Chisel is about as wide as the flange of the implant.

Fig. 06



Inserting the implants

The LINK Pelvis Support implant Type RC is placed in the acetabulum so that its supporting flange rests on the cranio-dorsal edge of the acetabulum.

First insert the caudal flange in the ischium. You can use the Ball Pike (15-1125/01) to assist the caudal flange insertion. To do so the tip of the Ball Pike can be placed through one of the screw holes in the implant. Then insert the implant in the direction of the medial wall of the acetabulum until it lies flush with the bone. The Ball Pike or a Driver can also be useful for this.

Fig. 07

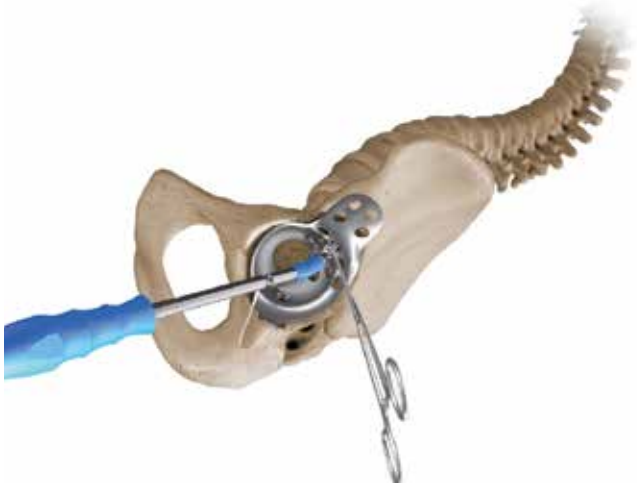
Screw holes

LINK Pelvis Supports Type RR & Type RC are fixed with 3-5 cancellous bone screws made from titanium alloy, Ø 6.5 mm.

Both implant designs provide sufficient additional holes to allow secure fixation. Holes are drilled in the bone to take the screws.

The instrument set includes four Drill Bits of different lengths (15-8381/01 to 15-8384/01). Mount one of these on the Flexible Drill Shaft (15-8380/01). Hold the Drill Guide (15-8386/01) against the hole in the implant intended for the screw. Insert the Drill in the Drill Guide. Drill to the required depth or until the Drill Bit is inserted to its full length (25, 40, 50 or 60 mm). If the Drill Bit is not to be inserted to its full length, the depth can be checked by measuring with the Screw Depth Gauge (15-8389/01). Take care when drilling. There is a risk of damaging nerves and blood vessels.

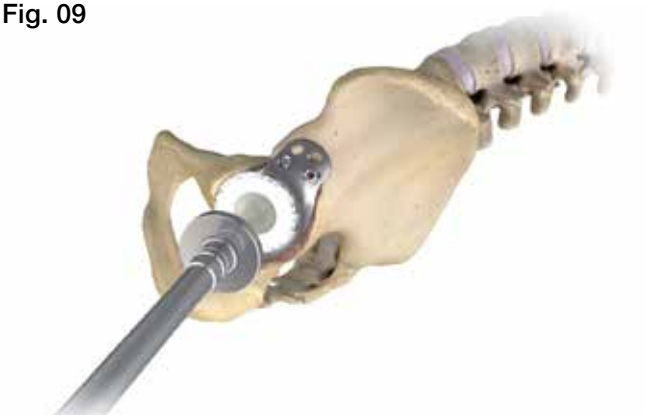
Fig. 08



Inserting the screws

Hold each Cancellous Bone Screw with the Insertion Forceps (15-8385/01) and place it into the hole that has been drilled. Then screw it in with the rigid or flexible Hex Screwdriver SW 3.5 mm (15-8388/01, 15-8379/01) and tighten it.

Fig. 09



Please refer to the surgical technique of the cemented acetabular cup of choice.

Pelvis Support Type RR

Description

LINK Pelvis Support Reinforcement Rings Type RR (A) are made from cp titanium.

A support flange enables it to rest on the medio-cranial edge of the acetabulum (B).

The large number of holes (C) allows secure primary fixation of the implants with cancellous bone screws. The design of the holes makes it possible to arrange fixation screws to suit each individual case.

The large opening (D) in the floor of the implants provides visual control and allows its position and fit on the acetabulum floor can be checked.

The large inner diameter (E) allows the cemented polyethylene cups to be positioned individually.

