LINK®

MobileLink

Acetabular Cup System

Product Rationale

Many years of experience with successful implant systems and fixation concepts as well as the latest material and coating technologies have been taken into account and used in the design of this acetabular system. The result is the versatile cementless MobileLink Acetabular Cup System.

The MobileLink Acetabular Cup System comes in two different versions: A cluster-hole press-fit cup and a multi-hole press-fit cup. Both versions of the shells are available in a TiCaP double coating or a TrabecuLink surface.

The TiCaP double coating combines a porous surface for primary fixation with our HX calcium phosphate coating.[16]

The 3-dimensional TrabecuLink structure, with its pore size, porosity and type of structure, provides a basis for biologic fixation.[12,13]

The MobileLink Acetabular Cup System can be used with E-DUR (highly crosslinked, Vit-E PE) inserts. The polyethylene inserts are available in neutral and 5 mm shoulder options.

The MobileLink Acetabular Cup System can be combined with modular offset and/or inclining Shell/Insert Adapters (Face Changer). The adapters allow restoration of the anatomy in revision cases.

The MobileLink Acetabular Cup System can be transformed into a modular dual mobility system, with the use of Dual Mobility Inserts made from EndoDur. The DM Insert is to accommodate poly DM Liners from the BiMobile Dual Mobility System.

The dual mobility concept was developed by Prof. Gilles Bousquet in the 1970s with the aim of avoiding recurrent hip luxations. A modular Dual Mobility System is composed of a Dual Mobility Insert with a highly polished inner surface placed in a Shell in which a mobile polyethylene Liner with a pressed-in Prosthesis Head articulates.

Features and Advantages of the Dual Mobility System:

- Dual mobility leads to reduced risk of dislocation and increased range of motion (RoM)[1]
- Polished inner surface[2,3]
- Elevated shoulder to facilitate removal of the liner in case of revision.
- Self-centering Liner promotes even wear patterns and enhances dislocation resistance[4]

Shells

TrabecuLink
Cluster Hole

TrabecuLink
Multi Hole

Inserts

E-DUR

Shell/Insert Adapter (Face Changer)

Offset

Dual Mobility Insert & Liner

Dual Mobility Insert
EndoDur

TiCaP
Cluster Hole

TiCaP
Multi Hole

E-DUR
(with 5 mm shoulder)

10° Inclination

20° Inclination

Dual Mobility Liner
E-DUR

Wide range of sizes
- 42 - 72 mm
- 74 - 80 mm, on request

Triple locked inserts
Secure fixation of polyethylene insert to shell by a “snap-lock mechanism”, conical coupling and antirotation tabs

Variable bone screw options
- Cluster Hole Shell screw holes are pre-closed with removable caps.
- +/-15° screw angulation possible

Color coding
for streamlined workflow

3 dimensional TrabecuLink structure
Porosity of 70%, pore size of 610-820 µm and structure depth of 1mm designed for biologic fixation.[12,13,14]

Rough Titanium-Plasma + HX Coating → TiCaP
Double layer coating.

50/36 – Outside small, inside big
36 mm prosthesis heads starting from 50 mm shell size for polyethylene inserts

Latest material selection
- E-DUR

Dual Mobility Insert
Dual mobility leads to reduced risk of dislocation and increased range of motion (RoM)[1]

Face Changer
Shell/Insert Adapter (Face Changer) to adjust inclination or/and offset

Secure fixation of Face Changer
to Shell by a conical coupling, antirotation tabs and a fixation screw (except the neutral Face Changer)

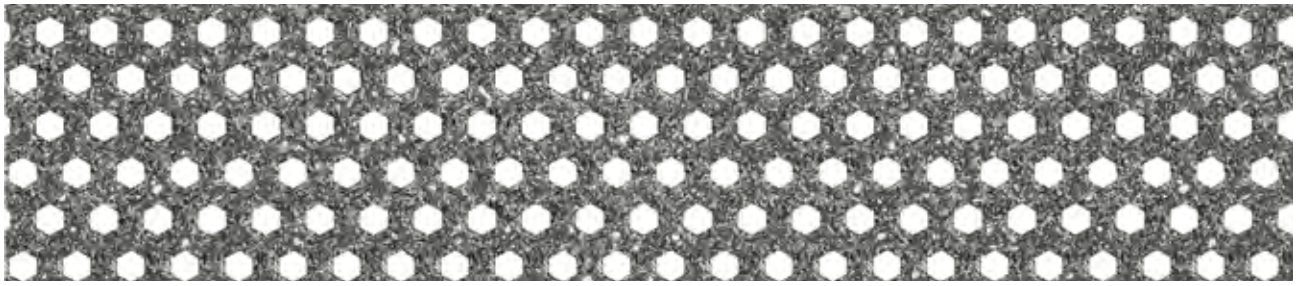
Great versatility, reduced inventory
due to size grouping of inserts and introduction of Face Changers, great versatility with limited amount of polyethylene inserts

