



BIOTECHNI®

HIP JOINT REPLACEMENT

SURGICAL TECHNIQUE



Design

BIOTECHNI supplies a range of hip prosthesis including femoral stems, femoral heads, acetabular cups, hip bipolar cups, inserts, conical adapter sleeves, screws and plugs for acetabular cups.

The present surgical technique concerns the following products:

- APOGEE acetabular cup Ti+HA coated and to be cemented
- IGLOO 18° threaded acetabular cup, Ti+HA coated
- MULTI Acetabular cup, Ti+HA coated
- SNAPFIT bipolar cup
- GYPTIS acetabular cup to be cemented
- Femoral head from stainless steel and biolox Delta
- Filler-3ND femoral stem Ti+HA coated and to be cemented
- TTHR-EASY Monobloc reconstruction femoral stem, Ti+HA coated
- TTHR Modular reconstruction femoral stem - Ti+HA coated

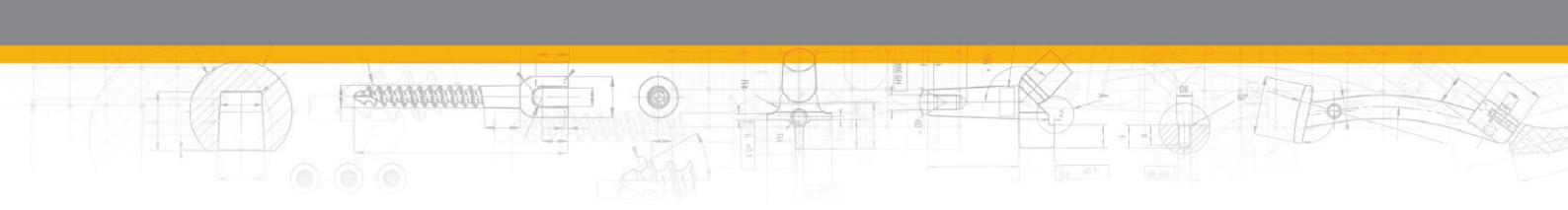
Materials

Femoral stems and acetabular cups are available in cemented (uncoated) and cementless (coated) versions; the kind of coating is mentioned on the product label: Ti for porous titanium, HA for hydroxyapatite (ASTM F1185), or Ti+HA. Coated stems are made in titanium alloy (TA6V ISO 5832-3) and uncoated stems are made in stainless steel (ISO 5832-9). Multi®-Azur®-Igloo® coated cups are made of titanium alloy; Apogée® cups (coated and uncoated) are made of stainless steel. Gyptis® C6DB28-xx cups to be cemented are made of UHMWPE (ISO 5834-2). Femoral heads are available in stainless steel (ISO 5832-9) or in alumina ceramic (ISO 6474). CI60xx and CI60xx-22 hip bipolar cups are made of UHMWPE and stainless steel (ISO 5832-1). Inserts are available in alumina ceramic (ISO 6474) or UHMWPE. Conical adapter sleeves 9/11-12/14 (CR200x) for titanium new stem, screws for Multi® cup (MU-VISxx, MU-VISxxNS) and plugs for Igloo® cups (CIG-B1 & C8I/BO) are in titanium alloy. Materials are mentioned on each product label.

Sizes

Note: « x », « y » and « z » represent various dimensions (length, size, diameter):

FEMORAL STEMS		ACETABULAR CUPS		FEMORAL HEADS		INSERTS		BIPOLAR CUP : CI60xx, CI60xx-22
Coated	Cemented	Coated	Cemented	St.Steel	Biolox® delta	UHMWPE	Biolox® delta	
FI040xx, FI040xx, FI070xx, FI070xx, FI050xx, FI020xx, FI030xx, TTH0xx, TFL60xx, TFCL60xx, TFS70xx, TFC570xx, TFV50xx, TFCV50xx EASYxxyy-zzD EASYxxyy-zzG TTHR5xx QHxx-yyy	FI041xx, TF31xx, TF571xx, TF41xx	CAPxx, C8I/xxTH, C8I/xxT, CIG-xxTH, MU-Txx, AZxx	CAPCxx, C6DB28-xx	CIxx6-yy, INxx.0y	CERxxx-yy	ST28.0xx, DB28.0xx, C8I/IDxxxx, IDMxx-yy+, MU-DBxx-yyy	ICERAMxx-yy	SLEEVE: CR200xx SCREW FOR MULTI CUP: MU-VISxx, MU-VISxxNS PLUGS FOR CUP: CIG-B1, C8I/BO



Indications

- Femoral head or neck fractures
- Aseptic osteonecrosis of the femoral head
- Tumour resection
- Arthrosis, rheumatoid arthritis and post-traumatic arthritis
- Hemiarthroplasty or total hip prosthesis revision
- Failed acetabular cup replacement

The implants are intended to be used on adult patients (skeletally mature).

Contraindications

- Any local, acute or chronic infection
- Conditions which can severely affect the success of the implantation: intense physical activity, infectious diseases, severe osteoporosis, local bone tumours, any mental or neuromuscular disorders, systemic and metabolic disorders, drug and/or alcohol addiction and/or abuse, metal sensitivity, documented or suspected, incomplete skeletal development and obesity or overweight.
- For bipolar cup CI60xx: morphological alterations of the affected acetabulum and severe hip dysplasia or other remodelling acetabular alterations (e.g from coxarthrosis).
- For BIOLOX®delta inserts (ICERAMxx-yy): For a cup position which lies outside the above-mentioned values, a BIOLOX®delta insert must not be used. (Exceptions can be made for specifically designed systems with luxation-free elements, such as asymmetric inserts or ones twisted out of position). For acetabular shells in retroversion, a BIOLOX®delta insert must not be used. Possible consequences are an increase in the surface pressure on the cup edge with grain break-out from the BIOLOX®delta insert associated with increased ceramic debris. Excessive ceramic debris can lead to adverse tissue reactions, loosening of the prosthesis and in extreme cases ceramic breakage. Ensure adequate joint tension is achieved on implantation, as luxation can also lead to the adverse results listed above.

Preoperative planning

Whatever arthroplasty is chosen (hemiarthroplasty or total hip replacement, primary or revision), the procedure should be carefully planned with sufficient detail. Select the prosthesis with the aid of radiographic templates and appropriate x-rays of the normal and injured hip.

Surgical technique

Step 1 Acetabular reaming

The size of the acetabulum determines the size of the acetabular reamer.

Use the **acetabular reamer** (ref. FRCxx) together with the **handle** for acetabular reamer (ref.PFRC312x26) for preparation of the acetabulum.

