

# BA Hip Stem System

Product Catalog



Biotech GmbH  
Hauptstraße 113.  
56598 Rheinbrohl Germany  
Tel : +49 2635 92221-0  
Email : office-de@biotech-medical.net  
www.biotech-medical.com



## BIOTECH

REF:  
VB-001-PROSP-ST-04-EN-00

Revision  
2

Publication date :  
01.04.2022.

CE 1011

# "Movement is Life"

## BA Hip Stem

The concept of this femoral component relies on a close prosthesis-bone contact in both medial and lateral zones. The stem geometry shows a proximal to distal 3 degree taper providing a greater femoral canal fill, improving rotational stability and transferring load in the proximal calcar region to restore near normal stress distribution. Proximal off-loading reduces stress-shielding and thereby minimizes the potential for loosening. Straight stemmed wedge-shaped prostheses have been widely used throughout more than 20 years and have proven to be very effective in both cemented as well as uncemented cases.

### Rotational Stability

A critical parameter for successful THR is rotational stability, to which the design of the BA stem contributes through its geometry in combination with being collar-less. A collar-less prosthesis tends to allow for self seating, thereby improving load transfer to the femur and maintaining stability.

### Lasting Fixation – Uncemented / Cemented Stems

Long term survival of uncemented components depends not only on implant material and geometry, but also on the coating used for a biological fixation. For this reason, BioTech™ has chosen the well-proven process of applying a circumferential plasma-sprayed porous titanium coating. This type of "closed-pore" coating has no inter-connective spaces, a pore size ranging between 75-350 micron, thickness of 500 micron and approximately 30% porosity. By sealing off the femur for transport of fluids and debris particles, known for its negative effect on implant survival due to osteolysis, long term fixation concern has been addressed. Since only the titanium powder is heated during the spraying process, the high mechanical properties of the forged implant itself are maintained. The excellent biocompatibility of titanium will generate a strong bone response, resulting in a proper implant fixation. The controlled oversize provides excellent initial stability (scratch fit), allowing for rapid full weight bearing post-operatively.

The cemented version of the BA Hip stem, is manufactured from high grade forged CoCrMo for strength and endurance, meeting the philosophy of Müller stems. The special Fixloc™ surface treatment creates a strong bond between cement and implant, improving the shear strength when compared to other smooth finished orthopaedic implants. With a consistent cement mantle on both sides of the tapered stem, this wedge configuration reduces the stem-cement interface stresses, thereby increasing the potential for long-term survival.

### Preservation of Bone

Many clinical studies have shown that flat wedge-shaped tapered stems are durable, show satisfactory fixation and effective pain relief. The tapered non-collared stems gradually reduce in stiffness, resulting in a very low incidence of mid-thigh pain.

### Single set of Instruments

The stem geometry of both the cemented, uncemented and revision stem is similar, which allows for the use of just one set of instruments. This means, that the decision, - which implant to use, can be made intra-operatively. The rasp can be used as a trial prosthesis allowing for trial reduction for leg-length and off-set control. The Biotech hip system can be implanted by minimal invasive surgical technique.

### Size Range

The size range of the BA Hip stems is generally accepted for both the cemented and uncemented version. For cemented application there are sizes available ranging from 6.25-20.00 mm. (1.25 mm increments), offering the surgeon a freedom of choice as to how much of a predetermined cement mantle is preferred. The universal set of instruments also allows for line-to-line rasping in case an uncemented stem is chosen, requiring direct initial stability and an optimal fit. The uncemented version offers sizes ranging from 6.25-20.00mm, with 1.25 mm increments. A special 6.25 mm is added to this range of sizes to also service the very narrow femora such as in hip dysplasia. In case of revision special sizes are available.

### Easy and Reproducible

The simplicity of the instrumentation, the biomechanical principles and the number of proportionally sized stems, all adds up to making the procedure quick, easy and reproducible.

