



GRUPPO
BIOIMPIANTI

Enjoy Mobility

KORUS SYSTEM

OPERATING TECHNIQUE

KORUS SYSTEM

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The KORUS SYSTEM was created with the aim to provide the surgeon with complete and reliable solutions for an increasingly personalized surgery.

The system includes:

Uncemented collarless KORUS, with Hydroxyapatite coating and CCD 135° and 125° angles;

Uncemented collared KORUS, with Hydroxyapatite coating and CCD 135° and 125° angles;

KORUS Titan, with Titanium Y367 Proximal coating and CCD 135° and 125° angles;

Cemented KORUS, with CCD 135° and 125° angles. Available with or without distal centralizer;

Uncemented modular KORUS, with Hydroxyapatite coating and provided with 14 interchangeable necks.



INDICATIONS

The indications are tied to hip pathologies that require an arthroplasty to reduce or eliminate pain and / or improve joint function.

The general guidelines are: Non-inflammatory degenerative joint disease such as primary or secondary osteoarthritis; Aseptic necrosis of the femoral head; Rheumatoid Arthritis; Post-traumatic Arthritis; Correction of functional deformity; Outcomes of fractures of the femoral neck; Outcomes of traumatic dislocations of the hip; Failures of osteotomy; Outcomes of arthrodesis.

CONTRAINDICATIONS

The hip joint surgery is absolutely contraindicated in cases of: systemic or local infection, sepsis, and osteomyelitis.

It is relatively contraindicated in case of: Osteoporosis; Patient uncooperative or suffering from neurological disorders, unable to follow directions; Systemic disorders and / or metabolic problems that lead to a progressive deterioration of bone support; Neurological or neuromuscular disorders that could create an unacceptable risk to the prostheses instability or lead to a failure of prostheses fixation; Osteomalacia; Active infection or suspected latent infection in the hip joint; Distant focus of infection that could spread to the implant site; Vascular insufficiency, muscular atrophy, neuromuscular diseases; Incomplete or insufficient presence of soft tissue around the knee joint; Obesity; Inadequate bone stock for the prostheses support or fixation; Skeletal immaturity; Local or disseminated neoplastic diseases; Incurable severe deformities.

MATERIALS

Uncemented Korus, uncemented modular Korus, uncemented collared Korus: Titanium alloy Ti6Al4V grade 5 ELI (ISO 5832/3). Finishing: HA coating.

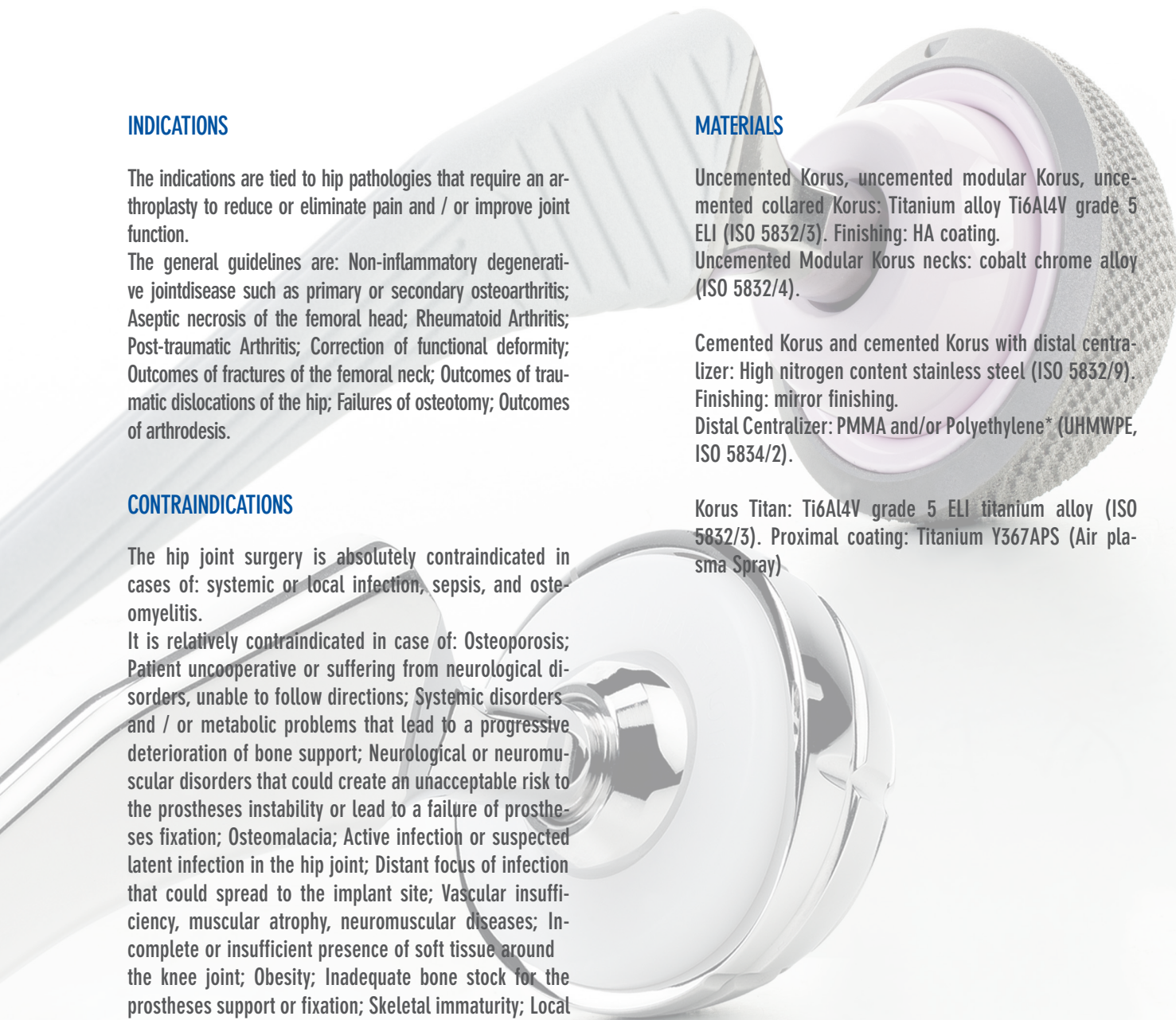
Uncemented Modular Korus necks: cobalt chrome alloy (ISO 5832/4).