Under normal bone conditions, milling must stop at the subchondral bone.



Step 2 Cup sizing

Screw the **trial acetabular cup** (ref. CA21xx) on the **handle for trial cup** (ref. CA3028).

The **coated (uncemented)** cup is a press-fit cup to be used size per size.

For example a **S52 reamer** (ref. FRC52) → **S52 Trial cup** (ref. CA 21xx) → **S52 Final cup** (ref. CAPxx).

For the cup to be cemented, the choice of the final implant will be 1 to 2 sizes less than the trial cup, depending on the quantity of cement chosen by the surgeon.

For example **S50 Trial cup** (ref. CA21xx) → **S46 Final cup** (ref. CAPCxx) with cement.



Step 3 Setting up the final cup

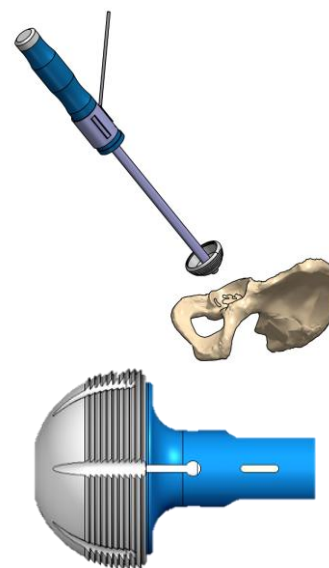
For the cemented cup apply beforehand the bone cement to the prepared implant bed following the instructions for the bone cement used.

Position the PE impactor 45° guide (ref. C5A/G45) on the cup impactor (ref. depends on the model).

Insert the final cup using the impaction handle (ref. depends on the model) in the acetabulum in the desired axis direction helped by the guide.

Control the satisfying orientation of the cup with the guide. For the cemented cup keep the cup in position until cement hardening.

In case a fixation with a self-tapping Ø6.5 mm screw is required (only for MULTI cup) the drill, the flexible drill holder, the depth graduated gauge, the screw holder and the hex key screwdriver are used.



Step 4 Femoral neck osteotomy

The operation begins with adequate exposure of the fracture site through a sufficient capsular incision.

The 130° angle of the cut is determined with the **cutting guide** (ref.C15A-150).



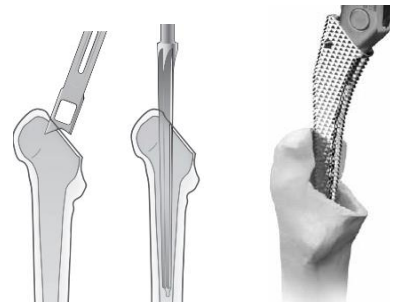
Step 2 Femoral canal preparation

Dig the armpit of the greater trochanter using a chisel (ref. C15A-140).

Prepare the rasp insertion with the initial **reamer** Ø8 (ref. C15A-132) and the **conical reamer** (ref. C15A-120).

Introduce the rasps successively in the axis of the femur until obtaining a perfect stability.

If required, the rasp handle guide (ref.CA-ER101) can be used to improve the stability and the guidance of the rasp handle.



Step 3 Trial implants

For primary arthroplasty:

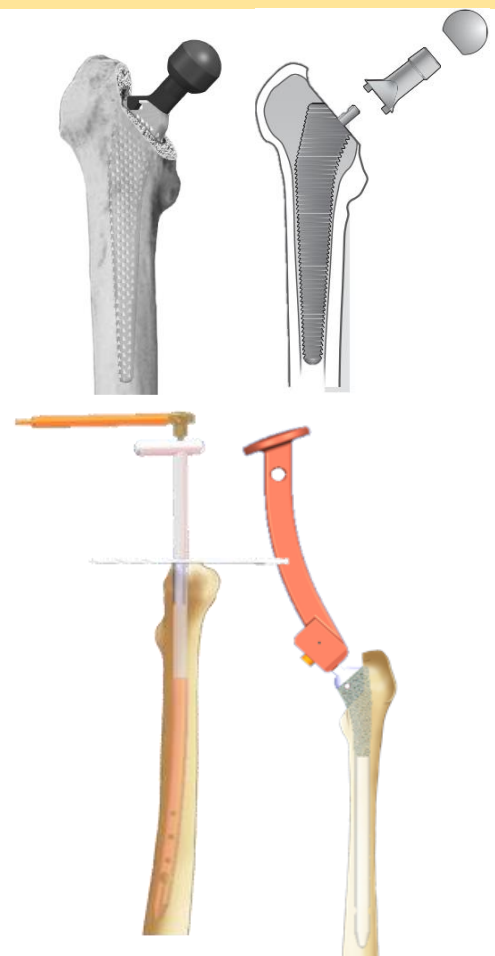
Place the desired **trial neck** (ref. C5T-1xx) matching with the stem, trial **femoral head** (ref. Txx5yy) on the **trial neck**, then **trial acetabular insert** in the acetabular cup and reduce the hip to assess stability and range of motion.

For cementless stems, the size of last rasp match with the size of the final stem (for example rasp 11 = stem size 11).

For cemented stems, we recommend to choose the final stem having two sizes under the last rasp (for example rasp 11 = stem size 9).

For revision arthroplasty:

1. Define the size of the trial stem, fixed on the T-handle (ref. C4A/250) and locked with the locking screw (ref. C4A/260).
2. Set the rasp (ref. RA/TTHRxx) on the rasp handle (ref. CMA-400). The size of the rasp must be one size below the one observed on the layers.
3. Assemble the rasp and the trial stem.



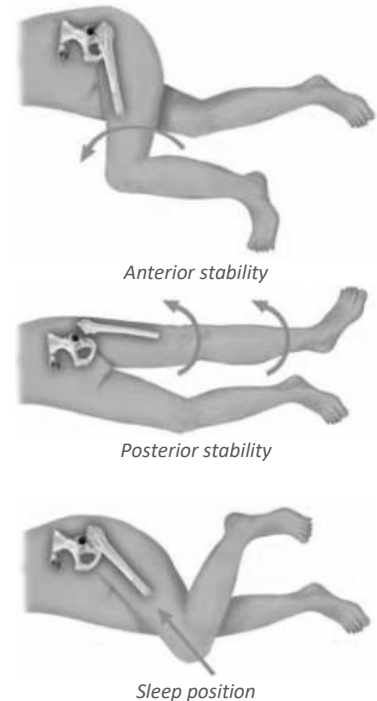
Step 4 Trial reduction

Reduce the hip and evaluate in the following ways:

-**anterior stability:** place the leg in full adduction and hyperextension, while exerting an external rotation force. If the hip cannot be fully extended, it may be too tight. If it dislocates easily, it is too loose and impingement must be addressed or component malposition exists.

