LINK®

Acetabular TrabecuLink Augments

Surgical Technique

CE 0482

Explanation of Pictograms			
	Manufacturer	REF	Item 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.

Acetabular TrabecuLink Augments

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Important Information

Preoperative Planning

It is important to plan the intervention preoperatively in order to select the correct implant type and size and its final intraosseous position based on the patient's individual anatomy. The surgeon should perform a careful evaluation of the patient´s clinical condition and consider the level of physical activity before performing a hip replacement.

For optimal results, the surgery should be planned in advance using the appropriate templates.
The magnification factor of the X-rays must be compatible with the factor on the templates. A second X-ray of the unaffected joint is often helpful.

The preoperative planning is the basis to decide if additional supplemental fixation is needed.
Intraoperatively the need for additional fixation is further evaluated.
Inadequate pre-operative planning can lead to improper selection of the implants and/or incorrect implant positioning.

> **INFORMATION:**
> **Pre-operative planning provides an initial estimation of the final situation but cannot conclusively determine the most adequate size or position to be used. The ultimate decision can only be taken intraoperatively.**

Preparation and Implantation

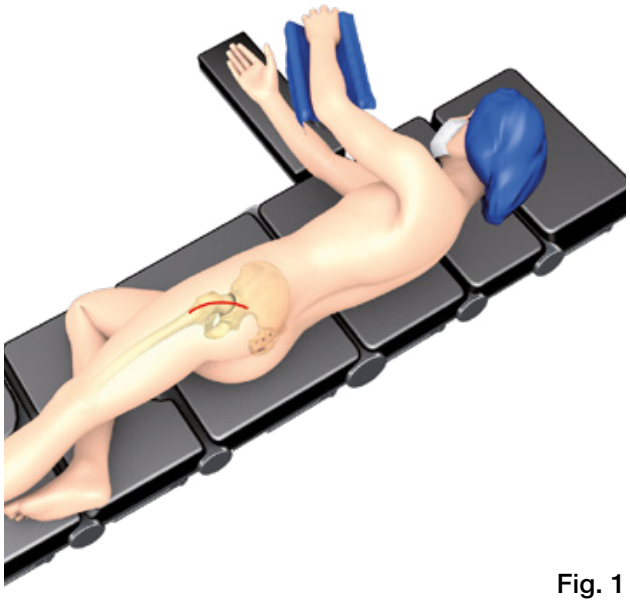


Fig. 1

The TrabecuLink Augments can be implanted using any of the standard approaches for total hip replacement according to on the surgeon's experience (Fig. 1).

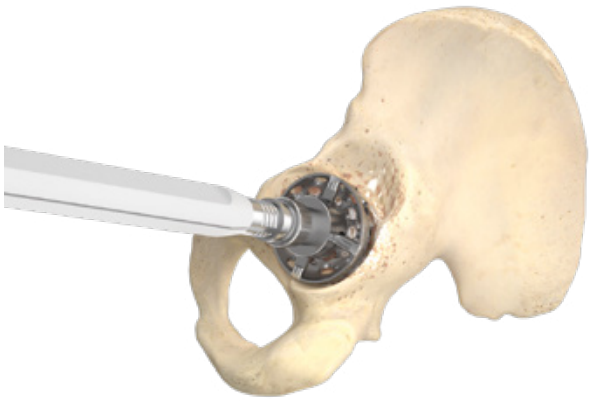


Fig. 2

Acetabular Reaming

Depending on the approach used, the leg is positioned such that the acetabulum is well exposed.

The initial reamer size corresponds to the diameter of the acetabular entrance. In normal anatomy the reamer is inserted into the acetabulum at approximately 45 degrees inclination and 15 degrees anteversion (Fig. 2).

Consecutively reamers with increasing diameters are applied until areas of bloody subchondral compacta become visible. It is essential to keep the reamer head absolutely steady.
If it is assessed intraoperatively that an acetabular defect has to be treated with an Augment, preparation of the defect area is necessary.

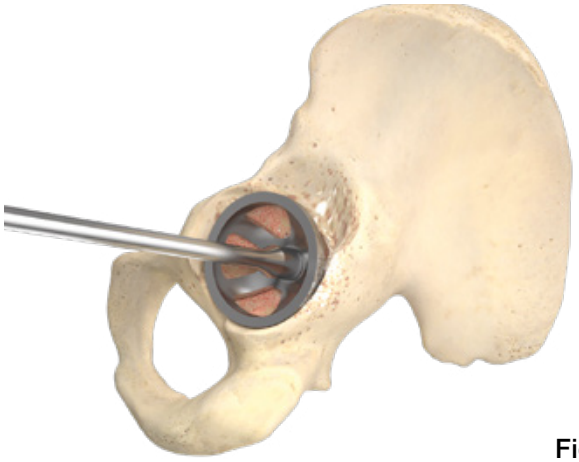


Fig. 3

Preparation of Defect Area and Sizing of the Augment

Select an appropriate Acetabular Trial Cup and place it into the acetabulum (Fig. 3). It should be oriented in an anatomical position. According to the acetabular defect, select an appropriate Augment size (see table 1).

