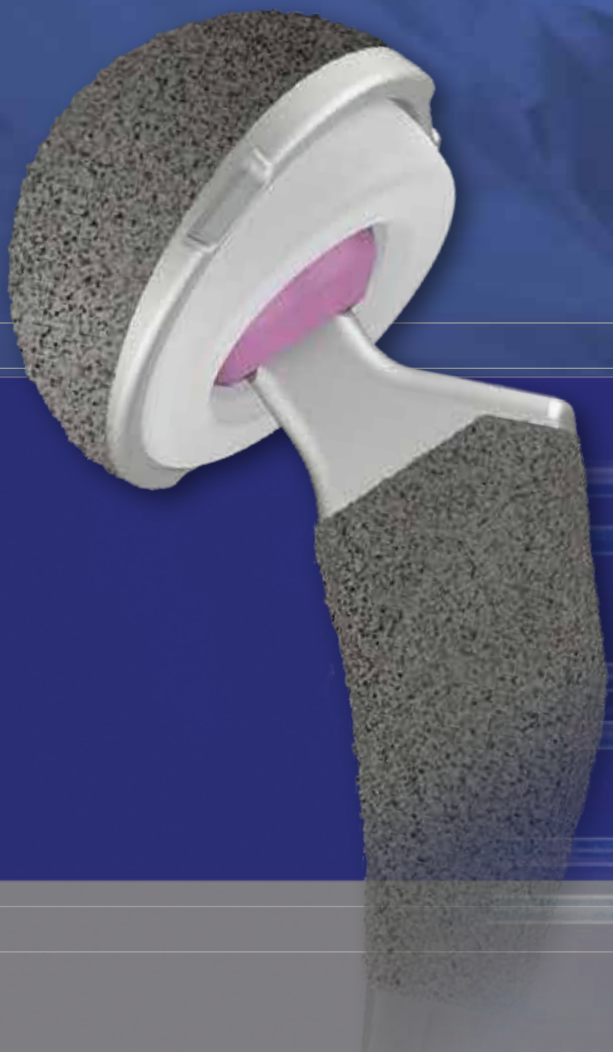
Mpact® DM

DOUBLE MOBILITY PRESS FIT CUP

EVOLVING OUR HERITAGE, MEETING YOUR NEEDS



Surgical Technique

Joint | Spine | Sports Med

Medacta International

INTRODUCTION

The Mpact® DM is part of the Mpact® Acetabular System and offers different shell and liners options, ranging from primary to complex revision solutions.

Mpact DM

Mpact No-hole

Mpact Two-hole

Mpact Multi-hole

Mpact Rim-hole

This document describes the Surgical Technique for the Mpact® DM acetabular shell.

The Mpact® DM is an hemispherical flat pole dual mobility cup, which can be coupled with Highcross UHMWPE liners.

The new MectaGrip Ti coating provides a high friction and scratch-fit feel that improves the initial stability. Additionally, the high porosity allows sound bone ingrowth, thus providing secondary fixation.

For more information regarding other Mpact® Acetabular System shells please see the dedicated Surgical Technique.

In this surgical technique, the MasterLoc™ stem is used as an example. For more details about MasterLoc™ please see the dedicated surgical technique.

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

CAUTION

Federal law (USA) restricts this device to sale distribution and use by or on the order of physician.

INDEX

1 INDICATIONS OF USE

The Mpact Double Mobility acetabular shell is designed for cementless use in total hip arthroplasty in primary or revision surgery.

The patient's condition should be due to one or more of the following indications:

- Severely painful and/or disabled joint: as a result of osteoarthritis, post-traumatic arthritis, rheumatoid arthritis, or psoriactic arthritis, congenital hip dysplasia, ankylosing spondylitis
- 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, hemiarthroplasty, surface replacement arthroplasty, or total hip replacement where sufficient bone stock is present
- Dislocation risks

2 CONTRAINDICATIONS

Total hip replacement is contraindicated in the following cases:

- Acute, systemic or chronic infection
- Muscular, neurological or vascular deficiency of the affected limb
- Bone destruction, or loss of bone that may compromise the stability of the implant
- Pathologies that may compromise the functionality of the implant in any way

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 PRE-OPERATIVE PLANNING

The goal is to determine the optimum acetabular implant size. 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
- The ideal position of the implant to achieve desired position for optimal coverage

WARNING

The final implant will be selected intra-operatively, because of possible discrepancies between actual conditions and templating. The choice will be determined by the size of the final reamer used and the trial cup tests.