-**posterior stability:** place the leg in adduction and 90° flexion. Gradually rotate internally. The hip should be stable with 45° of internal rotation. If it dislocates with minimal internal rotation, it is too loose and impingement must be addressed or component malposition exists.

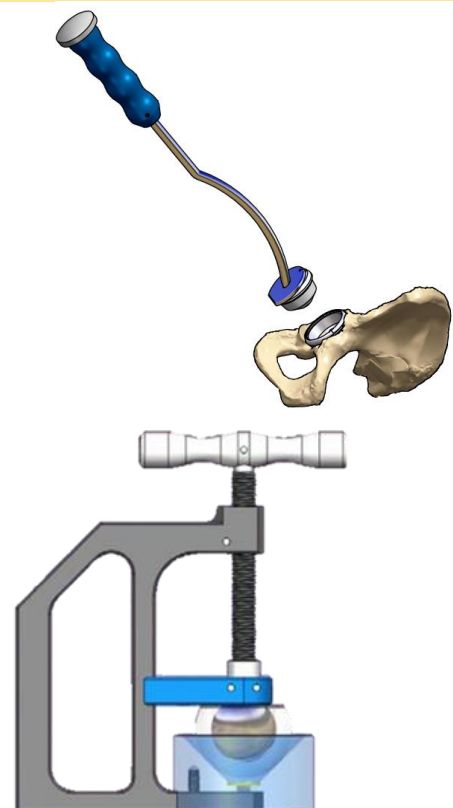
-**sleep position:** place the leg in the “sleep position” with the operated leg semi-flexed, adducted and internally rotated over the other leg. Apply axial force to try to dislocate. This position represents a dangerously unstable position that may be adopted by a patient sleeping on their non-operated side.



Step 5 Setting up the insert

To place the polyethylene insert use the impactor (ref. C17A-ID28), taking care of the good orientation of the rim. Impact the insert by hammering the impactor. Place the BioloX® Delta alumina ceramic insert manually. If a removal of the final insert is needed, use the suction extractor for Ceramic insert 18D (C17A-1030).

For the APOGEE dual mobility insert use the press to enter the head in the insert.



Step 6 Stem insertion

Cementless stem insertion

After having the rasp removed, clean the femoral cavity.

Place the stem using a stem holder (ref. depends on the model).

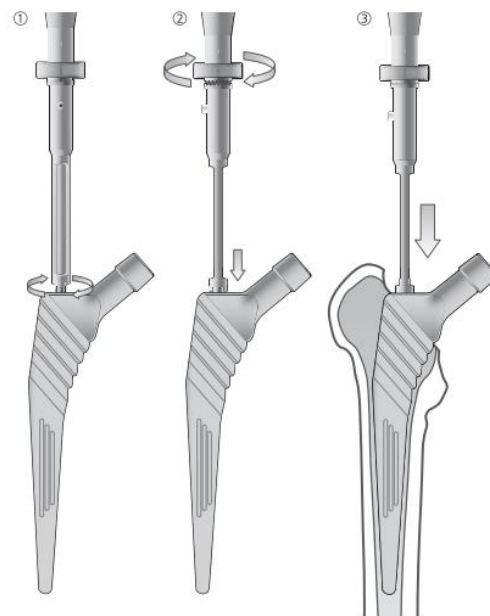
The insertion of the stem is stopped at the level marked on the implant (limit of the hydroxyapatite coating).

Once the stem is fully seated, perform a final trial reduction to determine appropriate neck length. Place the desired trial femoral head on the implant and reduce the hip to assess stability and range of motion.

Cemented stem insertion

The cemented stem is placed into the femoral canal and pushed with the special **stem impactor** (ref. C4A-SI202) till the laser mark on the stem.

(The stem impactor allows the antero- or retroversion of the stem into the cement).



For revision arthroplasty:

The distal locking screws may be placed using the viewfinder system.

Step 6 Femoral head insertion

Carefully clean and dry the cone femoral stem before implementing the final head.

Place the prosthetic femoral head on the neck taper and firmly impact with a femoral **head impactor** (ref. CA-PH00) and a **basic hammer** (ref. C15A-100).

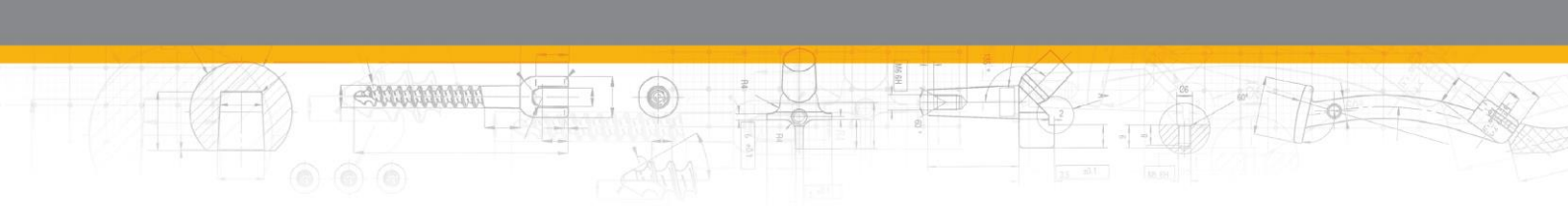
A small hit on the **head pusher** (ref. C4A-ETxx) is also possible to achieve the impaction of the head.

To verify fixation of the head, attempt to remove the head by hand. No movement shall be perceptible.

The BIOLOX® ball head has to be fixed on the stem taper by using slight axial pressure and twisting at the same time.

Caution: The BIOLOX® ball head must never be directly struck with a hammer. Never use a metallic tipped instrument. Only the plastic head impactor provided for this purpose by BIOTECHNI may be used.



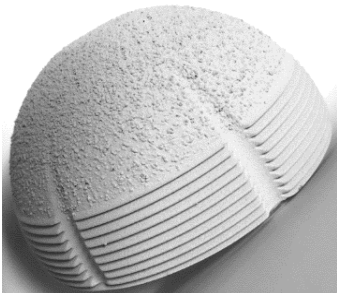


Step 7 Reduction

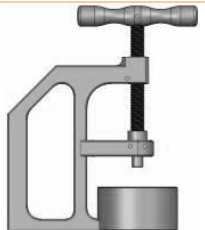
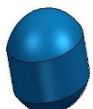
Prior to reduction, wash correctly throughout the joint. Using the head pusher, reducing overall in the acetabulum.