Outer Ø of Augment width (mm)	for Shell sizes (mm)	Augment Depth (mm)			
		10	15	20	30
44	42-46	X	X		
46	44-48	X	X	X	
50	48-52	X	X	X	X
54	52-56	X	X	X	X
58	56-60	X	X	X	X
62	60-64	X	X	X	X
68	66-70	X	X	X	
74	72-76	X	X		

Table 1

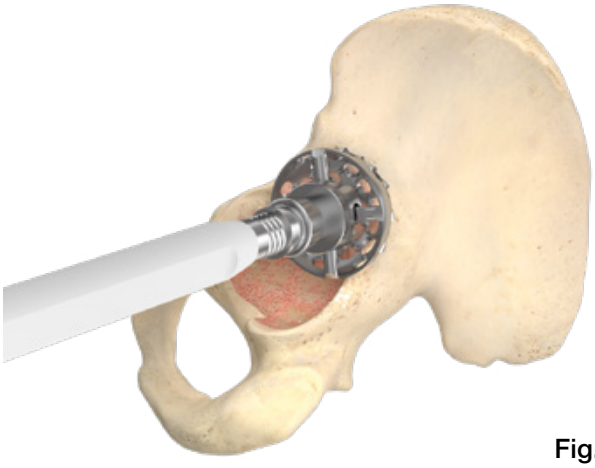


Fig. 4

Remove the Acetabular Trial Cup.
The acetabular defect shall be freshened up and soft tissue has to be removed (Fig. 4).
Therefore, the acetabular defect can be freshened up with an Acetabular Reamer corresponding to the size of the Augment. The reaming process shall be sparingly.

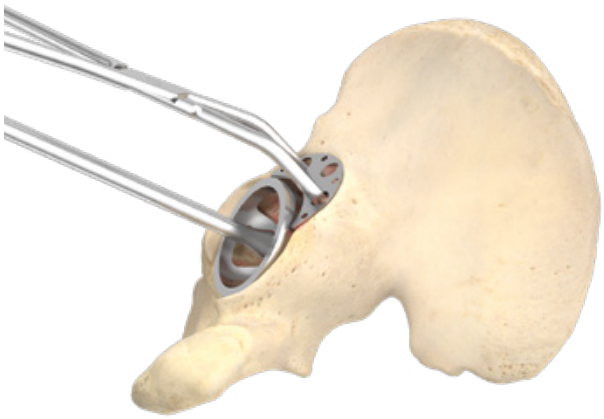


Fig. 5

Reinsert the Acetabular Trial Cup into the acetabulum. According to the freshened up acetabular defect, select an appropriate Trial Augment and place it with the Augment Forceps in the defect (Fig. 5). It can also be held in place with the Ball Pike (Fig. 6).

INFORMATION:
The Ball Pike is designed to hold the Trial Augment in place. Do not use it to impact the Augment as it may damage it.

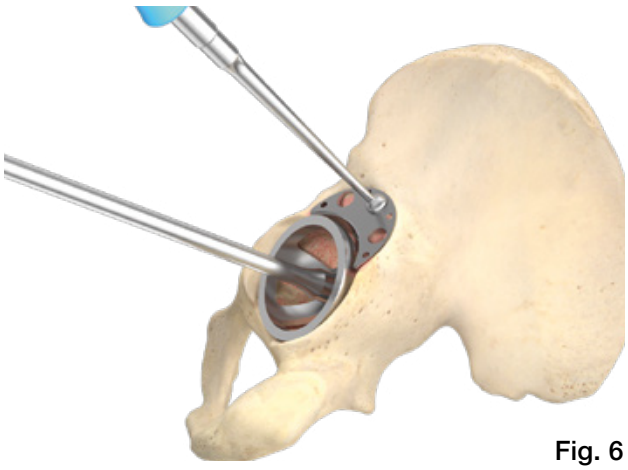


Fig. 6

Depending on the defect the Trial Augment can be placed in different orientations. An effort should be made to maximize the contact area of the Trial Augment to the host bone and to the Acetabular Trial Cup.

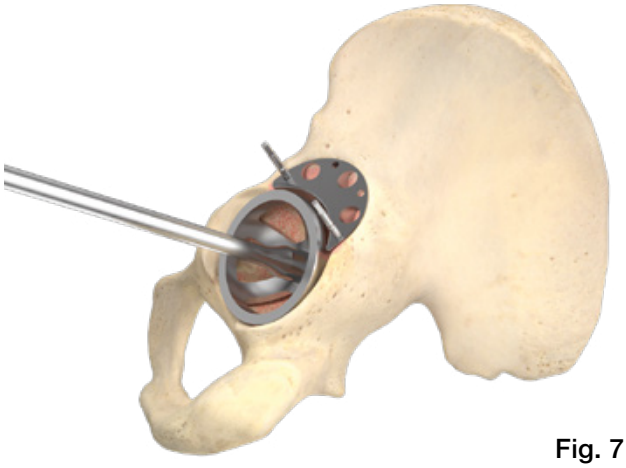


Fig. 7

Once the final position of the Trial Augment is defined, it can be fixed with Drill Pins in the Drill Pin holes and held in position (Fig. 7). Use the Non-headed Drill Pins in this step to be able to slide off the Trial Augment in the next step.

INFORMATION:
Do not pass the Drill Pins beyond the inner cortical bone of the pelvis as it may result in injury of any structures in the vicinity.