Pelvis Support Type RR

MAT cp titanium, cementless

REF	Side	Outer (OD)-Ø (mm)	Inner-Ø (mm)	Maximum Outer-Ø cup (mm)
15-8300/42	neutral	48	44	42
15-8300/44	neutral	50	46	44
15-8300/46	neutral	52	48	46
15-8300/48	neutral	54	50	48
15-8300/50	neutral	56	52	50
15-8300/52	neutral	58	54	52
15-8300/54	neutral	60	56	54
15-8300/56	neutral	62	58	56
15-8300/58	neutral	64	60	58

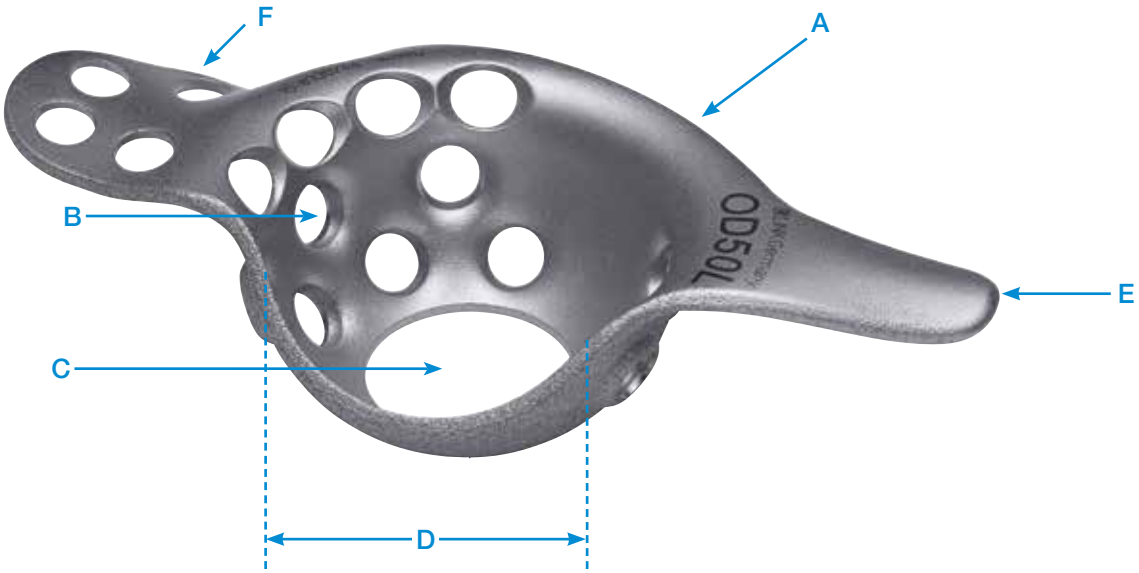
Pelvis Support Type RR

MAT cp titanium & CaP, cementless

REF	Side	Outer (OD)-Ø (mm)	Inner-Ø (mm)	Maximum Outer-Ø cup (mm)
15-8310/42	neutral	48	44	42
15-8310/44	neutral	50	46	44
15-8310/46	neutral	52	48	46
15-8310/48	neutral	54	50	48
15-8310/50	neutral	56	52	50
15-8310/52	neutral	58	54	52
15-8310/54	neutral	60	56	54
15-8310/56	neutral	62	58	56
15-8310/58	neutral	64	60	58

Pelvis Support Type RC

Description



LINK Pelvis Support implants Type RC (A) are made from cp titanium.

The large number of holes (B) allows secure primary fixation of the implant with cancellous bone screws. The design of the holes makes it possible to arrange fixation screws to suit each individual case.

The opening (C) in the floor of the implant enables it to be positioned under visual control and allows its position and fit on the acetabulum floor can be checked. The large inner diameter (D) allows the cemented polyethylene cups to be positioned individually.
The smooth caudal flange (E) facilitates careful insertion and permits secure fixation in the ischium.

The design of the cranial flange (F) ensures that it lies flat on the ilium. It can be adjusted during surgery to fit the patient's anatomy.

