



**SP-CL**<sup>®</sup>

Anatomically Adapted Cementless Hip System

“The most important advancement in total hip arthroplasty in the last 50 years has been the adaption of femoral components to the anatomy of the femur.”\*



Being one of the inventors of the anatomical prostheses design, LINK has more than three decades of experience in the development of this type of hip stems. The new anatomical cementless hip prostheses system SP-CL® from LINK represents a consistent progression of the cemented Lubinus SP II® hip system towards cementless fixation – the SP II® concept that has proven its success in the Swedish Hip registry\*\*.

During the development of the SP-CL® the anatomical design features were subjected to various biomechanical tests.

The result is a harmonically aligned hip prosthesis system, that provides a stable and long term solution for a large variety of patients with hip problems. It supports surgeons in their aim to operate gentle and less invasive and high reproducibility of clinical results is expected.

\* W.T. Stillwell. The Art of the Total Arthroplasty. Grune & Stratton, Inc. 1987; pp. 296

\*\* Annual Report 2012; Swedish Hip Arthroplasty Register; [www.shpr.se](http://www.shpr.se)

Made in Germany



**Features of the SP-CL® Hip System:**

- Complementary to the cemented SP® family, backed by decades of successful use
- Cementless metaphyseal fixation
- Bioharmonic left and right stem types, each available in 13 standard sizes
- Two CCD angles - 126° and 135°
- Size and offset increase following stem growths from one size to the next



**Neutralising of torsional forces\***  
acting on the proximal femur



Straight stems produce stress risers in an anatomically S-shaped medullar canal



S-shaped stems result in even stress distribution

**Photoelastic study of stresses**

Stress-load analysis proves that the true adaption to the femur of the LINK anatomically shaped hip stems result in the most natural stress distribution, eliminating the harmful pinpoint stress concentration at the bone / implant interface.

## Anatomic design and integrated antetorsion

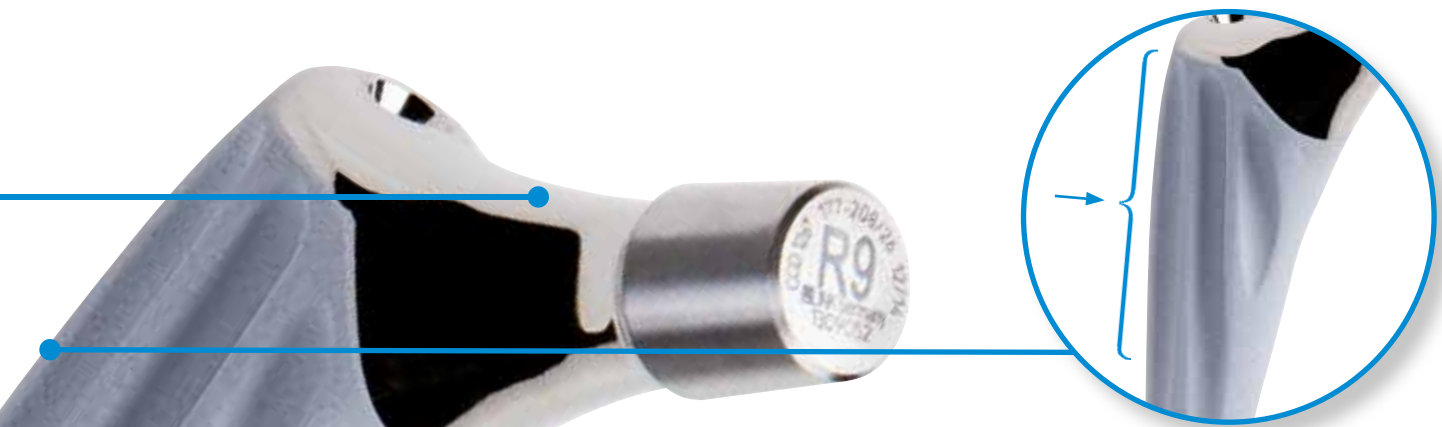
The stems in the SP-CL® system have a 12/14 taper and can be combined with every modular ceramic or metal prosthesis head made by LINK. The stem has an anatomic design with an S-shaped curvature in M/L view. An antetorsion of 5° is integrated in the stem.