Intraoperative flexibility
One instrument platform for primary and revision surgery

Streamlined surgical experience
through simple, ergonomic instruments and color coding

TrabecuLink
3-dimensional structure for biologic fixation

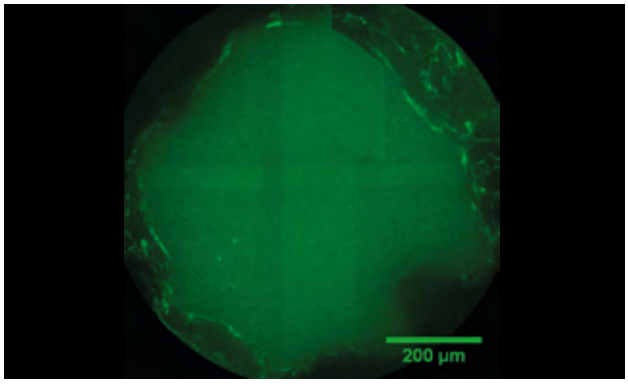
- Porosity of 70%, pore size of 610-820 µm and structure depth of 1mm designed for biologic fixation.[12,13,14]

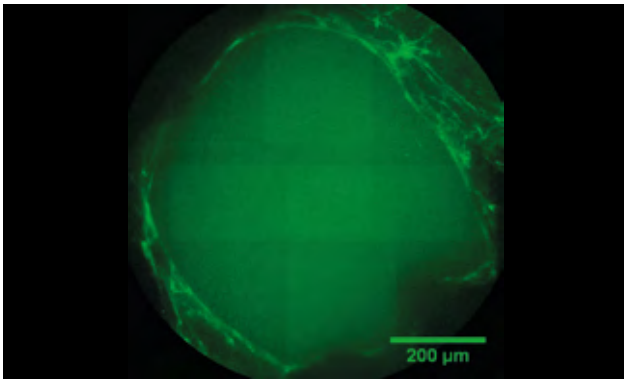


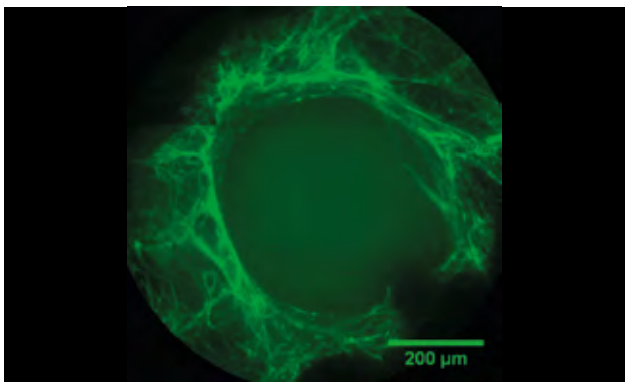
TrabecuLink pore filling

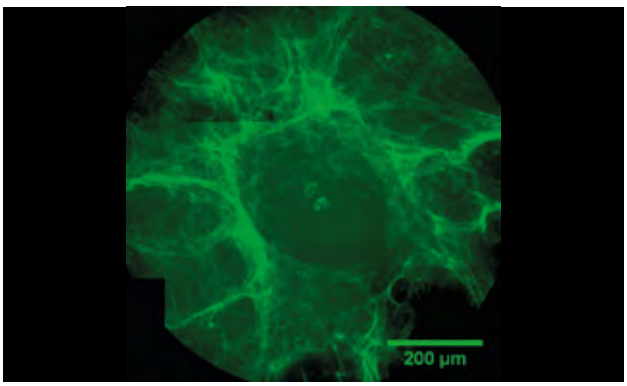
The sequence of images shows a pore of the TrabecuLink structure being filled with tissue under in-vitro cell culture conditions. The fibronectin laid down by human fibroblasts and continually reorganized over a period of eight days is visible as green fibers.

Fibronectin is a component of the extracellular matrix that is formed at an early stage of the healing process. It forms a basis for the embedding of collagen, which is essential for mineralization of the tissue and ingrowth of bone into the structure. Apart from the accumulation of fibronectin, which increases over time, a clear contraction of the matrix towards the center of the pore can be observed. This contraction mechanism, which is attributable to the cellular forces acting in the tissue, accelerates the rate at which the pore is filled with tissue, compared to a layer-by-layer tissue growth.