Pelvis Support Type RC

MAT cp titanium, cementless

REF	Side	Outer (OD)-Ø (mm)	Inner-Ø (mm)	Maximum Outer-Ø cup (mm)
15-8320/44	right	50	46	44
15-8320/50	right	56	52	50
15-8320/56	right	62	58	56
15-8320/62	right	68	64	62
15-8330/44	left	50	46	44
15-8330/50	left	56	52	50
15-8330/56	left	62	58	56
15-8330/62	left	68	64	62

Pelvis Support Type RC

MAT cp titanium & CaP, cementless

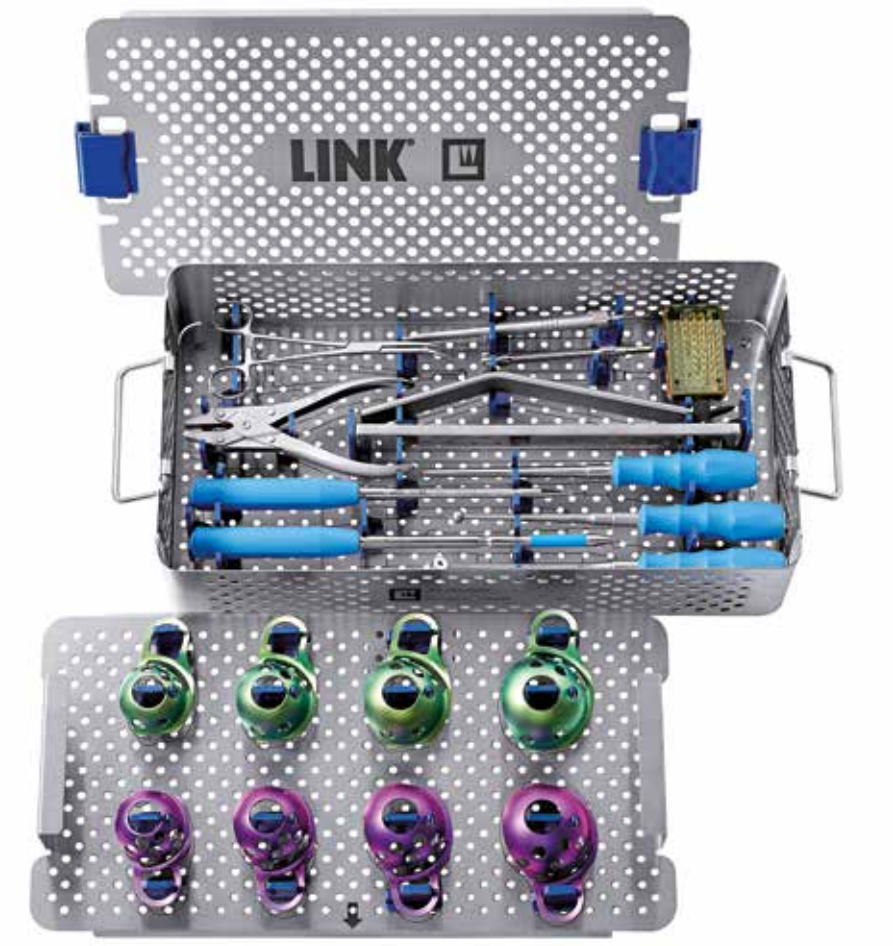
REF	Side	Outer (OD)-Ø (mm)	Inner-Ø (mm)	Maximum Outer-Ø cup (mm)
15-8340/44	right	50	46	44
15-8340/50	right	56	52	50
15-8340/56	right	62	58	56
15-8340/62	right	68	64	62
15-8350/44	left	50	46	44
15-8350/50	left	56	52	50
15-8350/56	left	62	58	56
15-8350/62	left	68	64	62