INFORMATION:
The holes in the Trial Augment are only for visual inspection of possible Cancellous Bone Screw usage. The Trial Augments must not be fixed with Cancellous Bone Screws.

Insertion of the Augment

Remove the Trial Augment from the acetabulum. Place the Augment Implant with the Augment Forceps in the defect area of the acetabulum in the same position as the Trial Augment.

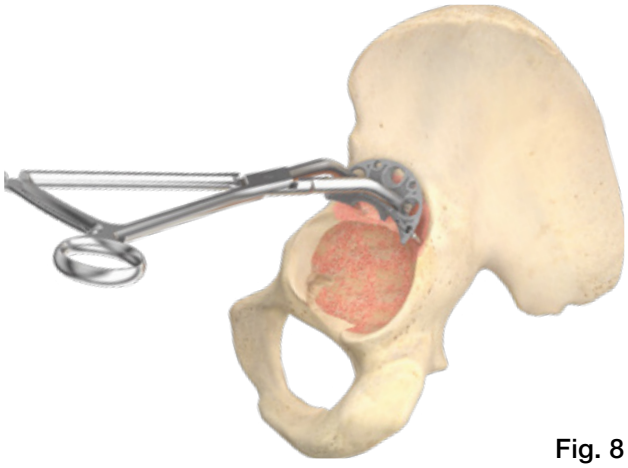


Fig. 8

INFORMATION:
The Augment is elliptically shaped and the cranial augment diameter (seating of the previous shell) is 2 mm smaller than the caudal diameter. This is due to the fact that the more caudally seated shell usually has a larger diameter than the previous implant.

If drill pins were used, the insertion can be facilitated by sliding the Augment over the drill pins in the same position (Fig. 8).

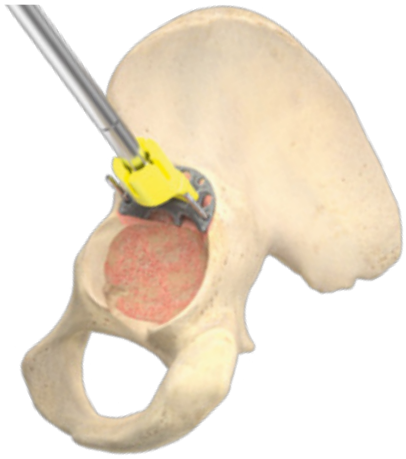


Fig. 9

The Augment Impactor Head can be used to push the Augment in the desired position (Fig. 9).

Small cavitary defects can be filled up with autogenous cancellous bone graft.

Compatible with Augment Impactor Head		
185-215/00	183-215/10	
		
Impactor Handle (183-150/03)	Impactor Handle (183-150/07) + Impactor Adapter (183-150/08)	Impactor Handle (183-150/09)

Table 2

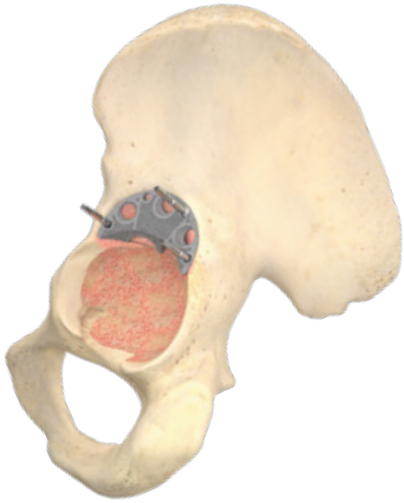


Fig. 10

Once the Augment is in its final position, a Headed Drill Pin can be inserted in a drill pin hole of the Augment to press the Augment to the host bone (Fig. 10).

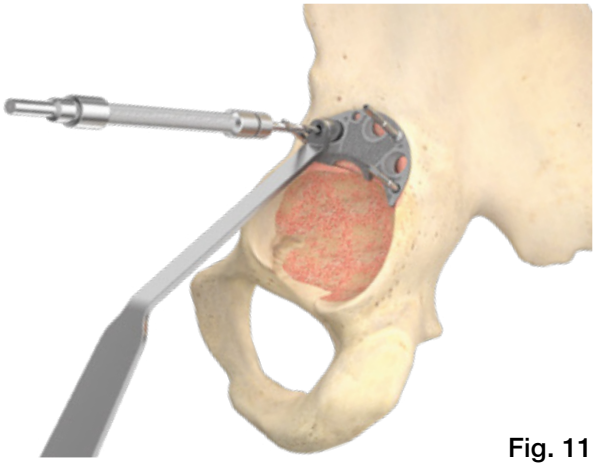


Fig. 11

The Drill Guide must be used to drill the holes for the Cancellous Bone Screws (Fig. 11). The 3.2 mm Drills are used for both, 4.5 mm and 6.5 mm Cancellous Bone Screws.

