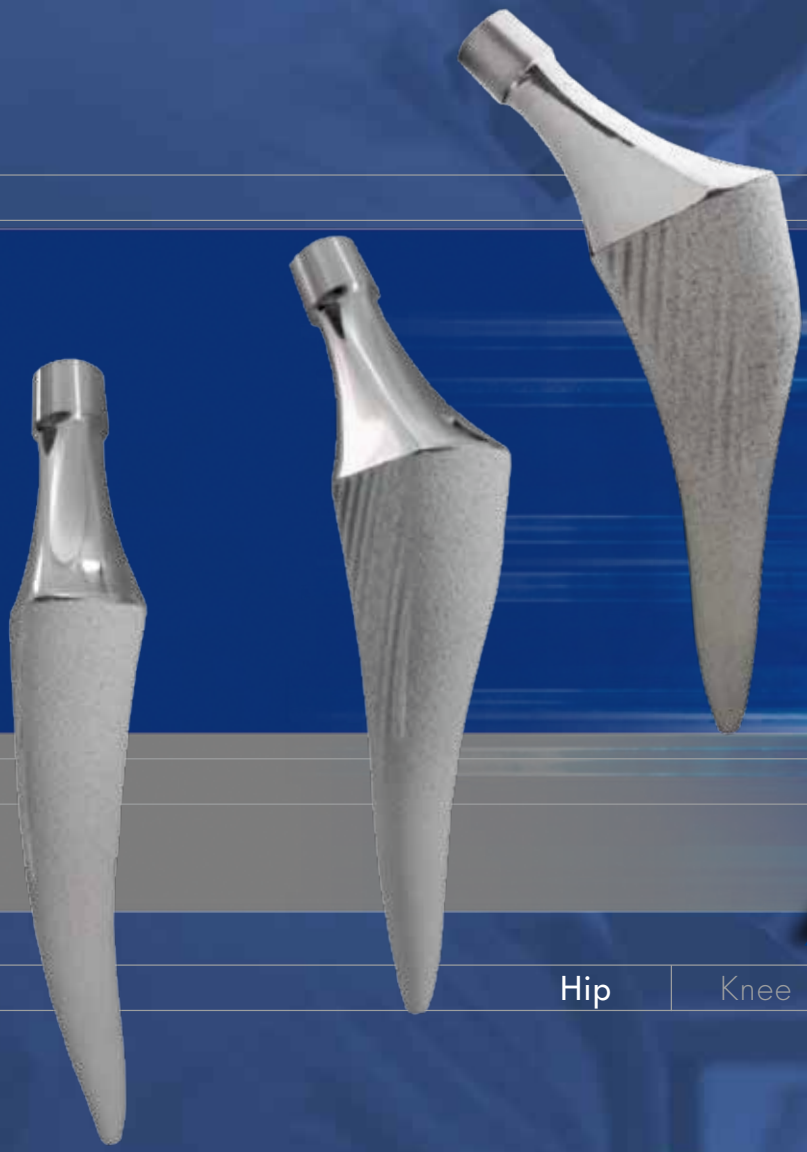
MiniMAX®

THE NATURAL FIT



Surgical Technique

Hip | Knee | Spine | Navigation

Medacta International

INTRODUCTION

The MiniMAX® is a cementless anatomic stem available in 9 right sizes and 9 left sizes.

The anatomical design results in a 9° antetorsion of the neck and a 5° curvature on the distal tip to follow the contours of the femoral canal. Size by size the head center and the volume of the prosthesis are designed to restore anatomy and provide the best fit and fill.

Carefully read the instructions for use and if you have any questions concerning product compatibility please contact your Medacta® representative.

I N D E X

1 INDICATIONS

The MiniMAX® stem is designed for use in total or partial hip arthroplasty for primary or revision surgery. Total hip arthroplasty is indicated in the following cases:

- Severely painful and/or disabled joint as a result of arthrosis, traumatic arthritis, rheumatoid polyarthritis or congenital hip dysplasia
- Avascular necrosis of the femoral head
- Acute traumatic fracture of the femoral head or neck
- Failure of previous hip surgery: joint reconstruction, internal fixation, arthrodesis, partial hip arthroplasty, hip resurfacing replacement or total hip arthroplasty

Partial hip arthroplasty is indicated in the following cases:

- Acute traumatic fracture of the femoral head or neck
- Non-union of femoral neck fracture
- Avascular necrosis of the femoral head
- Primary pathology involving the femoral head but with a non deformed acetabulum.

