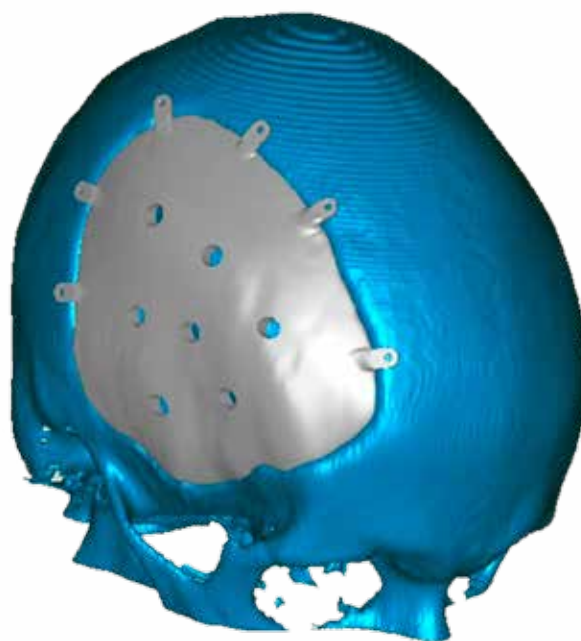


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# Custom cranial implant

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**Cranio-Oss**



# Cranio-Oss

- Exact geometry from CT data
- Excellent biocompatibility – Ti, PEEK
- No adjustments required during surgery

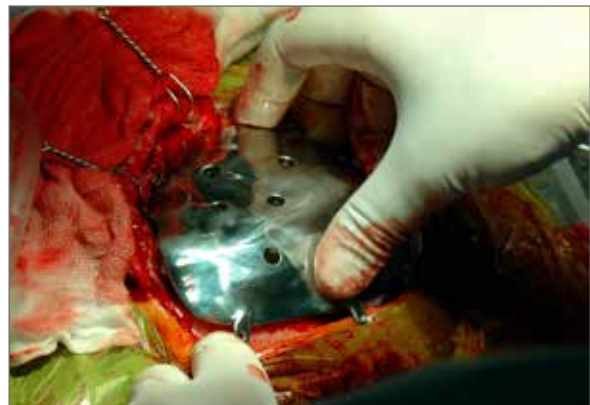
## SPECIFICATION

**Cranio-Oss custom implants** are indicated for anatomical reconstructions of bone defects in the area of the cranial vault and face caused by decompressive craniectomy; comminuted fractures and fractures with a loss of bone tissue; bone removal due to a tumour, inflammation, infection or rejection of previously implanted material.

Cranio-Oss custom implants are made from synthetic biomaterials – technically pure titanium (cp Ti) or polyetheretherketone (PEEK Optima-LT), using the modern CAD/CAM method. Customization of artificial implants for the specific defect and patient allows us to optimize the treatment of extensive bone defects.

## Advantages

- Precise customized geometry created according to the patient's up-to-date CT data
- Choice of two materials with excellent biocompatibility (Ti, PEEK)
- The supplied implants are complete and finished and do not need to be adjusted during surgery
- Manufactured using modern CAD/CAM technology with five-axis milling
- Highly precise and stable shape
- Maximum surface in contact with the bone – even distribution of load
- Very good esthetic results



## PROPERTIES OF CRANIO-OSS Ti

Technically pure titanium  
(ISO 5832-2.1993 E: Implants for Surgery, Unalloyed titanium)

- High mechanical strength
- Excellent biocompatibility
- Osteoconductive surface that is in contact with the bone
- Integrated fitting components – high primary stability
- Can be re-sterilized in an autoclave
- Radiopaque