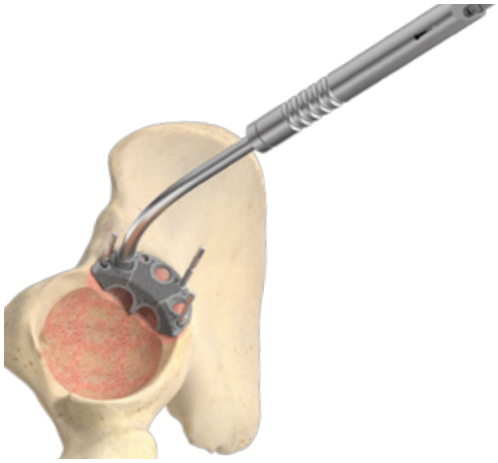


Fig. 12

Use the Curved Depth Gauge to identify the correct length of the Cancellous Bone Screw (Fig. 12).

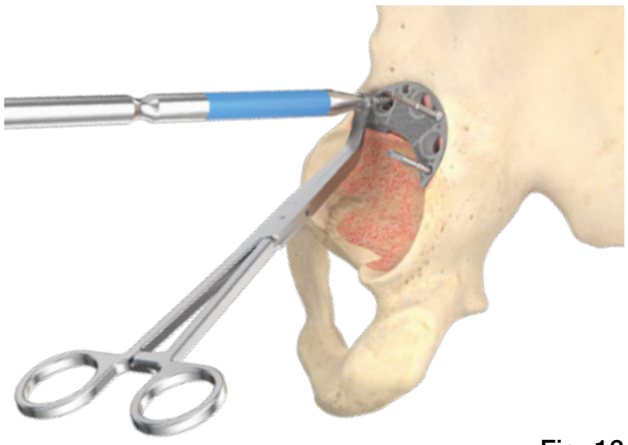


Fig. 13

To insert the Cancellous Bone Screw, the Flexible or Rigid Screwdriver may be used (Fig. 13). A sufficient amount of Cancellous Bone Screws (at least two Cancellous Bone Screws) must be used for proper fixation of the Augment to the host bone.

INFORMATION:
Depending on the orientation, size and number of Cancellous Bone Screws used to fix the Augment, this can affect the direction of implantation of individual screws in the Acetabular Shell.

INFORMATION:
Only Cancellous Bone Screws listed in this catalog are compatible.

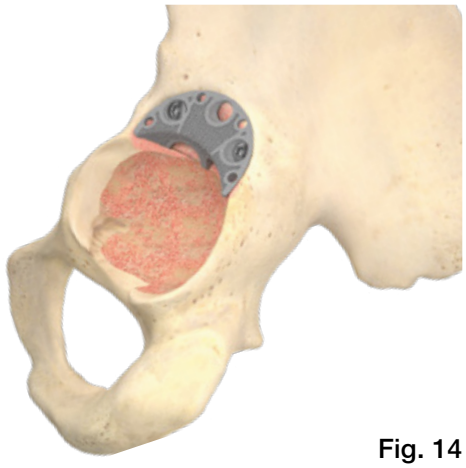


Fig. 14

All Drill Pins are removed (Fig. 14).

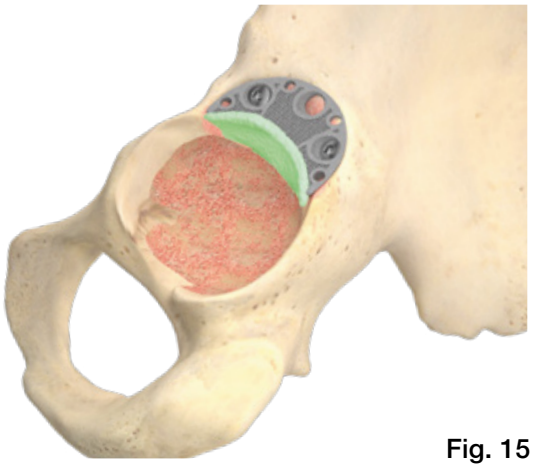


Fig. 15

Implantation of an Acetabular Shell

Apply a layer of approximately 2 mm of bone cement to the inner concave surface of the Augment (Fig. 15).

INFORMATION:
Avoid applying an excessive amount of bone cement such that it covers part of the Acetabulum. This might lead to less biological fixation of the Acetabular Shell.

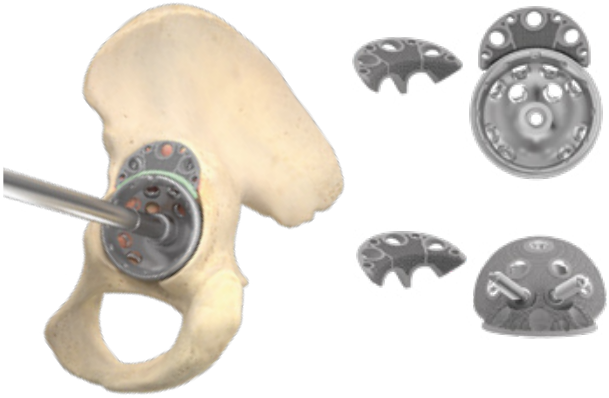


Fig. 16

Implant the Acetabular Shell in the desired anatomic position (Fig. 16). The holes for Cancellous Bone Screws in the Shell should be oriented such that Cancellous Bone Screws can be placed in the Acetabular Shell through the windows of the Augment into the host bone (Fig. 17). Remove any excess bone cement. A sufficient number of Cancellous Bone Screws shall be used for proper fixation.