Cemented Korus and cemented Korus with distal centralizer: High nitrogen content stainless steel (ISO 5832/9).

Finishing: mirror finishing.

Distal Centralizer: PMMA and/or Polyethylene* (UHMWPE, ISO 5834/2).

Korus Titan: Ti6Al4V grade 5 ELI titanium alloy (ISO 5832/3). Proximal coating: Titanium Y367APS (Air plasma Spray)



KORUS SYSTEM

OPERATING TECHNIQUE

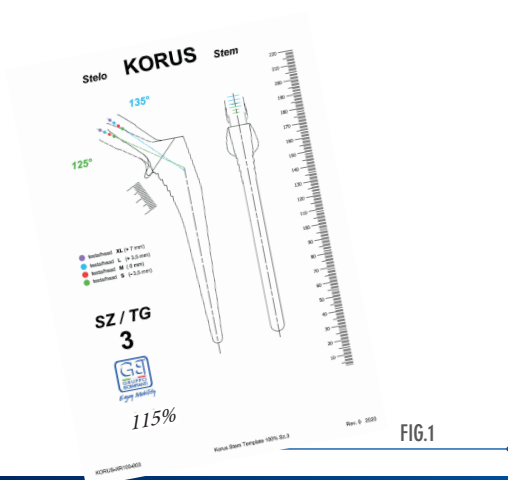
1 Pre-operative planning

Pre-operative evaluation enables the surgeon to adopt the correct approach to the operation and anticipate situations that may arise during surgery. The goal is to choose the size and the position of the femoral stem in the antero-posterior and lateral plane, based on elements from the patient's history, radiographic analysis and physical examinations.

Choosing a stem by pre-operative evaluation is an approximate method. The final size of the stem will be determined intraoperatively.

A bilateral X-ray of the pelvis will help to evaluate the leg length discrepancy, which must be corrected during surgery. To identify the leg length discrepancy radiographically, draw a reference line through the bottom of the ischium and measure the distance from the lesser trochanter landmark to the reference line. The difference is the radiographic leg length discrepancy. The leg length can be corrected by using the femoral heads, available in different lengths. Korus stem pre-operative templates are available with 15% magnification.

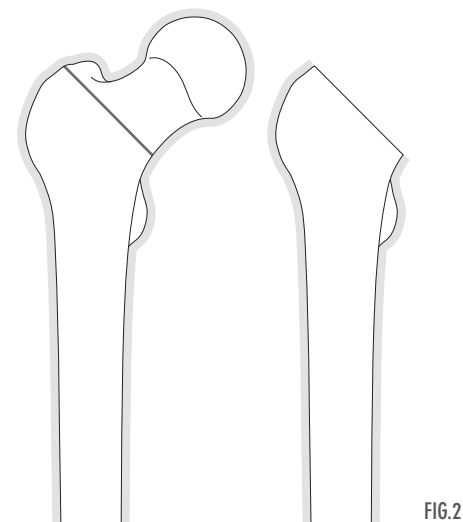
Use of an X-ray reference may help to determine the enlargement of the patient's X-ray. Align the template along the anatomic axis of the femur keeping the stem in the femoral channel and the centre of rotation of the femoral head correctly positioned.



2 Femoral neck osteotomy

Having freed the femoral neck, proceed with the osteotomy by resection approximately 1 cm above the lesser trochanter with an angle of around 45°.

Perform the osteotomy, taking care to maintain the correct angle.



3 Femoral canal preparation

Before proceeding with the Broaches, the medial part of the great trochanter can be removed by using the Great Trochanter Chisel (Ref. L.180mm 110381011 or Ref. L.230mm 110381013).

This creates a starting cavity for Broaches, thus facilitating their insertion in the axial position.

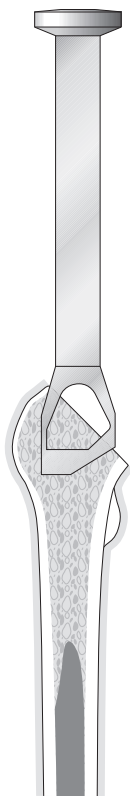


FIG.3

4 Broaching the femoral canal

Once the Broach insertion has been carried out with the Great Trochanter Chisel, use the Solid Reamer (Ref. 110381400) to identify the femoral canal.

Then mount the Broach Handle (Ref. 120411111) on the Broach (Ref. 12041010X).

Begin with the smallest Broach and progressively enlarge the metaphyseal cavity until complete stability is achieved, without reaching cortical contact in the femoral canal.