4 SURGICAL APPROACH

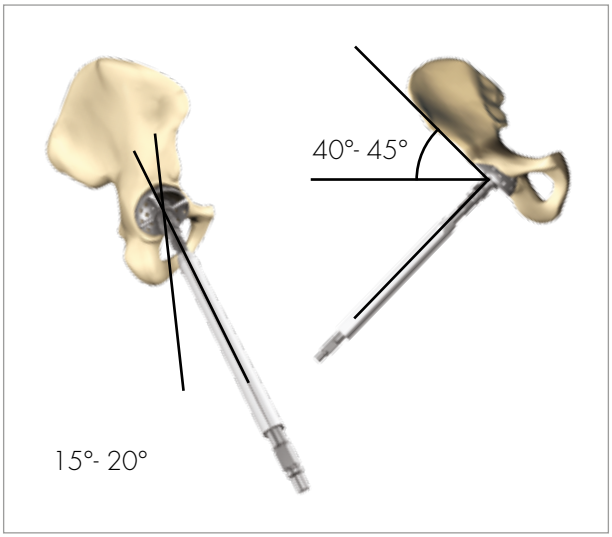
The surgical approach is at the discretion of the surgeon.
The instrumentation has been developed for a conventional approach. Specific instrumentation for the anterior approach is available on request (for further information see the AMIS dedicated surgical technique).

5 REAMING

Following the osteotomy of the femoral neck, expose and prepare the acetabular cavity and remove osteophytes.

Start reaming using the acetabular reamers.

The ideal reaming axis has an inclination of 40°/45° and an anteversion of 15°/20° (Anteversion recommended for posterior approaches).



Start reaming the acetabulum using the smallest reamer and increasing the reamer size until a hemispherical cavity has been obtained in the presence of bleeding subchondral bone. The preoperative planning can also be used as a reference.

WARNING

During final reaming, avoid changing the reamer axis, in order to prevent making the prepared bed oval, which may affect or prevent the primary seating of the implant.

The size shown on the implant box represents the outer diameter of the Mpact shell. For example, a box displaying "52mm shell" contains a shell with an outer diameter of 52mm (including Mectagrip coating).

The press-fit should be determined intraoperatively depending on the bone quality: the denser the bone, the less press-fit required. In average conditions, an under-reaming of 1 mm should provide an appropriate press-fit of the Mpact DM Acetabular shell.

As a general rule the correct final reamed diameter corresponds to 4 or 6 mm more than the femoral head diameter size. Take care to retain, as much as possible, the bone stock to the level of anterior and posterior columns.

Reamed bone may be used to fill the void between the implant and the acetabulum.

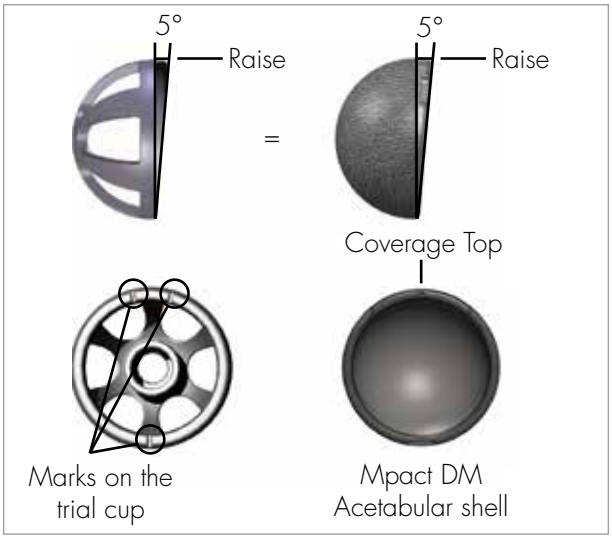
6 TRIALS

Place the trial cup (with the same diameter as the final reamer) onto the multifunction handle.
Insert the trial cup into the reamed cavity to establish the depth of the acetabular component.