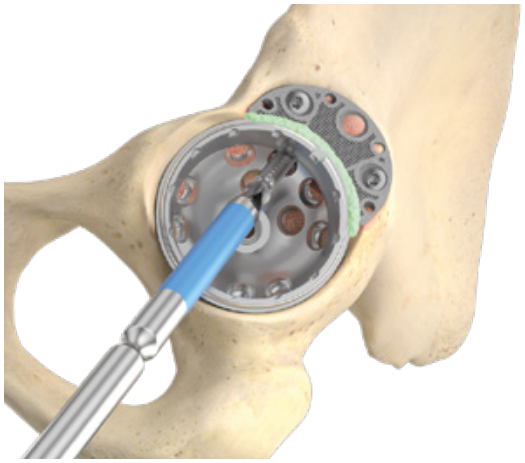


Fig. 17

INFORMATION:
Implant the Acetabular Shell and the Cancellous Bone Screws before the bone cement is setting.

Augments

MAT Tivastan -E (Ti6Al4V)

Augments REF	Outer Ø (mm)	Depth (mm)	for Shell sizes (mm)
185-044/10	44	10	**42-46**
185-044/15	44	15	
185-046/10	46	10	**44-48**
185-046/15	46	15	
185-046/20	46	20	
185-050/10	50	10	**48-52**
185-050/15	50	15	
185-050/20	50	20	
185-050/30	50	30	
185-054/10	54	10	**52-56**
185-054/15	54	15	
185-054/20	54	20	
185-054/30	54	30	
185-058/10	58	10	**56-60**
185-058/15	58	15	
185-058/20	58	20	
185-058/30	58	30	
185-062/10	62	10	**60-64**
185-062/15	62	15	
185-062/20	62	20	
185-062/30	62	30	
185-068/10	68	10	**66-70**
185-068/15	68	15	
185-068/20	68	20	
185-074/10	74	10	**72-76**
185-074/15	74	15	

Cancellous Bone Screws

MAT Tilastan -S (Ti6Al4V)

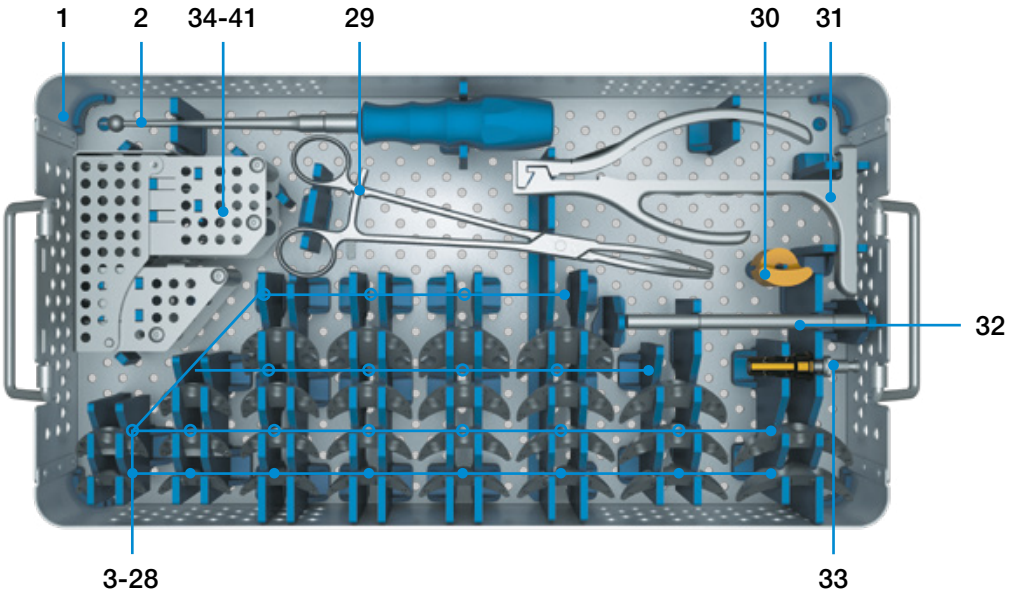
REF	Ø x length (mm)	REF	Ø x length (mm)
180-458/15	4.5 x 15	180-458/40	4.5 x 40
180-458/20	4.5 x 20	180-458/45	4.5 x 45
180-458/25	4.5 x 25	180-458/50	4.5 x 50
180-458/30	4.5 x 30	180-458/55	4.5 x 55
180-458/35	4.5 x 35	180-458/60	4.5 x 60

Cancellous Bone Screws

MAT Tilastan -S (Ti6Al4V)