Cancellous Bone Screws

MAT Tilastan-S

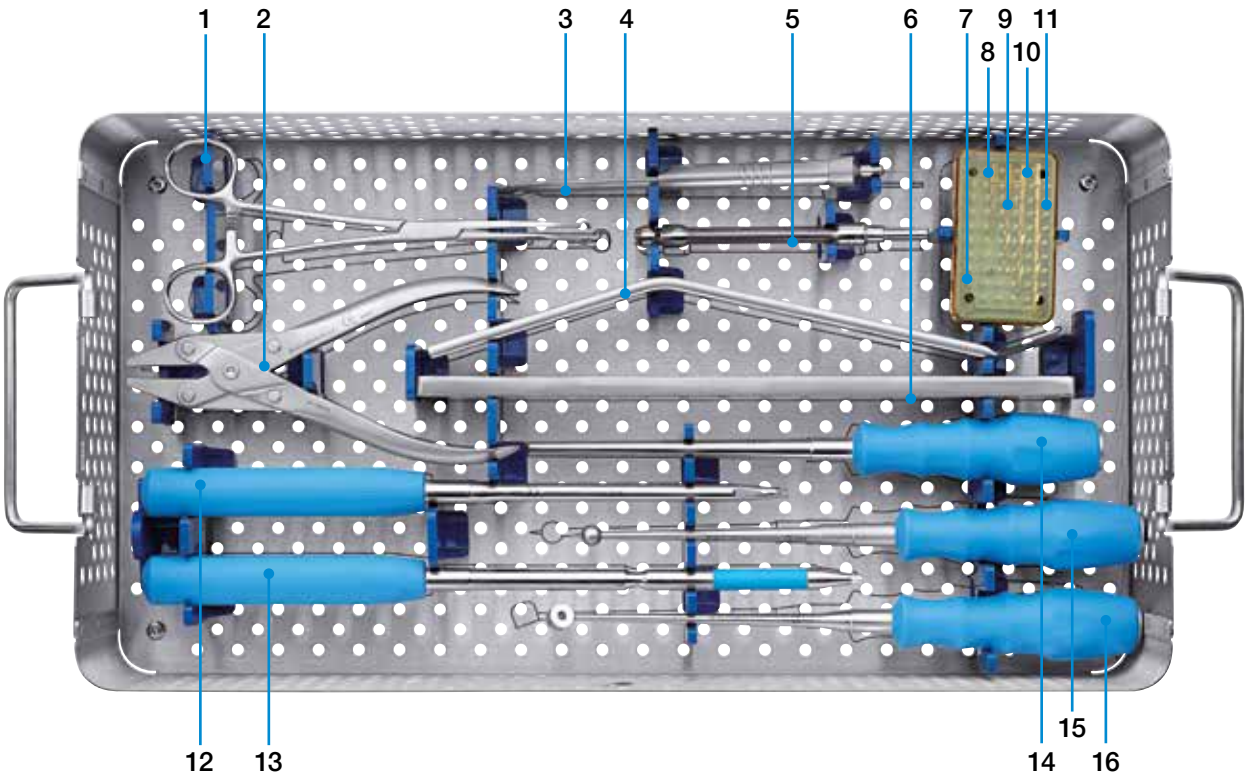
REF	Ø x length (mm)	REF	Ø x length (mm)
180-658/15	6.5 x 15	180-658/45	6.5 x 45
180-658/20	6.5 x 20	180-658/50	6.5 x 50
180-658/25	6.5 x 25	180-658/55	6.5 x 55
180-658/30	6.5 x 30	180-658/60	6.5 x 60
180-658/35	6.5 x 35	180-658/70	6.5 x 70
180-658/40	6.5 x 40	180-658/80	6.5 x 80