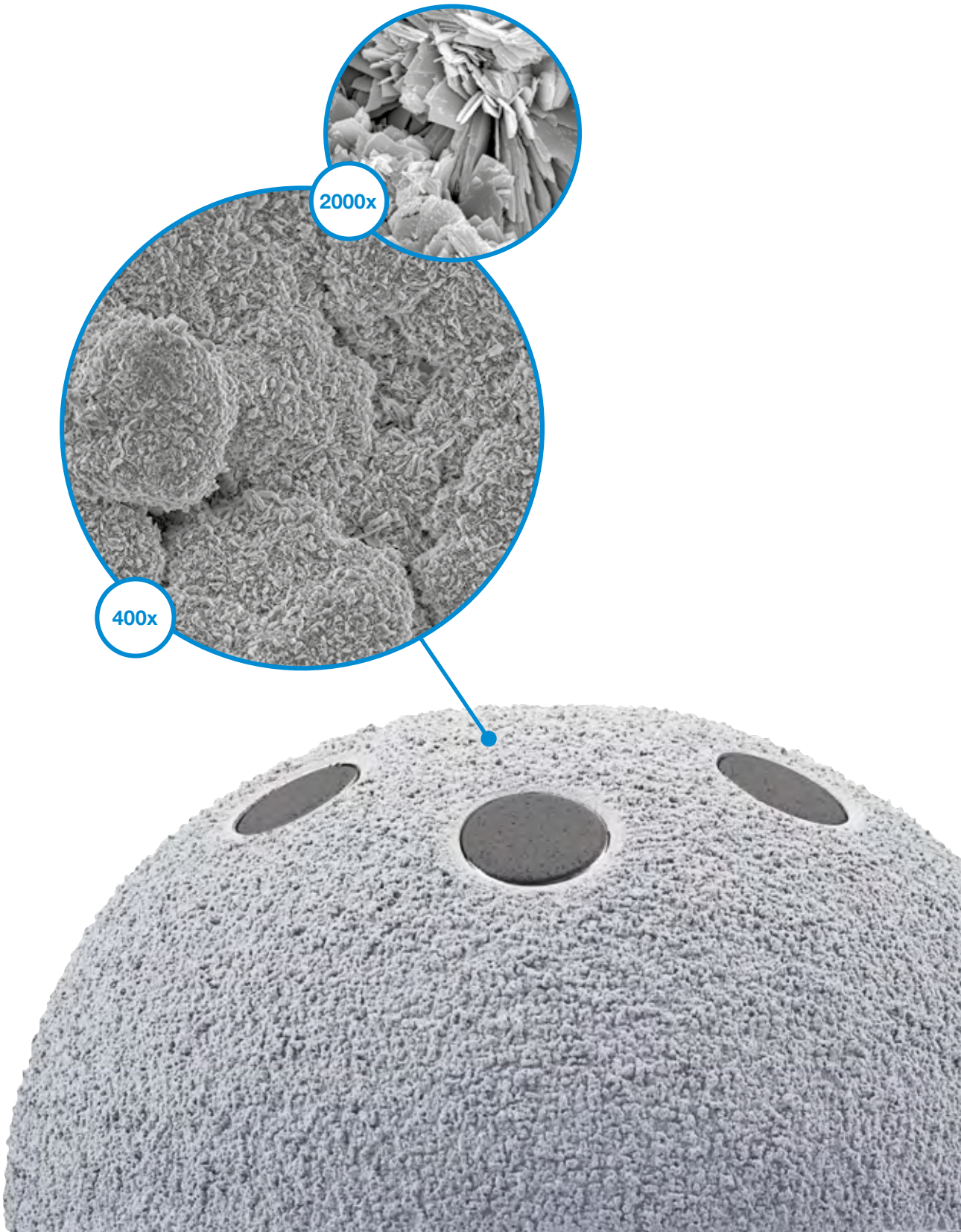




(Reference: Joly P et al., PLOS One 2013; https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0073545). Julius Wolff Institute, Charité - Universitätsmedizin Berlin

TiCaP Double Coating:
Titanium (Ti)/Calcium Phosphate (CaP)

The TiCaP coating is applied by first vacuum plasma spraying a highly dense adhesive layer of titanium, approximately 450 µm thick, onto the surface of the implant. In a second step, on top of this roughened surface, an approx. 15 µm thick HX layer of mechanically stable calcium phosphate is deposited in an electrochemical process.



