MATHYS
European Orthopaedics

Surgical technique / Product information

CCB cup
CCE roof reinforcement ring

***Preservation** in motion*

Building on our heritage
Moving technology forward
Step by step with our clinical partners
Towards a goal of preserving mobility

***Preservation** in motion*

As a Swiss company, Mathys is committed to this guiding principle and pursues a product portfolio with the goal of further developing traditional philosophies with respect to materials or design in order to address existing clinical challenges. This is reflected in our imagery: traditional Swiss activities in conjunction with continuously evolving sporting equipment.

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Remark
Please make yourself familiar with the handling of the instruments, the product-related surgical technique and the warnings, the safety notes as well as the recommendations of the instruction leaflet before using an implant manufactured by Mathys Ltd Bettlach. Make use of the Mathys user training and proceed according to the recommended surgical technique.

Introduction

Implantation of artificial hip joints is one of the most successful standard procedures in orthopaedics. The aim of joint replacement is to eliminate pain and to restore the normal function of the hip joint. Due to the demographic development of the population and the increasing importance of physical activity and sports even in advanced age, the number of such operations is expected to further increase.

The collaboration of Maurice Müller and Robert Mathys Sr. led to the development of the Müller prostheses. Within these 40 years of clinical experience they were frequently imitated.

Mathys used to produce these implants from 1976 to 1996 for Protek/Sulzer Medica. Since the separation of the two companies, Mathys has been offering this system under the name of CCA stem (Müller straight stem), CCB cup (cemented Müller cup) and CCE roof reinforcement ring (Müller acetabular roof reinforcement ring), where design, materials and quality of the original have remained essentially unchanged. The CCB cup is awarded a 10A (10 years of strong evidence) and the CCA stem with a 10A* (10 years of strong evidence) in the British ODEP ratings. [1]

This surgical technique describes the CCB cup and CCE roof reinforcement ring. The CCA stem is described in a separate surgical technique.

CCB cup

- Cemented polyethylene cup made of UHMWPE with an integrated radiopaque stainless steel ring (FeCrNiMnMo)
- Available in low-profile and full-profile version based on the concept by M. E. Müller

Anchoring

- The CCB cup is anchored in the acetabulum with a cement mantle. The subchondral sclerosis zone should be pierced with the reamer, and additional anchoring holes drilled
- In order to achieve a good clinical result, the implant must be embedded into a stable acetabular structure

Design features

- The increased height of the cup rim of the full-profile cup provides an increased jumping distance compared to the low-profile cup. [2] This feature aims to decrease the risk of dislocation
- The low-profile CCB cup allows an increased range of motion compared to the full-profile CCB cup [3]
- The CCB cup can be positioned in the bone cement to reconstruct the patient's individual anatomical situation [4]
- The CCB cup yields good long-term results with respect to implant survival and is awarded a 10A ODEP rating (10 years of strong evidence) [1]

CCE roof reinforcement ring

- The CCE roof reinforcement ring is used to treat acetabula with impaired bone substance and/or partial acetabular defects in primary or revision surgery as long as primary stability can be achieved
- Available in titanium (TiCP)

Anchoring

- The CCE roof reinforcement ring is fixated by a press fit in the acetabulum and additionally compressed against the roof of the acetabulum with 2 – 5 cancellous screws [5]
- To ensure primary stability it is important that the ring is clamped stably with direct bone contact
- The cementation of the CCB cup into the ring stabilises the screw angles [6]

Design features and advantages of the Müller philosophy

- Following the Müller philosophy, the CCE roof reinforcement ring features screw holes which allow for stable fixation with respect to the anatomical situation, even in acetabula with bone defects [7]
- The CCE roof reinforcement ring allows positioning of the cemented CCB cup independently of the position of the reinforcement ring in order to reconstruct the individual anatomical situation of the patient [4]
- A recess at the pole allows introduction of bone grafts or bone substitute material based on the Müller philosophy [7]
- The Müller reinforcement ring prevents resorption of bone graft material and migration of the cup, in patients who have had a reconstruction of a deficient acetabulum [7]

1. Indications and contraindications

Indications
- Primary or secondary osteoarthritis of the hip
- Femoral head and femoral neck fractures
- Necrosis of the femoral head
- Revision surgery

Contraindications
- Presence of factors jeopardising stable anchoring of the implant:
  – Bone loss and/or bone defects
  – Insufficient bone substance
- Local and/or general infection
- Severe soft tissue, nerve or vessel insufficiency that jeopardises the function and long-term stability of the implant
- Hypersensitivity to any of the materials used
- Patients for whom a different type of reconstruction surgery or treatment is likely to be successful

Restriction
The CCB low-profile cup size 42/28, 42–46/32 and the CCB full-profile cup with size 44–46/32 must be used in combination with a CCE roof reinforcement ring due to their low wall thicknesses.

For further information, please refer to the instructions for use or ask your Mathys representative.

2. Preoperative Planning

Preoperative planning can be performed using standard radiographs or a digital planning system. The main goal of planning is to determine the suitable implant, its size and position with the objective of restoring the individual biomechanics of the hip joint. In this way, possible problems can be identified even before the surgery. [8] Moreover, the preoperative planning serves as a basis for the intraoperative reconciliation using fluoroscopic control. It is recommended to document the preoperative planning in the patient's file.

In case of impaired bone substance and/or partial acetabular defects, implantation of the CCE roof reinforcement ring in combination with the CCB cup is necessary. This has to be respected in the preoperative planning.

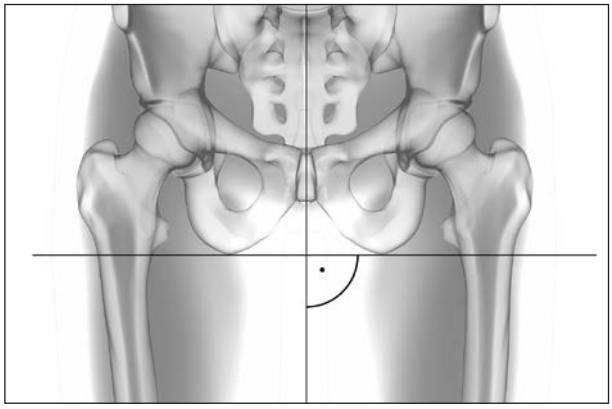


Fig. 1

The planning is ideally performed on a pelvic X-ray which is taken with the patient in a supine or standing position. In doing so, the central beam is aligned on the symphysis with 20-degree internal rotation of the femurs. The scale is calculated with the known options, that is, either with a defined calibration object or using a known and reconstructable film focal distance (Fig. 1).