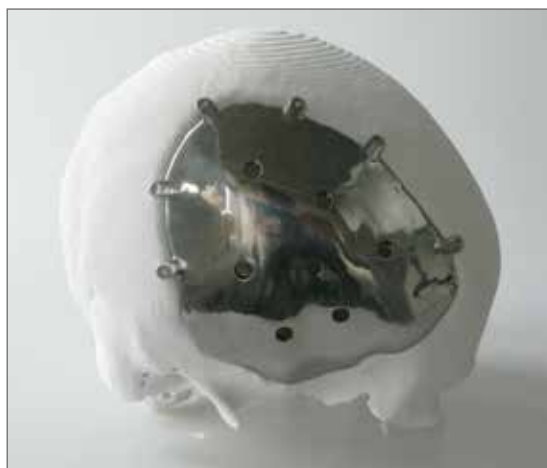
| Mechanical and physical properties | Cortical bone | Technically pure titanium |
|------------------------------------|---------------|---------------------------|
| Density (kg/m <sup>3</sup> )       | 1 700–2 000   | 4 540                     |
| Elasticity modulus (GPa)           | 8–24          | 103                       |
| Yield strength (MPa)               | 115           | 170–440                   |

Cranio implants can be fixed using integrated loop fixtures with **Cranio-Oss** mini screws **L6** or **L8**, manufactured from titanium alloy (Ti Grade 5; ISO 5832-3), ensuring high primary stability of the implant.



The implant surface that is in contact with the bone has a special surface to achieve maximum tissue response.

The edges of the implant are precisely aligned with the edge of the defective bone and the entire implant has optimum thickness. If minor adjustments of the dimensions are required at the site of contact between the implant and the bone, it is necessary to adjust the bone.



# Cranio-Oss PEEK

## PROPERTIES OF CRANIO-OSS PEEK

Polyetheretherketone

(ASTM F2026-10: PEEK Polymers for Surgical Implant Applications)

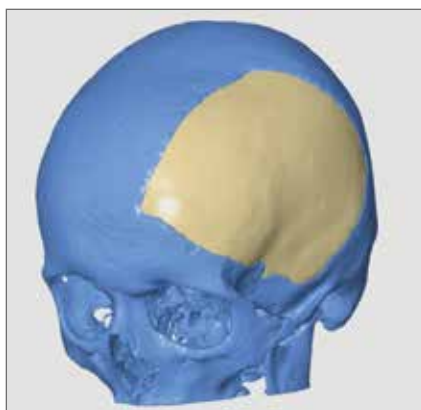
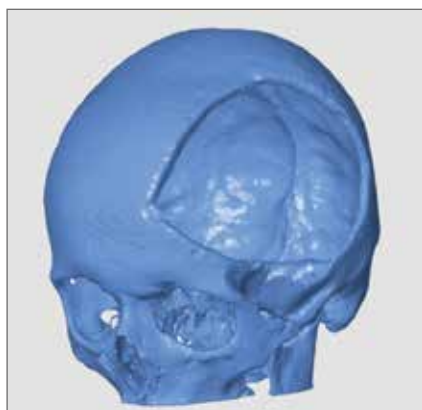
- Mechanical properties similar to bone
- Specific weight similar to bone
- Better biocompatibility than other plastic materials
- Radiolucent
- Can be adjusted during surgery
- Can be re-sterilized in an autoclave
- Can be fixed with mini-splints



| Mechanical and physical properties | Cortical bone | PEEK Optima |
|------------------------------------|---------------|-------------|
| Density (kg/m <sup>3</sup> )       | 1 700–2 000   | 1 280–1 320 |
| Elasticity modulus (GPa)           | 8–24          | >3          |
| Yield strength (MPa)               | 115           | >90         |

Cranio implants can be fixed with mini splints (Titan Grade 4, ISO 5832-2) and self-drilling mini screws (Titan Grade 5, ISO 5832-3).

**Cranio-Oss (PEEK)** custom implants meet the individual needs of every patient. The edges of the implant are precisely aligned with the edge of the defective bone and the entire implant has optimum thickness. If minor adjustments of the dimensions are required at the site of contact between the implant and the bone, the surgeon can adjust the implant during the surgery.



The production process of Cranio-Oss custom implants at LASAK s.r.o. is subject to a proven quality management system in compliance with ISO 9001:2008 and ISO 13485:2012. LASAK products with the CE mark fulfil the requirements of the Medical Devices Directive 93/42/EEC; 1014 identifies the notified body of the manufacturer.

