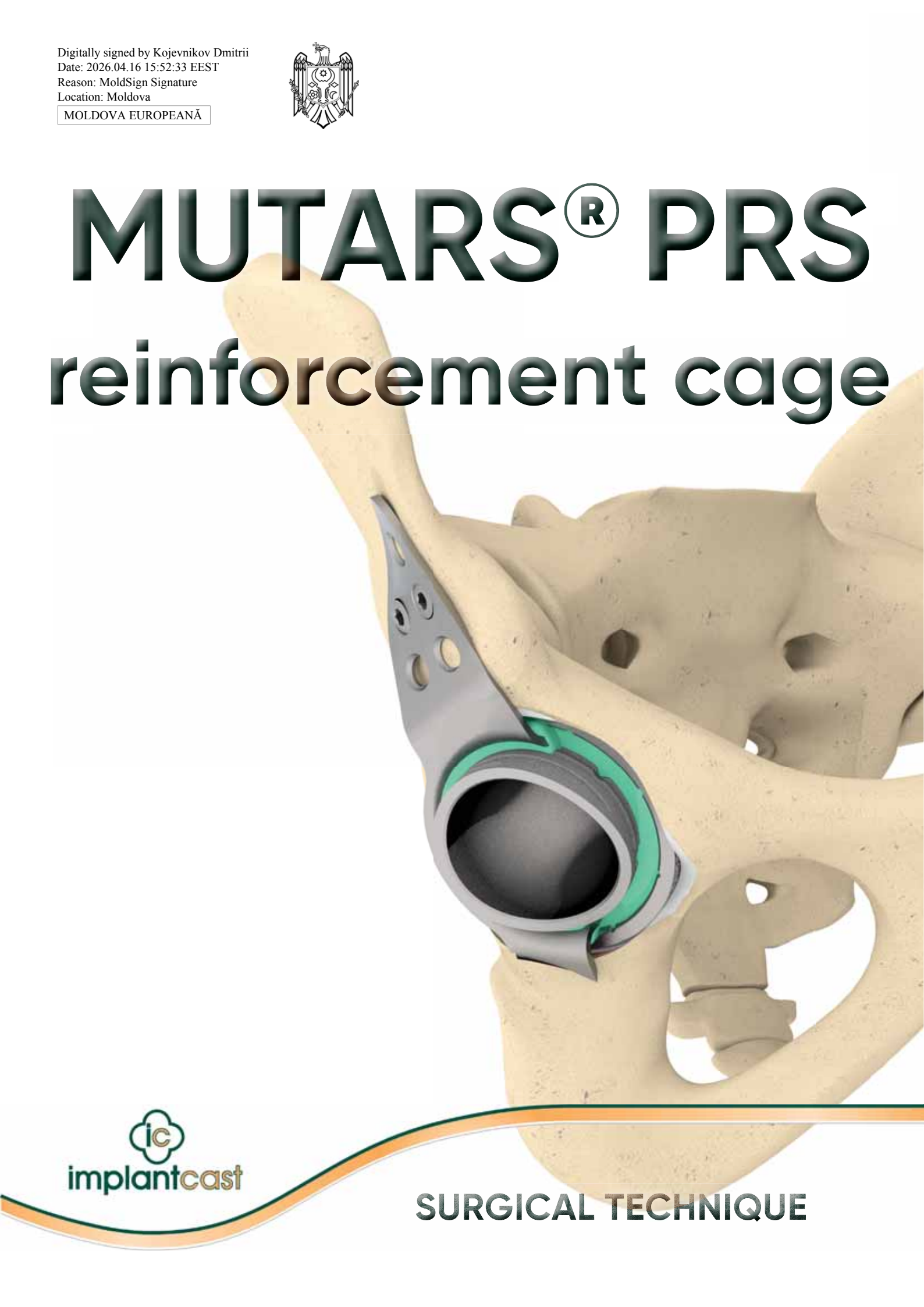
MUTARS® PRS

reinforcement cage



implantcast

SURGICAL TECHNIQUE

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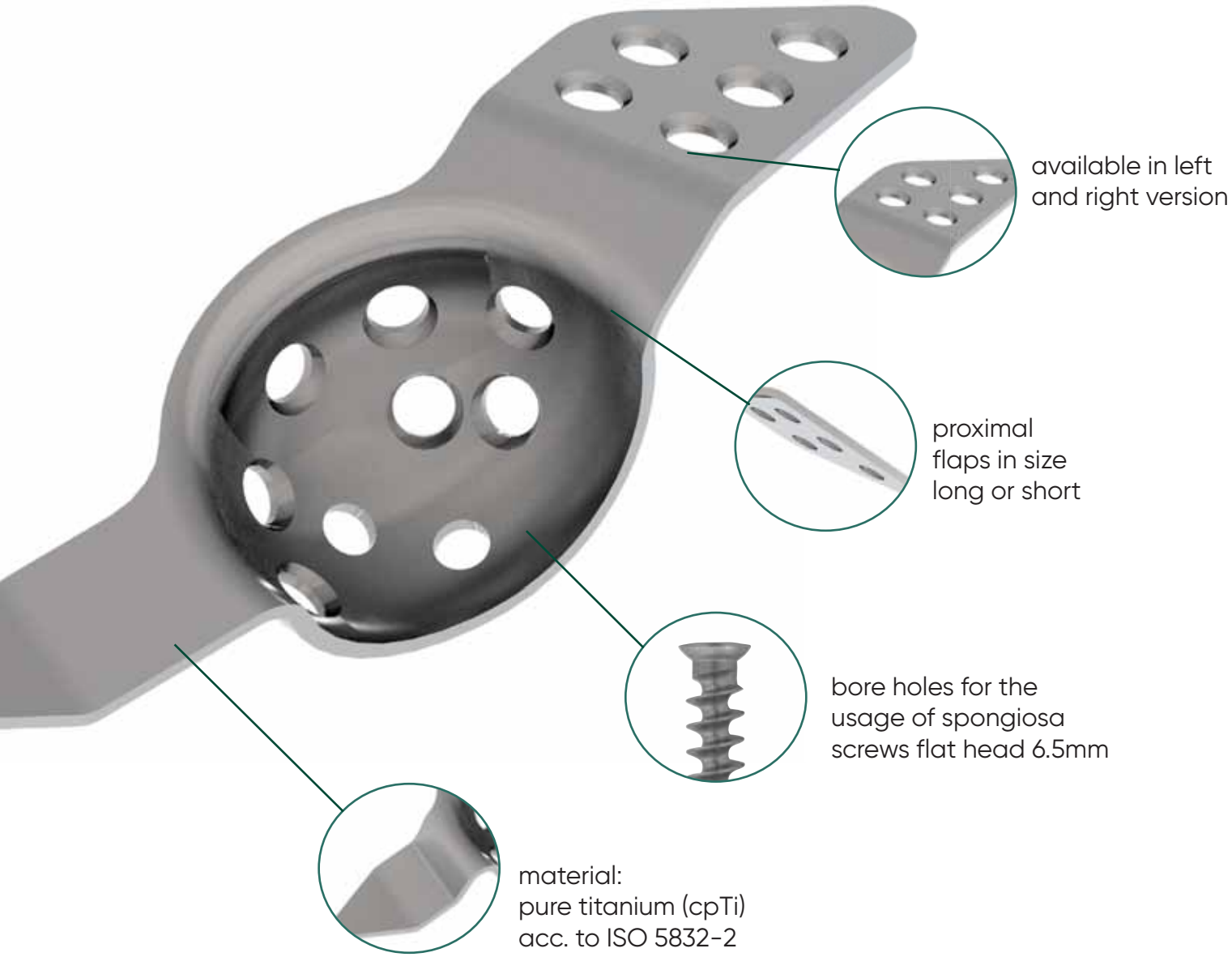
Nota Bene: The described surgical technique is the suggested treatment for the uncomplicated procedure. In the final analysis the preferred treatment is that which addresses the needs of the individual patient.

DESIGN CHARACTERISTICS

For the treatment of pronounced acetabular defects (complete indication overview on page 16). The MUTARS® PRS reinforcement cage is intended to support initial stabilization of the MUTARS® PRS until the osseointegration process is complete.

flap long: 10 bore holes
flap short: 5 bore holes
sphere: 7 bore holes



Further information and hints regarding compatibilities can be found in the instructions of use for metal augments (09300087GB) and in this surgical technique starting page 16.