### Modularity

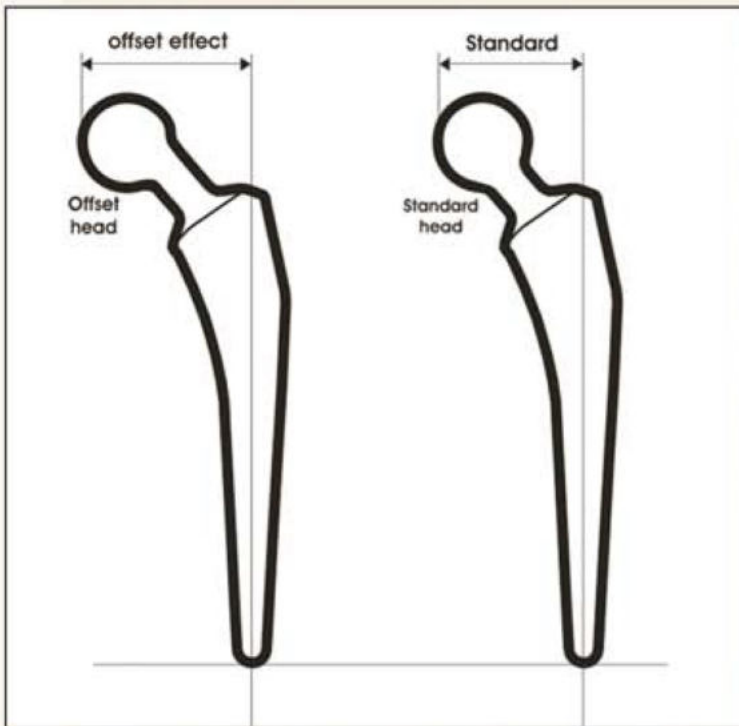
The BA femoral prosthesis has a standard 12/14 taper (5°42'30"), to accommodate CoCr and Ceramic (Al<sub>2</sub>O<sub>3</sub>) modular heads, which are available in various neck length. The parameters of head geometry meet the standards of ISO 7206-02. Combined with the opportunity to perform trial reductions, choosing the best combination for the patient's needs is ensured.



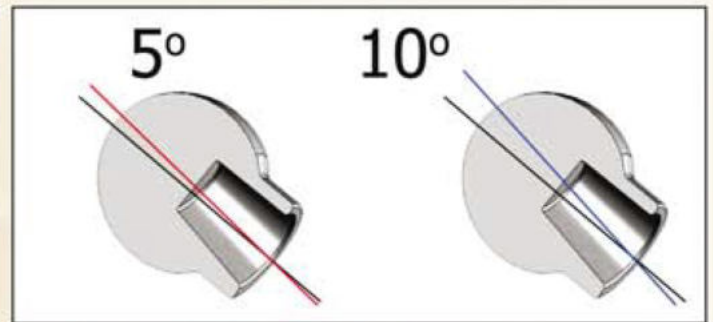
**“Movement is Life”**



## Offset solution - by 5° and 10° offset heads



Theory of the offset solution



### Offset heads - CoCr \* DIN EN ISO 5832-4 (12/14)

#### diameter: 28mm

S offset 5°	019-1111-2800
M offset 5°	019-1112-2800
L offset 5°	019-1113-2800
XL offset 5°	019-1114-2800
XXL offset 5°	019-1115-2800

#### diameter: 28mm

S offset 10°	018-1111-2800
M offset 10°	018-1112-2800
L offset 10°	018-1113-2800
XL offset 10°	018-1114-2800
XXL offset 10°	018-1115-2800