2 CONTRAINDICATIONS

The MiniMAX® stem contraindications are the standard contraindications for total or partial hip replacement:

- Acute, systemic or chronic infection
- Skeletal immaturity
- Severe muscular, neurological, vascular deficiency or other pathologies of the affected limb that may compromise the function of the implant
- Bone condition that may compromise the stability of the implant.

Mental or neuromuscular disorders may create an unacceptable risk to the patient and can be a source of postoperative complications.
It is the surgeon's responsibility to ensure that the patient has no known allergy to the materials used.

3 SPECIAL CONSIDERATIONS

The quality of the cancellous bone and the integrity of the cortical bone in the metaphyseal femur have to be considered for a successful implantation of the stem. Since MiniMAX® stems are designed to reproduce the anatomical antetorsion of the natural femur, it is important to take into account this aspect (especially with dysplastic hips) to ensure that a correct reconstruction is possible.

4 PREOPERATIVE PLANNING

Careful preoperative planning is essential. It will help the surgeon to pre-select the femoral implant size in order to restore an architecture corresponding to the operated patient's anatomy. In addition, using the set of X-ray templates to the scale of 1.15:1 (with an X-ray of the same magnification), it will be possible to determine:

- The implant size, that must ensure the best metaphyseal fill with the shoulder resting on the infero-lateral part of the greater trochanter
- The level of the neck cut, at about 60° with respect to the femoral axis
- The neck length
- The prosthetic rotation centre

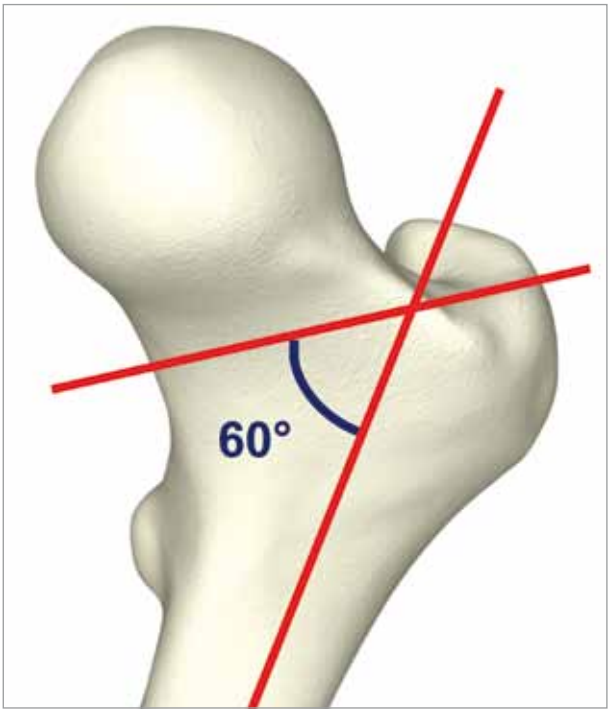
NOTICE: the final implant will be selected intra-operatively, because of possible discrepancies between actual conditions and templating.

5 SURGICAL APPROACH

The choice of surgical approach is up to the surgeon.
The instrumentation has been developed for posterior and lateral approaches. A specific instrumentation for the anterior approach is available upon request (for further information see the AMIS® dedicated surgical technique).

6 FEMORAL NECK OSTEOTOMY

The level of the neck cut is determined during preoperative planning using the X-Ray templates. The femoral neck osteotomy is at an angle of approximatively 60° to the diaphyseal axis of the femur. The resection is performed with an oscillating saw, taking care to maintain the angle of the cut.The femoral head is removed using an extractor.