Correct insertion of the first Broach is of vital importance: it must be lateral to the great trochanter and axial in the femoral canal to avoid a varus position of the implant.

When the Broach can proceed no further along the femoral canal, the size used will be the size of the Uncemented Korus and Korus Titan definitive stem.

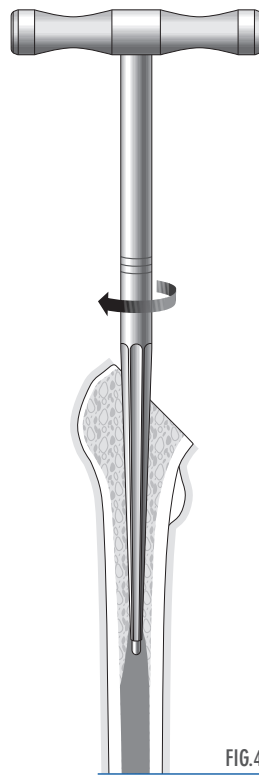


FIG.4A

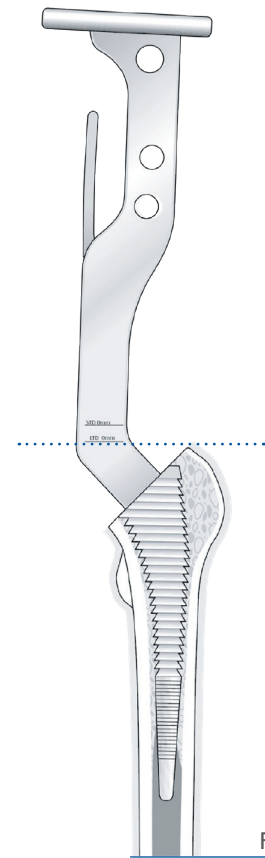


FIG.4B

KORUS SYSTEM

UNCEMENTED KORUS AND KORUS TITAN STEM IMPLANT

PHASES 1÷4 ARE THE SAME OF
COMMON OPERATING TECHNIQUE

5a

Optional for collared Korus: Calcar Reaming

Leaving the last broach in place, start reaming with the Calcar Reamer (Ref. Diam. 45mm 120411116, Ref. Diam. 52mm 120411117). Two calcar reamer are available to help achieve the appropriate diameter.

Reaming may be done manually with the "T" handle or with a motor, using the Zimmer Adaptor.

Place the Calcar Reamer of the chosen diameter on the post of the broach.

Keep slowly reaming until a flat resection surface is achieved.

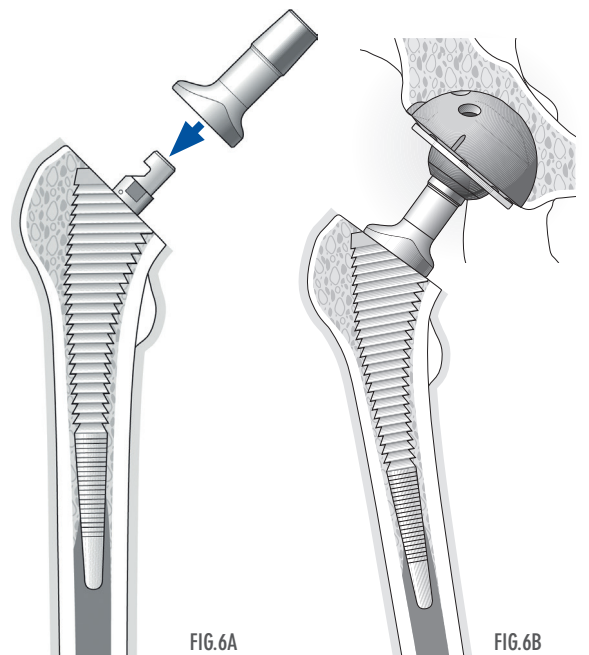
The calcar reaming should allow an optimised fit of the collar on the calcar.



Trial Reduction

Once the Broach has been determined, the last Broach used is left "in situ" and the trial reduction can be started. Insert the Trial Head Adaptor (Ref. 120411106 or 120411107) and subsequently the Trial Heads (Ref. 110380XXX), available in three different diameters (28mm, 32mm, 36mm), each of them available in four different lengths (short, medium, long, extra-long).

Proceed with the reduction by joining the Broach, combined with the Trial Head, to the previously implanted Cup and check the stability through the full range of motion, the leg length and the tension of the soft tissue.



**CEMENTED KORUS IMPLANT
PHASES 1÷4 ARE THE SAME OF
COMMON OPERATING TECHNIQUE**

**Uncemented Korus and Korus Titan
stem insertion**

Once the trial reduction has been executed, remove the Trial Head, the Trial Head Adaptor and then the Broach. Proceed with Uncemented Korus and Korus Titan insertion using the Stem Impactor (Ref. 12041108) which allows the correct positioning.

CONTINUE WITH THE COMMON OPERATING TECHNIQUE
FROM STEP: 6.