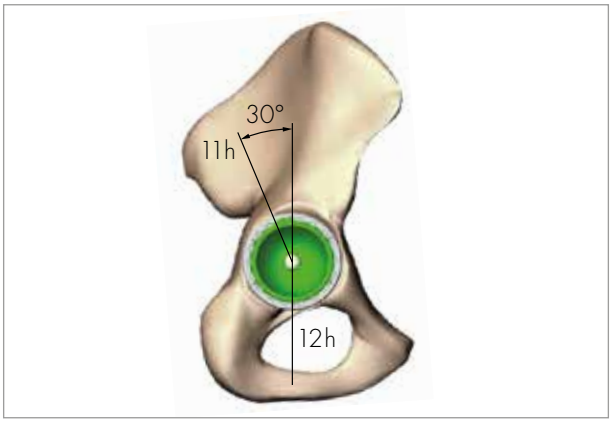
Trial cups:

- Are smooth and have the same dimensions as the reamers to avoid damaging the socket
- Are the exact size specified
- Have several openings to permit a direct visualization of the underlying acetabular surface

Both implant and trial cup have a 5° raise. Marks on the trial cup help identify the center of the raise during implantation (see image).



To benefit from the extra coverage given by this feature, the Mpact DM Acetabular shell should be positioned in the posterior-superior quadrant of the acetabulum, with the three grooves mark pointing approximately 30° posteriorly (the picture represents an example case of right hip).



CAUTION

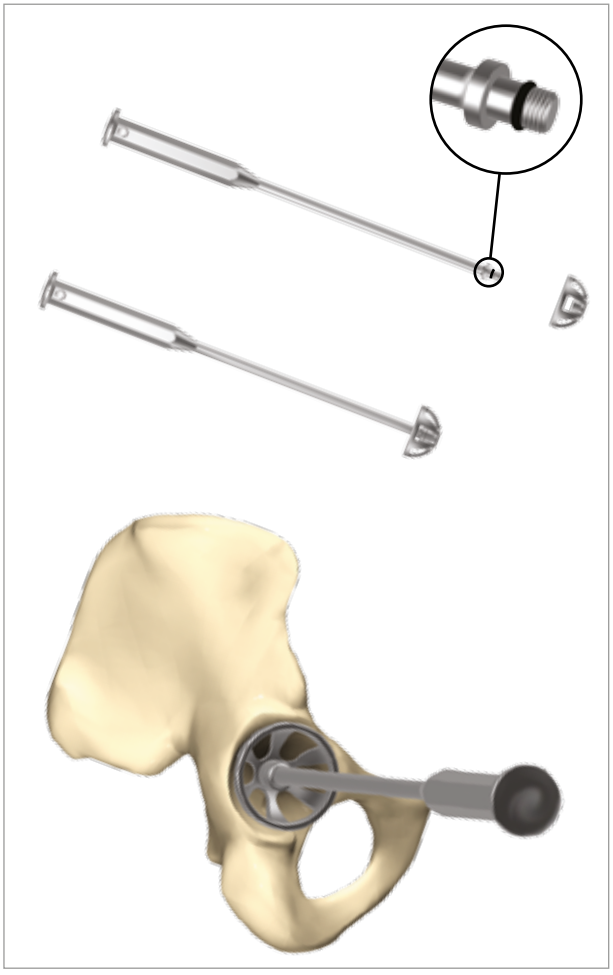
If the acetabular shell is positioned too vertically, the joint stability can be compromised even with the Mpact Double Mobility shell. If the acetabular shell is positioned too horizontally, the range of motion (ROM) can be compromised.

OPTION

Use electrocautery to mark on the bone the center of the raise to help find the same position when implanting the definitive acetabular shell.

TIP

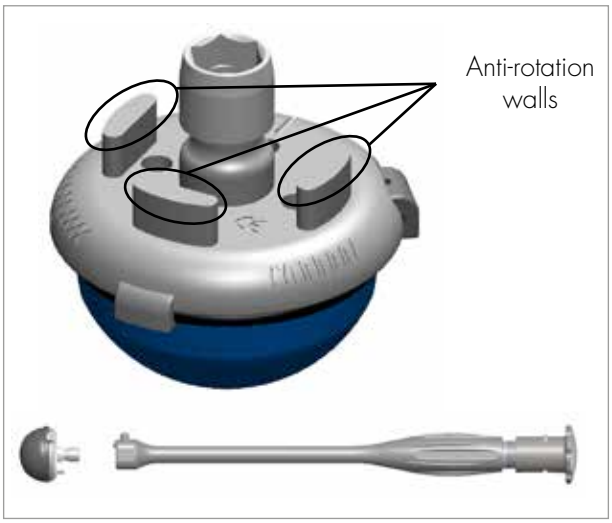
As a general rule, soft bone is more suitable for a greater press-fit than dense sclerotic bone. Moreover, the bigger the size of the acetabulum, the greater the suitable press-fit.