7 FEMORAL PREPARATION

For access to the medullary canal, the thigh is held in the position providing the best exposure of the dyaphyseal axis, depending on the selected approach.
Create an access to the femur canal with the smallest broach or with the chisel. Remove the bone so that the spongiosa of the greater trochanter does not interfere with the broaches.

There are left and right broaches available. Make sure the correct one is used.

The correct starting point is the piriformis fossa, which is located directly over the medullary canal.
This opening should be aligned with the femoral canal. To achieve femoral canal alignment, place the instrument, the broach or the chisel, laterally close to the piriformis fossa.

The MiniMAX® is an anatomical stem that will find its way naturally in the femur reproducing the natural antetorsion of the femur. The chisel should not determine the antetorsion. Because of the 9° anteversion of the neck, we advise reducing the acetabular anteversion during the implantation of the cup.

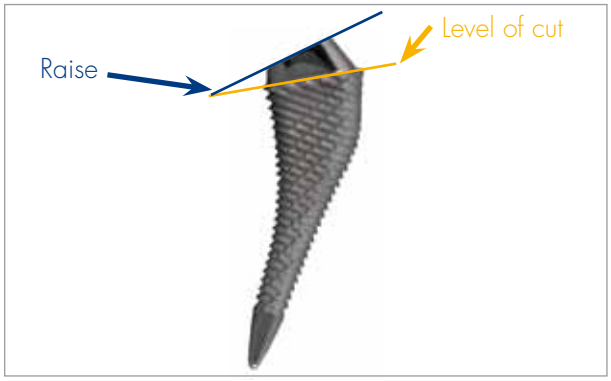
For an anterior approach, do not use the chisel because of the possibility of entering the femur with a curved path. Use a curette from bottom to top to clear the lateral proximal metaphysis.

NOTICE: in varus hips the proper entrance of the medullary canal and reproduction of the longitudinal axis of the femur can be adequately obtained by reaming the medial part of the greater trochanter.

Broaching of the proximal femur should begin with the smallest broach.

Assemble the broach on the manual broach handle.

The MiniMAX® implant has a neck length that increases with the size. In order to always use the same trial necks, the broaches have a raise without teeth. The raise is different for each size and has to be above the femoral cut. The broaches must be inserted at optimum level determined by the neck cut until the level of the last tooth. Never force impaction.



Advance sequentially along the medullary canal using broaches of increasing size until optimal metaphyseal filling is achieved. Ensure proper alignment and antetorsion are achieved.

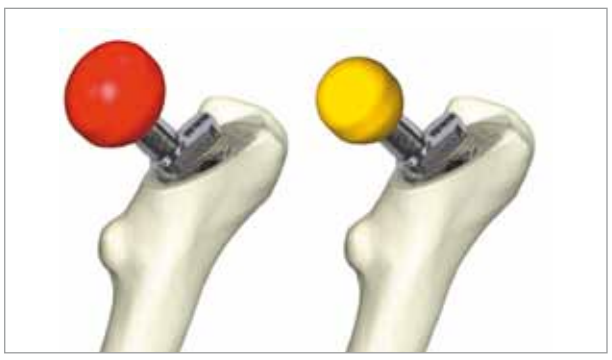
The final broach should be rotationally stable to assure perfect stability of the implant.

8 TRIALING

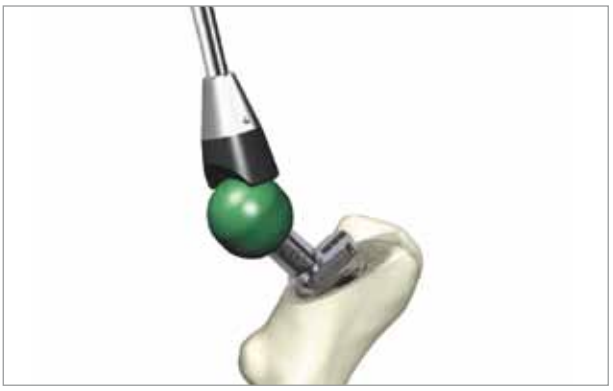
Once the femoral broach is in place with a good rotational stability, position a trial neck, left or right depending on the side being operated on.

To lock the trial necks to the broach press onto the socket; to unlock pull the neck.