5b

Cemented Korus stem insertion

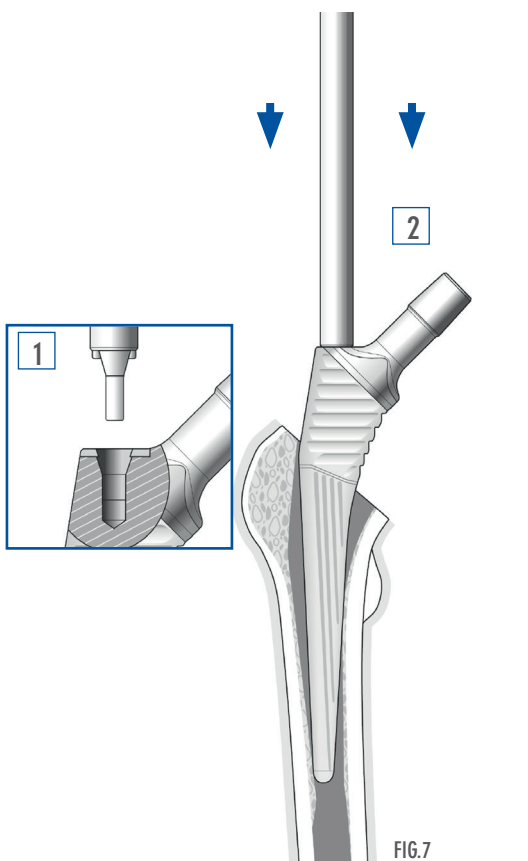
Once the Broach insertion has been carried out with the Great Trochanter Chisel, use the Solid Reamer (Ref. 110381400) to identify the endo-medullary canal.

Then mount the Broach Handle (Ref. 120411111) on the Broach (Ref. 12041010XX).

Begin with the smallest Broach and progressively enlarge the cavity until stability is achieved, without making contact with the cortical.

Correct insertion of the first Broach is of vital importance: it must be lateral to the great trochanter and axial in the femoral canal to avoid a varus position of the implant.

When the Broach can proceed no further along the femoral canal, the last Broach used is left "in situ" and the trial reduction can be started.



KORUS SYSTEM

CEMENTED KORUS IMPLANT

Cemented Korus sizing

Once the trial reduction has been completed, remove (in the following order) the Trial Head, the Trial Head Adaptor and lastly the Broach.

After putting the necessary amount of cement in the medullary channel, insert the definitive stem chosen up to the black mark on its surface.

The size of the definitive stem to insert will be one size smaller than the last Broach used.

(For example, if the last Broach used is size 6, the stem to implant will be size 5).

CONTINUE WITH THE COMMON OPERATING TECHNIQUE FROM STEP: 6.

Cemented Korus with distal centralizer

In the case of a cemented Korus with distal centralizer stem implant the surgical technique is as for the cemented Korus stem.



FIG.9

OPERATING TECHNIQUE

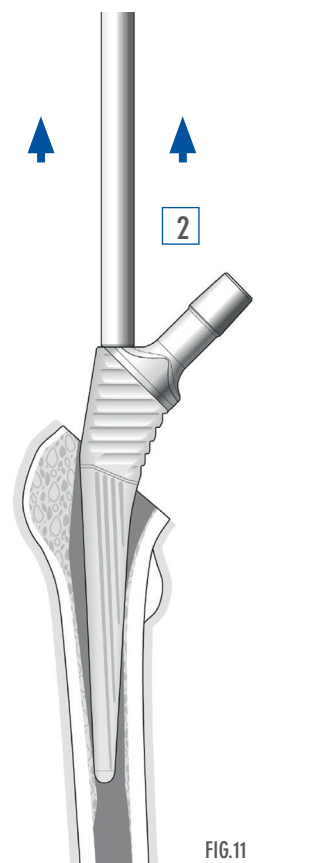
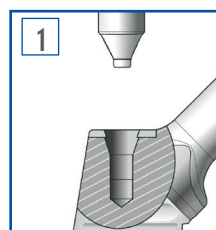
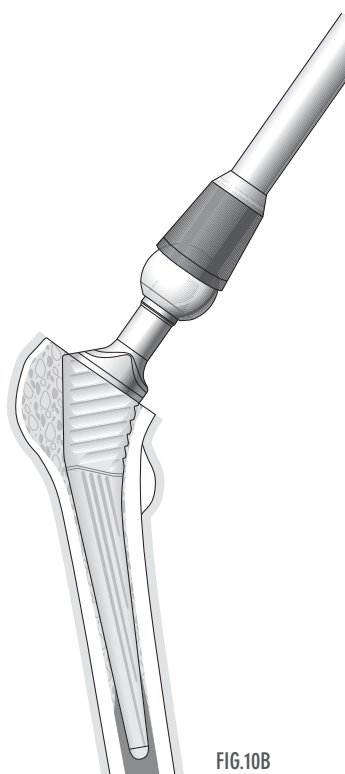
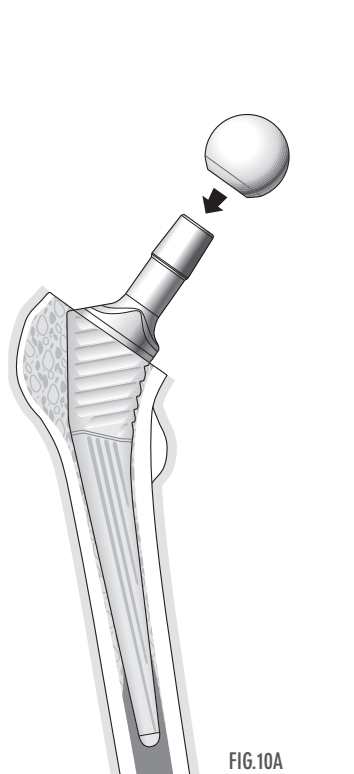
6 Positioning the femoral head

Having inserted the stem, it is advisable to repeat the trial reduction with the Trial Head to choose the size of the definitive head. If the femoral head is metallic, use the Head Impactor (Ref. 110380800) combined with the Head Impactor Adaptor (Ref. 1103808XX) chosen on the basis of the head's diameter.