Remark

In case of significantly deformed hips, planning on the healthy side should be considered in order to transfer this subsequently to the affected side. [8]

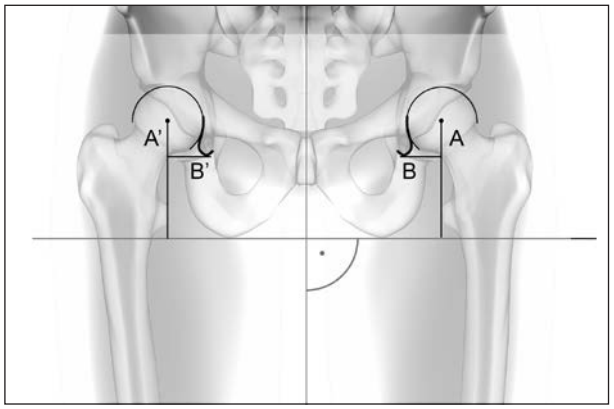


Fig. 2

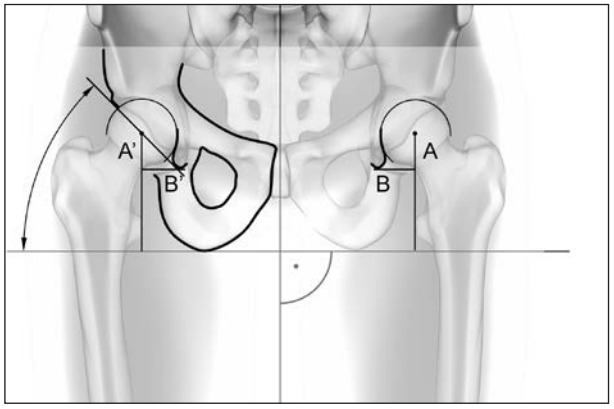


Fig. 3

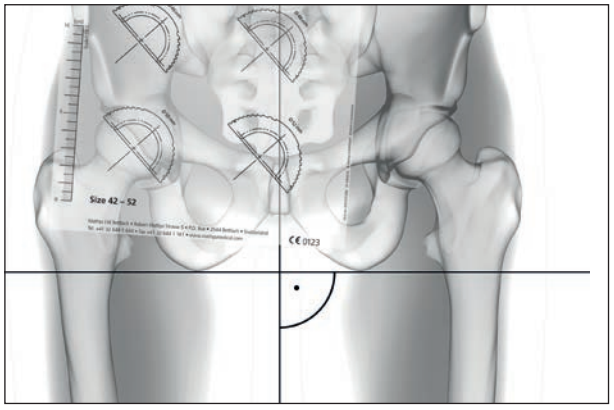


Fig. 4

Estimation of the acetabular offset

The centres of rotation of the healthy (A) and the affected hip (A') are each defined as the centre of a circle surrounding the femoral head or the cavity of the acetabulum.

A first, horizontal line is placed as a tangent on both ischial tuberosities, and a second, vertical line is placed through the centre of the symphysis.

Remark

In case of leg length compensation, adaptation of leg length with the aid of the ischial tuberosity can be considered already now.

The acetabular offset is defined as the distance between Köhler's teardrop (B or B') and the vertical line through the centre of rotation of the hip (A or A') (Fig. 2).

Planning the cup

The cup position in relation to the pelvis must take into account the acetabular contours, the centre of rotation of the hip, Köhler's teardrop and the necessary angle of inclination of the cup (Fig. 3).

To find a suitable cup size, several cup templates are successively positioned on the level of the cavity of the acetabulum with the aim of restoring the native centre of rotation of the hip and at the same time enabling sufficient bone contact on the level of the acetabular roof as well as on that of Köhler's teardrop (Fig. 4).

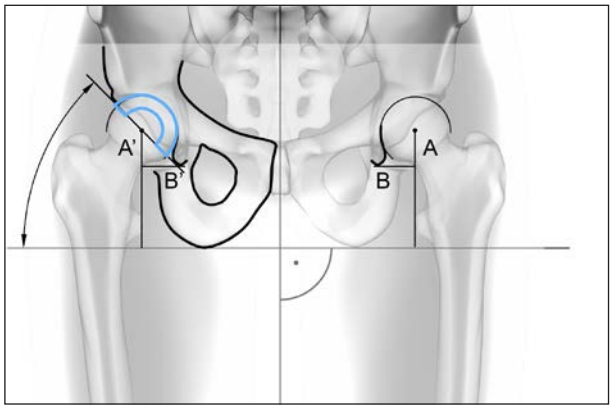


Fig. 5

In the positioning of the cup, the patient's individual anatomy must be considered. The implant position is determined in relation to the anatomical landmarks (acetabular roof, Köhler's teardrop). The implantation depth is then determined (Fig. 5).

To minimise the risk of instability and/or migration of the prosthesis with early or late loosening and bone fractures or fissures, potential acetabular defects must be treated prior to the implantation of the CCB cup.

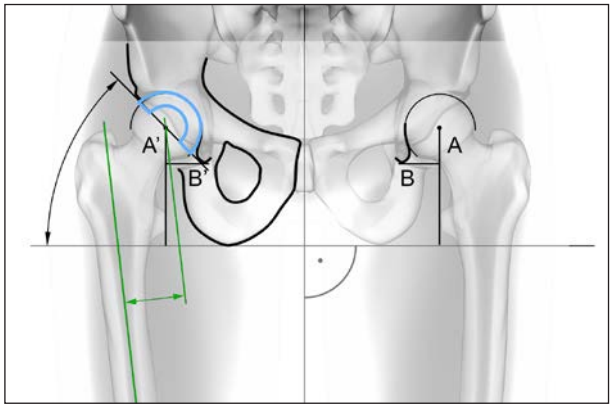


Fig. 6

Estimation of the femoral offset

The femoral offset is defined as the smallest distance between the central longitudinal axis of the femur and the centre of rotation of the hip (Fig. 6).