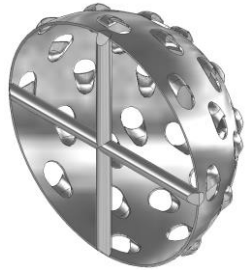
Check the stability of the assembly and close the wound.

APOGEE® range

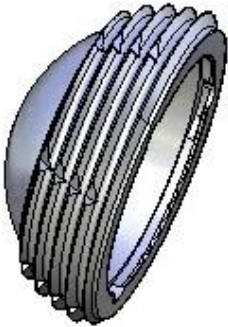
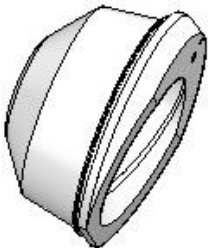
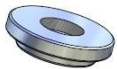
Product	Sizes	References
CAPxx Coated Ti+HA APOGEE cup (where xx are various sizes) 	Ø 44 mm	CAP44
	Ø 46 mm	CAP46
	Ø 48 mm	CAP48
	Ø 50 mm	CAP50
	Ø 52 mm	CAP52
	Ø 54 mm	CAP54
	Ø 56 mm	CAP56
	Ø 58 mm	CAP58
	Ø 60 mm	CAP60
	Ø 62 mm	CAP62
CAPCxx APOGEE cup to be cemented (where xx are various sizes) 	Ø 44 mm	CAPC44
	Ø 46 mm	CAPC46
	Ø 48 mm	CAPC48
	Ø 50 mm	CAPC50
	Ø 52 mm	CAPC52
	Ø 54 mm	CAPC54
	Ø 56 mm	CAPC56
	Ø 58 mm	CAPC58
	Ø 60 mm	CAPC60
	Ø 62 mm	CAPC62
IDM22-xx+ PE insert dual mobility Ø22.22 mm 	Ø 44 mm	IDM22-44+
	Ø 46 mm	IDM22-46+
IDM28-xx+ PE insert dual mobility Ø28 mm 	Ø 48 mm	IDM28-48+
	Ø 50 mm	IDM28-50+
	Ø 52 mm	IDM28-52+
	Ø 54 mm	IDM28-54+
	Ø 56 mm	IDM28-56+
	Ø 58 mm	IDM28-58+
	Ø 60 mm	IDM28-60+
	Ø 62 mm	IDM28-62+

Instruments for APOGEE cups

Reference	Designation	Visual
ANC-APOGEE	Container with removable tray and lid	
CA3028	Universal handle for trial cup	
PFRC312X26	AO Handle for acetabular reamer	
C8A/PC600	Nut wrench of cup handle	
C13A-10	Impactor handle for cup	
C13A-11	Retractor tool	
C13A-P44	Pear APOGEE – Size 44	
C13A-P46	Pear APOGEE – Size 46	
C13A-P48	Pear APOGEE – Size 48	
C13A-P50	Pear APOGEE – Size 50	
C13A-P52	Pear APOGEE – Size 52	
C13A-P54	Pear APOGEE – Size 54	
C13A-P56	Pear APOGEE – Size 56	
C13A-P58	Pear APOGEE – Size 58	
C13A-P60	Pear APOGEE – Size 60	
C13A-P62	Pear APOGEE – Size 62	
C5A/G45	Guide 45°	
C13A-20	Press	
CA3122	Insert pusher – D22.22	
CA3128	Insert pusher – D28	

Reference	Designation	Visual
C13A-12	Head pusher	
CA 2144	Trial acetabular cup – Size 44	
CA 2146	Trial acetabular cup – Size 46	
CA 2148	Trial acetabular cup – Size 48	
CA 2150	Trial acetabular cup – Size 50	
CA 2152	Trial acetabular cup – Size 52	
CA 2154	Trial acetabular cup – Size 54	
CA 2156	Trial acetabular cup – Size 56	
CA 2158	Trial acetabular cup – Size 58	
CA 2160	Trial acetabular cup – Size 60	
CA 2162	Trial acetabular cup – Size 62	
C13A-E2244	APOGEE trial insert – D22-44	
C13A-E2246	APOGEE trial insert – D22-46	
C13A-E2848	APOGEE trial insert – D28-48	
C13A-E2850	APOGEE trial insert – D28-50	
C13A-E2852	APOGEE trial insert – D28-52	
C13A-E2854	APOGEE trial insert – D28-54	
C13A-E2856	APOGEE trial insert – D28-56	
C13A-E2858	APOGEE trial insert – D28-58	
C13A-E2860	APOGEE trial insert – D28-60	
C13A-E2862	APOGEE trial insert – D28-62	
FRC44	Acetabular Reamer – Size 44	
FRC46	Acetabular Reamer – Size 46	
FRC48	Acetabular Reamer – Size 48	
FRC50	Acetabular Reamer – Size 50	
FRC52	Acetabular Reamer – Size 52	
FRC54	Acetabular Reamer – Size 54	
FRC56	Acetabular Reamer – Size 56	
FRC58	Acetabular Reamer – Size 58	
FRC60	Acetabular Reamer – Size 60	
FRC62	Acetabular Reamer – Size 62	