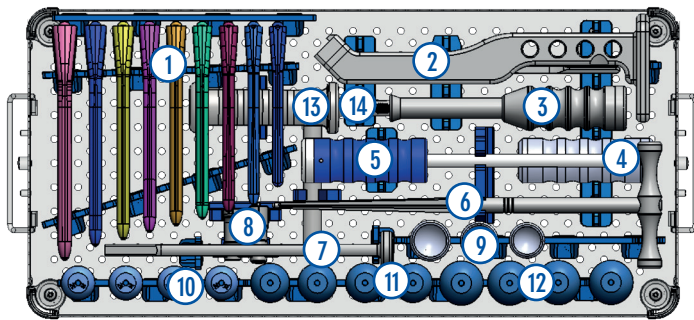
If the femoral head is ceramic, proceed with a manual insertion and make a half clockwise turn.

7 Stem removal

If Korus stem needs to be removed, use the Stem Extractor Impactor (Ref. 110380820).



KORUS SYSTEM INSTRUMENT CODES

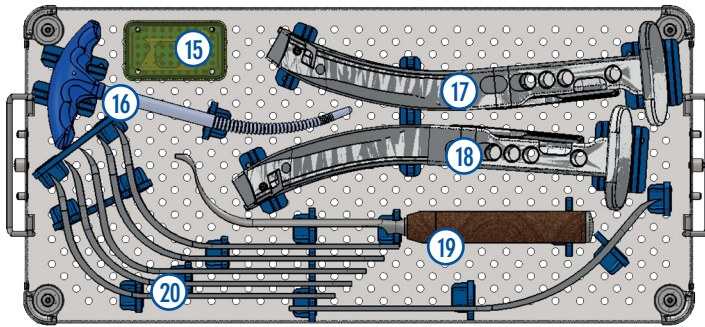


Tray and cover for instruments KORUS SYSTEM
REF: 120411130

DESCRIPTION	REF.	SIZE	QNT
① Korus Broach	120410101R	1	1
	120410102R	2	1
	120410103R	3	1
	120410104R	4	1
	120410105R	5	1
	120410106R	6	1
	120410107R	7	1
	120410108R	8	1
	1204101085R*	8.5	1
	120410109R	9	1
	1204101010R*	10	1
1204101011R*	11	1	
② Broach Handle	120411111	-	1
③ Heads Impactor	110380800	-	1
④ Stem Extractor Impactor	110380820	-	1
⑤ Stem Impactor	120411108	-	-
⑥ 8mm Solid Reamer	110381400	-	-
⑦ Great Trochanter Chisel	110381013	230mm	1
	110381011*	180mm	1
DESCRIPTION	REF.	SIZE	QNT
⑧ Trial head adaptor	120411106	135°	1
	120411107	125°	1
DESCRIPTION	REF.	SIZE	QNT
⑨ Heads Impactor Adaptor	110380805	28mm	1
	110380810	32mm	1
	110380812	36mm	1

DESCRIPTION	REF.	SIZE	QNT
⑩ Trial head (Diam. 28mm)	110380860	S	1
	110380870	M	1
	110380880	L	1
	110380890	XL	1
⑪ Trial head (Diam. 32mm)	110380960	S	1
	110380970	M	1
	110380980	L	1
	110380990	XL	1
⑫ Trial head (Diam. 36mm)	110381060	S	1
	110381070	M	1
	110381080	L	1
	110381090	XL	1
⑬ Stem Inserter *	120411105*	-	1
⑭ L-Key *	120411104*	-	1

DESCRIPTION	REF.	SIZE	QNT
Trial head (Diam. 22.2mm)*	110381020	S	1
	110381030	M	1
	110381040	L	1
DESCRIPTION	REF.	SIZE	QNT
Calcar reamer*	120411116*	45mm	1
	120411117*	52mm	1

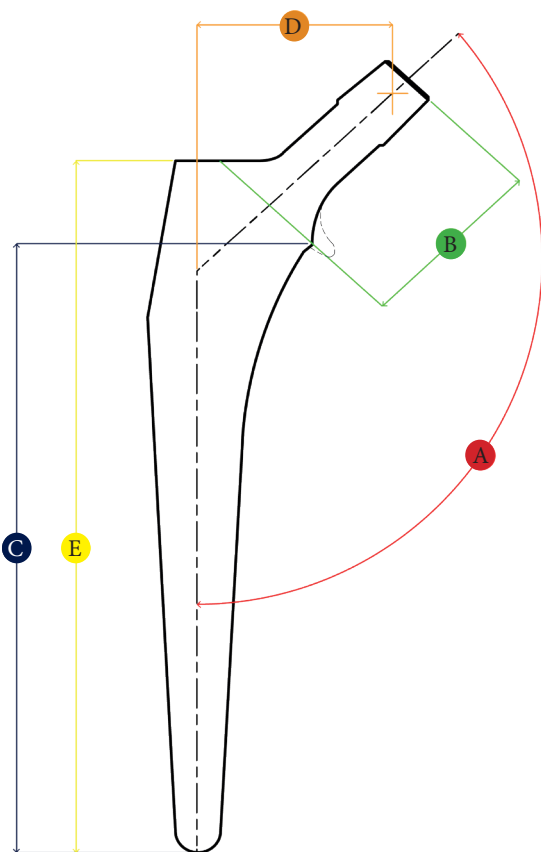


OPTIONAL UPON REQUEST

Tray for instruments DAA
 Ref: 110384001
 Cover for tray DAA
 Ref: 110384002

DESCRIPTION	REF.	QNT
15 Box chisel	110381012	1
16 Canal finder rasp	120411115	1
17 Offset rasp and box chisel handle R	120411109	1
18 Offset rasp and box chisel handle L	120411110	1
Offset rasp and box chisel handle woodpecker*	120411099	1