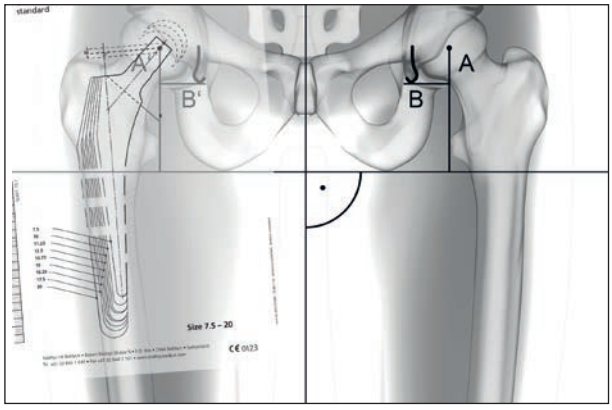


Fig. 7

Planning of the stem

The planning of the stem is shown using the CCA stem as an example. Other stem systems may also be used. The stem size is determined using the measuring templates on the femur to be operated on. The template is to be aligned to the centre of rotation and the central axis (Fig. 7).

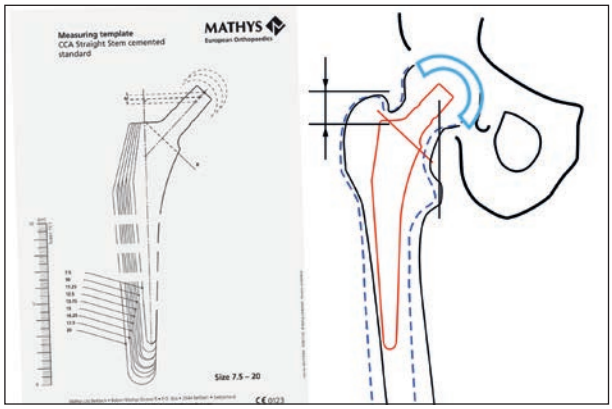


Fig. 8

On the planning sheet, the matching stem is delineated in the form of dotted lines with the measuring template in the same abduction/adduction position as the femur of the healthy side (Fig. 8).

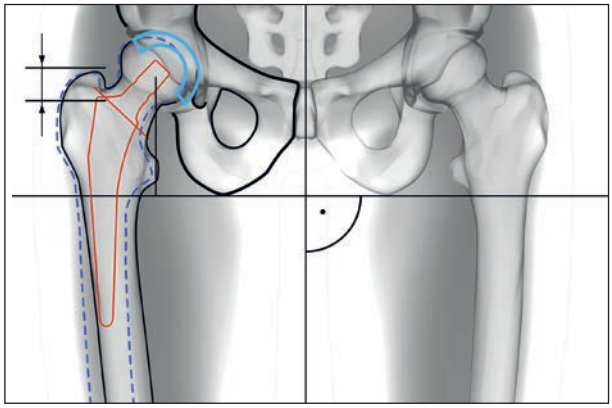


Fig. 9

The femur to be operated on is plotted over the selected stem.
The distance between the proximal end of the stem cone and the lesser trochanter as well as the one between the shoulder and the major trochanter are measured.
Plotting of the resection plane and determination of the intersection between the trochanteric massive and the lateral demarcation of the prosthesis stem (Fig. 9).

3. Surgical technique

Depending on the positioning of the patient and the selection of the access route, conventional approaches are differentiated from minimally invasive approaches that strive to minimise bone and soft tissue damage. The CCB cup and CCE roof reinforcement ring can be implanted using various surgical approaches. In the choice of the specific technique, the decision should be based on the patient's anatomy and on the personal experience and preferences of the surgeon.

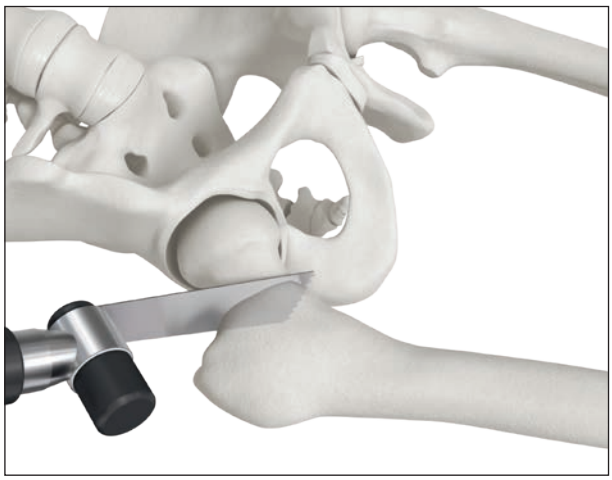


Fig. 10

Femoral osteotomy
The femoral neck is resected according to the preoperative planning (Fig. 10). In case of narrow anatomical conditions, it is advisable to perform a double osteotomy and remove a fragment of the femoral neck. Then the femoral head is removed with a femoral head extractor.

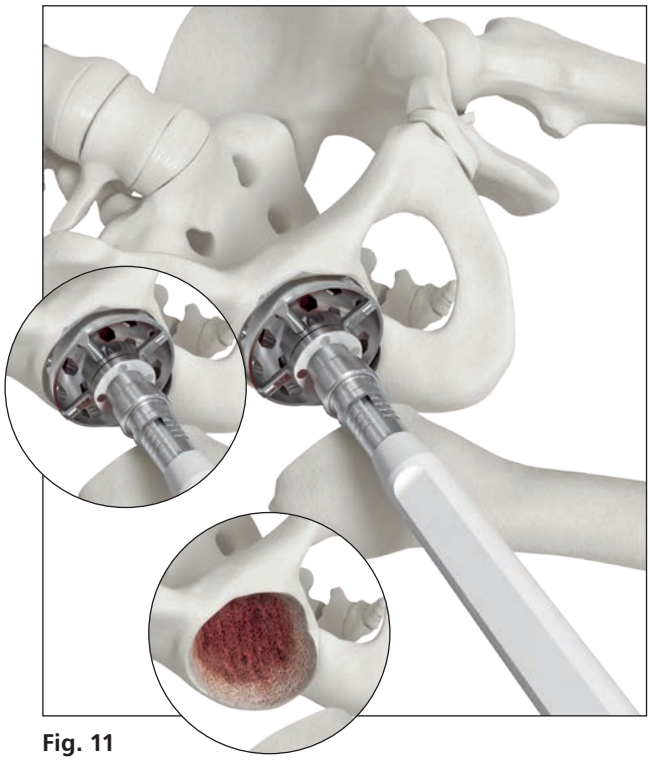


Fig. 11

Preparation of the acetabulum
Exposure of the acetabulum with resection of the labrum and any existing osteophytes is the prerequisite for safe cup implantation and the required primary stability. After rinsing the acetabulum and identifying the teardrop, the depth of the acetabulum is determined. Using spherical acetabular reamers of ascending sizes, the acetabular bed is then processed in increments of 2 mm each, until the subchondral bone is prepared in such a manner that minor haemorrhages appear (Fig. 11).

