

ARTHROPLASTY / PRIMARY IMPLANTS

# ELiS

## TRAPEZIOMETACARPAL JOINT REPLACEMENT



Beznoska®

MANUAL

# Introduction

The ELiS type trapeziometacarpal joint replacement (hereafter referred to as TMC joint replacement) was designed based on experience, modern knowledge and current experience with similar types of replacements. It allows simple and perfect fixation of the implant with minimal bone resection. It also allows for trapezium replacement if necessary.

Optimisation of the dimensions of the joint surfaces of the prosthesis ensures maximum range of motion with good functional stability. The surface treatment of the articulating and anchoring surfaces minimizes abrasion and ensures very good integration of the components in the bone tissue.

The range of stem and cup sizes supplied allows the entire size range required to be covered seamlessly. Combined with necks of different lengths and inclinations, it allows to solve virtually all situations that may arise during both primo-implantation and revision joint replacement operations, or more extensive damage to the TMC joint or trapezium articulation.

Comprehensive instrumentation allows for precise implant placement and perfect seating. It is designed to allow all commonly encountered problems to be solved using simple, precisely defined and interrelated steps.

This manual is intended to serve as an instructional guide for the specific implant and instrumentation indicated. For the sake of brevity, it focuses only on the issues involved in implanting a given type of endoprosthesis and assumes that the surgeon and other personnel are thoroughly familiar with the general rules of TMC joint replacement surgery.

The aim of the manual is to enable surgeons and instrumentation technicians to quickly orientate and correctly use the various elements of the instrumentation in order to achieve an optimal result and to avoid unnecessary damage and degradation of the instrumentation or even the implant. However, it is by no means a textbook of surgical technique.

The surgical technique can be learned at a workshop at BEZNOSKA, s.r.o. or in the selected hospital directly in the operating room by an experienced surgeon.

## A glimpse into history

### First generation:

In 2011, a clinical trial began at the TMCJ TEP in Havlíčkův Brod, where the trapeziometacarpal joint replacement was implanted for the first time. The replacement includes a basic size range of stems with plasma-applied titanium injection. The necks have two basic variants, which differ from each other by the inclination of the transition part with the ball head. Each of these neck variants has two versions, one for the uncemented bore and the other for the cemented bore. The cups are manufactured in two versions – uncemented and cemented. This replacement received the CE mark in 2012 and since then more than 700 units of this replacement have been implanted.

### Second generation:

After the success of the first generation of trapeziometacarpal joint replacement, another clinical trial called TEP TMCJ/II started in 2014, again in Havlíčkův Brod. Compared to the first generation, the stems were expanded with a new plasma-applied injection – Ti and HAp. The necks are again in two variants (straight and valgus), which differ in the inclination of the transition part. The cups are composed of two parts (shell and PE liner) and are produced in two shell diameters. Trapezium replacement – Type TR is made of two separate parts (body and liner) and is designed for complete trapezium replacement in a total TMC joint replacement assembly.

This generation is designed to expand the variability in the TMC joint replacement assembly with the ability to replace the entire trapezium. It received the CE mark in 2015. Since then, more than a thousand units of this replacement has been sold.

### Third generation:

The third generation of trapeziometacarpal joint replacement was clinically tested in 2020. This latest generation was intended to further expand the already wide range of combination replacements. The stems and uncemented cups were given a new composite coating (a special proprietary blend of Ti and HA), plus the addition of „intermediate sizes“ to fill the space in the size range. The necks are available in additional ante, valgus and DUAL MOBILITY (DM) designs. This also applies to the cups, which are produced in KONOS and SPHERE DM.

The third generation thus further extends the possibility of assembling a replacement according to the operator's wishes. The replacement offers a large number of options for assembling the replacement to cover the specified indication as closely as possible.

The third generation brings a unified name for all TMC joint implants – ELiS.

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# Combinations

The elements of the total replacement can be combined with each other according to the following scheme.

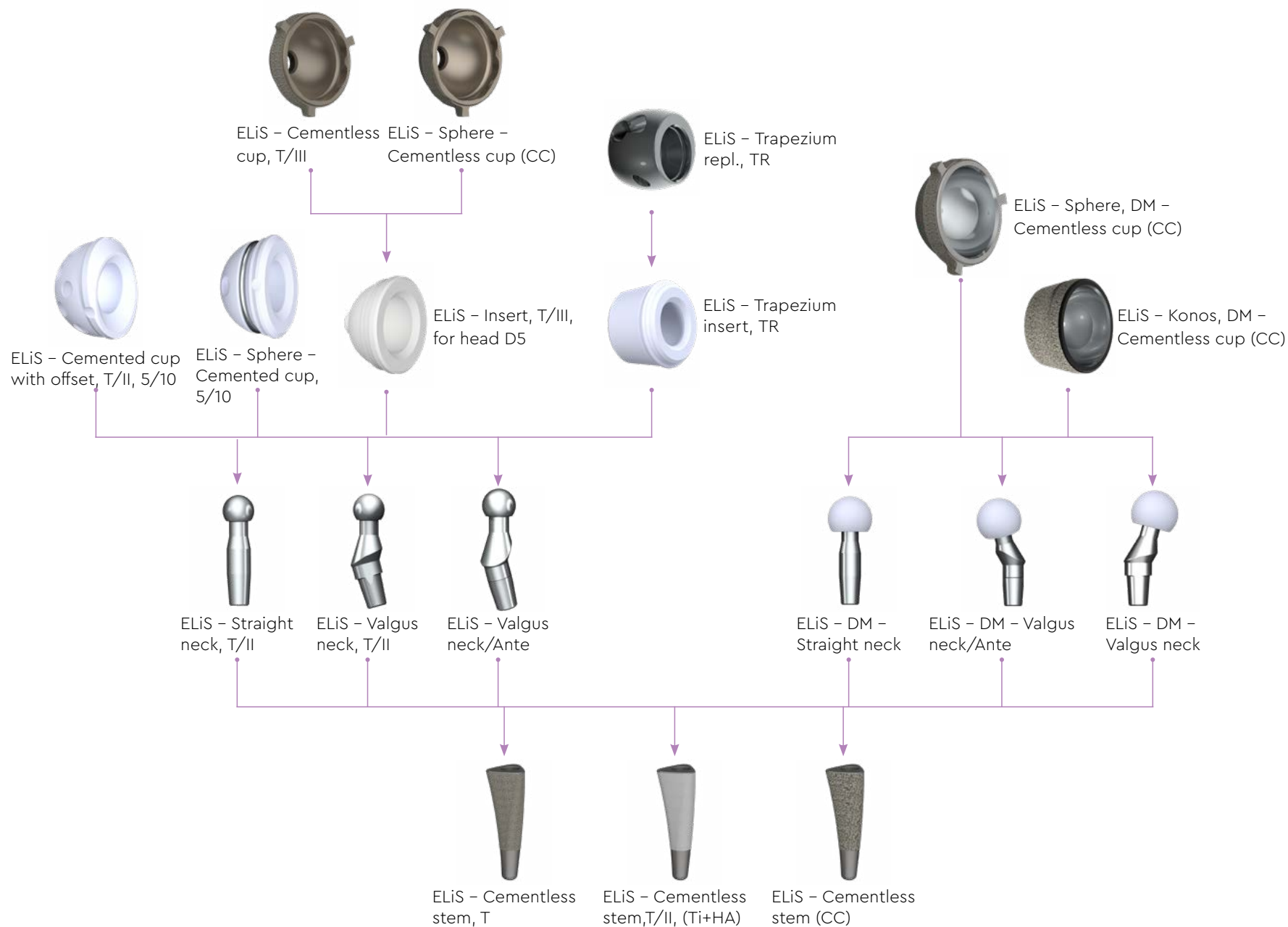
The TMC joint replacement in the stem, neck and socket assembly is intended for primoimplantation in cases of damage to the articulating parts of the trapezium and metacarpus that can no longer be addressed by conservative treatment. In special cases, the implant can also be used as a revision implant in cases of failure.