#### Sources:

- Bobyen et al. "The optimum pore size for the fixation of porous-surfaced implants by the ingrowth of bone" - *Clinical Orthopaedics* 1980 Jul-Aug. 263-70
- Bourne R.B. et al. "Ingrowth surfaces. Plasma spray coating to titanium alloy hip replacements" - *Clinical Orthopaedics* 1994 Jan. 37-46
- Cameron H.U. et al. "The rate of bone ingrowth into porous metal" - *J Biomed Mater Res.* 1976 Mar.: 295-302
- Emerson R.H. et al. "Effect of circumferential plasma-sprayed porous coating on the rate of femoral osteolysis after total hip arthroplasty" - *JBJS (Am)* 1999 Sep. 1291-8
- Georgette F.S. et al. "The effect of HIPing on the fatigue and tensile strength of a case, porous-coated Co-Cr-Mo alloy" - *J. Biomed. Mater Res.* 1986 Oct. 1229-48
- Hozack W.J. et al. "Clinical and radiograph results with the Trilock femoral component- a wedge-fit porous ingrowth stem design" - *Seminars in Arthroplasty* 1990 July: 64-9
- Hozack W.J. et al. "Taperlock femoral component. A 2-6 year study of the first 100 consecutive cases" - *J. Arthroplasty* 1994 Oct. 489-93
- Hozack W.J. et al. "Cemented versus cementless total hip arthroplasty. A comparative study of equivalent patient populations" - *Clinical Orthopaedics* 1993 April, 161-5
- Hozack W.J. et al. "Primary cementless hip arthroplasty with a titanium plasma sprayed prosthesis" - *Clinical Orthopaedics* 1996 Dec. 217-25
- Keisu K.S. et al. "Primary cementless THA in octogenarians. Two to eleven-year follow-up" - *JBJS (Am)* 2001 March, 359-63
- Keisu K.S. et al. "Cementless femoral fixation in the rheumatoid patient undergoing total hip arthroplasty minimum 5-year results" - *J. Arthroplasty* 2001 June 415-21
- Mallory T.H. et al. "Why a taper?" - *Scientific Exhibit 69th AAOS*, Feb. 13-17 2002 Dallas Texas
- McLaughlin J.R. et al. "Total Hip Arthroplasty with an Uncemented Femoral Component" - *JBJS (Br)* 1997, 79B:900-907
- McLaughlin J.R. et al. "Plasma Spray Porous-Coated Total Hip Arthroplasty: A 13-Year Survivorship Analysis in Patients Age 50 and Older" - *AAOS* 1997 - Paper no. 243
- McLaughlin J.R. et al. "Total Hip Arthroplasty in young patients. 8-13 year results using an uncemented stem" - *Clinical Orthopaedics*, April 2000, 153-63
- Purtill J.J. et al. "Total hip arthroplasty using two different cementless tapered stems" - *Clinical Orthopaedics*, 2001 Dec. 121-27
- Rao R.R. et al. "Immediate Weight Bearing After Uncemented Total Hip Arthroplasty" - *Clinical Orthopaedics*, April 1996, 156-162
- Rothman R.H. et al. "Hydroxyapatite-coated femoral stems. A matched-pair analysis of coated and uncoated implants" - *JBJS (Am)* 1996 Mar. 319-24
- Sharkey P.F. et al. "Initial Stability of a Collarless Wedge-Shaped Prosthesis in the Femoral Canal" - *Seminars in Arthroplasty*, Vol. 1, No. 1, July 1990, 87-90
- Tanzer M. et al. "The progression of femoral cortical osteolysis in association with total hip arthroplasty without cement" - *JBJS (Am)* 1992 Mar. 404-10
- Teloken M.A. et al. "Ten to fifteen-year follow-up after total hip arthroplasty with a tapered cobalt-chromium femoral component (tri-lock) inserted without cement" - *JBJS (Am)* 2002 Dec, 2140-4
- Wykman A. et al. "Subsidence of porous coated noncemented femoral components in total hip arthroplasty. A roentgen stereophotogrammetric analysis" - *J. Arthroplasty* 1992 June 197-200

\* optional



# "Movement is Life"

## Order Information

### Ceramic Modular Heads

#### diameter: 28 mm

S	016-1311-2800
M	016-1312-2800
L	016-1313-2800
XL	016-1314-2800
XXL	016-1315-2800
XXXL	016-1316-2800
XXXXL	016-1317-2800

#### diameter: 32 mm

S	016-1311-3200
M	016-1312-3200
L	016-1313-3200
XL	016-1314-3200
XXL	016-1315-3200
XXXL	016-1316-3200
XXXXL	016-1317-3200

### Modular Acetabular Ceramic Inlays

22/28 mm	022-2127-2228
22/32 mm	022-2127-2232
23/28 mm	022-2127-2328
23/32 mm	022-2127-2332
24/28 mm	022-2127-2428
24/32 mm	022-2127-2432
25/28 mm	022-2127-2528
25/32 mm	022-2127-2532
26/28 mm	022-2127-2628
26/32 mm	022-2127-2632
27/28 mm	022-2127-2728
27/32 mm	022-2127-2732
28/28 mm	022-2127-2828
28/32 mm	022-2127-2832
29/28 mm	022-2127-2928
29/32 mm	022-2127-2932

### Metal Modular heads – CoCr DIN EN ISO 5832-4 (12/14)

#### diameter: 22,2mm

S *	016-1111-2225
M	016-1112-2225
L	016-1113-2225
XL *	016-1114-2225
XXL *	016-1115-2225

#### diameter: 26mm \*

S	016-1111-2600
M	016-1112-2600
L	016-1113-2600
XL	016-1114-2600
XXL	016-1115-2600

#### diameter: 28mm

S	016-1111-2800
M	016-1112-2800
L	016-1113-2800
XL	016-1114-2800
XXL	016-1115-2800
XXXL *	016-1116-2800
XXXXL *	016-1117-2800

#### diameter: 32mm

S	016-1111-3200
M	016-1112-3200
L	016-1113-3200
XL	016-1114-3200
XXL	016-1115-3200
XXXL *	016-1116-3200
XXXXL *	016-1117-3200



**BIOTECH**

BIOTECH GmbH  
Hagenauer Str. 17-19.  
65203 Wiesbaden,  
GERMANY  
Telephone: +49 611 89063143  
Fax: +49 611 89063145  
Email: office-de@biotech-medical.com

www.biotech-medical.com

# "Movement is Life"

REF:  
VB-001-PROSP-PC-03-EN-00

Revision:  
1

Publication date:  
07.01.2020

CE 1011