Remark
Ensure that the acetabulum is reamed down to the implant depth defined in the preoperative planning. The subchondral cortex should be reamed away at least partially.

Correct depth can additionally be checked under image intensification.

Fig. 12

Insertion of the trial cup and alignment according to the pelvic landmarks (ventral, dorsal and cranial acetabular rim) (Fig. 12).

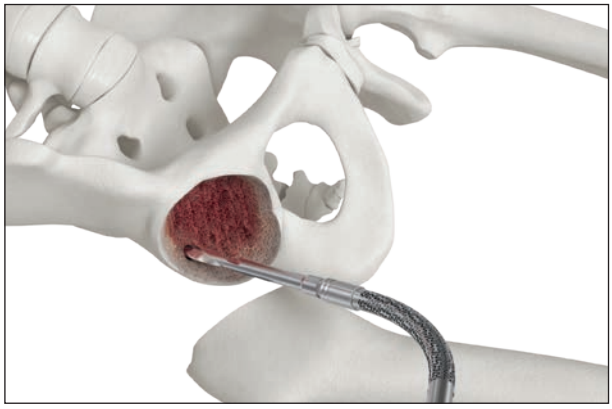


Fig. 13

Drilling of the cement-anchoring holes
3 – 5 cement-anchoring holes are drilled to a depth of 0.5 – 1 cm into the acetabulum by using the 6 mm Drill bit (Figs. 13 and 14).

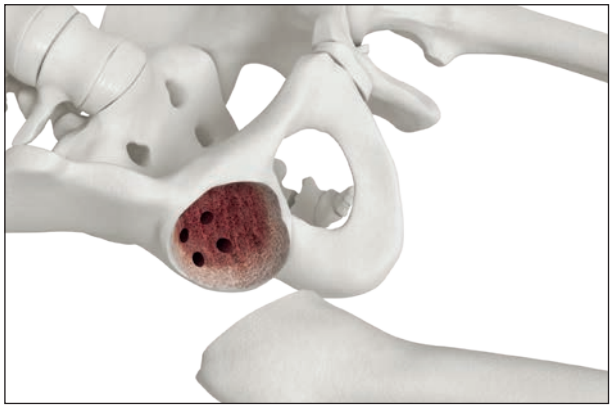


Fig. 14

To minimise the risk of nerve and vessel injury, the position and drilling depths of the cement-anchoring holes must be selected considering the anatomy of the patient's pelvic area.

Rinsing of the acetabulum
The osseous bed is rinsed with a jet lavage.

Fig. 15

Fig. 16

After drying of the acetabulum with aspirator and compresses, the bone cement is applied to the acetabulum (Figs. 15 and 16).

Remark
The Mathys bone cement must be purchased separately.

The cementing technique requires special precautions (preparation of the bone cavity, cementing technique, collaboration with the anaesthetist, etc.) described in the specific instructions for use of the cement.

Fig. 17

3.1 Implantation and alignment of the CCB cup

Remark
The CCB cup does not feature screw holes and is therefore not suitable for screw fixation.

Initially, the CCB cup to be implanted is manually positioned into the semi-viscous cement bed (Fig. 17).

The CCB low-profile cup of size 42/28, 42–46/32 and the CCB full-profile cup with size 44–46/32 must be used in combination with a CCE roof reinforcement ring due to their low wall thicknesses.

Remark
The labelled size of the CCB cup does not include a cement mantle. Mathys recommends inserting a cup one size smaller than the final reamer (e. g. ream size 50, implant CCB cup size 48).

Fig. 18

Fig. 19

Fig. 20

Fig. 21

Then the cup is pushed medial using the Cup impactor with the metal top; a cement mantle having a uniform thickness should be produced (Fig. 18).

Excess cement is removed (Fig. 19).

Remark
Precise adjustment of inclination and anteversion is a prerequisite for complication-free functioning of the artificial hip joint; here the individual anatomical conditions must be considered. Generally, an inclination of 40°–50° and an anteversion of 10°–20° are recommended.
As a positioning aid, the Positioning guide can be attached to the handle of the Cup impactor. Here the correct positioning of the patient on the table is to be paid attention to.

Under uniform pressure, the cup is pressed into the acetabulum until it reaches the final position (Fig. 20).

Then the metal top is removed from the Cup impactor to avoid the risk of affecting the cup orientation.

Using the Cup impactor with the plastic top mounted, continue to apply uniform pressure onto the inner surface of the cup, and remove excess cement from the edge.

Only when the cement is completely cured can the instrument be detached from the cup (Fig. 21).

Remark
Correct positioning of the cup can additionally be checked under image intensification.

Fig. 22

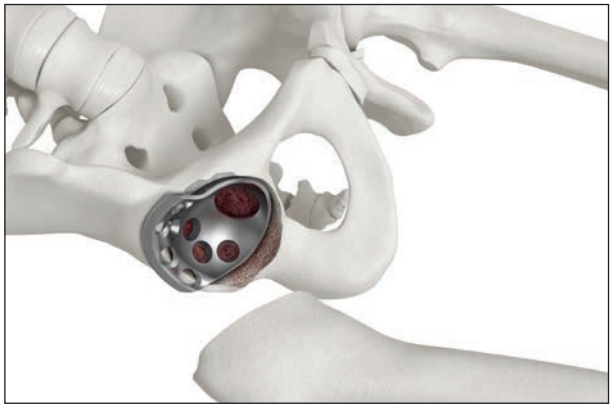


Fig. 23

3.2 Insertion of the CCE roof reinforcement ring

Filling of the defect

Once the acetabulum is reamed, any existing bone defect is filled with bone from the femoral head or replacement material and compacted with a CCB trial cup.

Implantation of the CCE roof reinforcement ring

The CCE roof reinforcement ring is clamped in the acetabulum using a plunger (Fig. 22). Here the edge of the implant should butt against the edge of the osseous implant site. In the area of the screw holes and at the bottom edge, sufficient bone contact is required (Fig. 23).

Remark

The reamer to be used for the CCE roof reinforcement is 4 mm larger than the specified roof reinforcement ring size (Fig. 24). Thus, a clamping of the device can be achieved.