Instrument Set, complete

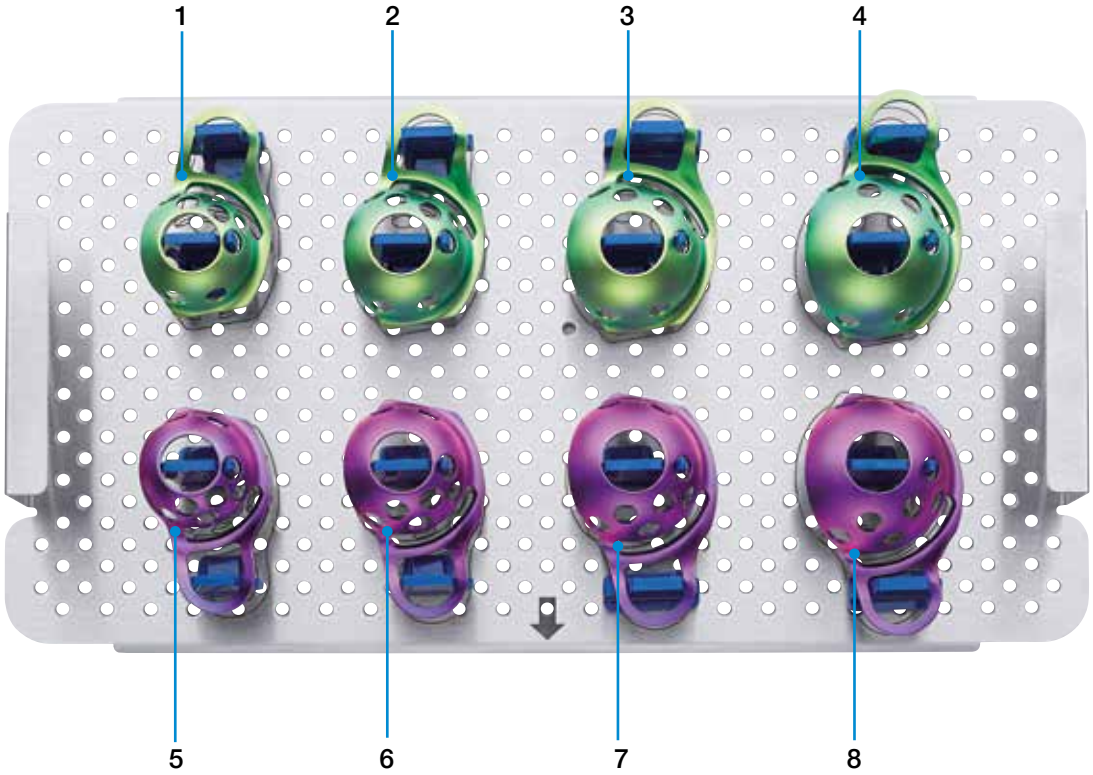


REF	Description
15-8300/02	**Instrument set,** complete
15-8320/02	**Container set,** only, with tray insert and lid, perforated stainless steel, 478 x 253 x 106 mm

15-8320/02 **Instrument Set**, complete



	REF	Description
1	15-8385/01	**Insertion Forceps for screws,** 190 mm
2	64-4200/14	**Parallel Grip Pliers,** 185 mm
3	15-8389/01	**Screw Depth Gauge,** measurement length 80 mm, 235 mm
4	15-8387/01	**Osteome set,** Off-set, for flanges
5	15-8380/01	**Drill Shaft,** flexible, 134 mm
6	64-8060	**Bending Iron,** 300 mm
7	319-601/30	**Sterilizing box,** contains:
8	15-8381/01	**Drill Cap,** 25 mm, Ø 3.5 mm
9	15-8382/01	**Drill Cap,** 40 mm, Ø 3.5 mm
10	15-8383/01	**Drill Cap,** 50 mm, Ø 3.5 mm
11	15-8384/01	**Drill Cap,** 60 mm, Ø 3.5 mm
12	15-8379/01	**Hex Screwdriver,** straight, SW 3.5 mm
13	15-8388/01	**Hex Screwdriver,** flexible, SW 3.5 mm, 305 mm, Ø 3.5 mm
14	15-8262/01	**Rod Bender,** for flanges, 235 mm
15	15-1125/01	**Ball Pike,** 245 mm
16	15-8386/01	**Drill Guide,** for screws, 375 mm



	REF	Description	Version	Type	OD-Ø mm	Inner-Ø mm	max. OD-Ø for Cups mm
1	15-8360/44	**Trial Prosthesis**	right	RC	50	46	44
2	15-8360/50	**Trial Prosthesis**	right	RC	56	52	50
3	15-8360/56	**Trial Prosthesis**	right	RC	62	58	56
4	15-8360/62	**Trial Prosthesis**	right	RC	68	64	62
5	15-8370/44	**Trial Prosthesis**	left	RC	50	46	44
6	15-8370/50	**Trial Prosthesis**	left	RC	56	52	50
7	15-8370/56	**Trial Prosthesis**	left	RC	62	58	56
8	15-8370/62	**Trial Prosthesis**	left	RC	68	64	62