In this set-up, the TMC joint replacement always consists of three parts – the metacarpal stem, the headed neck or DM neck and an uncemented cup placed in the trapezium (shell + PE liner or DM shell) or a cemented cup.

The TMC joint replacement in the stem, neck and trapezium replacement configuration is intended for revision surgeries when it is no longer possible to securely anchor the cup due to trapezium defects. In addition, this assembly is intended for the management of severe Eaton Littler IV arthrosis when trapezium extirpation is required.

In this assembly, the TMC joint replacement always consists of three parts – the metacarpal stem, the neck and the trapezium replacement (body + PE liner).

The trapezium replacement cannot be used in combination with the DM.



# Surgical technique

This guide describes the recommended surgical procedure starting with resection of the metacarpus. However, the modularity of the instrumentation easily allows the procedure to begin with trapezium resection if the surgeon deems it advantageous. The following additional steps of the respective stages of the operation are unchanged.

The instrumentarium allows this joint replacement to be conveniently implanted from any of the standard surgical approaches used in TMC joint replacements and does not require major changes in the surgical conventions of the respective department. The standard approach is the dorsal approach, which allows the use of all the advantages of the instrumentarium (see Figure 1).

The procedure is not affected by the use of a tourniquet to ensure bloodlessness.

The joint is approached by the dorsal approach in the interval between the extensor pollicis brevis and abductor pollicis longus while sparing the terminal branch of the ramus superficialis n. radialis. We perform a longitudinal incision of the capsule or a flap-like sculpture of the capsule dorsally and expose the base of the first metacarpal (M1) (see Fig. 2).



Fig. 1

## 1/ Bone preparation for the stem

### 1.1/ Resection of the base of the first metacarpal (M1)

The next step is to prepare the metacarp for the stem. First, we luxate and hold the base of the metacarpal with the retractor [A21/B29/C29/D32](#) (see Fig. 3) and open the marrow canal (ELiS - Perforator [A24/B32/C32/D35](#)). Next, assemble the ELiS - Resection block handle [A37/B46/C46/D48](#) and the ELiS - Resection block [A36/B45/C45/D47](#). Introduce the assembly into the open canal (see Figure 4a).



Fig. 2



Fig. 3



Fig. 4a

After setting the resection level, secure the resection block with two ELiS – Guide wires A22/B30/C30/D33, which are inserted through the holes in the resection block (see Fig. 4b and 4c).

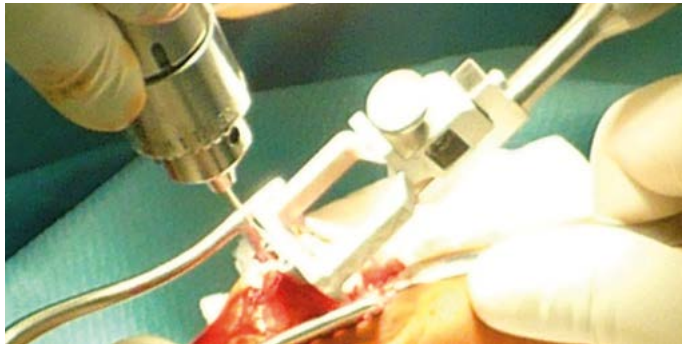


Fig. 4b

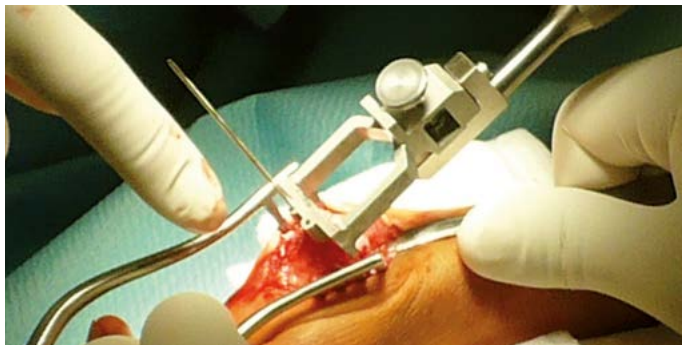


Fig. 4c

We then remove the resection block handle A37/B46/C46/D48 and resect the M1 base with the oscillating saw (see Fig. 5).

After the resection, we carefully remove the resection block, including the fixation wires.

We always try to keep the resection size to a minimum.



Fig. 5

## 1.2/ Shaft for stem

During preoperative planning we measured the size of the stem, however, only during the preparation of the marrow cavity can we determine the final size. The bone is prepared by successive rasping from the smallest size ELiS - Rasp A25/B33/C33/D36 until the rasp surface contacts the cortical bone (see Fig. 6a). When preparing the cavity, we carefully observe the depth of the rasp insertion – the upper end of the rasp indicates the depth of the implant position (see Fig. 6b).



Fig. 6a



Fig. 6b

Once the marrow cavity has been prepared, we assemble the ELiS - Trial stem with the ELiS - Stem loader/extractor II A35/B43/C43/D46 and the ELiS - Loader coupler A34/B42/C42/D45 (use the Open-end wrench 7 A33/B41/C41/D44 to firmly connect the coupler to the extractor) and insert it into the marrow cavity (see Figs. 7a and 7b).



Fig. 7a



Fig. 7b

If the marrow cavity has been properly prepared, the face of the stem lines up with the line of resection (see Fig. 7c).

When rasping and introducing the ELiS - Trial stem A1/B1/C1/D1 - A8/B8/C8/D8, it is necessary to respect the triangular shape of the first metacarpal cavity – see the marking of the dorsal side on the rasp and on the stem (Fig. 8).