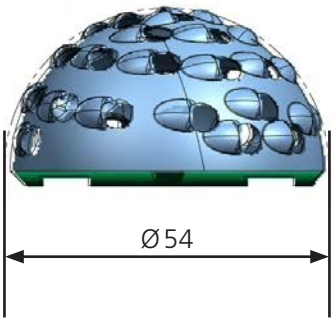
Remark

The size specification of the CCE roof reinforcement ring corresponds to the largest CCB cup that can be anchored therein. Regularly, CCB cups 2 mm smaller than the CCE roof reinforcement ring are implanted.

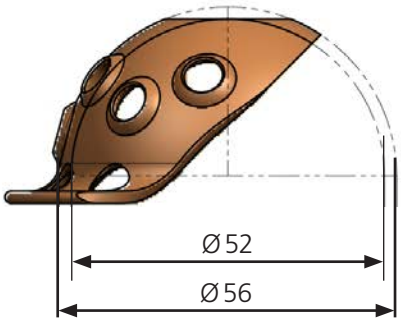
Example for correct sizing of the CCE roof reinforcement ring and CCB cup

Description	Size	Remark
Reamer	54	The reamer should be 4 mm larger than the CCE roof reinforcement ring to be implanted
CCE roof reinforcement ring	50	Use 2 – 5 screws for fixation
CCB cup	48, 50	Use one size smaller or the same size (48, 50) as the implanted CCE roof reinforcement ring

Acetabular reamer 54



CCE roof reinforcement ring 50



CCB cup 48, 50

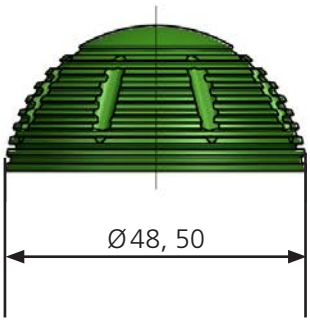


Fig. 24

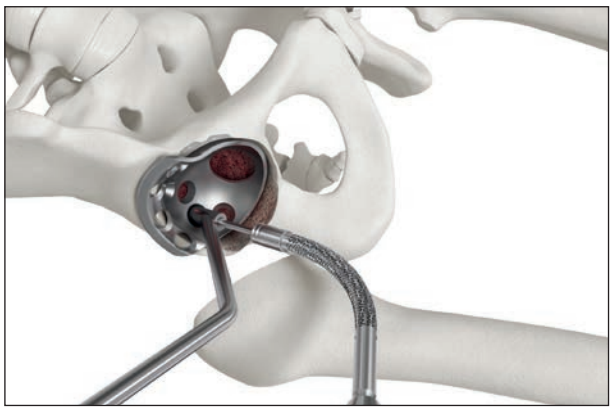


Fig. 25

The CCE roof reinforcement ring is secured using 2 to 5 cancellous screws. Here it must be ensured that the screws in the os ilium are positioned about 20° medially and dorsally relative to the longitudinal axis of the body in the direction of the sacroiliac joint (Figs. 25, 26, 27).

The Drill sleeve is fully inserted into the screw hole of the CCE roof reinforcement ring. The first screw hole is drilled with the 3.5 mm Drill bit as centrally as possible. In case of sclerotic bone the screw holes are prepared with the 6.5 mm Tap before placing the screw. With the first screw, the CCE roof reinforcement ring is pressed against the roof of the acetabulum.

Fig. 26

Fig. 27

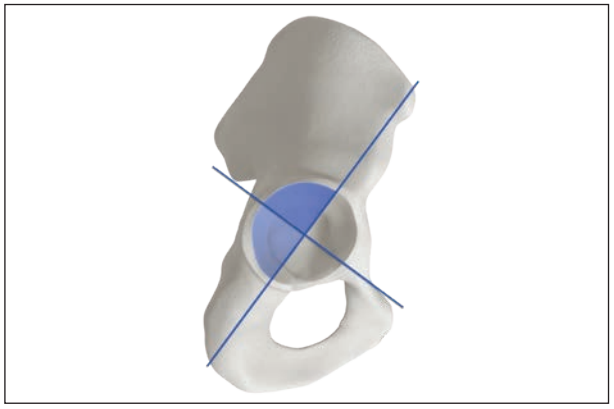


Fig. 28

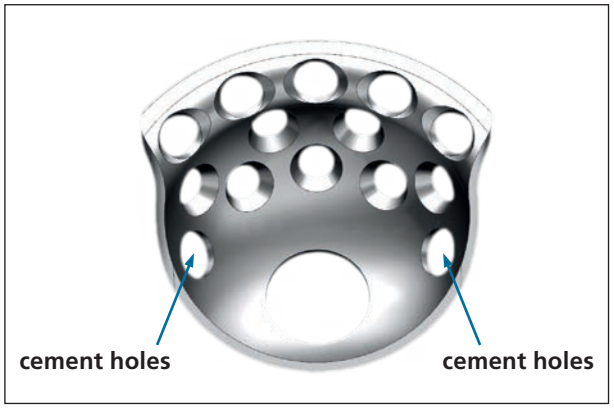


Fig. 29

Remark

Start drilling only when the Drill bit has contact with the bone. Introduction of the Drill bit into the Drill sleeve while the drill is running can damage the Drill bit or the Drill sleeve.

To minimise the risk of nerve and vessel injury, use as few screws as possible to properly fix the CCE roof reinforcement ring.

After determination of the screw length with the Depth gauge, a 6.5 mm cancellous screw (made of Ti6Al4V) is implanted using a Hexagonal or Cardan screwdriver.

Remark

The screws are angularly stable due to locking of the screw heads with cement. [6] *Screws may be under tension when being inserted: micromotion of a well-fixed shell can cause oscillating forces on the screw through the locking mechanism and lead to breakage.* [5]

To minimise the risk of nerve and vessel injury, the position and drilling depths of the screw holes and the respective screw lengths must be selected considering the anatomy of the patient's pelvic area. The screws must be placed in the postero-superior and postero-inferior quadrants of the acetabulum [9] *(Fig. 28).*

Remark

For the low-profile CCB cup of sizes 60, 62 and 64, there are no corresponding CCE roof reinforcement rings available.

For CCE roof reinforcement rings of size 54 and larger, two additional holes Ø 9 mm are provided. These serve for better cement anchoring and are not intended to be used as screw holes (Fig. 29).

The cement holes are prepared using the Countersink reamer with Ø 9 mm.

