On account of its anatomical shape the cementless SBG stem, which has been used successfully since 1990,\textsuperscript{1,2} follows the natural features of the proximal femur.\textsuperscript{2} Its hydroxyapatite coating helps promote rapid growth of bone onto the surface of the prosthesis.\textsuperscript{1,2,3} With its design and Minimally Invasive Surgery (MIS) adapted instruments, the SBG stem is a user friendly system.\textsuperscript{1,2,3,4}

**Inspired by anatomy**
The anatomical adapted SBG stem seeks the optimum path in the femoral tube and achieves high primary stability which usually allows immediate full-load capacity.\textsuperscript{1-3}
**Material**

The SBG stem is made of a high-strength titanium alloy, Ti6Al4V. The distal stem is rough-blasted with special fused alumina.

**Surface**

The proximal area of the prosthesis is coated with a layer of hydroxyapatite (HA) 65 μm thick. The applied HA coating in the main anchorage area helps promote rapid growth of bone onto the surface of the SBG prosthesis. The longitudinal grooves over the entire stem surface enlarge the surface area available for bone growth and have been designed to absorb torsional forces.

**Stem design**

The centrum collum diaphyseal (CCD) angle is 130°. The predefined antetorsion angle of 7° comes closer to physiological, anatomical conditions. For close adaptation to the anatomy there are 12 standard sizes available, each with left and right versions.
Histology
Histological tests on an SBG prosthesis after six months in situ, removed owing to a periprosthetic fracture: osseointegration on the entire circumference of the prosthesis. The micrograph clearly shows resorption pits. The areas containing partially resorbed hydroxyapatite have been refilled with bone tissue.

Design features
Longitudinally the stem profile is rotated by approx. 30°. With a gentle twisting motion the stem fits precisely into the prosthetic bed, which has been prepared with anatomically shaped rasps.1 The antetorsion angle of 7° follows the features of the natural femoral neck.

Cross-section
The medially and laterally flattened oval cross-sections create a conical body designed to absorb axial forces. The oval cross-section is equivalent to an ‘anatomical rectangle’ designed to absorb torsional forces.
Confidence created by excellent, confirmed, long-term results\textsuperscript{1,2}

**Clinical results**

Long-term clinical results for the SBG stem can be described as excellent\textsuperscript{1,2}. The very high primary stability of the SBG stem usually allows immediate full-load capacity\textsuperscript{1,4}. The applied HA coating in the main anchorage area helps promote rapid growth of bone onto the surface of the SBG prosthesis\textsuperscript{1,2,3}. Another reason for the excellent implantability of the SBG stem is that it seeks the optimum path in the femoral tube and achieves high primary stability\textsuperscript{1,2,3}.

The following Kaplan-Meier survival curve confirms the excellent long-term clinical outcome with implant survival of 99.5\% after 120 months (N=151 hips)\textsuperscript{1}.

**Survival function**

Kaplan-Meier survival curve, with revision of the stem component as the end point with a survival curve of 99.5\% (95\% CI 98.4-100) after 10 years.
Simplicity and efficiency

The straight-forward instrument set results in a user friendly surgical technique aiming to increase surgical efficiency and achieving reproducible results. The curvature of the prosthesis bed is produced with special anatomically shaped rasps which adapt well to the anatomy. Various offset-adapters accommodate for various minimally invasive approaches.

Offset-Adapter 10 mm

Offset-Adapter 25 mm

Double Offset-Adapter, left 17/13 mm

Double Offset-Adapter, right 17/13 mm

Modular Rasps left and right

Modular Necks
References