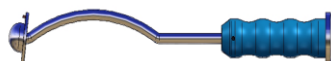
IGLOO® range

Reference	Designation	Visual
CIG-xxTH IGLOO 18° threaded acetabular cup, Ti+HA coated 	$\varnothing$ Int. 44 mm $\varnothing$ Int. 46 mm $\varnothing$ Int. 48 mm $\varnothing$ Int. 50 mm $\varnothing$ Int. 52 mm $\varnothing$ Int. 54 mm $\varnothing$ Int. 56 mm $\varnothing$ Int. 58 mm $\varnothing$ Int. 60 mm $\varnothing$ Int. 63 mm $\varnothing$ Int. 66 mm $\varnothing$ Int. 69 mm	CIG-44TH CIG-46TH CIG-48TH CIG-50TH CIG-52TH CIG-54TH CIG-56TH CIG-58TH CIG-60TH CIG-63TH CIG-66TH CIG-69TH
MU-DBxx-yyyy Acetabular PE insert 8°, $\varnothing$ 28, for IGLOO cup 	$\varnothing$ int. 28, pour cotyle IGLOO18° T44 $\varnothing$ int. 28, pour cotyle IGLOO18° T46 $\varnothing$ int. 28, pour cotyle IGLOO18° T48-S50 $\varnothing$ int. 28, pour cotyle IGLOO18° T52-S54-S56 $\varnothing$ int. 28, pour cotyle IGLOO18° T58->S69	MU-DB28-44 MU-DB28-46 MU-DB28-4850 MU-DB28-5256 MU-DB28-5862
ICERAMxx-yy Acetabular Alumine BioloX Delta insert 18°, $\varnothing$ 28, for IGLOO cup 	$\varnothing$ int. 28, pour cotyle IGLOO18° T46 $\varnothing$ int. 28, pour cotyle IGLOO18° T48-50 $\varnothing$ int. 28, pour cotyle IGLOO18° T52-54-56 $\varnothing$ int. 28, pour cotyle IGLOO18° T58-69 $\varnothing$ int. 32, pour cotyle IGLOO18° T48-50 $\varnothing$ int. 32, pour cotyle IGLOO18° T 52-54-56 $\varnothing$ int. 32, pour cotyle IGLOO18° T 58-69 $\varnothing$ int. 36, pour cotyle IGLOO18° T52-54-56 $\varnothing$ int. 36, pour cotyle IGLOO18° T 58-69 $\varnothing$ int. 40, pour cotyle IGLOO18° T 58-69	ICERAM28-37 ICERAM28-39 ICERAM28-44 ICERAM28-48 ICERAM32-39 ICERAM32-44 ICERAM32-48 ICERAM36-44 ICERAM36-48 ICERAM40-48
Plug for CIG-44TH acetabular cup IGLOO 18° 	N/A	CIG-B1

MULTI range

Product	Size/Type	References
MU-Txx MULTI - Ti+HA coated acetabular cup 	Ø 44 mm Ø 46 mm Ø 48 mm Ø 50 mm Ø 52 mm Ø 54 mm Ø 56 mm Ø 58 mm Ø 60 mm Ø 62 mm	MU-T44 MU-T46 MU-T48 MU-T50 MU-T52 MU-T54 MU-T56 MU-T58 MU-T60 MU-T62
MU-DBxx-yyyy Acetabular PE insert 8° for cup MULTI 	Int. Ø 28 mm for cup S.44 Int. Ø 28 mm for cup S.46 Int. Ø 28 mm for cup S.48→50 Int. Ø 28 mm for cup S.52→56 Int. Ø 28 mm for cup S.58→62	MU-DB28-44 MU-DB28-46 MU-DB28-4850 MU-DB28-5256 MU-DB28-5862
ICERAMxx-yy Ceramic inserts BioloX® Delta 	Int. Ø 28 mm for cup S46 Int. Ø 28 mm for cup S48→50 Int. Ø 28 mm for cup S52→56 Int. Ø 28 mm for cup S58→62 Int. Ø 32 mm for cup S48→50 Int. Ø 32 mm for cup S52→56 Int. Ø 32 mm for cup S58→62 Int. Ø 36 mm for cup S52→56 Int. Ø 36 mm for cup S58→62 Int. Ø 40 mm for cup S58→62	ICERAM28-37 ICERAM28-39 ICERAM28-44 ICERAM28-48 ICERAM32-39 ICERAM32-44 ICERAM32-48 ICERAM36-44 ICERAM36-48 ICERAM40-48
MU-VISxx Sterile Screw Ø6.5 mm for cup 	L 15 mm L 20 mm L 25 mm L 30 mm L 35 mm L 40 mm L 45 mm L 50 mm	MU-VIS15 MU-VIS20 MU-VIS25 MU-VIS30 MU-VIS35 MU-VIS40 MU-VIS45 MU-VIS50

INSTRUMENTS

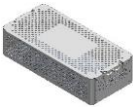
Reference	Designation	Visual
ANC-COTYLE MULTI	Container with tray and lid, empty	
CA3028	Universal handle	
CA-2012	Final cup impactor	
C5A/G45	Guide 45° for cup impactor	
CA4001	Drill Guide	
C17A-1000	Double Drill Guide	
C17A-ID28	Impactor for rim acetabular insert Ø 28	
CA4003	Straight & angulate screwdriver hex 3.5	
CA4002	Flexible drill holder	
CA4005	Drill Ø 3.2 mm L70 mm	
CA4009	Drill Ø 3.2 mm L35 mm	
CA4010	Drill Ø 3.2 mm L56 mm	
C17A-1040	Flexible depth gauge	
C17A-1030	Suction cup for Ceramic insert extraction	
C17A-1050	Ceramic insert extractor	
CA4007	Screws holder / Trial insert ceramic holder	

Reference	Designation	Visual
CA3128	Push insert Ø 28	
CA3132	Push insert Ø 32	
CA3136	Push insert Ø 36	
CA3240	Push insert Ø 40	
CA 2144	Trial acetabular cup Size 44	
CA 2146	Trial acetabular cup Size 46	
CA 2148	Trial acetabular cup Size 48	
CA 2150	Trial acetabular cup Size 50	
CA 2152	Trial acetabular cup Size 52	
CA 2154	Trial acetabular cup Size 54	
CA 2156	Trial acetabular cup Size 56	
CA 2158	Trial acetabular cup Size 58	
CA 2160	Trial acetabular cup Size 60	
CA 2162	Trial acetabular cup Size 62	
C172-2837	Ceramic trial insert 28-37 green	
C172-3239	Ceramic trial insert 32-39 blue	
C172-3644	Ceramic trial insert 36-44 yellow	
C172-3648	Ceramic trial insert 36-48 red	
C172-4048	Ceramic trial insert 40-48 red	
PFR312x26	AO Handle for acetabular reamer	
FRC44	Acetabular Reamer Size 44	
FRC46	Acetabular Reamer Size 46	
FRC48	Acetabular Reamer Size 48	
FRC50	Acetabular Reamer Size 50	
FRC52	Acetabular Reamer Size 52	
FRC54	Acetabular Reamer Size 54	
FRC56	Acetabular Reamer Size 56	
FRC58	Acetabular Reamer Size 58	
FRC60	Acetabular Reamer Size 60	
FRC62	Acetabular Reamer Size 62	

GYPTIS RANGE

Product	Internal Diameter for head (mm)	Sizes External diameter (mm)	Reference
GYPTIS Cemented rim acetabular Cup 	$\varnothing$ 28	44	C6DB28-44
		46	C6DB28-46
		48	C6DB28-48
		50	C6DB28-50
		52	C6DB28-52
		54	C6DB28-54
		56	C6DB28-56
		58	C6DB28-58
		60	C6DB28-60
		62	C6DB28-62