Fig. 30

Once all screws for fixation of the CCE roof reinforcement ring are implanted, the bone cement is introduced into the CCE roof reinforcement ring, and the CCB cup is inserted (Figs. 30, 31, 32).

Remark

The bone cement must be purchased separately. The cementing technique requires special precautions (preparation of the bone cavity, cementing technique, collaboration with the anaesthetist, etc.) described in the specific instructions for use of the cement.

Fig. 31

The cup is pushed medial using the Cup impactor with the plastic top mounted. Continue to apply uniform pressure onto the inner surface of the cup (Fig. 31).

Excess cement is to be removed.

Fig. 32

Only when the cement is completely cured can the instrument be detached from the cup (Fig. 32).

The implantation of the stem and the determination of the appropriate ball head are described in a separate surgical technique of the corresponding stem. This can be requested from the local Mathys agency.

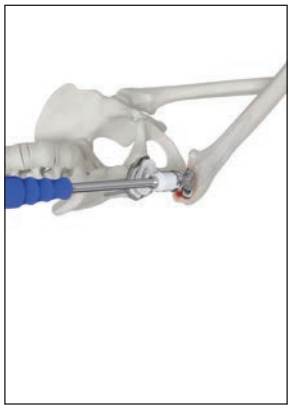


Fig. 33

Fig. 34

3.3 Reduction of the joint

After implantation of the stem the reduction of the joint is performed (Figs. 33 and 34). Particular attention must be paid to the proneness to dislocation and to the range of motion of the joint, balanced soft tissue tension and leg length. The joint space is rinsed to remove any cement or bone particles present.

Depending on the approach, the muscle insertions are reattached, and the wound is closed layer by layer.

3.4 Removal of the CCB cup

Full exposure of the acetabular rim has to be ensured before removal of the CCB cup. The polyethylene is carefully reamed out and the cement is removed. Alternatively, a method according to A. Sabboubeh [10] can be used: 2.5 mm holes are drilled in the CCB cup, especially on the rim. Then a fully threaded cortical screw of 4.5 mm is threaded into each hole to break the interface between the CCB cup and the cement. This procedure is repeated until the cup starts to detach from the cement and becomes loose enough to be extracted.

Remark

In case of intra-operative explantation of the final implant, a re-implantation of the same implant is not allowed.

3.5 Removal of the CCE roof reinforcement ring

First the CCB cup and cement need to be removed. Cancellous bone screws are removed using the Top for hexagonal screw removal. Afterwards the CCE roof reinforcement ring can be removed. For further information contact your local Mathys representative.

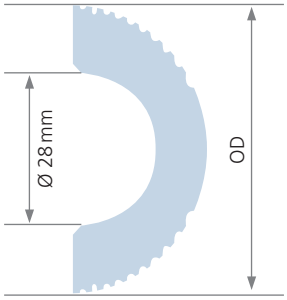
Remark

In case of intra-operative explantation of the final implant, a re-implantation of the same implant is not allowed.

4. Implants

4.1 CCB cup

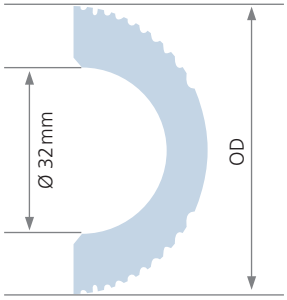
Low-profile



CCB cup – Low-profile Ø 28 mm

Item no.	OD
2.14.325*	42 mm
2.14.326	44 mm
2.14.327	46 mm
2.14.328	48 mm
2.14.329	50 mm
2.14.330	52 mm
2.14.331	54 mm
2.14.332	56 mm
2.14.333	58 mm
2.14.334	60 mm
2.14.335	62 mm
2.14.336	64 mm

Material: UHMWPE, FeCrNiMoMn



CCB cup – Low-profile Ø 32 mm

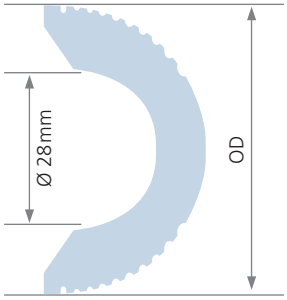
Item no.	OD
2.14.310*	42 mm
2.14.311*	44 mm
2.14.312*	46 mm
2.14.313	48 mm
2.14.314	50 mm
2.14.315	52 mm
2.14.316	54 mm
2.14.317	56 mm
2.14.318	58 mm
2.14.319	60 mm
2.14.320	62 mm
2.14.321	64 mm

Material: UHMWPE, FeCrNiMoMn

*** Must be used with a roof reinforcement ring due to the low wall thickness.**

No CCE roof reinforcement rings are available for size 60–64.

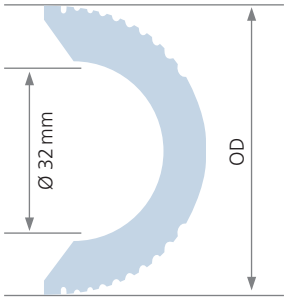
Full-profile



CCB cup – Full-profile Ø 28 mm

Item no.	OD
2.14.340	44 mm
2.14.341	46 mm
2.14.342	48 mm
2.14.343	50 mm
2.14.344	52 mm
2.14.345	54 mm
2.14.346	56 mm
2.14.347	58 mm

Material: UHMWPE, FeCrNiMoMn



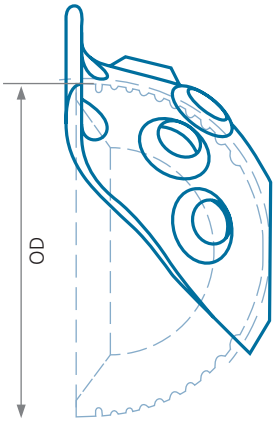
CCB cup – Full-profile Ø 32 mm

Item no.	OD
2.14.300*	44 mm
2.14.301*	46 mm
2.14.302	48 mm
2.14.303	50 mm
2.14.304	52 mm
2.14.305	54 mm
2.14.306	56 mm
2.14.307	58 mm

Material: UHMWPE, FeCrNiMoMn

*** Must be used with a roof reinforcement ring due to the low wall thickness.**

4.2 CCE roof reinforcement ring



CCE roof reinforcement ring, titanium

Item no.	CCE size	For CCB cup OD
4.14.403	42	42 mm
4.14.404	44	42 mm, 44 mm
4.14.405	46	44 mm, 46 mm
4.14.406	48	46 mm, 48 mm
4.14.407	50	48 mm, 50 mm
4.14.408	52	50 mm, 52 mm
4.14.409	54	52 mm, 54 mm
4.14.410	56	54 mm, 56 mm
4.14.411	58	56 mm, 58 mm

Material: TiCP

For this implant, 6.5 mm cancellous screws have to be used.

