

## Quick Reference Guide

# BIOLOX<sup>®</sup> delta in THA

BIOLOX<sup>®</sup>*delta* is a highly biocompatible and hypoallergenic ceramic material. It was first introduced in 2003 and convinces with a strong clinical history.

BIOLOX<sup>®</sup> delta ceramic shows superior physico-chemical properties leading to excellent wettability and a very high wear resistance. It is safe in terms of metal ion release and pathogenic reactions to ceramic particles are highly unlikely.

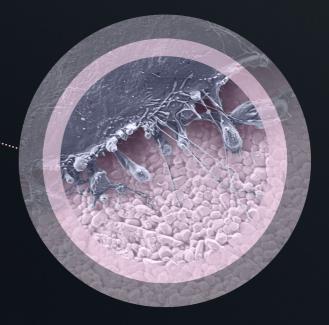
The biocompatibility of BIOLOX<sup>®</sup>*delta* has been proven in numerous scientific studies. The material is less prone to biofilm formation and its use may decrease the risk of revision due to infection.

Ceramics (CoC and CoP bearings) are associated with the best clinical outcomes and a high potential for cost-savings in THA.



#### BIOCOMPATIBILITY

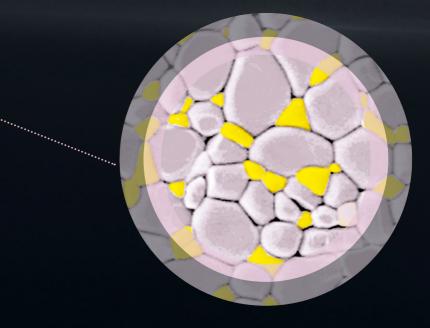
There is no known clinical evidence indicating the occurrence of adverse reactions directly related to BIOLOX®*delta* material, demonstrating its excellent biocompatibility. BIOLOX®*delta* ceramic has proven its ability/capability to perform its desired function and generates the most appropriate tissue response, but without eliciting undesirable local or systemic effects.



METAL HYPERSENSIVITY

BIOLOX<sup>®</sup>*delta* ceramic is hypoallergenic and is safe in terms of metal ion release. Due to the nature and strength of the covalent and ionic bonds of its structure, BIOLOX<sup>®</sup>*delta* ceramic demonstrates high chemical stability in physiological environments.





#### MECHANICAL PERFORMANCE

BIOLOX<sup>®</sup>*delta* is an alumina matrix ceramic composite composed of alumina, zirconia, and certain additives. Due to the high hardness and toughness, BIOLOX<sup>®</sup>*delta* ceramic exhibits very high wear resistance and scratch resistance.



#### TRIBOLOGY

BIOLOX<sup>®</sup>*delta* bearings have the lowest wear of all bearing materials and the highest resistance to wear, particularly under non-optimal 3<sup>rd</sup> body wear conditions. Ceramics exhibit the lowest frictional torque and lowest wear in hard-on-hard and hardon-soft bearings of all bearing materials. Extensive tests and retrieval studies have shown that the use of BIOLOX<sup>®</sup>*delta* ceramic heads mitigates the risk of fretting corrosion.

#### INFECTION

BIOLOX<sup>®</sup>*delta* ceramic has higher wettability, protein adsorption, and reduced incidence of bacterial adhesion compared to CoCr and other materials. The most recent registry data show that (mixed) ceramic bearings are associated with a lower risk of revision for PJI compared to metal bearings.



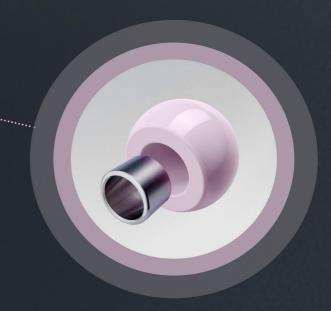
#### CLINICAL OUTCOMES

The use of ceramic bearings in hip arthroplasty has increased over the last years. By now, BIOLOX®*delta* is the preferred femoral head material in hip replacements. Most arthroplasty registries from all over the world confirm that the use of ceramic heads is associated with lower rates of revision compared to metal heads.

#### **USE IN REVISIONS**

Sleeved ceramic heads such as BIOLOX®OPTION offer the possibility of revising a femoral head implant while retaining a well-fixed femoral stem with minor damage on the taper surface.

The BIOLOX®OPTION system has proven to be safe and is reliable in revisions for ALTR or metallosis. Extensive tests and retrieval studies show that the use of an adapter sleeve has no significant effect on the corrosion of modular taper connections.





### COST EFFECTIVENESS

Studies that have examined the cost effectiveness of different bearing-materials and analyzed the relation between initial cost and long-term benefit of the bearing have shown that ceramics are associated with a high potential for cost-savings in THA, therefore constitute an economical advantage.

CeramTec GmbH Medical Products Division CeramTec-Platz 1–9 D-73207 Plochingen www.biolox.com BIOLOX® delta conventional femoral heads and inserts as well as BIOLOX® OPTION are registered by CeramTec's custom is registered in the USA by CeramTec's customers. The products are not registered/available in all countries. The I Resurfacing made of BIOLOX® delta is in clinical investigation in the EU and UK by Embody Orthopaedic Ltd The HI is tested in a clinical study approved by MHRA and NHS, respectively. The HI Anatomic Ceramic Hip Resurfacing is not ap and is not commercially available. Caution: All other shown implants are under development and are not approved to content, including photos, illustrations and the like, herein is protected by copyright, trademarks and other int as applicable, owned by, or licensed to, the CeramTec Group unless otherwise indicated. Cited /Quoted references availab