Fig. 7c

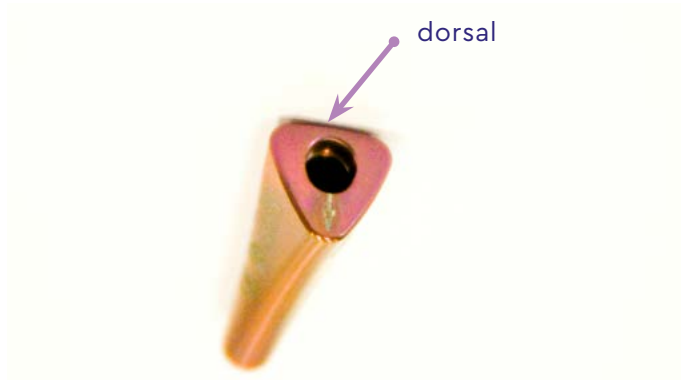


Fig. 8

## 2/ Bone preparation for the cup

### 2.1/ Trapezium resection

Carefully resect the trapezium. The resection should remove any cartilage and sclerotic bone that does not provide good support for the cup. The resection is made as small as possible. The line of resection on the trapezium should be parallel to the M1 base (Figs. 9a, 9b). To perform the trapezium resection correctly, we use ELIS - Aiming device A54/B63 /C61/D65 (see Figs. 9c and 9d). This allows us to precisely adjust the resection surfaces in 2 planes (see Fig. 9e - X-ray hand on the cassette).

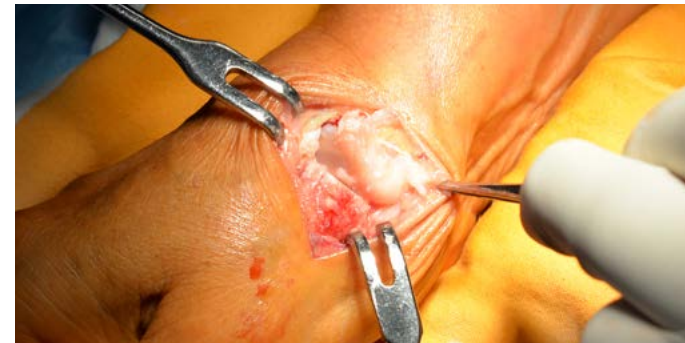


Fig. 9a

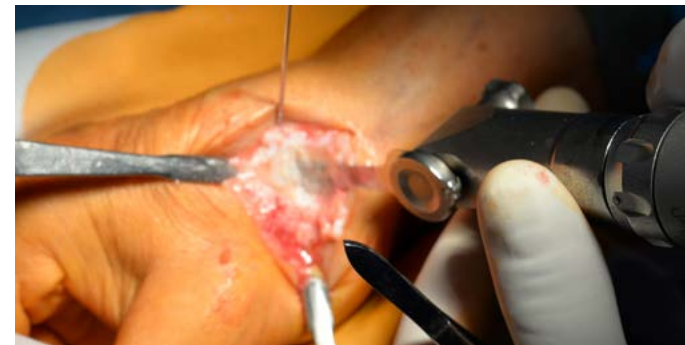


Fig. 9b



Fig. 9c



Fig. 9d

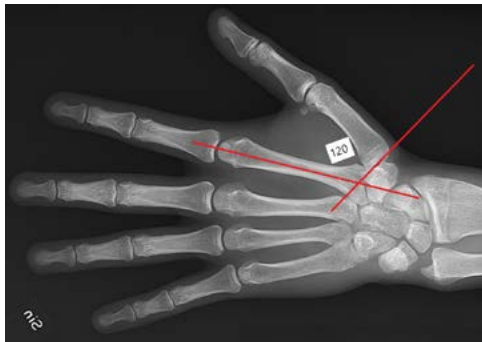


Fig. 9e

Before adjusting the trapezium, it is important to visualize the articulating surface of the trapezium and ensure its true size by taking off the osteophytes (see Fig. 9f). It is highly advantageous if the rest of the subchondral bone remains on the articulating surface.



Fig. 9f

## 2.2/ Positioning of the guide wire

Insert the ELiS - Dipstick with drilling sleeve II [A53/B62/C60/D64](#) onto the resected area (see Fig. 10a and 10b), or ELiS - Aiming device [A54/B63/C61/D65](#) (see Fig. 10c) (Hexagonal „L” wrench 2.5 [A38/B47/C47/D49](#) for tightening the position of the template) and drill a Guide wire, D1.8 mm L50 [A9/B17/C17/D17](#) or L110 [A10/B18/C18/D18](#) into the trapezoid through the hole (see Fig. 11). The size of the template corresponds to the size of the hole D9.



Fig. 10a



Fig. 10b



Fig. 10c



Fig. 11

It is recommended to adjust the upper surface of the trapezium at this stage of the surgery using the ELiS – Alignment reamer III with  $\varnothing 12$  mm A51/B59/C58/D62, guided along the already inserted guide wire.

The exact positioning of the template (its centering on the resected area) is very important for the correct positioning of the socket and its good fixation in the trapezium. We can also determine or verify the insertion point of the guide wire using the ELiS – Cylindrical Tip, 7 A19/B19/C19/D22 ELiS – Cylindrical Tip, 12 A20/B20/C20/D23 from the instrument inserted into the inserted test stem. **The wire position can also be verified using an X-ray amplifier.**

### 2.3/ Reming the bone for cup

#### 2.3.1/ Cemented cup

We start with the ELiS – Cannulated countersink II A50/D57, continue with the ELiS – Reamer II, D8 A47/D54, D9 A48/D55, D10 mm A49/D56. The bed for the cemented cup must be finished with the ELiS – Reamer II A49/D56. The reaming can be carried out with a tool clamped in the drill (see Fig. 12a) or manually with the ELiS – „T” head, for reamers A52/D59 (see Fig. 12b). The bed is checked using ELiS – Template II A46/D53.



Fig. 12a

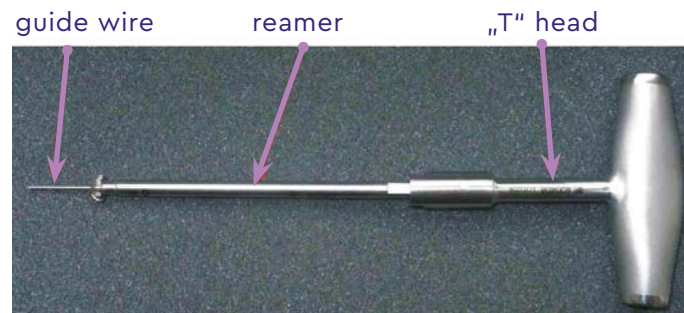


Fig. 12b

### 2.3.2/ Cementless cups

Starting with the ELiS – Cannulated countersink II A50/C57/D57 and continuing with the ELiS – Reamer II, D8 A47/C54/D58, D9 A48/C55/D59, D10 mm A49/C55/D60. The next reamer used is always a maximum of 1 mm larger. The size of the last reamer used determines the size of the cup (ø9 A48/C55/D59, ø10 mm A49/C56/D60). The reaming can be carried out with a tool clamped in the drill (see Fig. 12a) or manually using the ELiS – „T“ head, for reamers A52/C59/D63 (see Fig. 12b). The bed check is carried out using ELiS – Template II, D9 A45/D56, D10 A46/D57. After removing the guide wire, use the ELiS – Dual mobility tamplate, D9 C52, D10 C53.

