

UNIVERSALSCHAFT TYP ERLANGEN

PRIMARY / REVISION HIP PROSTHESIS CEMENTED



SURGICAL TECHNIQUE



PETER BREHM
Die Präzision in Titan
für den Menschen



Design and Function

- | Self-stabilization against subsidence through conical stem form and the prosthesis collar
- | Conical form with rounded-off edges ensures harmonic load transfer in the cement mantle
- | Autocentering in the proximal area through the prosthesis shoulder
- | Increase in the cement compression during implanting through the conical stem form and the prosthesis shoulder
- | High rotation stability through the flat hexagonal stem profile
- | Optimal force transmission into the femur through the biomechanically and anatomically selected CCD angle of 138°
- | Optimal force transmission through the extensive collar contact
- | Uniform cement mantle along the entire implant length
- | Fine blasted surface for optimal cemented fixation
- | Offset: 39.5 mm
- | Sizes: 135, 155, 170, 200, 220, 250 and 280 mm

Material:

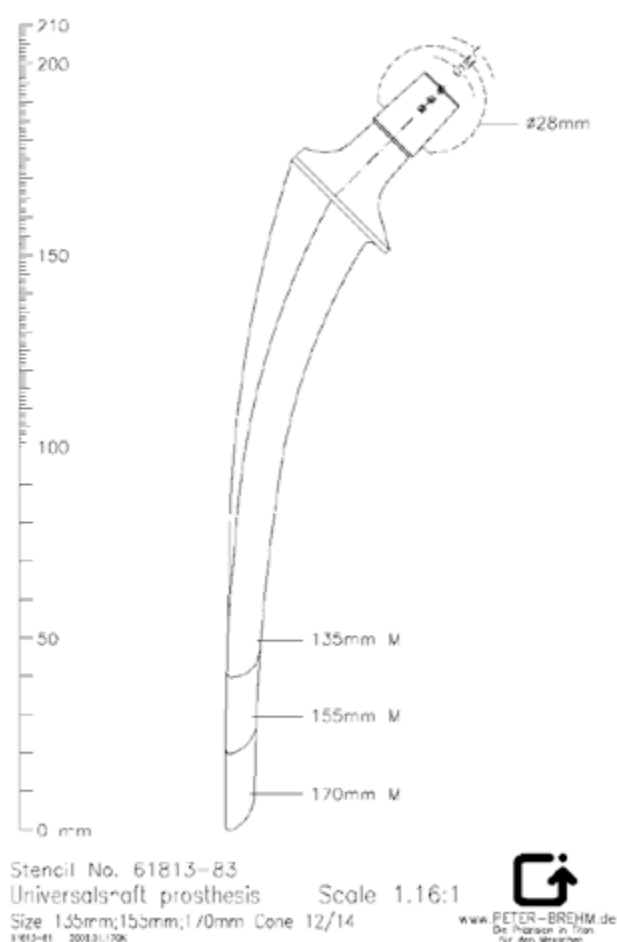
- | **Forged implant made of CoCr28Mo6**

Pre-Operative Planning

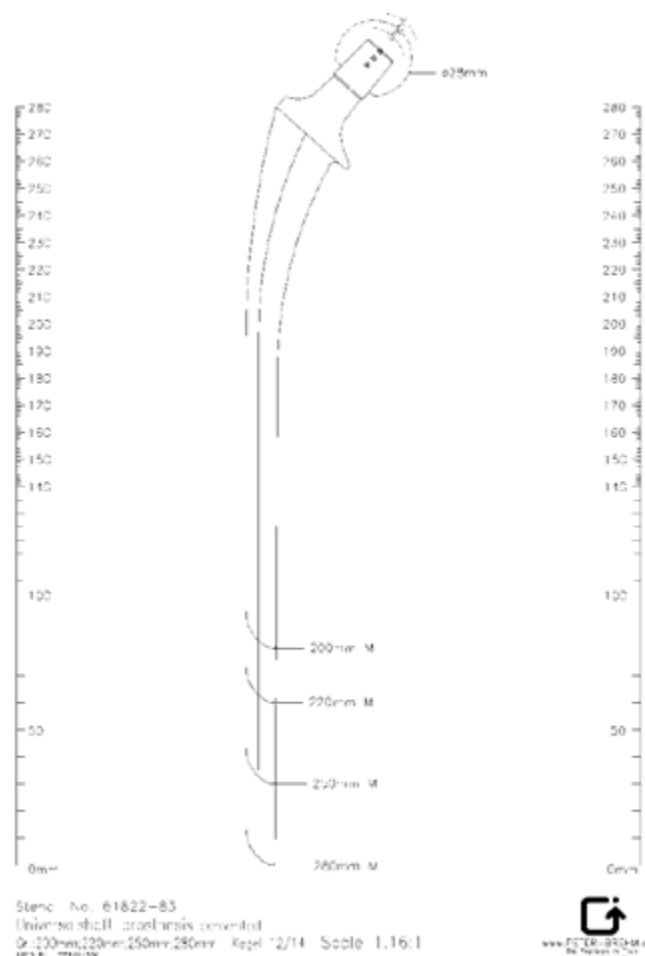
The starting point of the pre-operative planning is the determination of the center of rotation of the hip joint to be operated. In the case of a pronounced deformation of the hip joint, a pelvic area X-ray with corresponding auxiliary lines can facilitate determining the ideal center of rotation for the surgeon.