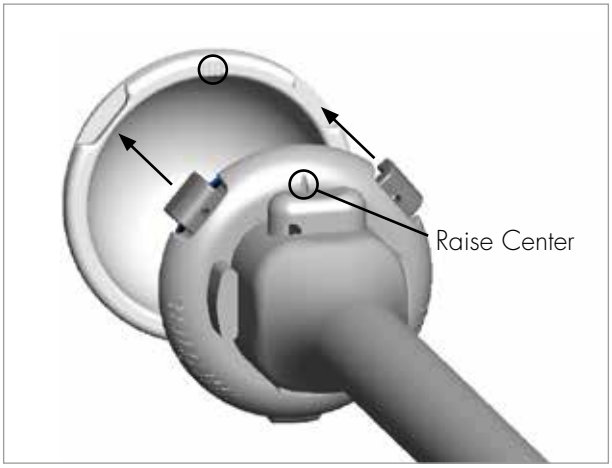
7 IMPACTION OF THE MPACT DM ACETABULAR SHELL

After a satisfactory trial, the final Mpact DM Acetabular shell can be positioned.

Step 1: Assemble the impactor plate to the impactor handle, by utilizing the corresponding letter code of the chosen implant. When inserting the handle onto the impactor plate, take care to align the button of the handle with the portion of the impactor plate that does not have a anti-rotation wall.

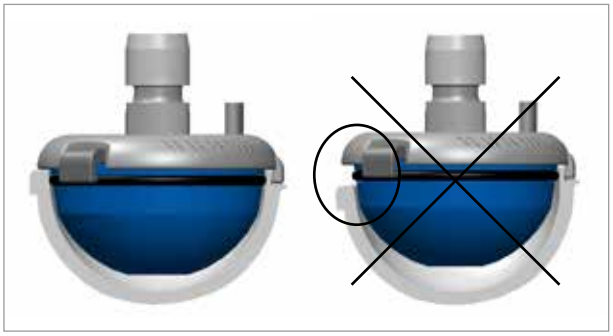


Step 2: Identify the slots on the rim of the Mpact DM Acetabular shell and connect the impactor. To ensure the correct positioning of the impactor plate, take care to align the raise center of the final acetabular shell to the impactor plate.



Step 3: Screw the anvil end of the impactor to lock the Mpact DM Acetabular shell to the impactor.

Correctly connect the impactor plate with the lip of the Mpact DM Acetabular shell, as shown below.



Step 4: Set the implant in the acetabulum axis and position it at the desired angle of orientation into the prepared acetabulum.

OPTION

An orientation guide is available to aid in positioning of the Mpact DM Acetabular shell and to establish satisfactory orientation: the orientation guide should be positioned on the top of the impactor handle - the angle of the anteversion rods is 20° and the inclination rod is 45°.

Step 5: Impact the Mpact DM Acetabular shell using a hammer, until fully seated and stable.

NOTICE: do not impact the central rod, always impact the anvil.

Step 6: Disassemble the impactor handle from the final Mpact DM Acetabular shell by unscrewing it at the anvil level.

NOTICE: during disassembly, stop turning the impactor handle when the rotation resistance increases; this will avoid damaging the impactor plate.

CAUTION

After impaction of the Mpact DM Acetabular shell, ensure osteophytes have been removed to avoid any impingement.

8 STABILITY TESTS

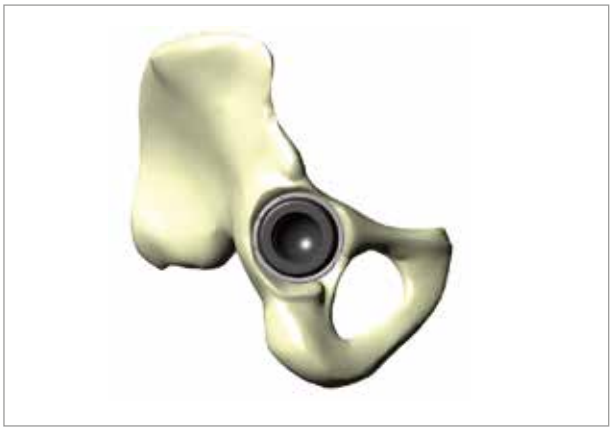
8.1 Stability tests with trial Double Mobility Liner

With the Mpact DM Acetabular shell in place, stability tests can be performed using the trial Double Mobility Liner.

Trial Double Mobility Liner

(to be used with trial heads)

Clean the interior surface of the acetabular shell. Position the trial Mpact DM Liner corresponding to the required diameter.
Stability tests are performed after having positioned the trial (broach and trial neck) or final stem and the trial head.