### 2.3.3/ Konos

We start with the Konos – Pre-drill bit B58. Then we continue with the Konos – Cone reamer, D9 B56, D10 mm B57. The dimension of the last reamer used determines the dimension of the cup (ø9 B56, ø10 mm B57). The reamer can be done with a tool clamped in the drill (see Fig. 12a) or manually with the ELiS – „T“ head, for reamers B61 (see Fig. 12b). The bed check is carried out after removing the guide wire, Konos – Template, D9 B52, D10 B54.

The templates can be used to pre-test the function during the first test bend in the test set-up, formed by the test stem, test neck and „cup“ (template). However, the guide wire must not be inserted in the trapezium at this time.

### 2.3.4/ Trapeium replacement

In case we decided to remove the trapezium, we will replace the cup in the set with a trapezium replacement. In this assembly, the TMC replacement always consists of three parts – the metacarpal stem, the neck and the trapezium replacement (body and PE liner). **In this case, an X-ray amplifier must be used.**

## 3/ Trial bending

### 3.1/ Trial bending of cemented, uncemented and DM cups

At this point, there is a trial stem in the metacarp and a cup template in the trapezium. The Ki wire must be removed for the trial bending. The corresponding trial neck is then introduced into the hole in the stem. The type of neck is chosen according to the type of cup- with / without DM. The neck is inserted using ELiS – Holding pliers (for neck without DM A39/D50) (for neck DM B48/C48).

At this stage we can test the stability of the head (its retention in the „cup“) and to some extent the range of movement in the joint. Depending on the result, we can change the length of the neck (there are always four lengths available – 12, 14, 16 and 18 mm), but also the inclination of the neck axis (we can choose a straight neck, a valgus neck with a 15° inclination and a valgus neck with a 15° ante inclination) (see Fig. 13).



Fig. 13

## 4/ Implantation

Remove the test components before implantation. In addition to the pliers, the ELiS – Fixed neck extractor II A41/B50/C50/D52 is available for removing the neck from the stem.

Only the ELiS – Sphere – Cementless cup can be inserted via the wire.

### 4.1/ Cup implantation

#### 4.1.1/ Cemented cups (type T/II and Sphere)

- If we have decided to use a cemented cup in the assembly, we have to follow the general rules for cementation as well as some recommendations and limitations resulting from the implant design.
- The bed in the trapezium must be prepared for better bonding of the bone cement to the bone by drilling three to four holes with a diameter of approximately 1.5÷2 mm to a depth of 1÷2 mm. Then we dry the bed perfectly and apply a continuous layer of cement.
- For introducing and holding the hole during cementing, it is necessary to use ELiS – Curved loader, 5 A43. Its use facilitates correct orientation of the hole and firm holding during cement setting.

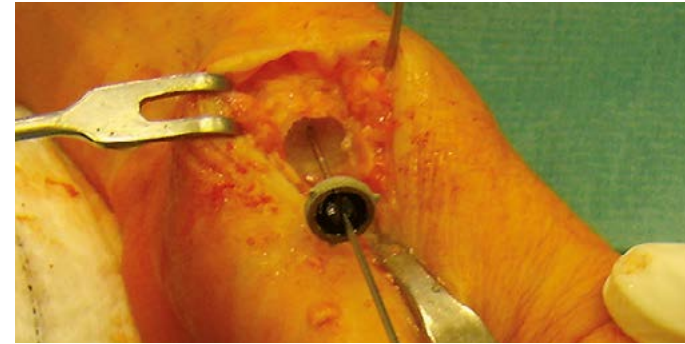


Fig. 14a



Fig. 14b

#### 4.1.2/ Cementless cups (except DM version):

First, we implant the cup. For the T/III and Sphere types, we can use the procedure using a Guide wire, D1.8 mm, L50 A9/D17, or L110 A10/D18 for centering the shell of the cup. When implanting the cup, we first carefully slide it onto the wire (see Figure 14a) and press it into the reamed bed.

The last step is to stop the shell cup with the ELiS – Direct loader II, 7 A42/D53 or ELiS – Curved loader II, 7 A44/D55 (see Fig. 14b).

When selecting the loader, make sure that the correct dimension of the end element (ball face) is taken into account. For an cementless cup with a PE insert (type T/III and Sphere) it is necessary to use a loader with a ball face of  $\varnothing 7$  mm for casing insertion. Then, for type T/III and Sphere, after removing the guide wire, insert the PE insert. To secure it in the shell cup, use ELiS – Curved loader with  $\varnothing 5$  mm A43/D54.

#### 4.1.3/ DM cups:

First, we implant the cup shell. We hold the shell on the loader and carefully insert it into the pre-prepared bed from the free hand. For the Sphere DM and Konos DM it is necessary to use the ELiS – Cup loader, DM B44/C44.

The last step is to finish the casing with the ELiS – Direct loader II, 7 B49/C49 or ELiS – Curved loader II, 7 B51/C51.

Finishing the shell is very important for the outcome of the operation. Sufficient postoperative stability of the cup can only be achieved if the cup shell is inserted into the bed with an overlap and if the edge of the cup corresponds with the resection surface of the trapezium (with the equator).

#### 4.1.4 Trapezium

Implantation usually does not require any modification of the articulating bones (scaphoid, trapezoid, ...), but it is necessary to ensure the stability of the trapezium replacement.

Supplementary fixation with two cortical screws  $\varnothing 2$  mm, inserted into the 2nd metacarpal and trapezoid, is very appropriate and it is up to the discretion of the surgeon whether to use permanent or absorbable screws with a sufficiently long „full“ bearing time.

Finally, we will supplement the body of the restoration with a PE insert matching the size of the trapezium restoration with a ball recess of the same diameter as the head.

## 4.2 Stem implantation

In the next step, introduce the final stem. For this purpose, there is an ELiS – Stem loader/extractor in the instrumentarium, which is after assembly (ELiS – Stem loader/extractor II A35/B43/C43/D46 and ELiS – Loader coupler A34/B42/C42/D45 is screwed firmly together by Open-end wrench 7 A33/B41/C41/D44) screwed into the implant thread and the assembly is inserted into the bed in the metacarp. Take great care when handling the implant, taking particular care to ensure that the loader fit is perfectly seated on the upper surface of the stem (see Fig. 15).

