

The demand for custom-made implant components increases continuously in revision and tumor endoprosthetics. Complicated bone defects after single or multiple revision, deep infection, or large tumor resections often do not tolerate treatment with standard implant components.

**implantcast** has been planning, constructing and manufacturing individual implants in Germany for more than 20 years for customers worldwide. Since 2014 the additive manufacturing, or 3D printing, is used to create implants which match the patients anatomy to fill defects as good as possible. A dedicated software enables us to generate a 3D model of the bone or joint to be reconstructed from high-resolution CT or MRI data. That 3D model is the basis for the custom-made implant.

## Individual implants and patient specific instruments - really necessary?

A custom-made, well fitting implant incl. the corresponding **patient specific instrumentation (PSIs)** can allow for a quick and safer positioning of the implant and therefore potentially reduces the time in the operating theatre drastically. As a consequence, the risk for an infection may decrease. The extensive planning and 3D analysis minimizes potential error sources. The resection is planned in a way to reduce bone loss and to preserve the surrounding soft tissue as much as possible. This can ease later revisions and keep the natural anatomy of the patient mostly intact. Patient specific instruments are planned and manufactured accordingly. As coatings, **hydroxylapatite (HA)**, **silver** and **titanium nitride (TiN)** are available.

## EPORE®

EPORE® is a porous structure that mimics the abilities of cancellous bone. It is intended to support bone ingrowth and thus may speed up the recovery of the patient, especially in combination with a well fitting custom-made implant.

