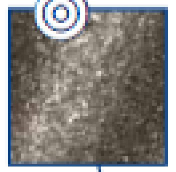
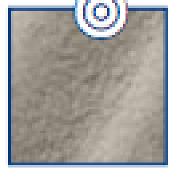
CEMENTLESS STEMS - QUADRA®-S and QUADRA®-H

Concept
Straight cementless femoral stems have demonstrated, through 20 years clinical follow-up, the ability to withstand biomechanical stresses by showing an exceptionally good survival rate.[2,3,4]
The Quadra® System is comprised of 2 cementless stem options sharing all mechanical characteristics, but with different surface treatments: the Quadra®-S is sandblasted and the Quadra®-H has an HA coating.

MATERIAL
Quadra®-S and Quadra®-H are made of Titanium Niobium alloy: Ti6Al7Nb (ISO5832-11)
Titanium is an inert and biocompatible material ideal for direct interaction with the bone.[5,6,7]
Titanium also presents the ideal stiffness for a cementless stem, avoiding stress shielding.



Quadra®-S Surface
The surface has a superficial roughness between 4µm and 7µm thanks to a specific sand blasting treatment on the whole shaft, which allows outstanding osteointegration.[4]



Quadra®-H Surface
The surface has an 80 µm thick HA coating on the whole shaft applied after a superficial sand-blasting.
The HA coating has chemical characteristics similar to the ones of the human bone which stimulates the bony ongrowth.[8,9,10,11]
When all of the HA coating is absorbed there is good interaction between stem and bone leading to long-term stability.

Shape
Based on the experience of the straight, rectangular cementless stems.
Triple taper with trapezoidal cross section providing a good axial and rotational stability with optimal anchoring to the bone.[12]

Taper
- Micro threaded.
- 12/14 EUROCONE (5°42'30'').
- Shortened to increase ROM and minimize wear.

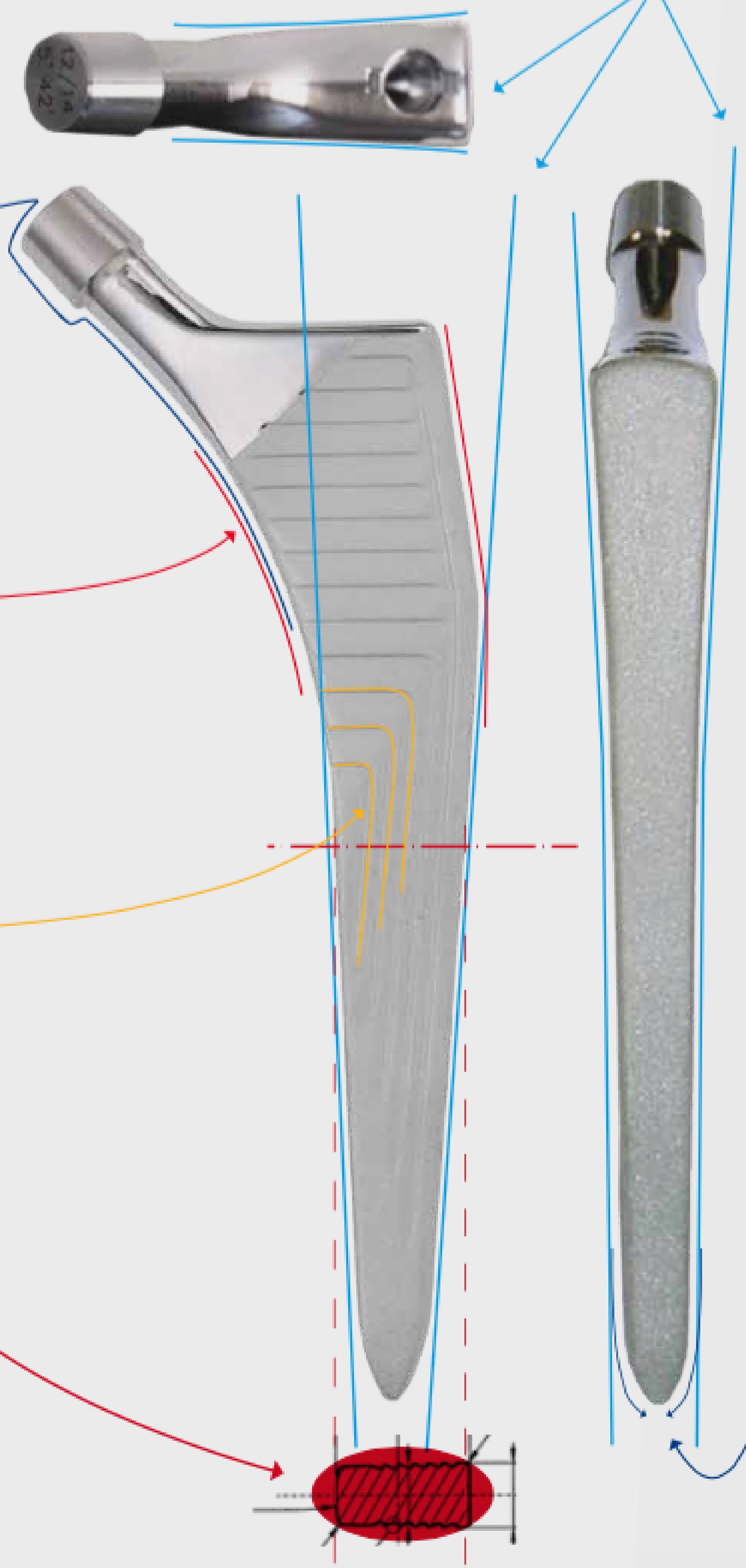
Neck
- Circular section mirror polished to **minimize wear**.
- With standard (135°) and lateralised (127°) neck shaft angle, the femoral offset is adapted to the patients needs.
- Suitable for Double Mobility liners.

Proximal femur
Close contact between the stem and the cortical bone thanks to the tapered shape and high precision broaches.
- Good stability.
- Natural load transfer.
- Minimized stress-shielding and potential for loosening, preserving healthy bone.

Non-bulky lateral shoulder **ideal for MIS approaches**.

Macrostructures
Horizontal and vertical macrostructures **increase the contact surface** area by 10-15%.[13]
- The proximal horizontal macrostructures increase the axial stability.
- The vertical distal macrostructures increase the rotational stability.

Diaphysis
- Sharpened edges account for an optimal primary diaphyseal fit.[14]
- Enhanced rotational stability.



CEMENTED STEM - QUADRA®-C

QUADRA®-C is the **cemented stem** available with the Quadra® System.
- In high nitrogen stainless steel providing the ideal stiffness for a cemented solution.
- Mirror polished surface for a correct interaction with the cement mantle.
- Rounded edges to avoid peak stresses within the cement mantle.
- Same 12/14 taper as Quadra® cementless stems.
- Same instrumentation as Quadra® cementless stems.
- 135° and 127° neck-shaft angles.

Distal tip
Double tapered distal tip reduces the risk of stress peak in the diaphysis.