X-ray Templates

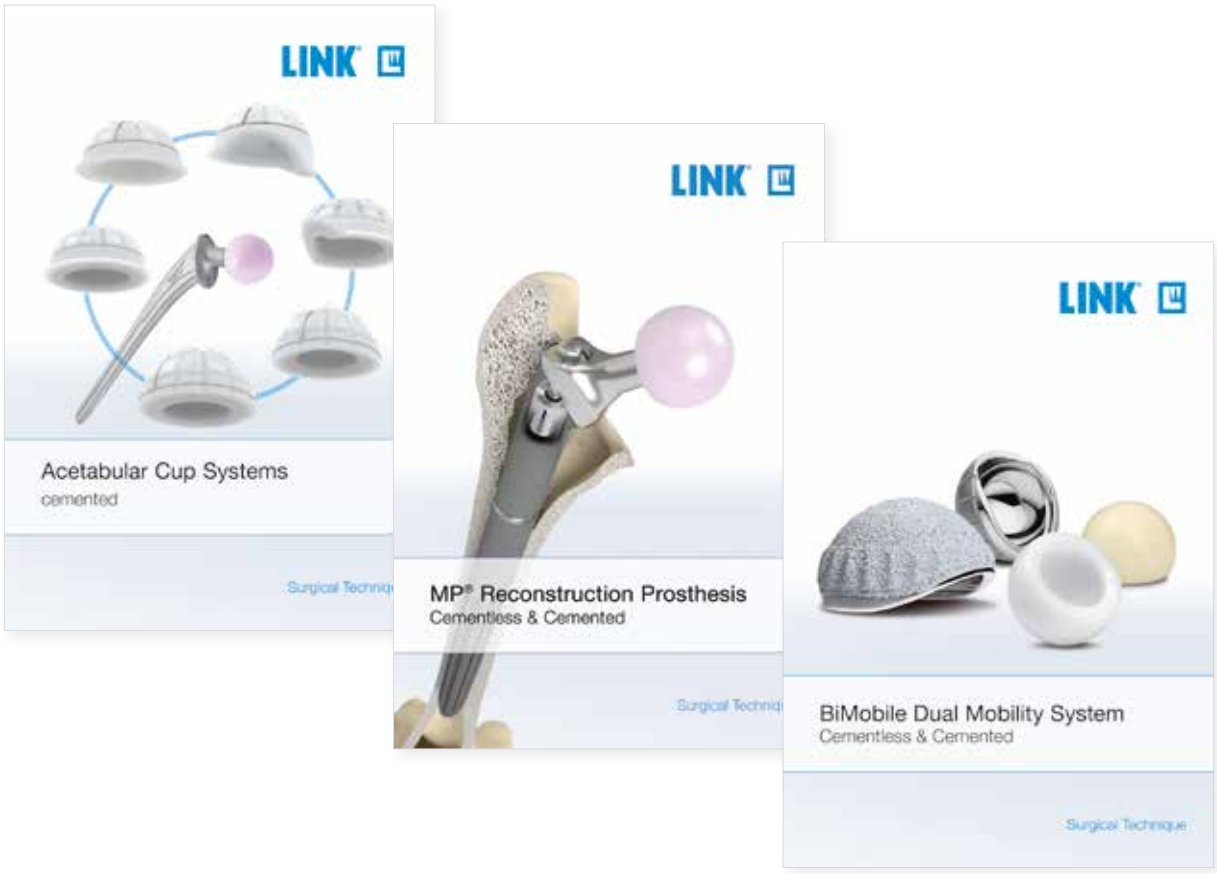
X-ray templates for **LINK Pelvis Support**
110% natural size

REF	X-ray templates
15-8390/01	for **LINK Pelvis Support Type RR,** cementless
15-8391/01	for **LINK Pelvis Support Type RC,** cementless

Instructions for Cleaning and Maintenance

Instructions for the instrument sets are available on request from customer@linkhh.com.

Literature



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

Pelvis Support Type RR & Type RC	Type RR	Type RC
General Indications		
Mobility-limiting diseases, fractures or defects of the hip joint which cannot be treated by conservative or osteosynthetic procedures	x	x
Indications		
Correction of functional deformities	x	x
Revision after implant loosening dependent on bone mass and quality	x	x
Reduced load-bearing capacity of the bone e.g. osteoporosis, dependent on bone condition	x	x
Small segmental rim defects that do not involve the columns but may require a small structureal graft that can be protected by the ring	x	
Segmental defects that involve anterior or posterior column. Depended on severity in conjunction with allograft bone		x
Mild to moderate protrusion of the acetabulum	x	
Large cavity defects in conjunction with allograft bone		x
Medial wall defects. Depended on severity in conjunction with allograft bone		x
Contraindications		
Acute and chronic infections, local and systemic, insofar as they may compromise the successful implantation	x	x
Allergies to (implant) materials	x	x
Insufficient / inadequate bone mass- or quality, which prevents a stable anchorage of the prosthesis	x	x
Major segmental defects involving the dome or posterior column	x	

The Pelvis Support Type RR & Type RC are to be used in conjunction with commercially available cemented LINK acetabular cups.

INFORMATION:
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.

Important Information

Please note the following regarding the use of our implants:

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

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

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

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

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

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

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

Follow the instructions for use!

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