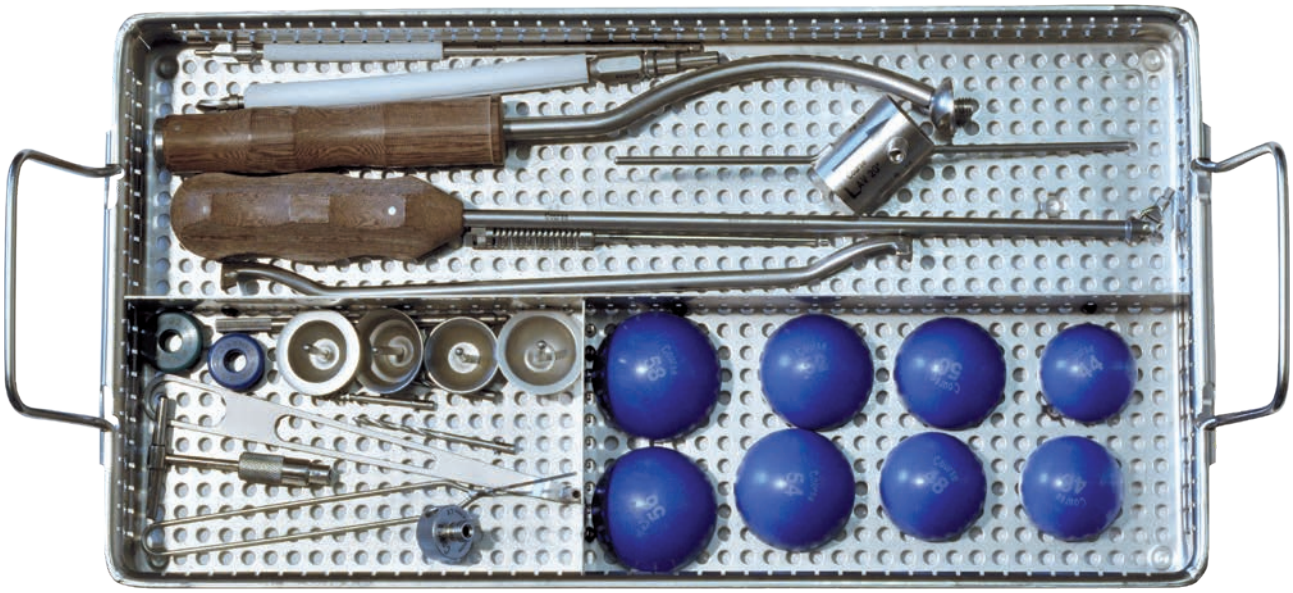
Cancellous screw, sterile
Full thread, 6.5 mm

Item no.	Length
418.020MS	20 mm
418.025MS	25 mm
418.030MS	30 mm
418.035MS	35 mm
418.040MS	40 mm
418.045MS	45 mm
418.050MS	50 mm

Material: Ti6Al4V

5. Instruments

CCB instrumentation 55.01.0050A
CCE / CCB instrumentation 55.01.0060A



CCB Instruments

Item no.	Description
3.14.021	CCB trial cup, low profile 42
3.14.022	CCB trial cup, low profile 44
3.14.023	CCB trial cup, low profile 46
3.14.024	CCB trial cup, low profile 48
3.14.025	CCB trial cup, low profile 50
3.14.026	CCB trial cup, low profile 52
3.14.027	CCB trial cup, low profile 54
3.14.028	CCB trial cup, low profile 56
3.14.029	CCB trial cup, low profile 58
3.14.030	CCB trial cup, low profile 60
3.14.031	CCB trial cup, low profile 62
3.14.074	CCB trial cup, low profile 64
3.14.075	CCB trial cup, low profile 66
3.14.076	CCB trial cup, low profile 68

Item no.	Description
3.14.549	CCB plastic top 28
3.14.550	CCB plastic top 32

Item no.	Description
3.14.551	CCB metal top 28 low profile
3.14.552	CCB metal top 32 low profile

Item no.	Description
3.14.558	CCB metal top 28 full profile
3.14.557	CCB metal top 32 full profile

Item no.	Description
3.14.547	Cup impactor curved

Item no.	Description
3.14.299	Drill bit 6

Item no.	Description
3.14.563	CCB cement pusher
3.30.549	Cement pusher small

Item no.	Description
55.02.5531	Positioning guide 45°

Item no.	Description
55.02.0109	Rod for positioning guide

CCE Instruments

Item no.	Description
3.14.286	Drill bit 3.5x50
3.14.293	Drill bit 3.5x60
3.14.294	Drill bit 3.5x75