Center of rotation of the joint, resection height as well as position of the stem in the femur are specified by means of a template or during a digital X-ray planning.

The final choice of the stem size is carried out intraoperatively. The greatest deviations from the preoperative planning naturally result in the case of a curved proximal femur with varus and antecurvature deformation.



prosthesis cemented



prosthesis cemented

Surgical Technique

01

Access and Femoral Neck Osteotomy

After imaging of the hip joint, osteotomy of the femoral neck is carried out in luxated or reductioned state after circling of the femoral neck with Hohmann retractors. The resection line at the femoral head is determined concurrently with the pre-operative planning. The measured values of the pre-operative planning can be used for referencing. Then carry out the osteotomy correspondingly.



02

Implantation of the Acetabular Component

The preparation and implantation of the acetabular component has to be carried out in accordance with the specifications of the manufacturer or in accordance with the surgery instructions for the selected product.



e.g. Müller PE-Pfanne (Müller PE cup)



03

Opening of the Medullary Cavity

The femoral canal is opened by means of the pointed reamer. As a rule, the entry for the pointed reamer lies in the middle of the cancellous sawing surface of the femoral neck. This is used to create a guide for the further shaping reamers distally while using rotary movements and true to axis, meaning in continuation of the femoral stem axis. If the cancellous bone is hard, a 10 mm gouge is first used to centrally open the cancellous bone in the metaphysis area.



04

Preparation of the Femoral Canal

The prosthesis rasp is struck into the cancellous structures with the guide instrument by means of hammer blows considering the optimal ante-torsion. The surgeon observes the bone structures and increases the size of the rasps until the size determined preoperatively has been reached. The last rasp must be struck in until the marking that corresponds to the osteotomy level.



05

Trial Reduction

The rasp serves at the same time as a trial prosthesis (no lateralized variant). To this purpose the rasp handle is removed and a trial ball head is used to carry out a trial reduction. The range of motion and the soft tissue tension have to be checked. There may not be any impingement and any subluxation.



06

Inserting the Medullary Plug

The Universalschaft Typ Erlangen of PETER BREHM GmbH does not offer a standard system for setting medullary plug. When third-party systems are used, ensure that the positioning instrument is compared with the implant length of the Universalschaft Typ Erlangen prosthesis so that the cement stopper is set defined approx. 20 mm under the tip of the prosthesis.

07

Preparation of Cementing

The femoral canal is cleaned thoroughly with suitable lavage instruments (brush, jet lavage) of all rasp residues such as blood and medulla fat and is additionally dried. The cleaner the surface is, the deeper the bone cement can penetrate into the cancellous bone structure. The drying ensures that a liquid separating layer does not arise between the cement and the cancellous bone.

08

Cement Application

The medico-clinical result is influenced strongly by the way that the cement (polymethylmethacrylate) is applied. While the fissure extension is determined to a large extent by the mechanical properties of the cement itself, the most important individual factor for fissure initiation is the presence of bubbles in the cement. Mechanical mixing of the initial materials under vacuum results in significantly less bubbles than mixing by hand. In addition, consistent preparation for all surgeries is achieved and the danger of a residual concentration of monomer is reduced.

After preparation of the bone cement the bone channel is filled retrogradely by means of a cement injection.



09

Inserting the Universalschaft Typ Erlangen Prosthesis

The selected prosthesis is introduced in the prepared direction and until the defined depth continuously by hand – with the aid of the positioning instrument – during the low viscosity phase of the cement. The excess cement is removed and the implant kept in position until the bone cement has hardened.

10

Repeated Trial Reduction

In order to select the definitive ball head, it is possible to carry out repeated trial reductions with trial heads after the cement has hardened.



11

Putting on the Original Ball Head

The cone of the prosthesis is cleaned. The originally selected ball head is placed on the prosthesis neck cone and fixated by tapping lightly with a plastic hammer.

The implantation is completed with the reduction of the joint. The complete access area is checked for bleeding, Redon drains are inserted and the wound is closed layer by layer.



! CAUTION

- | Have to be combined with products released by PETER BREHM GmbH.
- | Approved ball head lengths made of ceramic and CoCr are: S, M and L in the range from -4 to +4.
- | Do not combine CoCr ball heads with sliding surfaces made of ceramic or metal.
- | CoCr ball heads can only be combined with polyethylene (PE) inlays.
- | Ceramic ball heads can be combined with PE inlays.
- | Ceramic ball heads made of BIOLOX®delta / BIOLOX®forte* may only be combined with PE inserts or only with ceramic hip cup inserts made of BIOLOX®delta / BIOLOX®forte.
- | Do not use implants / instruments with visible damage.
- | For combination with other PETER BREHM GmbH components, please refer to the respective instructions for use. Follow the instrumentation instructions. If unclear, contact PETER BREHM GmbH.

*BIOLOX®delta and BIOLOX®forte are registered trademarks of CeramTec GmbH.

Notes

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! NOTE

This brochure is intended for physicians only and is not suitable as a source of information for laypersons. The information about the products and/or procedures described in this brochure is of a general nature and does not represent a medical advice or a medical recommendation. The information provided here does not in any way represent an opinion on the diagnosis or treatment of any specific medical case. The respective patient must be examined individually and advised accordingly. This brochure can neither completely nor partially substitute these measures.

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