COMBINATION OVERVIEW

size MUTARS® PRS	size MUTARS® PRS reinforcement cage	size EcoFit® 2M cm./ TiN / PE-cup Mueller II* (OD)
56mm	56/60mm	40mm**/42mm**/44mm

size MUTARS® PRS	size MUTARS® PRS reinforcement cage	size EcoFit® 2M cm./ TiN / PE-cup Mueller II* (OD)
60mm	56/60mm	40mm**/42mm**/44mm

size MUTARS® PRS	size MUTARS® PRS reinforcement cage	size EcoFit® 2M cm./ TiN / PE-cup Mueller II* (OD)
64mm	56/60mm	40mm**/42mm**/44mm
	64mm	44mm/46/mm/48mm/50mm

size MUTARS® PRS	size MUTARS® PRS reinforcement cage	size EcoFit® 2M cm./ TiN / PE-cup Mueller II* (OD)
68mm	56/60mm	40mm**/42mm**/44mm
	64mm	44mm/46/mm/48mm/50mm
	68mm	44mm/46/mm/48mm/50mm/52mm/54mm

size MUTARS® PRS	size MUTARS® PRS reinforcement cage	size EcoFit® 2M cm./ TiN / PE-cup Mueller II* (OD)
72mm	56/60mm	40mm**/42mm**/44mm
	64mm	44mm/46/mm/48mm/50mm
	68mm	44mm/46/mm/48mm/50mm/52mm/54mm
	72mm	44mm/46/mm/48mm/50mm/52mm/54mm/56mm/58mm

A combination with the smallest size MUTARS® PRS 52mm (OD = outer diameter) and a reinforcement cage is not possible.

Note:
The MUTARS® PRS reinforcement cage can be combined with the sizes of the MUTARS® PRS system listed in the overview above and in the instruction of use and are combined via bone cement with each other. Depending on the different radii and sizes or the positioning, different cement layer thicknesses may result. It should be noted that the biomechanically unfavorable properties of the PMMA can come into play above a bone cement thickness of 4 mm. Therefore, the connecting layer thickness should be aimed for below this as far as possible. The choice of implants to be combined depends on the indication and the defect.

* Represents all variants of PE-cup Mueller II (dysplasia, snap, implacross® E).

** These sizes are only available of PE-cup Mueller II.

PREOPERATIVE PLANNING

Preoperative planning and precise surgical techniques are mandatory for optimal results. The instructions and the procedure given in the surgical technique to the system must be adhered to. Familiarity with the recommended surgical technique and its careful application is essential to achieve the best possible outcome.
Before surgery a surgical planning with regard to the dimensions of the prosthetic model and the positioning of the implant components in the bone has to be carried out by the surgeon.

For this purpose, x-ray templates are available:
Digital templates: Digital templates are included in the data base of the common planning systems. For missing templates, please contact the provider of the planning software and request for these templates.
Radiographic templates: Alternatively radiographic templates are available in various scale factors, which can be obtained from your local representative.

MUTARS® PRS reinforcement cage

Further prior to surgery the following should be ensured:

- all needed components are available during surgery. An adequate number of various implant components should be avalable for surgery. It should be determined whether the implantation should be done with or without the use of bone cement.
- all instruments for the implantation are present and are matching the corresponding implants. The insertion instruments must be adapted to the implant. The implants may only be used with the instruments provided by implantcast GmbH. An exeption are exclusively the standardized instruments used during surgery.
- The correct sized instruments are used during sugery to prevent damage to the implants.

SURGICAL TECHNIQUE

Please expose the hip joint completely and remove the defective primary prosthesis.

Resect the articular capsule and the acetabular labrum. Dissect the bony rim of the acetabulum, if possible, completely (Fig. 1).

Remove the osteophytes and the connective tissue of the acetabular fossa. In order to rebuild normal anatomical proportions, the acetabulum should be medialised to the extent to which you are able to reconstruct the preoperatively chosen centre of rotation.