## Ribbed profile for excellent primary stability

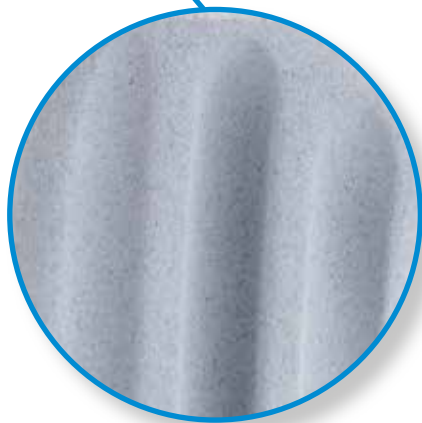
Designed with deep grooves and from LINK® Tilastan-S® alloy the SP-CL® results in a stem with constructive and material elasticity to act against stress shielding. The pronounced ribs provide primary stability.





### Trochanter protecting

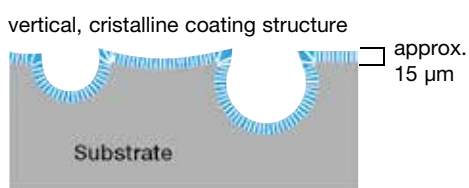
Protects the greater trochanter due to flattened proximal lateral profile.



### LINK® HX® (CaP) coating

The surface promotes osteoconduction and allows stable osseointegration for secondary stability.