The stem must be inserted to the same depth as the rasp. In case of greater resistance and danger of breaking the metacarp, we recommend repeated rasping.

Loosening the threaded connection during insertion could damage the thread and cause difficulty in removing the loader.



Fig. 15

## 4.3/ Neck implantation

A trial neck can be used before the final neck implant for trial. This will ensure that satisfactory properties and stability are achieved. The neck implant must match the compliant trial neck. To handle the implant and the test neck without DM, use the ELiS – Holding Pliers A39/D50 or the ELiS – Head loader A40/D51. In the case of DM, we use the ELiS – DM holding pliers B48/C48 (see Fig. 16).



Fig. 16

A self-locking cone ensures a firm connection between the neck and the stem, and if we have applied more force when inserting the neck or have repeatedly wedged the neck, it is likely that the neck will be held firmly in the stem. If we were to try to force the neck out in such a case, we might pull the already inserted stem out of the bed.

For the ELiS DM type, we only use the ELiS DM neck insertion pliers to firmly connect the neck (implant) to the implanted stem, which allows the neck to be tightened.

**If valgus necks are used, the physiological valgusity of the TM joint must be respected!**

## 5/ Finalization of the surgery

The surgery is completed by reconstruction of the joint capsule, followed by closure of the surgical wound in layers and application of a covering dressing. Immobilization is for 3–4 weeks.

Photos from surgeries of MUDr. Lubomír Trtík were used for this manual.



Fig. 17

# Instruments

The instrumentation in the individual sets is stored in trays, allowing for a clear arrangement of the individual instruments not only during transport, storage and preparation, but also during the surgery. During transportation, the trays are stored in a transport container.

- A) ELiS - Sphere – Set of instruments (400021)
- B) ELiS - Konos, DM - Set of instruments (400023)
- C) ELiS - Sphere, DM - Set of instruments (400025)
- D) ELiS - Sphere + Trapezium - Set of instruments (400026)

**Note:** The tray layout is informative and may change depending on innovative changes made.



ELiS – Sphere – Set of instruments (tray) 400021			
	Description	Qty.	Order number
A1	ELiS – Trial stem, 1	1	400301
A2	ELiS – Trial stem, 1+	1	400306
A3	ELiS – Trial stem, 2	1	400302
A4	ELiS – Trial stem, 2+	1	400307
A5	ELiS – Trial stem, 3	1	400303
A6	ELiS – Trial stem, 4	1	400304
A7	ELiS – Trial stem, 5	1	400305
A8	ELiS – Trial stem, 5+	1	400308
A9	Guide wire, D1.8, L50	2	400464
A10	Guide wire, D1.8, L110	2	400465
A11	ELiS – Trial neck, straight, 5/12	1	400351
A12	ELiS – Trial neck, straight, 5/14	1	400352
A13	ELiS – Trial neck, straight, 5/16	1	400353
A14	ELiS – Trial neck, straight, 5/18	1	400354
A15	ELiS – Trial neck, valgus 15°, 5/12	1	400361
A16	ELiS – Trial neck, valgus 15°, 5/14	1	400362
A17	ELiS – Trial neck, valgus 15°, 5/16	1	400363
A18	ELiS – Trial neck, valgus 15°, 5/18	1	400364
A19	ELiS – Cylindrical tip, 7	1	400331
A20	ELiS – Cylindrical tip, 12	1	400332
A21	ELiS – Retractor	1	400440
A22	Guide wire, D1.2, L50	2	400436
A23	ELiS – Chisel	1	400445
A24	ELiS – Perforator	1	400442
A25	ELiS – Rasp, 1	1	400415
A26	ELiS – Rasp, 1+	1	400455
A27	ELiS – Rasp, 2	1	400416
A28	ELiS – Rasp, 2+	1	400456
A29	ELiS – Rasp, 3	1	400417
A30	ELiS – Rasp, 4	1	400418
A31	ELiS – Rasp, 5	1	400419
A32	ELiS – Rasp, 5+	1	400457
A33	Open-end wrench, 7	1	400479
A34	ELiS – Loader coupler	2	400477
A35	ELiS – Stem loader/extractor II	1	400478



**ELiS – Sphere – Set of instruments (tray)  
400021**

	Description	Qty.	Order number
A36	ELiS – Resection block	1	400423
A37	ELiS – Resection block handle	1	400421
A38	Hexagonal „L“ wrench 2.5	1	707022
A39	ELiS – Holding pliers	1	400437
A40	ELiS – Head loader II	1	400426
A41	ELiS – Fixed neck extractor II	1	400428
A42	ELiS – Direct loader II, 7	1	400476
A43	ELiS – Curved loader, 5	1	400404
A44	ELiS – Curved loader II, 7	1	400475
A45	ELiS – Template II, D9	1	400472
A46	ELiS – Template II, D10	1	400473
A47	ELiS – Reamer II, D8	1	400481
A48	ELiS – Reamer II, D9	1	400482
A49	ELiS – Reamer II, D10	1	400483
A50	ELiS – Cannulated countersink II	1	400480
A51	ELiS – Alignment reamer III	1	400484
A52	ELiS – „T“ head, for reamers	1	400407
A53	ELiS – Dipstick with drilling sleeve II, D9	1	400471
A54	ELiS – Aiming device	1	400485
A55	ELiS – Sphere – Tray with lining	1	490021



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### ELiS – Konos, DM – Set of instruments (tray) 400023