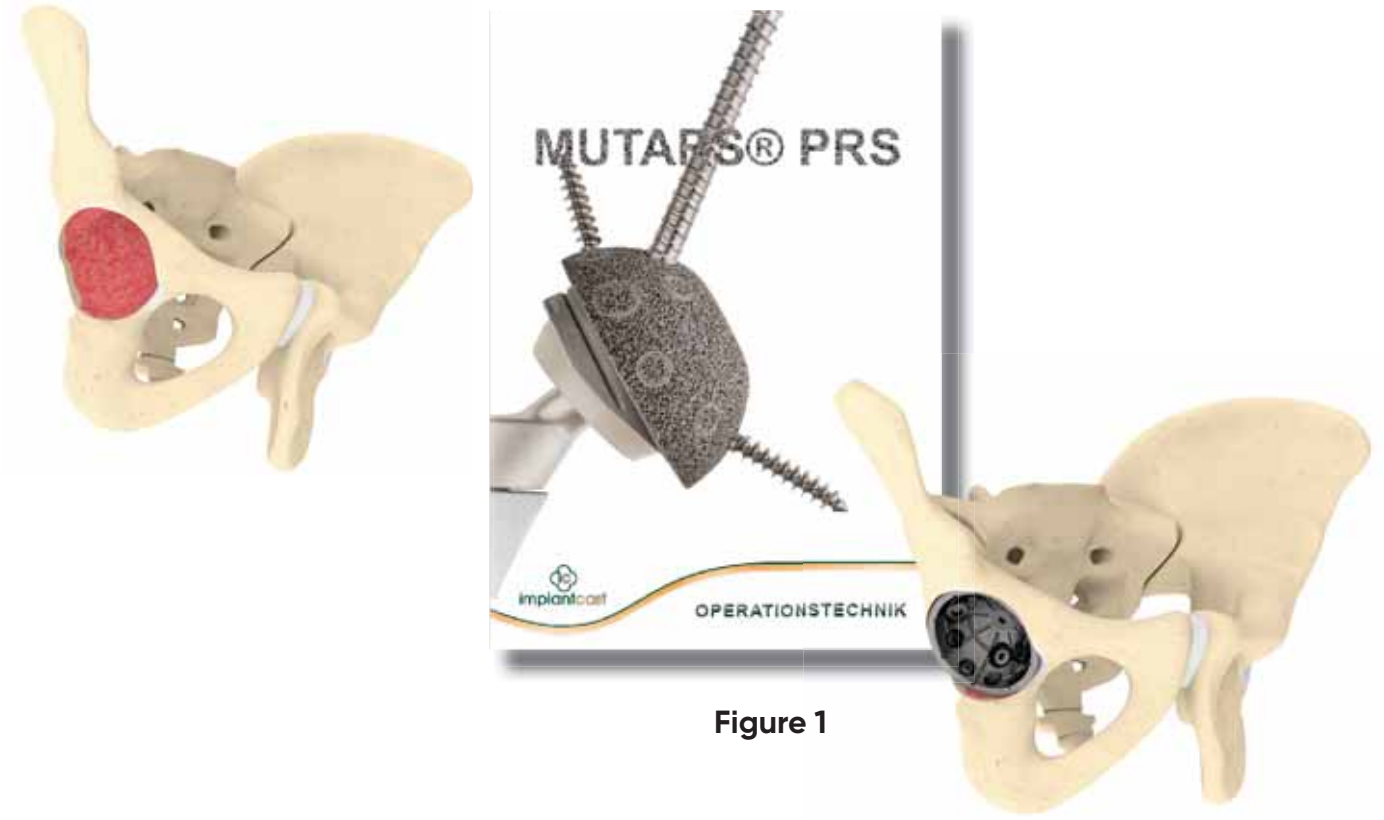


Figure 1

The existing defects have to be evaluated intraoperative very carefully. Please note the grade, position as well as the kind of the bone defect. The preparation of the acetabulum is performed via reamers with increasing diameters and after completion the defect has to be evaluated again. Based on the defect, a decision must be made as to which cup system is most suitable for this defect and whether further augments or other implant systems are necessary.

Follow the individual steps of the surgical technique of the MUTARS® PRS.

implantation MUTARS® PRS reinforcement cage

Check the position of the trial reinforcement cage including the flap. Mark the position of the caudal flap and prepare it first with the short chisel (Fig. 2).

The inclination of the MUTARS® PRS must be selected in such a way that the lower edge of the MUTARS® PRS does not obstruct the entry for preparation into the Os Ischii.

Following prepare the Os ischii with the long chisel to be able to insert the caudal flap of the implant (Fig. 3).

The single use trial reinforecmenet cages (Fig. 4) can be bent according to the anatomy using appropriate setting and bending instruments. The superior flap is adapted in the direction of the ilium.