#### HX®-Coating (calcium phosphate)



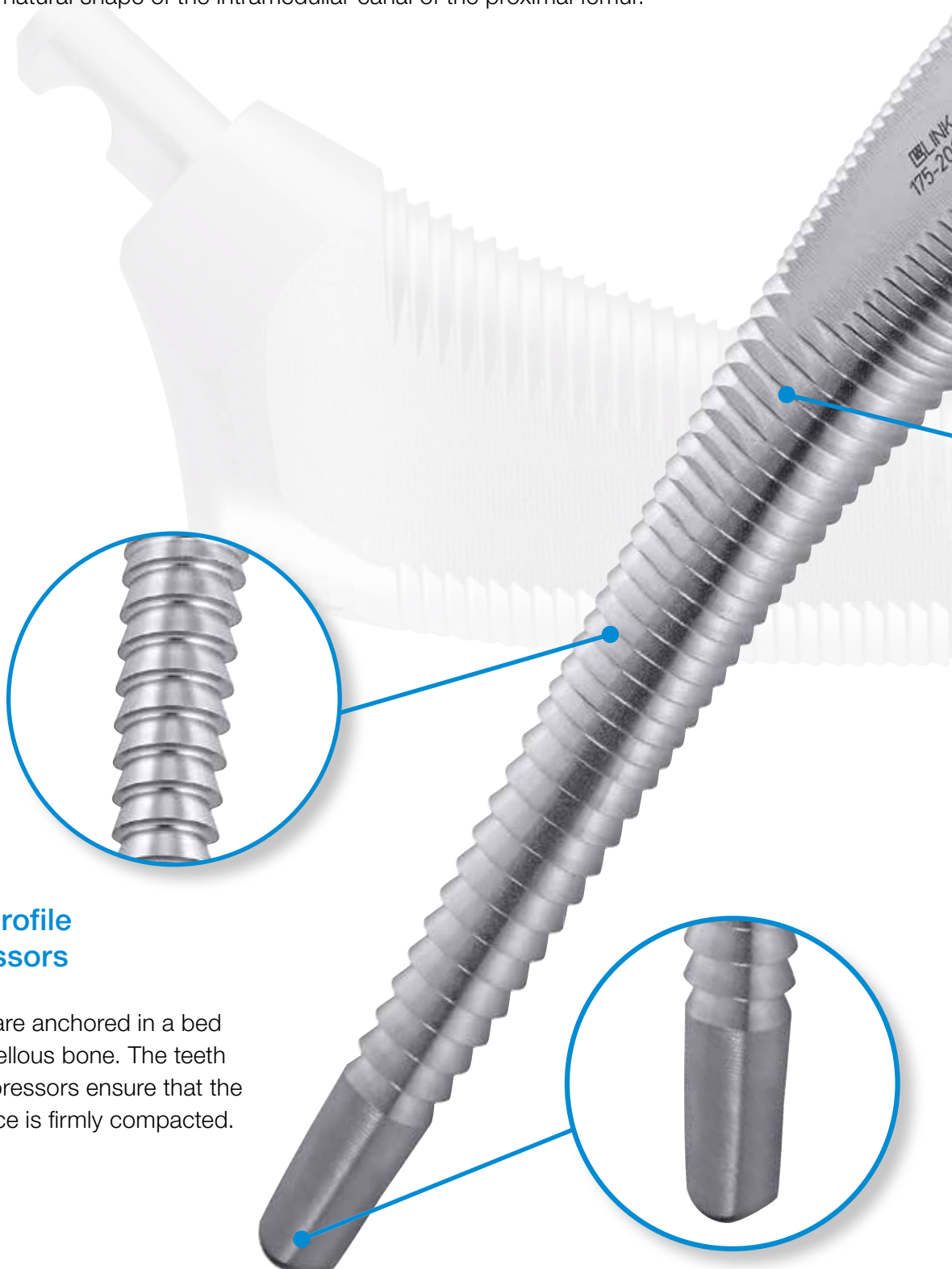
The HX®-Coating is an osteoconductive coating approximately 15 µm thick. The proprietary electrochemical coating process results in extraordinary mechanical strength of the coating, that endures the stress of implantation. The porous cell structure of approx. 160 µm cell diameter of the substrate's surface is retained open, due to the thin overcoat and provides an optimal structure for osteoconduction.

### Polished distal stem

For easy and safe insertion the polished surface allows distal gliding to counteract thigh pain.

## Anatomical shape of the compressors

Anatomically shaped stems require anatomically shaped instruments. The compressors of the SP-CL® system strictly follow the anatomical stem design and prepare a bony bed for the SP-CL® stem following the natural shape of the intramedullar canal of the proximal femur.



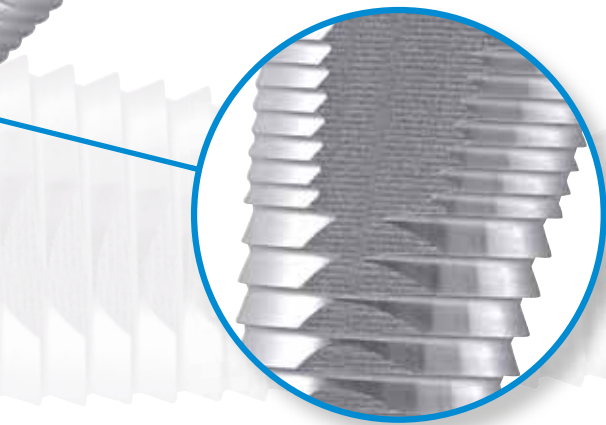
### The terraced profile of the compressors

The SP-CL® stems are anchored in a bed of compacted cancellous bone. The teeth of the SP-CL® compressors ensure that the cancellous substance is firmly compacted.



### High fixation zones

Toothless bilateral isles for maximum grip of the proximal ribs.



### Press-fit

The compressors and implants are matched to provide the optimal press-fit.

### Rounded distal tip

of compressor for safe guidance and to avoid *via falsa*.



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