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

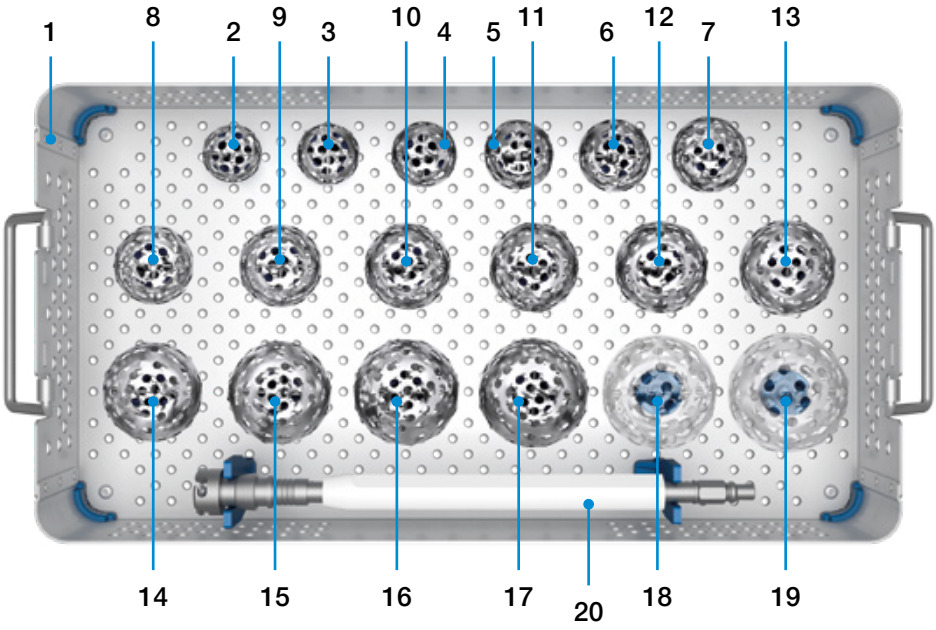
185-100/01 TrabecuLink Augments, Instrument Set



1	185-100/11	**Instrument Tray,** empty
2	15-1125/01	**Ball Pike,** Stainless Steel, L = 263 mm
3	185-144/10	**Trial Augment,** Stainless Steel, Outer Ø 44 mm, D = 10 mm
4	185-144/15	**Trial Augment,** Stainless Steel, Outer Ø 44 mm, D = 15 mm
5	185-146/10	**Trial Augment,** Stainless Steel, Outer Ø 46 mm, D = 10 mm
6	185-146/15	**Trial Augment,** Stainless Steel, Outer Ø 46 mm, D = 15 mm
7	185-146/20	**Trial Augment,** Stainless Steel, Outer Ø 46 mm, D = 20 mm
8	185-150/10	**Trial Augment,** Stainless Steel, Outer Ø 50 mm, D = 10 mm
9	185-150/15	**Trial Augment,** Stainless Steel, Outer Ø 50 mm, D = 15 mm
10	185-150/20	**Trial Augment,** Stainless Steel, Outer Ø 50 mm, D = 20 mm
11	185-150/30	**Trial Augment,** Stainless Steel, Outer Ø 50 mm, D = 30 mm
12	185-154/10	**Trial Augment,** Stainless Steel, Outer Ø 54 mm, D = 10 mm
13	185-154/15	**Trial Augment,** Stainless Steel, Outer Ø 54 mm, D = 15 mm
14	185-154/20	**Trial Augment,** Stainless Steel, Outer Ø 54 mm, D = 20 mm
15	185-154/30	**Trial Augment,** Stainless Steel, Outer Ø 54 mm, D = 30 mm
16	185-158/10	**Trial Augment,** Stainless Steel, Outer Ø 58 mm, D = 10 mm
17	185-158/15	**Trial Augment,** Stainless Steel, Outer Ø 58 mm, D = 15 mm
18	185-158/20	**Trial Augment,** Stainless Steel, Outer Ø 58 mm, D = 20 mm
19	185-158/30	**Trial Augment,** Stainless Steel, Outer Ø 58 mm, D = 30 mm
20	185-162/10	**Trial Augment,** Stainless Steel, Outer Ø 62 mm, D = 10 mm
21	185-162/15	**Trial Augment,** Stainless Steel, Outer Ø 62 mm, D = 15 mm
22	185-162/20	**Trial Augment,** Stainless Steel, Outer Ø 62 mm, D = 20 mm
23	185-162/30	**Trial Augment,** Stainless Steel, Outer Ø 62 mm, D = 30 mm
24	185-168/10	**Trial Augment,** Stainless Steel, Outer Ø 68 mm, D = 10 mm
25	185-168/15	**Trial Augment,** Stainless Steel, Outer Ø 68 mm, D = 15 mm
26	185-168/20	**Trial Augment,** Stainless Steel, Outer Ø 68 mm, D = 20 mm
27	185-174/10	**Trial Augment,** Stainless Steel, Outer Ø 74 mm, D = 10 mm
28	185-174/15	**Trial Augment,** Stainless Steel, Outer Ø 74 mm, D = 15 mm

29	185-210/10	**Augment Forceps** with Ratchet, Stainless Steel
		or:
	185-210/00	**Augment Forceps** without Ratchet, Stainless Steel
30	185-215/00	**Augment Impactor Head,** for impactor compatibility see table p.7
		or:
	185-215/10	**Augment Impactor Head,** for impactor compatibility see table p.7
31	445-120/00	**Pin Inserter/Extractor,** Stainless Steel
32	445-121/00	**Pin Inserter,** Stainless Steel
33	445-122/10	**Power Driver,** Snap Lock, Stainless Steel, Fitting Hudson Fitting (B)
34	445-123/00	**Pin Box,** Stainless Steel
35	445-124/65	**4x Drill Pin,** Stainless Steel, L = 65 mm, Ø 3.0 mm
36	445-124/95	**4x Drill Pin,** Stainless Steel, L = 95 mm, Ø 3.0 mm
37	445-125/35	**4x Drill Pin,** Headed, Stainless Steel, L = 35 mm, Ø 3.0 mm
38	445-125/65	**4x Drill Pin,** Headed, Stainless Steel, L = 65 mm, Ø 3.0 mm
39	445-128/25	**4x Bone Nail,** Stainless Steel, L = 25 mm, Ø 3.0 mm
40	445-128/35	**4x Bone Nail,** Stainless Steel, L = 35 mm, Ø 3.0 mm
41	445-128/65	**4x Bone Nail,** Stainless Steel, L = 65 mm, Ø 3.0 mm