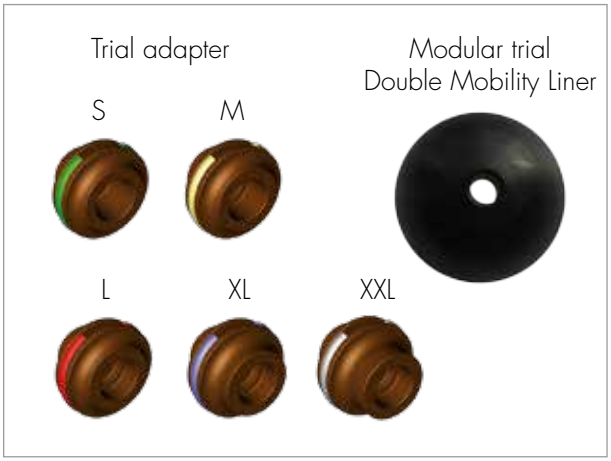
Reduce the hip and test the joint stability and limb length.

CAUTION

Stability tests must be performed with trial heads and not with final heads.

8.2 Stability tests with modular trial Double Mobility Liner

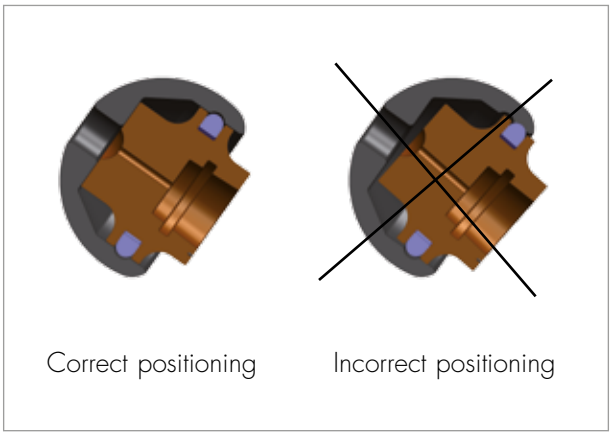
Step 1: Choose the trial adapter corresponding to the head size (S, M, L, XL, XXL) selected in the preoperative planning.



Step 2: Insert the selected trial adapter into the modular Double Mobility trial Liner that corresponds with the implanted Mpact DM Acetabular shell. The trial adapter must be inserted straight along the axis of the modular Double Mobility trial Liner. For a complete list of compatible sizes please refer to the tables in Section 11 "IMPLANT NOMENCLATURE".

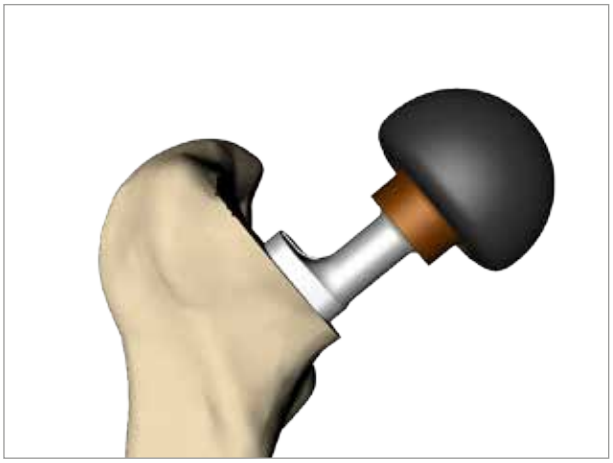
NOTICE: the side marked with references of the trial adaptor must stay on the external part of the trial mobile liner.

If the trial adapter is free to rotate inside the trial Double Mobility Liner the assembly is correctly coupled. If not, reposition the trial adapter until the correct position is reached.



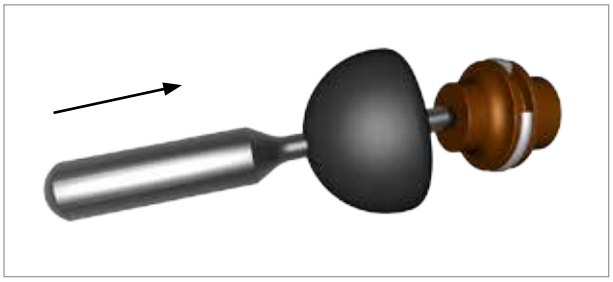
Step 3: Place the assembly on the taper of the femoral stem or the trial neck already in place.

Proceed with the trial reduction.
The mobility, joint stability, range of motion and leg length are tested to confirm the final implant size.