INSTRUMENTS

Reference	Designation	Visual
ANC-COTYLE GYPTIS	Container with lid and removable tray	
C5A-PC28DB	Positioning handle for rim acetabular insert D28	
C5A/G45	Guide 45°	
CA3028	Handle for trial cup	
CA 2144	Trial acetabular cup Size 44	
CA 2146	Trial acetabular cup Size 46	
CA 2148	Trial acetabular cup Size 48	
CA 2150	Trial acetabular cup Size 50	
CA 2152	Trial acetabular cup Size 52	
CA 2154	Trial acetabular cup Size 54	
CA 2156	Trial acetabular cup Size 56	
CA 2158	Trial acetabular cup Size 58	
CA 2160	Trial acetabular cup Size 60	
CA 2162	Trial acetabular cup Size 62	
CA 2164*	Trial acetabular cup Size 64*	
CA 2166*	Trial acetabular cup Size 66*	
CA 3128	Push insert D28	
PFR312x26	AO Handle for acetabular reamer	
FRC44	Acetabular reamer size 44	
FRC46	Acetabular reamer size 46	
FRC48	Acetabular reamer size 48	
FRC50	Acetabular reamer size 50	
FRC52	Acetabular reamer size 52	
FRC54	Acetabular reamer size 54	
FRC56	Acetabular reamer size 56	
FRC58	Acetabular reamer size 58	
FRC60	Acetabular reamer size 60	
FRC62	Acetabular reamer size 62	
FRC64*	Acetabular reamer size 64*	
FRC66*	Acetabular reamer size 66*	

FILLER-3ND femoral stems range

FILLER-3ND 135° Ti+HA coated	
FI04009	size 09
FI04010	size 10
FI04011	size 11
FI04012	size 12
FI04013	size 13
FI04014	size 14
FI04015	size 15
FI04016	size 16
FI04018	size 18
FI04020	size 20

FILLER-3ND Ti coated	
FI05009	size 09
FI05010	size 10
FI05011	size 11
FI05012	size 12
FI05013	size 13
FI05014	size 14
FI05015	size 15
FI05016	size 16
FI05018	size 18
FI05020	size 20

FILLER-3ND Ti+HA coated With collar	
FIC04009	size 09
FIC04010	size 10
FIC04011	size 11
FIC04012	size 12
FIC04013	size 13
FIC04014	size 14
FIC04015	size 15
FIC04016	size 16
FIC04018	size 18
FIC04020	size 20

FILLER-3ND Stainless Steel Cemented	
FI04109	size 09
FI04110	size 10
FI04111	size 11
FI04112	size 12
FI04113	size 13
FI04114	size 14
FI04115	size 15
FI04116	size 16
FI04118	size 18
FI04120	size 20

FILLER-3ND 130 ° varised Ti+HA coated	
FI04309	size 09
FI04310	size 10
FI04311	size 11
FI04312	size 12
FI04313	size 13
FI04314	size 14
FI04315	size 15
FI04316	size 16
FI04318	size 18
FI04320	size 20

FILLER-3ND 130 ° lateralized Ti+HA coated	
FI04409	size 09
FI04410	size 10
FI04411	size 11
FI04412	size 12
FI04413	size 13
FI04414	size 14
FI04415	size 15
FI04416	size 16
FI04418	size 18
FI04420	size 20

Stainless Steel femoral head range

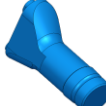
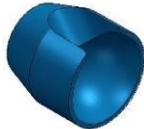
Ø	Neck size	Reference
22.22 mm	Short (-4)	IN22.005
	Medium (0)	IN22.010
	Long (+4)	IN22.015
28 mm	Short (-3.5)	IN28.005
	Medium (0)	IN28.010
	Long (+3.5)	IN28.015
	Extra-long (+7)	IN28.020

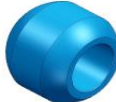
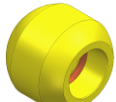
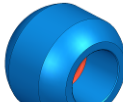
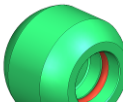
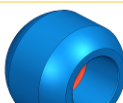
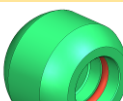
BIOLOX[®] delta femoral head range

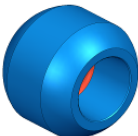
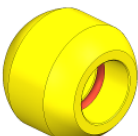
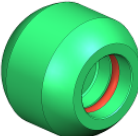
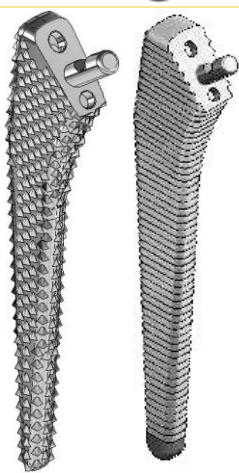
Ø	Neck size	Reference
28 mm	Short (-3.5)	CER285-05
	Medium (+0)	CER285-10
	Long (+3.5)	CER285-15
32 mm	Short (-4)	CER325-05
	Medium (+0)	CER325-10
	Long (+4)	CER325-15
	Extra-long (+7)	CER325-20
36 mm	Short (-4)	CER365-05
	Medium (+0)	CER365-10
	Long (+4)	CER365-15
	Extra-long (+8)	CER365-20
40 mm *	Short (-4)	CER405-05
	Medium (+0)	CER405-10
	Long (+4)	CER405-15
	Extra-long (+8)	CER405-20
* available upon request		

Instruments

Reference	Designation	Picture
ANC-HANCHE-FILLERFORTRESS-950	Container with removable tray and lid	
ANC-HANCHE-FILLERFORTRESS-960		
C15A-100	Basic hammer	
C15A-150	Cutting guide 130°	
A042-2000	T-handle for connection AO	
CA-ER101	Rasp handle guide	
C4A-SE300	Stem extractor	
C4A-SE301	Weight for hammer	
C4A-SI101	Stem holder handle	
CA-PH00	Head pusher holder	
C4A-SI202	Special steerable impactor handle	

Reference	Designation	Picture
CMA-950	Rasp handle	
C15A-120	AO connection conical Starter reamer	
C15A-132	AO connection initial reamer Ø8 mm	
C15A-110	Femoral head extractor for AO connection	
C15A-140	Chisel	
C15A-160	AO connection calcar reamer Ø36	
C5T-130L	Lateralized trial neck 130° (5°42'30")	
C5T-130V	Varised trial neck 130° (5°42'30")	
C5T-135S	Standard trial neck 135° (5°42'30")	
C4A-ET22	Head pusher Ø 22	
C4A-ET28	Head pusher Ø28	
C4A-ET32	Head pusher Ø32	
C4A-ET36	Head pusher Ø36	
T225CC	Trial head 5°43'30" Ø22.22 mm (-4)	
T225CM	Trial head 5°43'30" Ø22.22 mm (0)	