	Description	Qty.	Order number
B1	ELiS – Trial stem, 1	1	400301
B2	ELiS – Trial stem, 1+	1	400306
B3	ELiS – Trial stem, 2	1	400302
B4	ELiS – Trial stem, 2+	1	400307
B5	ELiS – Trial stem, 3	1	400303
B6	ELiS – Trial stem, 4	1	400304
B7	ELiS – Trial stem, 5	1	400305
B8	ELiS – Trial stem, 5+	1	400308
B9	ELiS – DM – Trial neck, straight, 7.7/12	1	400281
B10	ELiS – DM – Trial neck, straight, 7.7/14	1	400282
B11	ELiS – DM – Trial neck, straight, 7.7/16	1	400283
B12	ELiS – DM – Trial neck, straight, 7.7/18	1	400284
B13	ELiS – DM – Trial neck, valgus 15°, 7.7/12	1	400291
B14	ELiS – DM – Trial neck, valgus 15°, 7.7/14	1	400292
B15	ELiS – DM – Trial neck, valgus 15°, 7.7/16	1	400293
B16	ELiS – DM – Trial neck, valgus 15°, 7.7/18	1	400294
B17	Guide wire, D1.8, L50	2	400464
B18	Guide wire, D1.8, L110	2	400465
B19	ELiS – Cylindrical tip, 7	1	400331
B20	ELiS – Cylindrical tip, 12	1	400332
B21	ELiS – DM – Trial neck, valgus 15°/ANTE-L, 7.7/12	1	400277
B22	ELiS – DM – Trial neck, valgus 15°/ANTE-L, 7.7/14	1	400278
B23	ELiS – DM – Trial neck, valgus 15°/ANTE-L, 7.7/16	1	400279
B24	ELiS – DM – Trial neck, valgus 15°/ANTE-L, 7.7/18	1	400280
B25	ELiS – DM – Trial neck, valgus 15°/ANTE-R, 7.7/12	1	400273
B26	ELiS – DM – Trial neck, valgus 15°/ANTE-R, 7.7/14	1	400274
B27	ELiS – DM – Trial neck, valgus 15°/ANTE-R, 7.7/16	1	400275
B28	ELiS – DM – Trial neck, valgus 15°/ANTE-R, 7.7/18	1	400276
B29	ELiS – Retractor	1	400440
B30	Guide wire, D1.2, L50	2	400436
B31	ELiS – Chisel	1	400445
B32	ELiS – Perforator	1	400442
B33	ELiS – Rasp, 1	1	400415
B34	ELiS – Rasp, 1+	1	400455
B35	ELiS – Rasp, 2	1	400416

**ELiS – Konos, DM – Set of instruments (tray)  
400023**

	Description	Qty.	Order number
B36	ELiS – Rasp, 2+	1	400456
B37	ELiS – Rasp, 3	1	400417
B38	ELiS – Rasp, 4	1	400418
B39	ELiS – Rasp, 5	1	400419
B40	ELiS – Rasp, 5+	1	400457
B41	Open-end wrench, 7	1	400479
B42	ELiS – Loader coupler	2	400477
B43	ELiS – Stem loader/extractor II	1	400478
B44	ELiS – Cup loader, dual mobility	1	400427
B45	ELiS – Resection block	1	400423
B46	ELiS – Resection block handle	1	400421
B47	Hexagonal „L“ wrench 2.5	1	707022
B48	ELiS – Holding pliers, dual mobility	1	400424
B49	ELiS – Direct loader II, 7	1	400476
B50	ELiS – Fixed neck extractor II	1	400428
B51	ELiS – Curved loader II, 7	1	400475
B52	Konos – Template, D9	1	400489
B53	Konos – Finishing cone, D9	1	400495
B54	Konos – Template, D10	1	400490
B55	Konos – Finishing cone, D10	1	400496
B56	Konos – Cone reamer, D9	1	400497
B57	Konos – Cone reamer, D10	1	400498
B58	Konos – Pre-drill bit	1	400493
B59	ELiS – Alignment reamer III	1	400484
B60	Konos – Guide wire impactor	1	400494
B61	ELiS – „T“ head, for reamers	1	400407
B62	ELiS – Dipstick with drilling sleeve II, D9	1	400471
B63	ELiS – Aiming device	1	400485
B64	ELiS – Konos, DM – Tray with lining	1	490023



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### ELiS - Sphere, DM - Set of instruments (tray) 400025

	Description	Qty.	Order number
C1	ELiS - Trial stem, 1	1	400301
C2	ELiS - Trial stem, 1+	1	400306
C3	ELiS - Trial stem, 2	1	400302
C4	ELiS - Trial stem, 2+	1	400307
C5	ELiS - Trial stem, 3	1	400303
C6	ELiS - Trial stem, 4	1	400304
C7	ELiS - Trial stem, 5	1	400305
C8	ELiS - Trial stem, 5+	1	400308
C9	ELiS - DM - Trial neck, straight, 7.7/12	1	400281
C10	ELiS - DM - Trial neck, straight, 7.7/14	1	400282
C11	ELiS - DM - Trial neck, straight, 7.7/16	1	400283
C12	ELiS - DM - Trial neck, straight, 7.7/18	1	400284
C13	ELiS - DM - Trial neck, valgus 15°, 7.7/12	1	400291
C14	ELiS - DM - Trial neck, valgus 15°, 7.7/14	1	400292
C15	ELiS - DM - Trial neck, valgus 15°, 7.7/16	1	400293
C16	ELiS - DM - Trial neck, valgus 15°, 7.7/18	1	400294
C17	Guide wire, D1.8, L50	2	400464
C18	Guide wire, D1.8, L110	2	400465
C19	ELiS - Cylindrical tip, 7	1	400331
C20	ELiS - Cylindrical tip, 12	1	400332
C21	ELiS - DM - Trial neck, valgus 15°/ANTE-L, 7.7/12	1	400277
C22	ELiS - DM - Trial neck, valgus 15°/ANTE-L, 7.7/14	1	400278
C23	ELiS - DM - Trial neck, valgus 15°/ANTE-L, 7.7/16	1	400279
C24	ELiS - DM - Trial neck, valgus 15°/ANTE-L, 7.7/18	1	400280
C25	ELiS - DM - Trial neck, valgus 15°/ANTE-R, 7.7/12	1	400273
C26	ELiS - DM - Trial neck, valgus 15°/ANTE-R, 7.7/14	1	400274
C27	ELiS - DM - Trial neck, valgus 15°/ANTE-R, 7.7/16	1	400275
C28	ELiS - DM - Trial neck, valgus 15°/ANTE-R, 7.7/18	1	400276
C29	ELiS - Retractor	1	400440
C30	Guide wire, D1.2, L50	2	400436
C31	ELiS - Chisel	1	400445
C32	ELiS - Perforator	1	400442
C33	ELiS - Rasp, 1	1	400415
C34	ELiS - Rasp, 1+	1	400455
C35	ELiS - Rasp, 2	1	400416

## ELiS – Sphere, DM – Set of instruments (tray) 400025

	Description	Qty.	Order number
C36	ELiS – Rasp, 2+	1	400456
C37	ELiS – Rasp, 3	1	400417
C38	ELiS – Rasp, 4	1	400418
C39	ELiS – Rasp, 5	1	400419
C40	ELiS – Rasp, 5+	1	400457
C41	Open-end wrench, 7	1	400479
C42	ELiS – Loader coupler	1	400477
C43	ELiS – Stem loader/extractor II	1	400478
C44	ELiS – Cup loader, dual mobility	1	400427
C45	ELiS – Resection block	1	400423
C46	ELiS – Resection block handle	1	400421
C47	Hexagonal „L“ wrench 2.5	1	707022
C48	ELiS – Holding pliers, dual mobility	1	400424
C49	ELiS – Direct loader II, 7	1	400476
C50	ELiS – Fixed neck extractor II	1	400428
C51	ELiS – Curved loader II, 7	1	400475
C52	ELiS – Dual mobility template, D9	1	400486
C53	ELiS – Dual mobility template, D10	1	400487
C54	ELiS – Reamer II, D8	1	400481
C55	ELiS – Reamer II, D9	1	400482
C56	ELiS – Reamer II, D10	1	400483
C57	ELiS – Cannulated countersink II	1	400480
C58	ELiS – Alignment reamer III	1	400484
C59	ELiS – „T“ head, for reamers	1	400407
C60	ELiS – Dipstick with drilling sleeve II, D9	1	400471
C61	ELiS – Aiming device	1	400485
C62	ELiS – Dual mobility – Tray with lining	1	490025