Note: A reversed or repeated bending of the implant must be avoided when using the MUTARS® PRS reinforcement cage, because this can weaken the material or lead to breakage. When bending the implant, it should be ensured that it is not damaged.

Use the trials to determine the screw positions to the already implanted MUTARS® PRS.

Forge the flaps of the implant analogously to the trial reinforcement cage and place it into the MUTARS® PRS. It is advisable to pre-drill accordingly for the insertion of the cancellous bone screws flat head 6.5 mm before the final placement of the MUTARS® PRS reinforcement cage.

Note: Metal contact between the MUTARS® PRS and the MUTARS® PRS reinforcement cage must be avoided.
A congruence of the bores holes from the MUTARS® PRS reinforcement cage to the MUTARS® PRS is almost impossible.

Figure 2

Figure 3

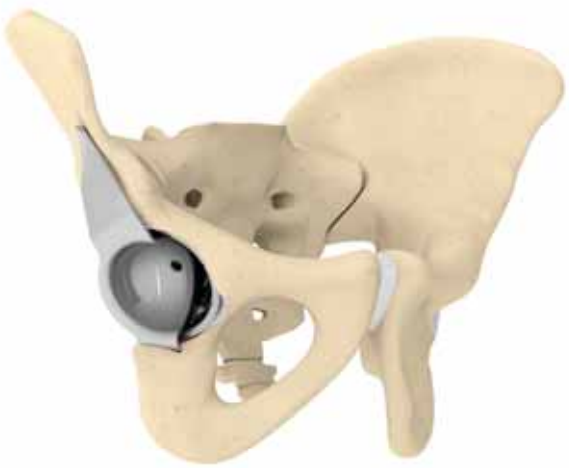


Figure 4

Figure 5

If the reinforcement cage is in an appropriate position, fix the proximal flap with cancellous bone screws flat head 6.5mm with the screwdriver 3.5mm for additional stability (Fig. 5 and 6).

Use standard viscous bone cement in the dome area of the reinforcement cage and push it through the open holes to fill the gap between the MUTARS® PRS reinforcement cage and MUTARS® PRS (Fig. 7). Remove excess cement with a curette.

Figure 6

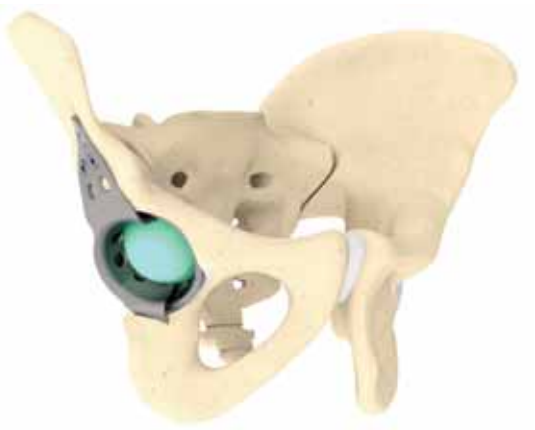
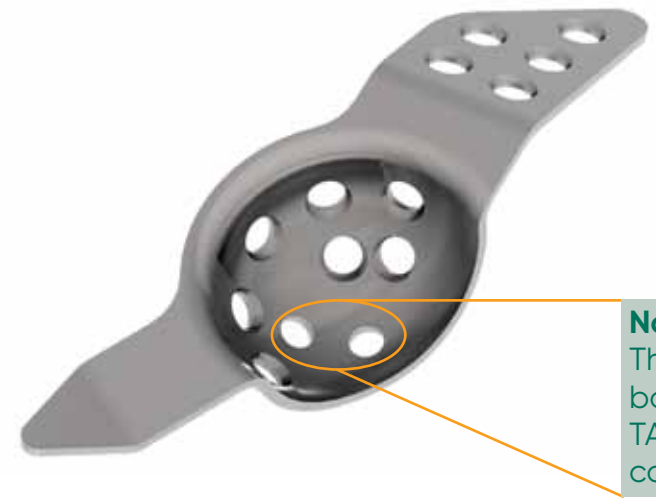


Figure 7



Note:
The two holes in the sphere are used to position bone cement between the inner area of the MUTARS® PRS and the MUTARS® PRS reinforcement cage.