DESCRIPTION	REF.	QNT
Offset rasp and box chisel handle*	120411098	1
19 Muller elevator	400114650	1
	400114664	1
	400114666	1
	400114665	1
20 Retractors	400114662	1
	400114660	1
	400114661	1
	400114650	1



UNCEMENTED KORUS STANDARD NECK

REF.	REF. WITH COLLAR	SIZE	CCD (A)	NECK LENGTH (B)	STEM LENGTH (C)	STEM LENGTH (E)	OFFSET (D)
120410101	120410301	1	135°	41mm	107.7mm	127mm	37mm
120410102	120410302	2	135°	41mm	118mm	137mm	38mm
120410103	120410303	3	135°	41mm	122.7mm	142mm	38.5mm
120410104	120410304	4	135°	41mm	128mm	147mm	39.5mm
120410105	120410305	5	135°	41mm	132.9mm	152mm	40mm
120410106	120410306	6	135°	41mm	137.7mm	157mm	40.5mm
120410107	120410307	7	135°	41mm	143mm	162mm	41.5mm
120410108	120410308	8	135°	41mm	148mm	167mm	42mm
1204101085*	1204103085*	8.5	135°	41mm	153mm	172mm	42.5mm
120410109	120410309	9	135°	41mm	157.6mm	177mm	43mm
120410110*	120410310*	10	135°	41mm	168mm	187mm	44.3mm

UNCEMENTED KORUS VARUS NECK

REF.	REF. WITH COLLAR	SIZE	CCD (A)	NECK LENGTH (B)	STEM LENGTH (C)	STEM LENGTH (E)	OFFSET (D)
120410201	120410401	1	125°	42mm	107.3mm	127mm	44mm
120410202	120410402	2	125°	42mm	117.5mm	137mm	45mm
120410203	120410403	3	125°	42mm	122.3mm	142mm	45.5mm
120410204	120410404	4	125°	42mm	127.5mm	147mm	46.5mm
120410205	120410405	5	125°	42mm	132.4mm	152mm	47mm
120410206	120410406	6	125°	42mm	137.2mm	157mm	47.5mm
120410207	120410407	7	125°	42mm	142.5mm	162mm	48.5mm
120410208	120410408	8	125°	42mm	147.3mm	167mm	49mm
1204102085*	1204104085*	8.5	125°	42mm	152mm	172mm	49.5mm
120410209	120410409	9	125°	42mm	157mm	177mm	50mm
120410210*	120410410*	10	125°	42mm	168mm	187mm	51.5mm

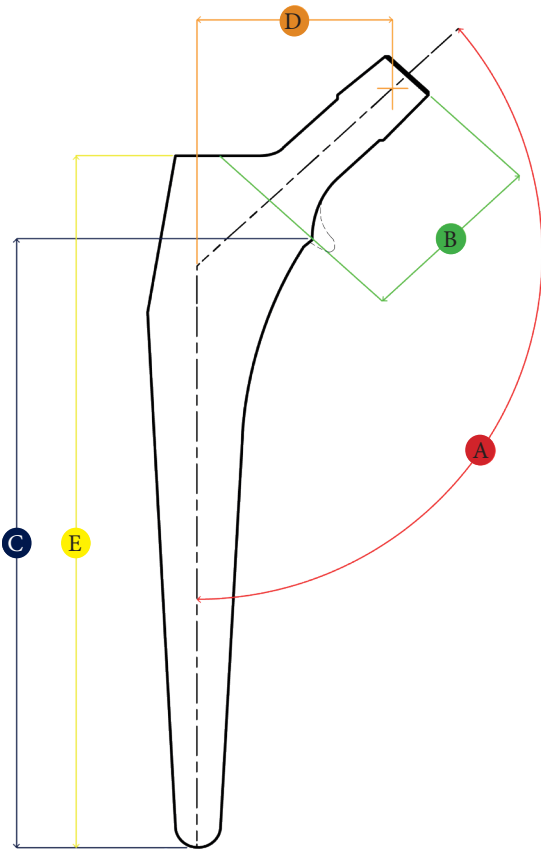
KORUS TITAN STANDARD NECK

REF.	SIZE	CCD (A)	NECK LENGTH (B)	STEM LENGTH (C)	STEM LENGTH (E)	OFFSET (D)
120410801	1	135°	41mm	107.7mm	127mm	37mm
120410802	2	135°	41mm	118mm	137mm	38mm
120410803	3	135°	41mm	122.7mm	142mm	38.5mm
120410804	4	135°	41mm	128mm	147mm	39.5mm
120410805	5	135°	41mm	132.9mm	152mm	40mm
120410806	6	135°	41mm	137.7mm	157mm	40.5mm
120410807	7	135°	41mm	143mm	162mm	41.5mm
120410808	8	135°	41mm	148mm	167mm	42mm
1204108085*	8.5	135°	41mm	153mm	172mm	42.5mm
120410809	9	135°	41mm	157.6mm	177mm	43mm
120410810*	10	135°	41mm	168mm	187mm	44.3mm