Item no.	Description
3.14.290	Tap 6.5x45
3.14.289	Tap 6.5x60

Item no.	Description
3.14.292	Countersink reamer 9

Item no.	Description
3.40.502	T-handle w/quick coupling

Item no.	Description
3.14.545	Shaft, flexible

Item no.	Description
3.14.033	Drill sleeve 3.5/5.8

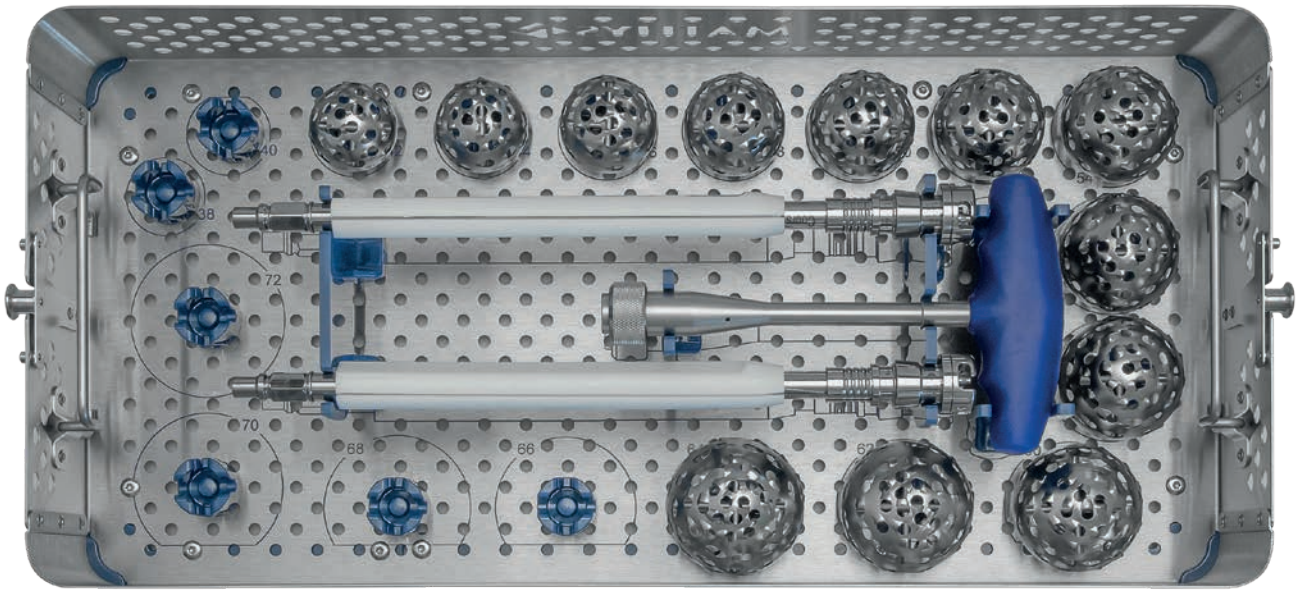
Item no.	Description
3.14.045	Depth gauge

Item no.	Description
3.40.544	Screwdriver, hex., long 3.5

Item no.	Description
3.40.545	Screwdriver hex. long Cardan joint 3.5

Item no.	Description
3.40.542	Top hex. for screw removal 3.5

Acetabular Reamer Instrumentation, 51.34.1081A



Acetabular reamers, even sizes

Item no.	Description
51.34.0360	Tray f/even acetabular reamers
51.34.0679	Lid f/acetabular reamer tray

Item no.	Description
5440.00.5	Acetabular reamer 40 std.
5442.00.5	Acetabular reamer 42 std.
5444.00.5	Acetabular reamer 44 std.
5446.00.5	Acetabular reamer 46 std.
5448.00.5	Acetabular reamer 48 std.
5450.00.5	Acetabular reamer 50 std.
5452.00.5	Acetabular reamer 52 std.
5454.00.5	Acetabular reamer 54 std.
5456.00.5	Acetabular reamer 56 std.
5458.00.5	Acetabular reamer 58 std.
5460.00.5	Acetabular reamer 60 std.
5462.00.5	Acetabular reamer 62 std.
5464.00.5	Acetabular reamer 64 std.
5466.00.5	Acetabular reamer 66 std.
5468.00.5	Acetabular reamer 68 std.
5470.00.5	Acetabular reamer 70 std.
5472.00.5	Acetabular reamer 72 std.

Acetabular reamers, odd sizes

Item no.	Description
51.34.0361	Tray f/odd acetabular reamers
51.34.0679	Lid f/acetabular reamer tray

Item no.	Description
5439.00.5	Acetabular reamer 39 std.
5441.00.5	Acetabular reamer 41 std.
5443.00.5	Acetabular reamer 43 std.
5445.00.5	Acetabular reamer 45 std.
5447.00.5	Acetabular reamer 47 std.
5449.00.5	Acetabular reamer 49 std.
5451.00.5	Acetabular reamer 51 std.
5453.00.5	Acetabular reamer 53 std.
5455.00.5	Acetabular reamer 55 std.
5457.00.5	Acetabular reamer 57 std.
5459.00.5	Acetabular reamer 59 std.
5461.00.5	Acetabular reamer 61 std.
5463.00.5	Acetabular reamer 63 std.
5465.00.5	Acetabular reamer 65 std.
5467.00.5	Acetabular reamer 67 std.
5469.00.5	Acetabular reamer 69 std.
5471.00.5	Acetabular reamer 71 std.

Acetabular reamers

Item no.	Description
58.02.4008	Handle with quick coupling

Item no.	Description
5244.00.4	Adaptor for reamer (AO)

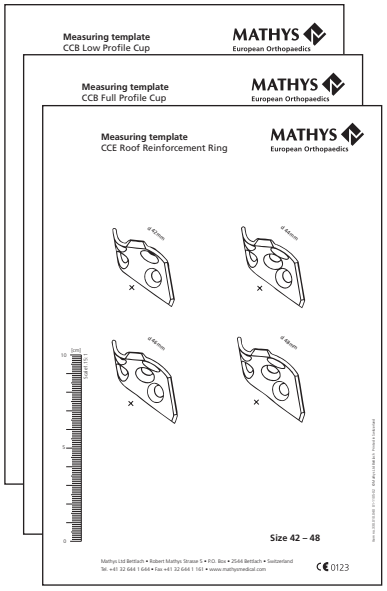
Optional instruments (not a part of the set)

Item no.	Description
58.02.0000	Chana Reamer MIS

Item no.	Description
3.40.535	Coupling for AO-ASIF air drill

Item no.	Description
999-0060-300	Coupling for Hudson drive

6. Measuring templates



Item no.	Description
330.010.066	CCB Low Profile Cup, cemented
330.010.096	CCB Full Profile Cup, cemented
330.010.040	CCE Roof Reinforcement Ring

7. References

1 Status October 2018. Latest ODEP ratings can be found at www.odep.org.uk

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3 Data on file at Mathys Ltd Bettlach

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6 Laflamme G.Y. et al; Cement as a locking mechanism for screw heads in acetabular revision shells – a biomechanical analysis. Hip Int 2008; 18(1): 29-34

7 Gill T.J. et al; Total Hip Arthroplasty with Use of an Acetabular Reinforcement Ring in Patients Who Have Congental Dysplasia of the Hip. J. Bone Joint Surg. Am. 1998; 80: 969-979

8 Scheerlinck T.; Primary hip arthroplasty templating on standard radiographs. A stepwise approach. Acta Orthop Belg. 2010; 76(4): 432-42

9 Wasielewski R.C. et al.; Acetabular anatomy and the transacetabular fixation of screws in total hip arthroplasty. J Bone Joint Surg. 1990; 72 – A(4): 501–508

10 Sabboubeh A. et al; A Technique for Removing a Well-fixed Cemented Acetabular Component in Revision Total Hip Arthroplasty. The Journal of Arthroplasty 2005; 20(6): 800-801

8. Symbols


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Caution

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