Reference	Designation	Picture
T225CL	Trial head 5°43'30" Ø22.22 mm (+4)	
T285CC	Trail head 5°43'30" Ø28 col court (-3.5)	
T285CM	Trial head 5°43'30" Ø28 mm (0)	
T285CL	Trial head 5°43'30" Ø28 mm (+3.5)	
T285XL	Trial head 5°43'30" Ø28 mm (+7)	
T325CC	Trial head 5°43'30" Ø32 mm (-4)	
T325CM	Trial head 5°43'30" Ø32 mm (0)	
T325CL	Trial head 5°43'30" Ø32 mm (+4)	
T325XL	Trial head 5°43'30" Ø32 mm (+7)	
T365CC	Trial head 5°43'30" Ø36 mm (-4)	
T365CM	Trial head 5°43'30" Ø36 mm (0)	
T365CL	Trial head 5°43'30" Ø36 mm (+4)	
T365XL	Trial head 5°43'30" Ø36 mm (+8)	

Reference		Designation	Picture
T405CC*		Trial head 5°43'30" Ø40 mm (-4)	
T405CM*		Trial head 5°43'30" Ø40 mm (0)	
T405CL*		Trial head 5°43'30" Ø40 mm (+4)	
T405XL*		Trial head 5°43'30" Ø40 mm (+8)	
RA9608	RA9508J	Rasp size 08	
RA9609	RA9509J	Rasp size 09	
RA9610	RA9510J	Rasp size 10	
RA9611	RA9511J	Rasp size 11	
RA9612	RA9512J	Rasp size 12	
RA9613	RA9513J	Rasp size 13	
RA9614	RA9514J	Rasp size 14	
RA9615	RA9515J	Rasp size 15	
RA9616	RA9516J	Rasp size 16	
RA9618	RA9518J	Rasp size 18	
RA9620	RA9520J	Rasp size 20	

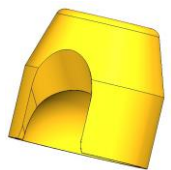
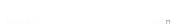
RA96xx: Spike rasp

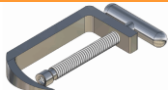
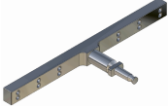
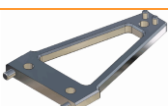
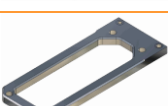
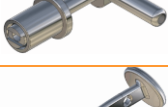
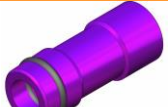
RA95xx: Compactor rasp

TTHR-EASY Range

Component	Visual	Variety			References	
		Metaphyseal size	Diaphyseal stem diameter	Length	Right side	Left side
TTHR-EASY stem size 1010		Ø10 mm	Ø10 mm	190 mm	EASY1010-190D	EASY1010-190G
				240 mm	EASY1010-240D	EASY1010-240G
				290 mm	EASY1010-290D	EASY1010-290G
				340 mm	EASY1010-340D	EASY1010-340G
TTHR-EASY stem size 1212		Ø12 mm	Ø12 mm	190 mm	EASY1212-190D	EASY1212-190G
				240 mm	EASY1212-240D	EASY1212-240G
				290 mm	EASY1212-290D	EASY1212-290G
				340 mm	EASY1212-340D	EASY1212-340G
TTHR-EASY stem size 1412		Ø14 mm	Ø12 mm	190 mm	EASY1412-190D	EASY1412-190G
				240 mm	EASY1412-240D	EASY1412-240G
				290 mm	EASY1412-290D	EASY1412-290G
				340 mm	EASY1412-340D	EASY1412-340G
TTHR-EASY stem size 1612		Ø16 mm	Ø12 mm	190 mm	EASY1612-190D	EASY1612-190G
				240 mm	EASY1612-240D	EASY1612-240G
				290 mm	EASY1612-290D	EASY1612-290G
				340 mm	EASY1612-340D	EASY1612-340G
Locking screw		20 mm			VC20	
		25 mm			VC25	
		30 mm			VC30	
		35 mm			VC35	
		40 mm			VC40	
		45 mm			VC45	
		50 mm			VC50	
		55 mm			VC55	

Instruments

Reference	Designation	Visual
ANC-HANCHE-TTHR-EASY	Ancillary box	
C4A/SE200	Stem extractor	
C4A-501	Stem impactor	
CA-PH00	Head pusher holder	
C4A-ET22	Head pusher Ø 22mm	
C4A-ET28	Head pusher Ø 28 mm	
C4A-ET32	Head pusher Ø 32 mm	
C4A-ET36	Head pusher Ø 36 mm	
C4A/111	Fixation screw for rasps and stems	
C4A-121	Locking screw for implant on aiming system TTHR-EASY	
C4A/140	Guide	
C4A/150	I handle	
C4A/160	Hex screw driver axis - 3.5mm	
C4A/170	Depth gauge	
C4A/180	Trocart tip	
C4A/190	Graduated drill for distal locking D5	
C4A/200	Tap for distal locking	
C4A/210	Handle for locking	
C4A-220	Measure rod 8x5	
C4A-230	Approch chisel	
C4A/252	T handle for TTHR-EASY	
C4A/261	Locking screw	
C4A/290	Préhensive guide for distal screw	
C4A/310	Drill for pre hole	

Reference	Designation	Visual
C4A-320	Stabilization hook for trial stem	
C4A/330	Bell for C4/100	
C4A/400	Straight rake	
C4A/430	Gantry upper part	
C4A/440	Gantry low part	
C4A/600	Complete aiming system TTHR-EASY	
S2A/MTC	T-handle	
CMA-400	Rasp handle	
RA-EASY10	Rasp EASY - T10	
RA-EASY12	Rasp EASY - T12	
RA-EASY14	Rasp EASY - T14	
RA-EASY16	Rasp EASY– T16	
C4A-610	Conical ring 12-14	
C4A-620	Conical ring 12-16	
C4A-630	Trial neck for TTHR/TTHR EASY rasp	
QEE10-105	Trial Stem Ø 10 L 105	

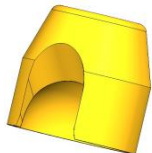
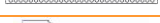
TTHR Range