KORUS TITAN VARUS NECK

REF.	SIZE	CCD (A)	NECK LENGTH (B)	STEM LENGTH (C)	STEM LENGTH (E)	OFFSET (D)
120410701	1	125°	42mm	107.3mm	127mm	44mm
120410702	2	125°	42mm	117.5mm	137mm	45mm
120410703	3	125°	42mm	122.3mm	142mm	45.5mm
120410704	4	125°	42mm	127.5mm	147mm	46.5mm
120410705	5	125°	42mm	132.4mm	152mm	47mm
120410706	6	125°	42mm	137.2mm	157mm	47.5mm
120410707	7	125°	42mm	142.5mm	162mm	48.5mm
120410708	8	125°	42mm	147.3mm	167mm	49mm
1204107085*	8.5	125°	42mm	152mm	172mm	49.5mm
120410709	9	125°	42mm	157mm	177mm	50mm
120410710*	10	125°	42mm	168mm	187mm	51.5mm

*Upon request



DISTAL CENTRALIZER

REF.	MATERIAL
120381310	PMMA
120381311*	UHMWPE

CEMENTED KORUS STANDARD NECK WITH DISTAL CENTRALIZER

REF.	SIZE	CCD (A)	NECK LENGTH (B)	STEM LENGTH (C)	STEM LENGTH (E)	OFFSET (D)
120430021	1	135°	41mm	107.7mm	127mm	37mm
120430022	2	135°	41mm	118mm	137mm	38mm
120430023	3	135°	41mm	122.7mm	142mm	38.5mm
120430024	4	135°	41mm	128mm	147mm	39.5mm
120430025	5	135°	41mm	132.9mm	152mm	40mm
120430026	6	135°	41mm	137.7mm	157mm	40.5mm
120430027	7	135°	41mm	143mm	162mm	41.5mm
120430028	8	135°	41mm	148mm	167mm	42mm
120430028*	8.5	135°	41mm	153mm	172mm	42.5mm
120430029	9	135°	41mm	157.6mm	177mm	43mm
120430030*	10	135°	41mm	168mm	187mm	44.3mm

CEMENTED KORUS STANDARD NECK

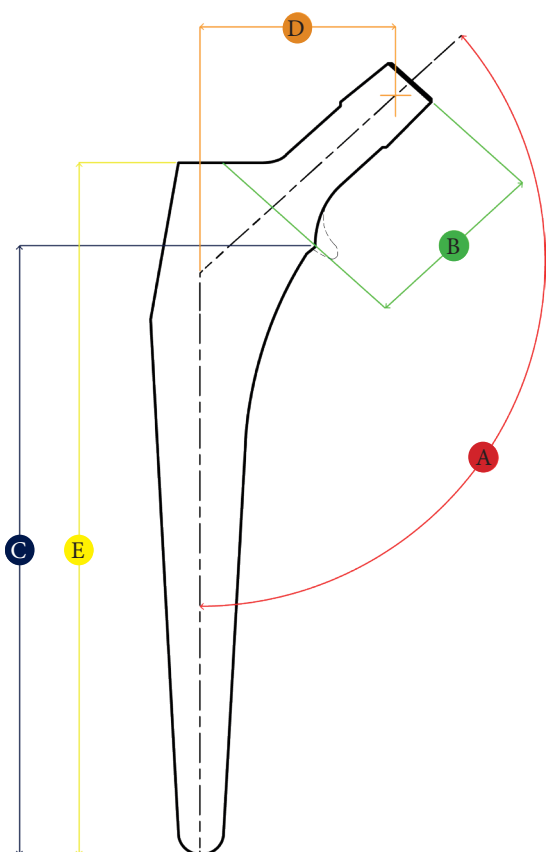
REF.	SIZE	CCD (A)	NECK LENGTH (B)	STEM LENGTH (C)	STEM LENGTH (E)	OFFSET (D)
120430001	1	135°	41mm	107.7mm	127mm	37mm
120430002	2	135°	41mm	118mm	137mm	38mm
120430003	3	135°	41mm	122.7mm	142mm	38.5mm
120430004	4	135°	41mm	128mm	147mm	39.5mm
120430005	5	135°	41mm	132.9mm	152mm	40mm
120430006	6	135°	41mm	137.7mm	157mm	40.5mm
120430007	7	135°	41mm	143mm	162mm	41.5mm
120430008	8	135°	41mm	148mm	167mm	42mm
120430008*	8.5	135°	41mm	153mm	172mm	42.5mm
120430009	9	135°	41mm	157.6mm	177mm	43mm
120430010*	10	135°	41mm	168mm	187mm	44.3mm

CEMENTED KORUS VARUS NECK

REF.	SIZE	CCD (A)	NECK LENGTH (B)	STEM LENGTH (C)	STEM LENGTH (E)	OFFSET (D)
120430011	1	125°	42mm	108.3mm	127mm	44mm
120430012	2	125°	42mm	119.6mm	137mm	45mm
120430013	3	125°	42mm	124.5mm	142mm	45.5mm
120430014	4	125°	42mm	130mm	147mm	46.5mm
120430015	5	125°	42mm	133mm	152mm	47mm
120430016	6	125°	42mm	140mm	157mm	47.5mm
120430017	7	125°	42mm	145.3mm	162mm	48.5mm
120430018	8	125°	42mm	150mm	167mm	49mm
120430018*	8.5	125°	42mm	152mm	172mm	49.5mm
120430019	9	125°	42mm	157mm	177mm	50mm
120430020*	10	125°	42mm	168mm	187mm	51.5mm