Note:
When using cancellous bone screws flat head 6.5mm in the sphere of the reinforcement cage, the EcoFit® 2M cup may collide with the screw head. The screw heads cannot be completely countersunked in the reinforcement cage, as otherwise the wall thickness of the bearing surface is too low.

implantation EcoFit® 2M hip cup cemented

Place the appropriate size EcoFit® 2M cup requiring cement in the MUTARS® PRS with MUTARS® PRS reinforcement cage (Fig. 8). Use the appropriate impactor with attachment for this purpose.

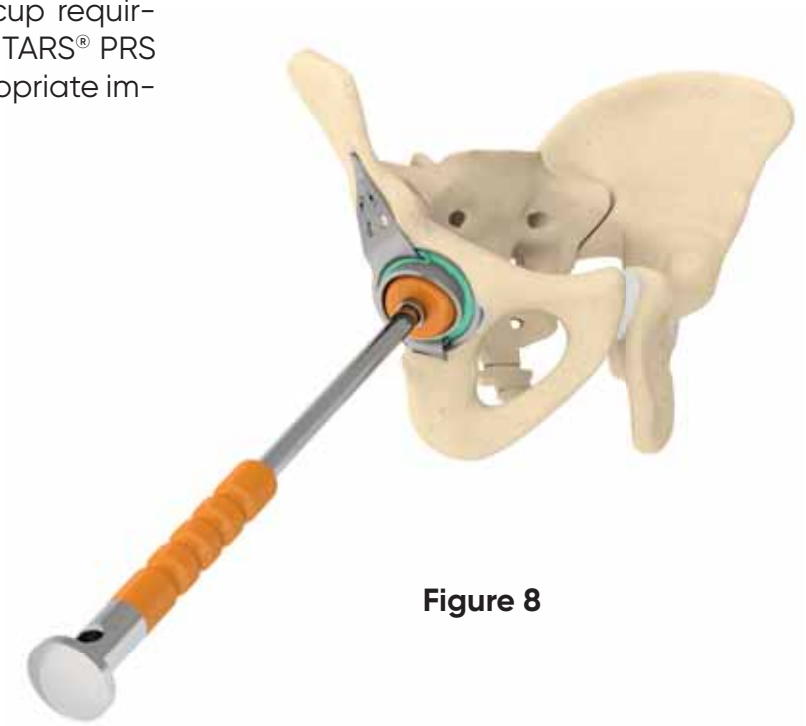
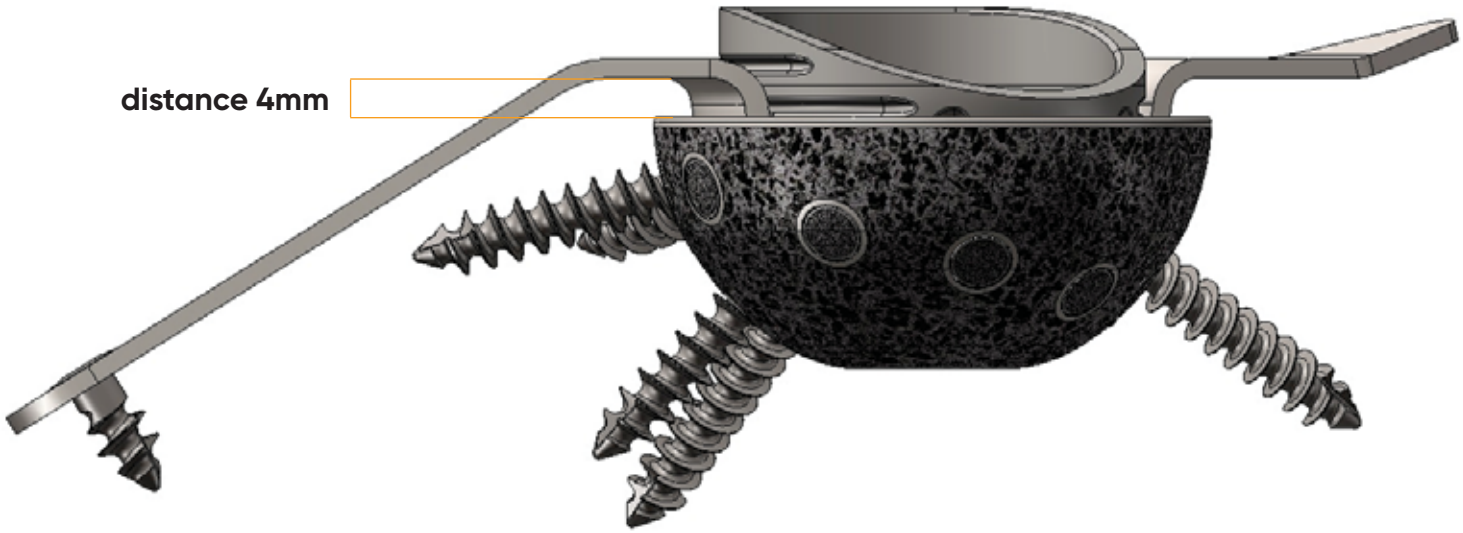