Step 4: After stability tests, remove the assembly from the taper of the femoral stem or the trial neck.

To release the trial adaptor from the trial liner socket you can use the dedicated trial extractor pushing the adaptor through the central hole of the trial mobile liner.



9 POSITIONING OF THE FINAL DOUBLE MOBILITY LINER

The external diameter of the Double Mobility Liner will be the same as the internal diameter of the Mpact Acetabular shell implanted following the letter-code; the internal diameter of the liner will be the same as the chosen head.

TIP

The color of the trial insert corresponds to the color on the packaging labels of both the Mpact DM Acetabular shell and the Double Mobility Liner. Hence, the color code can be used to help identify the correct final implants.

Before inserting the Double Mobility Liner, thoroughly clean and dry the interior surface of the Mpact DM Acetabular shell. Also, carefully remove any bone debris and tissue residue to avoid damaging the mechanical coupling.

To assemble the final Double Mobility Liner to the desired femoral head, utilize the compression tool with the Double Mobility Liner terminal and the femoral head terminal. Once all components are properly placed, verify the correct head mobility in the liner. The implants are now ready to be impacted onto the femoral component.

TIP

In order to facilitate this procedure, place the compression tool vertically on the back table and assemble the final Dual Mobility Liner to the desired femoral head.

CAUTION

The internal sleeves of the Biolox Option 28 heads size XL may not completely cover the 12/14 EuroCone taper. This may cause slight increase in wear of the Double Mobility Liner.

Lightly impact the Double Mobility Liner and the femoral head assembly using the multifunction handle assembled to the acetabular shell correction impactor (when using a ceramic head impact manually).

When using a stem with head in situ or monobloc stem: use the specific mobile liner terminal and stem neck terminal with the double mobility compression tool to insert the liner.

Reduce the hip and verify the Double Mobility Liner's mobility in the Mpact DM Acetabular shell.

CAUTION

During the final reduction with the final Double Mobility Liner, take care not to damage its external spherical surface.

10 INSTRUMENT DETAILS

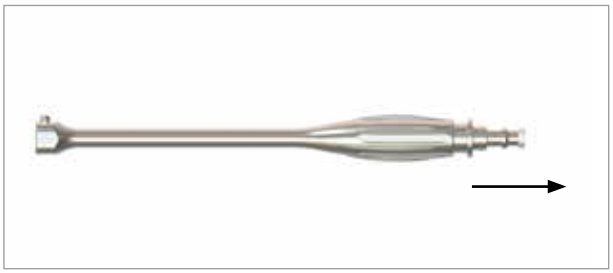
10.1 Impactor handle (ref. 01.32.10.1070) disassembly for cleaning and sterilization

Step 1:

Remove the anvil from the handle by pushing the button.

Step 2:

Remove the central rod.



10.2 Impactor handle (ref. 01.32.10.1070) assembly

Step 1:

Insert the rod.

Step 2:

Connect the anvil.

11 IMPLANT NOMENCLATURE

Mpact DM acetabular shell

Diameter (mm)	Ref.	Liner sizes	Color code
42	01.32.142MB	DMA	
44	01.32.144MB	DMB	
46	01.32.146MB	DMC	
48	01.32.148MB	DMD	
50	01.32.150MB	DME	
52	01.32.152MB	DMF	
54	01.32.154MB	DMG	
56	01.32.156MB	DMH	
58	01.32.158MB	DMI	
60	01.32.160MB	DML	
62	01.32.162MB	DMM	
64	01.32.164MB	DMN	
66	01.32.166MB	DMN	

UHMWPE HC liner (Highcross)

Liner sizes	Head Ø 22.2	Head Ø 28
DMA	01.26.2242MHC	
DMB	01.26.2244MHC	
DMC	01.26.2246MHC	
DMD	01.26.2248MHC	01.26.2848MHC
DME	01.26.2250MHC	01.26.2850MHC
DMF	01.26.2252MHC	01.26.2852MHC
DMG	01.26.2254MHC	01.26.2854MHC
DMH	01.26.2256MHC	01.26.2856MHC
DMI	01.26.2258MHC	01.26.2858MHC
DML	01.26.2260MHC	01.26.2860MHC
DMM	01.26.2262MHC	01.26.2862MHC
DMN	01.26.2264MHC	01.26.2864MHC

NOTES

Part numbers subject to change.

NOTE FOR STERILIZATION

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

REDEFINING BETTER
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Mpact® DM
Surgical Technique

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