Trial heads of different diameters and heights are available to perform the trial reductions.
A trial head is fitted to the trial neck by pushing it onto the taper.
To make head insertion easier wet the head before insertion.



After placement of the trial or final acetabular component, the trial reduction is performed with the aid of the head impactor.



NOTICE: the head impactor must be used only for head impaction and reduction and not for the correction of the acetabular shell position.

To remove a trial head, simply pull it.

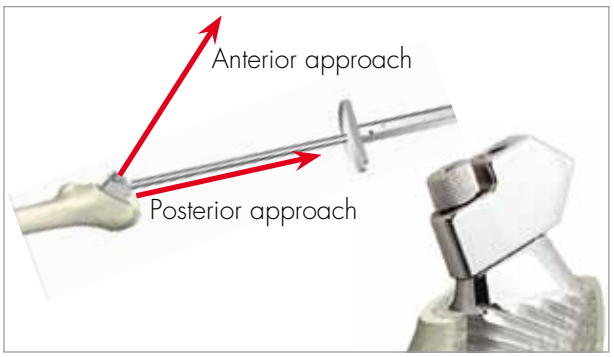
TRICK

If the trial head is difficult to remove from the trial neck, wet the trial head - trial neck assembly. Turn and pull a little on the trial head in order to facilitate its extraction.

After checking and testing mobility, joint stability and lower limb length, remove the broach.

TRICK

An extraction system can be used if the broach is difficult to remove. First screw the broach extractor into the broach. Depending on the selected approach, screw the screwed stem extractor M8 onto the broach extractor. Pull out the broach.



9 FINAL IMPLANTS

Insert the final prosthesis into place. The final prosthesis corresponds to the size of the last trial broach and to the side (left or right) corresponding to the operated leg.

WARNING

Take care not to damage the neck's micro-thread while placing the final implant.

The stem is moved down to the limit corresponding to the test. Final impaction is done carefully with a dedicated impactor.

Another trial reduction can be performed if necessary to determine the final neck length.

CAUTION

The metallic head sizes XL (for ∅ 28 mm and ∅ 32 mm) and XXL (for ∅ 28 mm, ∅ 32 mm and ∅ 36 mm) have a collar. This may decrease the Range of Motion in comparison to smaller sizes. Always perform trial reduction with the chosen head.

The stem taper must be thoroughly cleaned before impacting the prosthetic head.

Place the final head of the chosen size.

WARNING

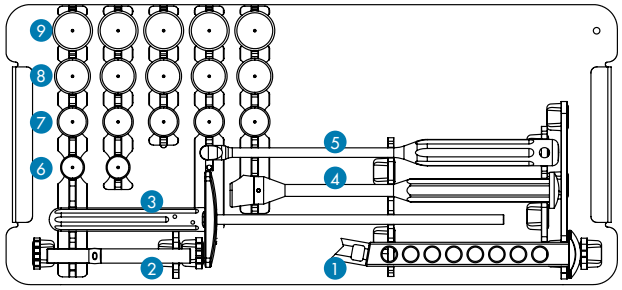
Never use a metal hammer to fix a ceramic head. Use only the plastic head impactor provided for this purpose.

CAUTION

For further details please refer to the instructions for use for ceramic femoral heads.