Figure 8

Figure 9

SURGICAL TECHNIQUE

For the further procedure, please refer to the EcoFit® 2M tripolar system surgical technique shown on the left (note: the EcoFit® 2M is shown cementless on the cover sheet of the surgical technique) or the PE acetabular cup Müller II surgical technique.



IMPLANTS

MUTARS® PRS reinforcement cage short
implatan®, pure titanium (cpTi) acc. to ISO 5832-2

REF	size
0296-2050	short right 56/60mm
0296-2056	short right 64mm
0296-2060	short right 68mm
0296-2064	short right 72mm
0296-2150	short left 56/60mm
0296-2156	short left 64mm
0296-2160	short left 68mm
0296-2164	short left 72mm

MUTARS® PRS reinforcement cage long
implatan®, pure titanium (cpTi) acc. to ISO 5832-2

REF	size
0296-2250	long right 56/60mm
0296-2256	long right 64mm
0296-2260	long right 68mm
0296-2264	long right 72mm
0296-2350	long left 56/60mm
0296-2356	long left 64mm
0296-2360	long left 68mm
0296-2364	long left 72mm

IMPLANTS

MUTARS® PRS trial reinforcement cage short
implatan®, pure titanium (cpTi) acc. to ISO 5832-2

REF	size
0296-2450	short right 56/60mm
0296-2456	short right 64mm
0296-2460	short right 68mm
0296-2464	short right 72mm
0296-2550	short left 56/60mm
0296-2556	short left 64mm
0296-2560	short left 68mm
0296-2564	short left 72mm

MUTARS® PRS trial reinforcement cage long
implatan®, pure titanium (cpTi) acc. to ISO 5832-2

REF	size
0296-2650	long right 56/60mm
0296-2656	long right 64mm
0296-2660	long right 68mm
0296-2664	long right 72mm
0296-2750	long left 56/60mm
0296-2756	long left 64mm
0296-2760	long left 68mm
0296-2764	long left 72mm

Note:
The MUTARS® PRS trial reinforcement cages are sterile single use trials.

INSTRUMENTS

0296-0005 MUTARS® PRS reinforcement cage container

positioner
7512-1021

positioner for plate
7512-1025

bending instrument
7512-1022

bending thorn
7512-1023

chisel small
7512-1024

chisel large
7512-1026

cup impactor
0282-0030

PREOPERATIVE AND POSTOPERATIVE INSTRUCTIONS

Intended use:
The MUTARS® PRS reinforcement cage is used to bridge acetabular defects / pelvic discontinuities and to ensure mechanical stability during the biological osseointegration process of the MUTARS® PRS. It is intended for cemented fixation in the MUTARS® PRS in conjunction with a combinable cemented acetabular cup. Optionally, the MUTARS® PRS reinforcement cage can be used with spongiosa screws flat head 6.5mm.

Preoperative Instructions:
A preoperative planning is mandatory for optimal results. Before surgery a surgical planning with regard to the dimensions of the prosthetic model and the positioning of the implant components in the bone has to be carried out by the surgeon.

For this purpose, x-ray templates are available:
Digital templates: Digital templates are included in the data base of the common planning systems. For missing templates, please contact the provider of the planning software and request for these templates.
Radiographic templates: Alternatively, radiographic templates are available in various scale factors, which can be obtained from your local representative.
The surgeon must ensure that:

- all needed components are available during surgery. An adequate number of all necessary implant components will be available during surgery. It should be determined whether the implantation should be done cemented or cementless.
- all instruments necessary will be present for surgery and that they match the implants being used. Only instruments designed for use with the implant system by implantcast GmbH should be used. An exception are exclusively the standardized instruments used during surgery.
- The correct sized instruments are used during surgery to prevent damage to the implants.