The excellent suitability of UHMWPE as a bearing material for joint replacement is accepted since the 60s.[5,6,7]

The following features characterize UHMWPE:
- Biocompatibility
- High wear resistance
- Impact resistance
- Fatigue and crack resistance

With these characteristics the national and international standards for implant materials are fulfilled.[6,7]

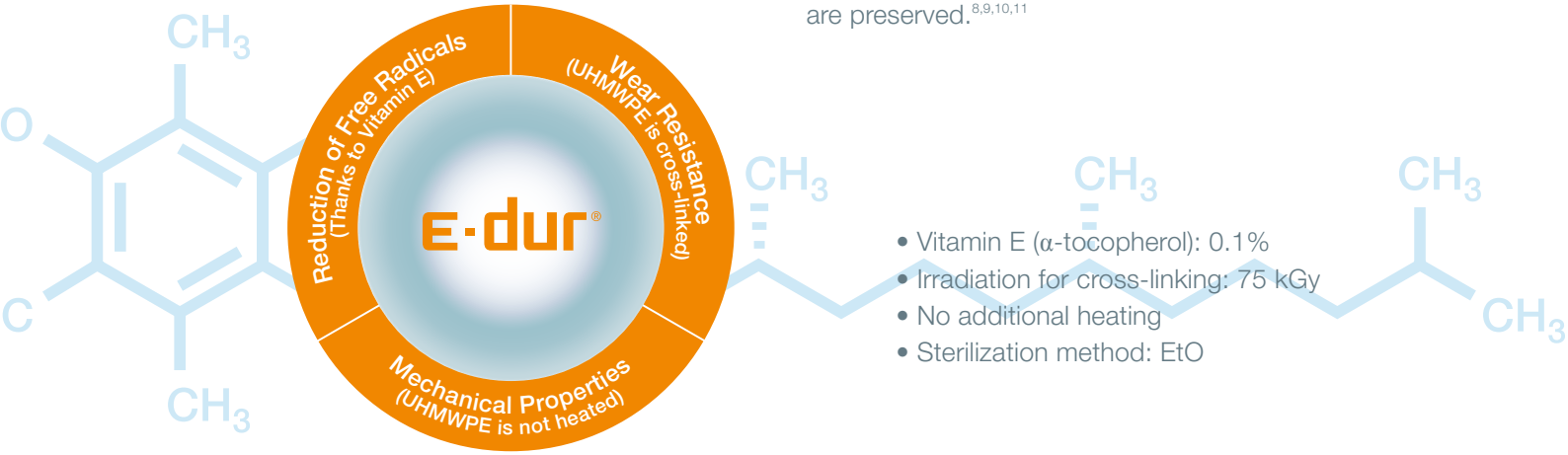
UHMWPE was developed to be the "Gold Standard" for articulating surfaces in endoprostheses reconstructions.

The "Gold Standard" has since taken additional steps to further improve mechanical properties and longevity of the material. By cross-linking the material, the wear resistance improved substantially. The enrichment with Vitamin E protects against oxidation.[15]

For the E-dur® Vit-E Inserts the Vitamin E is used as an antioxidant to neutralize the free radicals during the process of the cross-linking.[8,9,10,11]

Due to the cross-linking process the wear resistance of the UHMWPE material is improved. The enrichment of Vitamin E counteracts the aging process.[15]

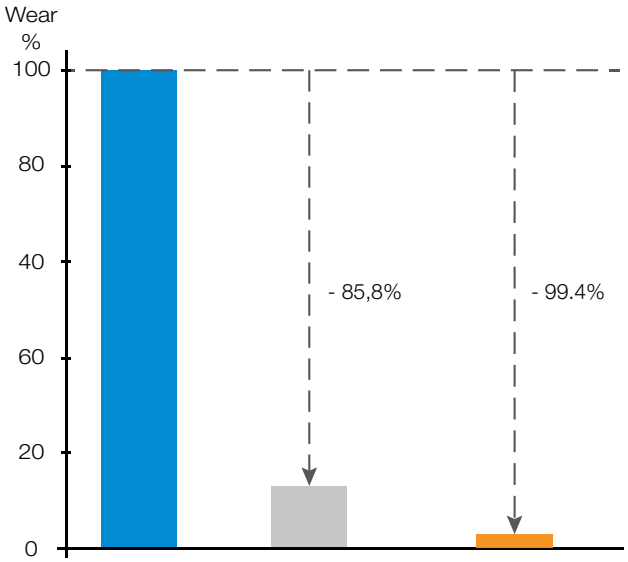
The mechanical properties and the biocompatibility are preserved.[8,9,10,11]



- Vitamin E (α-tocopherol): 0.1%
- Irradiation for cross-linking: 75 kGy
- No additional heating
- Sterilization method: EtO

Wear Resistance[15]

in vitro wear comparisons of UHMWPE materials reported in literature



Method

Hip Simulator, 5 million cycles, Ø 36 Aluminia.

Type of PE

- Standard UHMWPE, γ-ster 30kGy, aged
- Highly Crosslinked UHMWPE, γ-irr 75kGy, remelt, Eto-ster, aged
- Highly Crosslinked UHMWPE + Vit-E, blended 0.1% Vit-E, β-irr 80 kGy, Eto-ster, aged

Literature

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