132-260/01 **Instrument Set for LINK Acetabular Reamers**



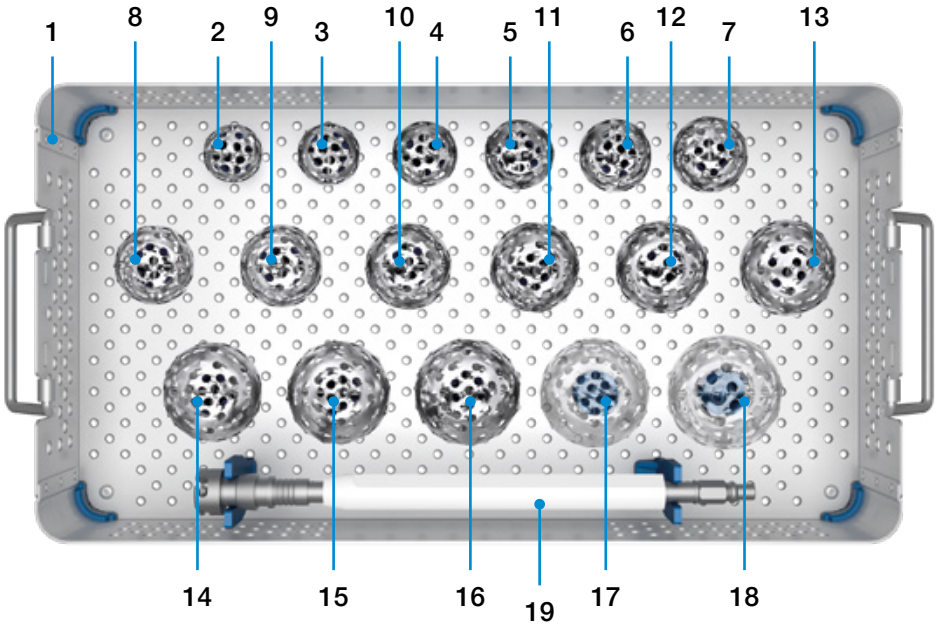
1	132-260/10	**Instrument Tray,** empty
2	131-170/38	**Acetabular Reamer Head,** Reamer-Ø 38 mm
3	131-170/40	**Acetabular Reamer Head,** Reamer-Ø 40 mm
4	131-170/42	**Acetabular Reamer Head,** Reamer-Ø 42 mm
5	131-170/44	**Acetabular Reamer Head,** Reamer-Ø 44 mm
6	131-170/46	**Acetabular Reamer Head,** Reamer-Ø 46 mm
7	131-170/48	**Acetabular Reamer Head,** Reamer-Ø 48 mm
8	131-170/50	**Acetabular Reamer Head,** Reamer-Ø 50 mm
9	131-170/52	**Acetabular Reamer Head,** Reamer-Ø 52 mm
10	131-170/54	**Acetabular Reamer Head,** Reamer-Ø 54 mm
11	131-170/56	**Acetabular Reamer Head,** Reamer-Ø 56 mm
12	131-170/58	**Acetabular Reamer Head,** Reamer-Ø 58 mm
13	131-170/60	**Acetabular Reamer Head,** Reamer-Ø 60 mm
14	131-170/62	**Acetabular Reamer Head,** Reamer-Ø 62 mm
15	131-170/64	**Acetabular Reamer Head,** Reamer-Ø 64 mm
16	131-170/66	**Acetabular Reamer Head,** Reamer-Ø 66 mm
17	131-170/68	**Acetabular Reamer Head,** Reamer-Ø 68 mm
18	131-170/70*	**Acetabular Reamer Head,** Reamer-Ø 70 mm
19	131-170/72*	**Acetabular Reamer Head,** Reamer-Ø 72 mm
20	131-171B**	**Shaft with Handle for acetabular reamer,** 312 mm, fittings optional
	131-171/01	**Handle** for 131-171B, D or E

* On request (not included in set configuration 132-260/01)
** How to order: 131-171E = with Jacobs Chuck fitting

		
B	**D**	**E**
Hudson	AO	Jacobs Chuck

Optional	
131-170/74	**Acetabular Reamer Head,** Reamer-Ø 74 mm
131-170/76	**Acetabular Reamer Head,** Reamer-Ø 76 mm
131-170/78	**Acetabular Reamer Head,** Reamer-Ø 78 mm
131-170/80	**Acetabular Reamer Head,** Reamer-Ø 80 mm