Post-operative Instructions:
Post-operative patient care, patient instructions and warnings are of the utmost importance. The use of an external support of the operated extremity for a limited period is recommended. Active and passive movements of the operated extremity should be monitored.

The post-operative regime should be aimed at the prevention of overloading of the operated extremity and stimulation of the healing process.

Regular monitoring of the position and condition of the prosthetic components and the surrounding bone is recommended.

Warning for MUTARS® PRS reinforcement cage:
After the implantation of the MUTARS® PRS reinforcement cage, the operated joint is not allowed to be fully loaded until the osseointegration process of the MUTARS® PRS is completed.

INDICATIONS/ CONTRAINDICATIONS

Indications:
The decision for replacement of the joint should be based on careful evaluation. The indication for this type of surgery should only be made when all other conservative or surgical alternatives are less promising.

Danger of post-operative complications can be limited by careful evaluation of the individual anatomical and load conditions, the condition of the soft tissues and the condition of the bone bed for the implants.
The provision of metal augments is generally indicated only in patients whose skeleton is fully grown.

Before intervention, preoperative examinations should be performed. The examinations depend on the patient's medical history.

Under consideration of these conditions, for the hip joint replacement with the MUTARS® PRS, EPORE® acetabular spacer, EPORE® acetabular spacer 8mm, EPORE® buttress augment, EPORE® shim augment, ic-restrictor acetabulum, MUTARS® PRS reinforcement cage in the acetabular area apply to the following indications:
- non-inflammatory degenerative joint disease including osteoarthritis and avascular necrosis,
- post-traumatic osteoarthritis,
- fractures,
- rheumatoid arthritis,

The following indication applies to the hip joint replacement with the MUTARS® PRS reinforcement cage additionally:
- severe hip dysplasia,
- osteoporosis,
- protrusio acetabuli,
- cystic acetabular roof,
- revision

The indications of the corresponding endoprosthesis system must also be considered.

Contraindications:
The longevity of an orthopaedic implant can be reduced by biological aspects, material characteristics and biomechanical factors. Therefore, a careful examination of the indications is recommended in overweight patients, in patients with very high joint loads due to high physical activity as well as in patients younger than 60 years.

The metal augments are contraindicated in cases of:
- Allergy to one of the implant materials. (The label on the secondary packaging of the respective component indicates the materials used. It is strongly recommended to perform an allergy test.)
- Ongoing infections.
- Physiological or Anatomic conditions, which preclude or are not expected to maintain an adequate bony support of the implant or do not allow the implantation of a sufficiently large prosthesis.
- Bone tumors (metastases) in the implant fixation area,
- untreated vascular diseases which limit blood supply to the affected limb,
- metabolic disorders that may impair bone formation.

In case of insufficient quantity and quality of bone stock, an alternative prosthetic treatment allowing for sufficient bony fixation should be considered.

The contraindication of the corresponding endoprosthesis system must also be considered.

RISKFACTORS

Risk factors
The following risk factors may affect the success of the metal augments:

- excessive loading of the operated joint by strong physical work and/or inappropriate sports,
- severe deformities which lead to an impairment of bone fixation or the exact positioning or the function of the implant,
- therapies that may affect bone quality,
- muscle insufficiency,
- neuromuscular diseases of the affected limb,
- conditions that restrict the patient's ability or willingness to comply with medical instructions, especially during the healing process,
- Obesity,
- nicotine and/or drug abuse,
- alcoholism,
- previous surgeries on the affected limb,
- diabetes,
- psoriasis
- intra-articular injection of corticosteroids

Note:
The MUTARS® PRS reinforcement cages are combinable with the allowed sizes of the MUTARS® PRS system. They are connected to each other with bone cement. Depending on different radii and sizes or the positioning, different cement layer thicknesses can arise. It should be noted that biomechanically unfavorable properties of PMMA might occur, if the bone cement thickness is over 4mm. Therefore, the thickness of the connecting layer should be aimed not to be more than 4mm. The choice of implant combinations depends on the indications and the existing defect. The MUTARS® PRS reinforcement cage can be screwed with the spongiosa screw flat head 6.5mm.

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