CEMENTED KORUS VARUS NECK WITH DISTAL CENTRALIZER

REF.	SIZE	CCD (A)	NECK LENGTH (B)	STEM LENGTH (C)	STEM LENGTH (E)	OFFSET (D)
120430031	1	125°	42mm	108.3mm	127mm	44mm
120430032	2	125°	42mm	119.6mm	137mm	45mm
120430033	3	125°	42mm	124.5mm	142mm	45.5mm
120430034	4	125°	42mm	130mm	147mm	46.5mm
120430035	5	125°	42mm	133mm	152mm	47mm
120430036	6	125°	42mm	140mm	157mm	47.5mm
120430037	7	125°	42mm	145.3mm	162mm	48.5mm
120430038	8	125°	42mm	150mm	167mm	49mm
120430038*	8.5	125°	42mm	152mm	172mm	49.5mm
120430039	9	125°	42mm	157mm	177mm	50mm
120430040*	10	125°	42mm	168mm	187mm	51.5mm



MODULAR KORUS

REF.	SIZE	STEM LENGTH (E)
120410602*	2	127mm
120410603*	3	137mm
120410604*	4	142mm
120410605*	5	147mm
120410606*	6	152mm
120410607*	7	157mm
120410608*	8	162mm
120410609*	9	167mm

MODULAR KORUS NECK

REF.	SIZE	TYPE	REF.	SIZE	RIGHT	LEFT
120420001*	SHORT	STANDARD	120420051*	SHORT	ANTE 5°/VALGUS 6° - RETRO 5°/VARUS 6°	ANTE 5°/VARUS 6° - RETRO 5°/VALGUS 6°
120420002*	LONG	STANDARD				
120420011*	SHORT	VARUS/VALGUS 8°	120420052*	LONG	ANTE 5°/VALGUS 6° - RETRO 5°/VARUS 6°	ANTE 5°/VARUS 6° - RETRO 5°/VALGUS 6°
120420012*	LONG	VARUS/VALGUS 8°				
120420021*	SHORT	VARUS/VALGUS 15°	120420061*	SHORT	ANTE 5°/VARUS 6° - RETRO 5°/VALGUS 6°	ANTE 5°/VALGUS 6° - RETRO 5°/VARUS 6°
120420022*	LONG	VARUS/VALGUS 15°				
120420031*	SHORT	ANTE/RETRO 8°	120420062*	LONG	ANTE 5°/VARUS 6° - RETRO 5°/VALGUS 6°	ANTE 5°/VALGUS 6° - RETRO 5°/VARUS 6°
120420032*	LONG	ANTE/RETRO 8°				
120420041*	SHORT	ANTE/RETRO 14°				
120420042*	LONG	ANTE/RETRO 14°				

CRCO FEMORAL HEAD
Cone 12/14

REF.	DIAM.	NECK	R.I.C.
110207105E*	22.2mm	S	-2mm
110207110E*	22.2mm	M	0
110207115E*	22.2mm	L	+2mm
110210105E	28mm	S	-3.5mm
110210110E	28mm	M	0mm
110210115E	28mm	L	+3.5mm
110210120E	28mm	XL	+7mm
110220105E	32mm	S	-4mm
110220110E	32mm	M	0mm
110220115E	32mm	L	+4mm
110220120E	32mm	XL	+7mm
110367705	36mm	S	-4mm
110367710	36mm	M	0mm
110367715	36mm	L	+4mm
110367720	36mm	XL	+8mm

STAINLESS STEEL FEMORAL HEAD
Cone 12/14

REF.	DIAM.	NECK	R.I.C.
110205105E	28mm	S	-3.5mm
110205110E	28mm	M	0mm
110205115E	28mm	L	+3.5mm
110205120E	28mm	XL	+7mm
110205205E*	32mm	S	-4mm
110205210E*	32mm	M	0mm
110205215E*	32mm	L	+4mm
110205220E*	32mm	XL	+7mm

CERAMIC BIOLOX DELTA FEMORAL HEAD
Cone 12/14

REF.	DIAM.	NECK	R.I.C.
110240205	28mm	S	-3.5mm
110240210	28mm	M	0mm
110240215	28mm	L	+3.5mm
110240305	32mm	S	-4mm
110240310	32mm	M	0mm
110240315	32mm	L	+4mm
110240320	32mm	XL	+7mm
110240405	36mm	S	-4mm
110240410	36mm	M	0mm
110240415	36mm	L	+4mm
110240420	36mm	XL	+8mm

ZTA CERAMIC FEMORAL HEAD
Cone 12/14

REF.	DIAM.	NECK	R.I.C.
110240605	28mm	S	-3.5mm
110240610	28mm	M	0mm
110240615	28mm	L	+3.5mm
110240625	32mm	S	-4mm
110240630	32mm	M	0mm
110240635	32mm	L	+4mm
110240640	32mm	XL	+7mm
110240655	36mm	S	-4mm
110240660	36mm	M	0mm
110240665	36mm	L	+4mm
110240670	36mm	XL	+8mm

Web site

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IFU

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