132-260/02 Instrument Set for LINK Acetabular Reamers, Intermediate Sizes



1	132-260/11	**Instrument Tray,** empty
2	131-170/41	**Acetabular Reamer Head,** Reamer-Ø 41 mm
3	131-170/43	**Acetabular Reamer Head,** Reamer-Ø 43 mm
4	131-170/45	**Acetabular Reamer Head,** Reamer-Ø 45 mm
5	131-170/47	**Acetabular Reamer Head,** Reamer-Ø 47 mm
6	131-170/49	**Acetabular Reamer Head,** Reamer-Ø 49 mm
7	131-170/51	**Acetabular Reamer Head,** Reamer-Ø 51 mm
8	131-170/53	**Acetabular Reamer Head,** Reamer-Ø 53 mm
9	131-170/55	**Acetabular Reamer Head,** Reamer-Ø 55 mm
10	131-170/57	**Acetabular Reamer Head,** Reamer-Ø 57 mm
11	131-170/59	**Acetabular Reamer Head,** Reamer-Ø 59 mm
12	131-170/61	**Acetabular Reamer Head,** Reamer-Ø 61 mm
13	131-170/63	**Acetabular Reamer Head,** Reamer-Ø 63 mm
14	131-170/65	**Acetabular Reamer Head,** Reamer-Ø 65 mm
15	131-170/67	**Acetabular Reamer Head,** Reamer-Ø 67 mm
16	131-170/69	**Acetabular Reamer Head,** Reamer-Ø 69 mm
17	131-170/71*	**Acetabular Reamer Head,** Reamer-Ø 71 mm
18	131-170/73*	**Acetabular Reamer Head,** Reamer-Ø 73 mm
19	131-171B**	**Shaft with Handle for acetabular reamer,** 312 mm, fittings optional

* On request (not included in set configuration 132-260/02)
** How to order: 131-171E = with Jacobs Chuck fitting

		
B	**D**	**E**
Hudson	AO	Jacobs Chuck

Optional	
131-170/75	**Acetabular Reamer Head,** Reamer-Ø 75 mm
131-170/77	**Acetabular Reamer Head,** Reamer-Ø 77 mm
131-170/79	**Acetabular Reamer Head,** Reamer-Ø 79 mm

Additional Instruments

15-8380/01 **Drill Shaft,** flexible, 134 mm
Jacobs Chuck Fitting

15-8380/01B **Drill Shaft,** flexible, 134 mm
Hudson Fitting (B)

15-8380/01D **Drill Shaft,** flexible, 134 mm
AO Fitting (D)

15-8380/02 **Drill Shaft,** straight, 134 mm
Jacobs Chuck Fitting

15-8380/02B **Drill Shaft,** straight, 134 mm
Hudson Fitting (B)

15-8380/02D **Drill Shaft,** straight, 134 mm
AO Fitting (D)

319-601/30 **Sterilizing Box for:**

15-8381/02 **Drill Cap,** 25 mm length, Ø 3.2 mm

15-8382/02 **Drill Cap,** 40 mm length, Ø 3.2 mm

15-8383/02 **Drill Cap,** 50 mm length, Ø 3.2 mm

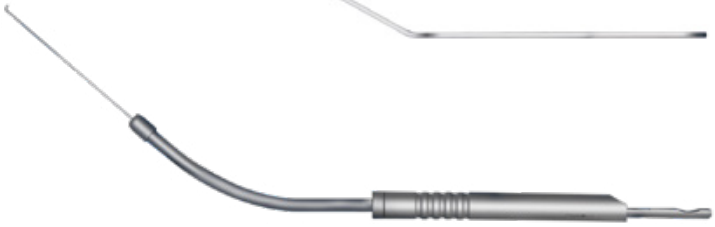
15-8384/02 **Drill Cap,** 60 mm length, Ø 3.2 mm

15-8385/02 **Drill Cap,** 80 mm length, Ø 3.2 mm

15-8385/01 **Insertion Forceps** for screws

183-138/32 **Drill Guide,** 3.6 mm

183-138/36 **Curved Depth Gauge**



15-8379/01 **Hex Screwdriver,**
straight, SW 3.5 mm, self-holding screw

15-8388/01 **Hex Screwdriver,**
flexible, SW 3.5 mm, Ø 3.5 mm,
self-holding screw

183-150/03 **Impactor Handle,** straight, 406 mm

183-150/09 **Impactor Handle,**
straight, monoblock, 406 mm

Instructions for Cleaning and Maintenance

Specific instructions for instruments are available on request from customer@linkhh.de

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

Specified Indications and Contraindications: TrabecuLink Augments
Indications
The TrabecuLink Augments are indicated for use in individuals undergoing primary or revision surgery for hip replacement with the need of the orthopedic surgeon to have a prosthetic alternative to structural allograft in cases of segmental acetabular deficiencies.
Contraindications
For the TrabecuLink Augments, the corresponding contraindications of the combined acetabular cup system apply.

Important Information

Please note the following regarding the use of our implants:

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

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

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

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

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

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

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

Follow the instructions for use!

Waldemar Link GmbH & Co. KG, Hamburg

The Surgical Technique described has been written to the best of our knowledge and belief, but it does not relieve the surgeon of his/her responsibility to duly consider the particularities of each individual case.

Products shown in this document may not be available in your country. The product availability is subject to the approval and/or registration regulations of the respective country. Please contact Waldemar Link GmbH & Co. KG if you have questions about the availability of LINK products in your country.

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