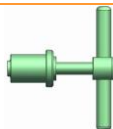
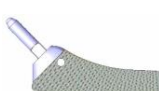
Component	Variety	Dimension	References
	Cône 12/14 (5°42'30")	Ø 14 mm	TTHR514
		Ø 16 mm	TTHR516
		Ø 18 mm	TTHR518
		Ø 20 mm	TTHR520
	Ø 10 mm	105 mm	QH10-105
		130 mm	QH10-130
		155 mm	QH10-155
		180 mm	QH10-180
		205 mm	QH10-205
		255 mm	QH10-255
	Ø 12 mm	105 mm	QH12-105
		130 mm	QH12-130
		155 mm	QH12-155
		180 mm	QH12-180
		205 mm	QH12-205
		255 mm	QH12-255
		290 mm	QH12-290
	Ø 14 mm	105 mm	QH14-105
		130 mm	QH14-130
		155 mm	QH14-155
		180 mm	QH14-180
		205 mm	QH14-205
		255 mm	QH14-255
		290 mm	QH14-290
	Ø 16 mm	105 mm	QH16-105
		130 mm	QH16-130
		155 mm	QH16-155
		180 mm	QH16-180
		205 mm	QH16-205
		255 mm	QH16-255
		290 mm	QH16-290
	Ø 18 mm	105 mm	QH18-105
		130 mm	QH18-130
		155 mm	QH18-155
		180 mm	QH18-180
		205 mm	QH18-205
		255 mm	QH18-255



Component	Variety	Dimension	References
	Ø 20 mm	105 mm	QH20-105
		130 mm	QH20-130
		155 mm	QH20-155
		180 mm	QH20-180
		205 mm	QH20-205
		255 mm	QH20-255
		20 mm	VC20
25 mm	VC25		
30 mm	VC30		
35 mm	VC35		
40 mm	VC40		
45 mm	VC45		
50 mm	VC50		
55 mm	VC55		

Instruments

ANC-HANCHE-TTHR	Container with removable tray and lid, empty	
C4A/SE200	Extractor stem	
C4A-500	Directional impactor TTHR	
CA-PH00	Head pusher holder	
C4A-ET22	Head pusher Ø 22mm	
C4A-ET28	Head pusher Ø 28 mm	
C4A-ET32	Head pusher Ø 32 mm	
C4A-ET36	Head pusher Ø 36 mm	
C4A/100	Targeting system	
C4A/110	Assembling screw	
C4A-120	Assembly wrench	
C4A/140	Guide	
C4A/150	I-handle	
C4A/160	Hexagonal screw driver 3.5 mm	
C4A/170	Depth gauge	
C4A/180	Trocart tip	
C4A/190	Graduated drill for distal locking	
C4A/200	Tap for distal locking	
C4A/210	Handle for locking	
C4A-220	Measure rod 8x5	
C4A-230	Approach chisel	
C4A/250	T-handle	
C4A/260	Locking screw for distal system	
C4A/280	Drill Ø 3	
C4A/290	Prehensive guide for distal screw	
C4A/310	Drill for pre hole	
C4A-320	Stabilization hook for trial stem	
C4A/330	Bell for C4A/100	
C4A/400	Straight rake	
C4A/430	Gantry upper part	
C4A/440	Gantry lower part	

S2A/MTC	T handle	
CMA-400	Rasp handle	
RA/TTHR14	TTHR rasp - S14	
RA/TTHR16	TTHR rasp - S16	
RA/TTHR18	TTHR rasp - S18	
RA/TTHR20	TTHR rasp – S20	
C4A-630	Trial neck for rasp	
QE10-105	Trial stem Ø 10 length 105	
QE10-130	Trial stem Ø 10 length 130	
QE10-155	Trial stem Ø 10 length 155	
QE 10-180	Trial stem Ø 10 length 180	
QE10-205	Trial stem Ø 10 length 205	
QE10-255	Trial stem Ø 10 length 255	
QE12-105	Trial stem Ø 12 lengths 105	
QE12-130	Trial stem Ø 12 length 130	
QE12-155	Trial stem Ø 12 length 155	
QE 12-180	Trial stem Ø 12 length 180	
QE12-205	Trial stem Ø 12 length 205	
QE12-255	Trial stem Ø 12 length 255	
QE14-105	Trial stem Ø 14 length 105	
QE14-130	Trial stem Ø 14 length 130	
QE14-155	Trial stem Ø 14 length 155	
QE14-180	Trial stem Ø 14 length 180	
QE14-205	Trial stem Ø 14 length 205	
QE14-255	Trial stem Ø 14 length 255	
QE16-105	Trial stem Ø 16 length 105	

QE16-130	Trial stem Ø 16 length 130	
QE16-155	Trial stem Ø 16 length 155	
QE16-180	Trial stem Ø 16 length 180	
QE16-205	Trial stem Ø 16 length 205	
QE16-255	Trial stem Ø 16 length 255	
QE18-105	Trial stem Ø 18 length 105	
QE18-130	Trial stem Ø 18 length 130	
QE18-155	Trial stem Ø 18 length 155	
QE18-180	Trial stem Ø 18 length 180	
QE18-205	Trial stem Ø 18 length 205	
QE18-255	Trial stem Ø 18 length 255	
QE20-105	Trial stem Ø 20 length 105	
QE20-130	Trial stem Ø 20 length 130	
QE20-155	Trial stem Ø 20 length 155	
QE20-180	Trial stem Ø 20 length 180	
QE20-205	Trial stem Ø 20 length 205	
QE20-255	Trial stem Ø 20 length 255	
T225CC	Trial head 5°43'30" Ø 22(-4)	
T225CM	Trial head 5°43'30" Ø 22(0)	
T225CL	Trial head 5°43'30" Ø 22(+4)	
T285CC	Trial head 5°43'30" Ø 28(-3.5)	
T285CM	Trial head 5°43'30" Ø 28(0)	
T285CL	Trial head 5°43'30" Ø 28(+3.5)	
T285XL	Trial head 5°43'30" Ø 28(+7)	
T325CC	Trial head 5°43'30" Ø 32(-4)	
T325CM	Trial head 5°43'30" Ø 32(0)	
T325CL	Trial head 5°43'30" Ø 32(+4)	
T365CC	Trial head 5°43'30" Ø 36(-4)	

T365CM	Trial head 5°43'30" Ø 36(0)	
T365CL	Trial head 5°43'30" Ø 36(+4)	

Before using the device, the Orthopaedic surgeon must refer to the Instructions for Use, Package Insert and/or product label.

Thank you for sending us your suggestions to:

BIOTECHNI Z.I. Athélia II
 178, avenue du Serpolet
 13600 La Ciotat - France
 Tél. : + 33 (0)4 42 98 14 30
 Fax : + 33 (0)4 42 98 14 39
 E-mail : regulatory@biotechni.com

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