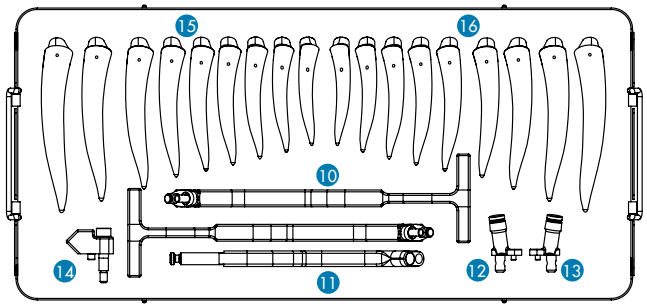
10 INSTRUMENTATION NOMENCLATURE

MiniMAX® INSTRUMENT SET - TRAY N° 1.1



N.	Reference	Description	
1	01.10.10.001	Chisel	
2	01.10.10.025	Broach handle orientator	
3	01.10.10.003	Screwed stem extractor M8	
4	01.10.10.063	Head impactor/Handle	
	01.10.10.064	Head impactor/Terminal	
5	01.18.10.060	Stem impactor	
6	01.10.10.170	Trial head Ø 22 mm Size S -2.5	
	01.10.10.171	Trial head Ø 22 mm Size M 0	
7	01.10.10.110	Trial head Ø 28 mm Size S -3.5	
	01.10.10.111	Trial head Ø 28 mm Size M 0	
	01.10.10.112	Trial head Ø 28 mm Size L +3.5	
	01.10.10.113	Trial head Ø 28 mm Size XL +7	
	01.10.10.109	Trial head Ø 28 mm Size XXL +10.5	
8	01.10.10.140	Trial head Ø 32 mm Size S -3.5	
	01.10.10.141	Trial head Ø 32 mm Size M 0	
	01.10.10.142	Trial head Ø 32 mm Size L +3.5	
	01.10.10.143	Trial head Ø 32 mm Size XL +7	
	01.10.10.144	Trial head Ø 32 mm Size XXL +10.5	
9	01.10.10.160	Trial head Ø 36 mm Size S -3.5	
	01.10.10.161	Trial head Ø 36 mm Size M 0	
	01.10.10.162	Trial head Ø 36 mm Size L +3.5	
	01.10.10.163	Trial head Ø 36 mm Size XL +7	
	01.10.10.164	Trial head Ø 36 mm Size XXL +10.5	
	01.10.10.627	Trial head Ø 40 mm Size S -3.5	
	01.10.10.628	Trial head Ø 40 mm Size M 0	
	01.10.10.629	Trial head Ø 40 mm Size L +3.5	
	01.10.10.630	Trial head Ø 40 mm Size XL +7	
	01.10.10.631	Trial head Ø 40 mm Size XXL+10.5	

MiniMAX® INSTRUMENT SET - TRAY N° 1.2



N.	Reference	Description	
10	01.10.10.106	Broach handle	
11	01.10.10.069	Motorized broach handle	
12	01.13.10.1140R	Trial neck Right	
13	01.13.10.2140L	Trial neck Left	
14	01.15.10.0070	Broach extractor	
15	01.13.10.1100R	Grinded broach Size 0 Right	
	01.13.10.1101R	Grinded broach Size 1 Right	
	01.13.10.1102R	Grinded broach Size 2 Right	
	01.13.10.1103R	Grinded broach Size 3 Right	
	01.13.10.1104R	Grinded broach Size 4 Right	
	01.13.10.1105R	Grinded broach Size 5 Right	
	01.13.10.1106R	Grinded broach Size 6 Right	
	01.13.10.1107R	Grinded broach Size 7 Right	
	01.13.10.1108R	Grinded broach Size 8 Right	
16	01.13.10.2100L	Grinded broach Size 0 Left	
	01.13.10.2101L	Grinded broach Size 1 Left	
	01.13.10.2102L	Grinded broach Size 2 Left	
	01.13.10.2103L	Grinded broach Size 3 Left	
	01.13.10.2104L	Grinded broach Size 4 Left	
	01.13.10.2105L	Grinded broach Size 5 Left	
	01.13.10.2106L	Grinded broach Size 6 Left	
	01.13.10.2107L	Grinded broach Size 7 Left	
	01.13.10.2108L	Grinded broach Size 8 Left	

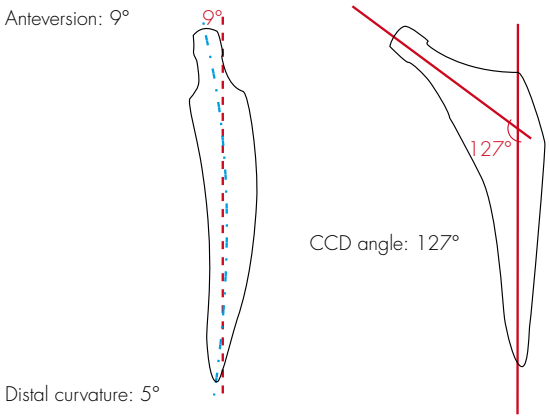
	01.13.10.4000	Empty tray	
	02.02.10.0412	Exterlal tray for sterilisation	
	01.13.10.0010	MiniMAX® Templates 115%	

Trays available in the operating room may not contain all of the instruments listed in the surgical technique, but the instruments supplied are enough to complete the surgery. In case of need all of the instruments listed can be ordered on request.