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### ELiS – Sphere + Trapezium – Set of instruments (tray) 400026

	Description	Qty.	Order number
D1	ELiS – Trial stem, 1	1	400301
D2	ELiS – Trial stem, 1+	1	400306
D3	ELiS – Trial stem, 2	1	400302
D4	ELiS – Trial stem, 2+	1	400307
D5	ELiS – Trial stem, 3	1	400303
D6	ELiS – Trial stem, 4	1	400304
D7	ELiS – Trial stem, 5	1	400305
D8	ELiS – Trial stem, 5+	1	400308
D9	ELiS – Trial neck, straight, 5/12	1	400351
D10	ELiS – Trial neck, straight, 5/14	1	400352
D11	ELiS – Trial neck, straight, 5/16	1	400353
D12	ELiS – Trial neck, straight, 5/18	1	400354
D13	ELiS – Trial neck, valgus 15°, 5/12	1	400361
D14	ELiS – Trial neck, valgus 15°, 5/14	1	400362
D15	ELiS – Trial neck, valgus 15°, 5/16	1	400363
D16	ELiS – Trial neck, valgus 15°, 5/18	1	400364
D17	Guide wire, D1.8, L50	2	400464
D18	Guide wire, D1.8, L110	2	400465
D19	ELiS – Trial trapezium repl., 14/15	1	400371
D20	ELiS – Trial trapezium repl., 15/16	1	400372
D21	ELiS – Trial trapezium repl., 16/17	1	400373
D22	ELiS – Cylindrical tip, 7	1	400331
D23	ELiS – Cylindrical tip, 12	1	400332
D24	ELiS – Trial neck, valgus 15°/ANTE-L, 5/12	1	400391
D25	ELiS – Trial neck, valgus 15°/ANTE-L, 5/14	1	400392
D26	ELiS – Trial neck, valgus 15°/ANTE-L, 5/16	1	400393
D27	ELiS – Trial neck, valgus 15°/ANTE-L, 5/18	1	400394
D28	ELiS – Trial neck, valgus 15°/ANTE-R, 5/12	1	400381
D29	ELiS – Trial neck, valgus 15°/ANTE-R, 5/14	1	400382
D30	ELiS – Trial neck, valgus 15°/ANTE-R, 5/16	1	400383
D31	ELiS – Trial neck, valgus 15°/ANTE-R, 5/18	1	400384
D32	ELiS – Retractor	1	400440
D33	Guide wire, D1.2, L50	1	400436
D34	ELiS – Chisel	1	400445
D35	ELiS – Perforator	1	400442

## ELiS – Sphere + Trapezium – Set of instruments (tray) 400026

	Description	Qty.	Order number
D36	ELiS – Rasp, 1	1	400415
D37	ELiS – Rasp, 1+	1	400455
D38	ELiS – Rasp, 2	1	400416
D39	ELiS – Rasp, 2+	1	400456
D40	ELiS – Rasp, 3	1	400417
D41	ELiS – Rasp, 4	1	400418
D42	ELiS – Rasp, 5	1	400419
D43	ELiS – Rasp, 5+	1	400457
D44	Open-end wrench, 7	1	400479
D45	ELiS – Loader coupler	1	400477
D46	ELiS – Stem loader/extractor II	1	400478
D47	ELiS – Resection block	1	400423
D48	ELiS – Resection block handle	1	400421
D49	Hexagonal „L“ wrench 2.5	1	707022
D50	ELiS – Holding pliers	1	400437
D51	ELiS – Head loader II	1	400426
D52	ELiS – Fixed neck extractor II	1	400428
D53	ELiS – Direct loader II, 7	1	400476
D54	ELiS – Curved loader, 5	1	400404
D55	ELiS – Curved loader II, 7	1	400475
D56	ELiS – Template II, D9	1	400472
D57	ELiS – Template II, D10	1	400473
D58	ELiS – Reamer II, D8	1	400481
D59	ELiS – Reamer II, D9	1	400482
D60	ELiS – Reamer II, D10	1	400483
D61	ELiS – Cannulated countersink II	1	400480
D62	ELiS – Alignment reamer III	1	400484
D63	ELiS – „T“ head, for reamers	1	400407
D64	ELiS – Dipstick with drilling sleeve II, D9	1	400471
D65	ELiS – Aiming device	1	400485
D66	ELiS – Sphere + Trapezium – Tray with lining	1	490026



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# Catalogue

## ELiS - Cementless stem, T

- Material:**
- (ISO 5832-3) Stem - Wrought titanium 6-aluminium 4-vanadium alloy (Ti6Al4V)
  - (ISO 5832-2) Porous coating - Unalloyed titanium



Size	L [mm]	A [mm]	Order number
1	26	7	413001
2	27	8	413002
3	29	9	413003
4	30	10	413004
5	32	11	413005

## ELiS - Cementless stem, T/II, (Ti+HA)

- Material:**
- (ISO 5832-3) Stem - Wrought titanium 6-aluminium 4-vanadium alloy (Ti6Al4V)
  - (ISO 5832-2 + ISO 13779-2) Porous coating - Unalloyed titanium + Thermally sprayed coatings of hydroxyapatite



Size	L [mm]	A [mm]	Order number
1	26	7	413011
2	27	8	413012
3	29	9	413013
4	30	10	413014
5	32	11	413015



# ELiS – Cementless stem, (CC)

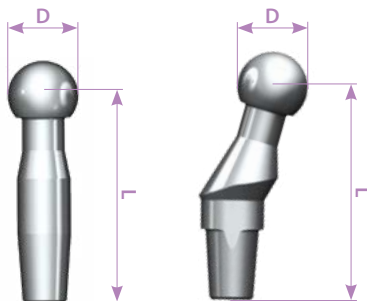
- Material:**
- (ISO 5832-3) Stem - Wrought titanium 6-aluminium 4-vanadium alloy (Ti6Al4V)
  - (ISO 5832-2 + ISO 13779-2) Porous coating - Unalloyed titanium + Thermally sprayed coatings of hydroxyapatite (Composite coating)