11 IMPLANTS NOMENCLATURE

MiniMAX®

Left	Size	Right
01.13.100L	0	01.13.100R
01.13.101L	1	01.13.101R
01.13.102L	2	01.13.102R
01.13.103L	3	01.13.103R
01.13.104L	4	01.13.104R
01.13.105L	5	01.13.105R
01.13.106L	6	01.13.106R
01.13.107L	7	01.13.107R
01.13.108L	8	01.13.108R



HEADS

Diameter	Size	Stainless steel	CoCr	CeramTec BIOLOX® *delta*	CeramTec BIOLOX® Option[I]
Ø 22 mm	S	01.25.130	01.25.124	-	-
Ø 22 mm	M	25055.2203	01.25.123	-	-
Ø 28 mm	S	25055.2801	01.25.011	38.49.7175.445.00	38.49.7176.935.81
Ø 28 mm	M	25055.2803	01.25.012	38.49.7175.455.00	38.49.7176.935.82
Ø 28 mm	L	25055.2805	01.25.013	38.49.7175.465.00	38.49.7176.935.85
Ø 28 mm	XL	25055.2807	01.25.014	-	38.49.7176.935.84
Ø 28 mm	XXL	25055.2810	01.25.015	-	-
Ø 32 mm	S	25055.3201	01.25.021	38.49.7175.665.00	38.49.7176.945.81
Ø 32 mm	M	25055.3203	01.25.022	38.49.7175.675.00	38.49.7176.945.82
Ø 32 mm	L	25055.3205	01.25.023	38.49.7175.685.00	38.49.7176.945.85
Ø 32 mm	XL	25055.3207	01.25.024	38.49.7181.345.00	38.49.7176.945.84
Ø 32 mm	XXL	25055.3210	01.25.025	-	-
Ø 36 mm	S	-	01.25.030	38.49.7179.275.00	38.49.7176.965.81
Ø 36 mm	M	-	01.25.031	38.49.7179.285.00	38.49.7176.965.82
Ø 36 mm	L	-	01.25.032	38.49.7179.295.00	38.49.7176.965.85
Ø 36 mm	XL	-	01.25.033	38.49.7175.925.00	38.49.7176.965.84
Ø 36 mm	XXL	-	01.25.034	-	-
Ø 40 mm	S	-	01.25.085[II]	38.49.7179.885.00	38.49.7179.815.81[II]
Ø 40 mm	M	-	01.25.086[II]	38.49.7179.895.00	38.49.7179.815.82[II]
Ø 40 mm	L	-	01.25.087[II]	38.49.7179.905.00	38.49.7179.815.85[II]
Ø 40 mm	XL	-	01.25.088[II]	38.49.7179.915.00	38.49.7179.815.84[II]
Ø 40 mm	XXL	-	01.25.089[II]	-	-

[I] Specific for ceramic head revision
[II] On request

12 POSSIBLE IMPLANTS COMBINATIONS

All Medacta® implant possible combinations are represented in the table "Medacta® Hip product compatibility" (ref. 99.99.COM), available at www.medacta.com.

NOTICE: in case of a ceramic-on-ceramic bearing it is compulsory to use compatible ceramic femoral heads and liners.

Part numbers subject to change.

NOTE FOR STERILIZATION

The instrumentation is not sterile upon delivery. It must be cleaned before use and sterilized in an autoclave respecting the regulations of the country, EU directives where applicable and following the instructions for use of the autoclave manufacturer. For detailed instructions please refer to the document "Recommendations for cleaning decontamination and sterilization of Medacta® International orthopaedic devices" available at www.medacta.com.

Medacta International

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