Size	L [mm]	A [mm]	Order number
1	26	7	413021
1+	26	8	413026
2	27	8	413022
2+	27	9	413027
3	29	9	413023
4	30	10	413024
5	32	11	413025
5+	32	12	413028

# ELiS – Neck, T/II

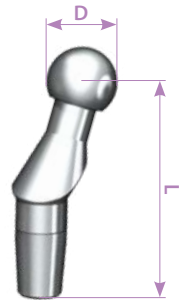
- Material:**
- (ISO 5832-12) Wrought cobalt-chromium-molybdenum alloy



Version	L [mm]	D [mm]	Order number
Straight	12	5	413072
	14		413073
	16		413074
	18		413075
Valgus 15°	12		413077
	14		413078
	16		413079
	18		413080

# ELiS – Valgus neck 15°/Ante

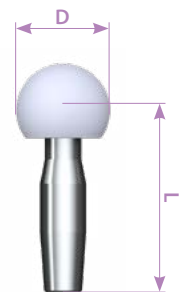
**Material:** • (ISO 5832-12) Wrought cobalt-chromium-molybdenum alloy



Version	L [mm]	D [mm]	Order number
Ante-R	12	5	413087
	14		413088
	16		413089
	18		413090
Ante-L	12		413097
	14		413098
	16		413099
	18		413100

# ELiS – DM – Straight neck

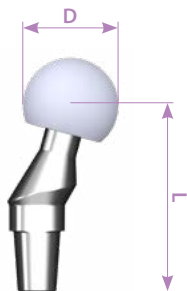
**Material:** • (ISO 5832-12) Neck – Wrought cobalt-chromium-molybdenum alloy  
• (ISO 5834-2) DM head – Crosslinked UHMWPE



L [mm]	D [mm]	Order number
12	7,7	413062
14		413063
16		413064
18		413065

## ELiS – DM – Valgus neck 15°

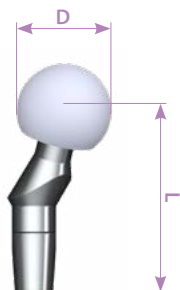
- Material:**
- (ISO 5832-12) Neck – Wrought cobalt-chromium-molybdenum alloy
  - (ISO 5834-2) DM head – Crosslinked UHMWPE



L [mm]	D [mm]	Order number
12	7,7	413067
14		413068
16		413069
18		413070

## ELiS – DM – Valgus neck 15°/Ante

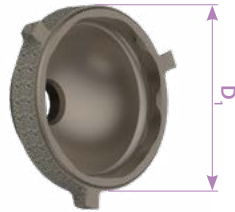
- Material:**
- (ISO 5832-12) Neck – Wrought cobalt-chromium-molybdenum alloy
  - (ISO 5834-2) DM head – Crosslinked UHMWPE



Version	L [mm]	D [mm]	Order number
Ante-L	12	7,7	413054
	14		413055
	16		413056
	18		413057
Ante-R	12		413058
	14		413059
	16		413060
	18		413061

## ELiS - Cementless cup, T/III

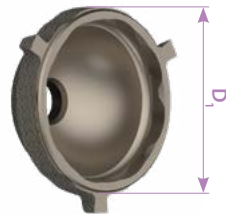
- Material:**
- (ISO 5832-3) Cup - Wrought titanium 6-aluminium 4-vanadium alloy (Ti6Al4V)
  - (ISO 5832-2 + ISO 13779-2) Porous coating - Unalloyed titanium + Thermally sprayed coatings of hydroxyapatite



D <sub>1</sub> [mm]	Order number
9	413171
10	413172

## ELiS - Sphere - Cementless cup (CC)

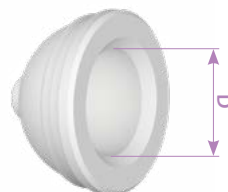
- Material:**
- (ISO 5832-3) Cup - Wrought titanium 6-aluminium 4-vanadium alloy (Ti6Al4V)
  - (ISO 5832-2 + ISO 13779-2) Porous coating - Unalloyed titanium + Thermally sprayed coatings of hydroxyapatite (Composite coating)



D <sub>1</sub> [mm]	Order number
9	413173
10	413174

## ELiS - Insert, T/III, for head D5

- Material:**
- (ISO 5834-2) Crosslinked UHMWPE



D [mm]	Order number
5	413175

# ELiS – Sphere, DM – Cementless cup (CC)

- Material:**
- (ISO 5832-3) Cup - Wrought titanium 6-aluminium 4-vanadium alloy (Ti6Al4V)
  - (ISO 5832-2 + ISO 13779-2) **Porous coating** - Unalloyed titanium + Thermally sprayed coatings of hydroxyapatite (Composite coating)



D <sub>1</sub> [mm]	Order number
9	413176
10	413177

# ELiS – Konos, DM – Cementless cup (CC)

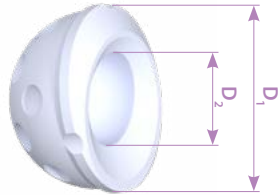
- Material:**
- (ISO 5832-3) Cup - Wrought titanium 6-aluminium 4-vanadium alloy (Ti6Al4V)
  - (ISO 5832-2 + ISO 13779-2) **Porous coating** - Unalloyed titanium + Thermally sprayed coatings of hydroxyapatite (Composite coating)



D <sub>1</sub> [mm]	Order number
9	413178
10	413179

# ELiS - Cemented cup with offset, T/II, 5/10

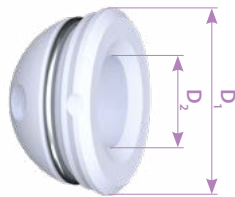
**Material:** • (ISO 5834-2) Crosslinked UHMWPE



D <sub>1</sub> [mm]	D <sub>2</sub> [mm]	Order number
10	5	413082

# ELiS - Sphere - Cemented cup, 5/10

**Material:** • (ISO 5834-2) Cup - Crosslinked UHMWPE  
• (ISO 5832-1) Diagnostic wire - Wrought stainless steel



D <sub>1</sub> [mm]	D <sub>2</sub> [mm]	Order number
10	5	413092

# ELiS – Trapezium replacement, TR

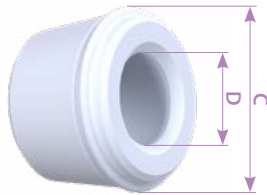
**Material:** • (ISO 5832-12) Wrought cobalt-chromium-molybdenum alloy



A/B - C [mm]	Order number
14/15 - 9	413180
15/16 - 10	413181
16/17 - 11	413182

# ELiS – Trapezium insert, TR

**Material:** • (ISO 5834-2) Crosslinked UHMWPE



C/D [mm]	Order number
9/5	413190
10/5	413191
11/5	413192

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