

Neuro Surgery



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HTR-PMMA Patient Matched Implant



HTR-PMMA is a technology-driven, cranial patient-matched implant designed to achieve cosmesis of the skull resulting from tumor, trauma, or deformity.

The unique process of developing an HTR-PMMA implant converts patient CT-Scan data into 3-D images. These images are used to create anatomical models, which are then used to build the patient-matched implants.

HTR-PMMA is designed to provide:

- Four fit options
- Implant pre-plating
- Simplified CT data transfer through FTP and PACs
- A porous implant that permits fibrovascular ingrowth and potential for bony attachment¹
- Hydrophilic properties which allow for pre-operative antibiotic solution bath¹

Features

- Patient Specific Anatomic Fit
- HTR-PMMA is designed and manufactured based on uncompressed DICOM CT data.
- Hydrophilic
- Allows for placement of implant into antibiotic solution pre-operatively; enables vascular flow post-operatively²
- Porous
- Pore diameter ranges from 150 - 350 microns supports possible connective tissue and bone ingrowth¹
- Rigid and Strong
- Implants have a rigidity similar to bone, with a compressive strength of 5,000 psi.¹
- Negative Surface Charge
- May have minor positive effects on bony ingrowth and inhibition of bacterial adhesion¹
- Radiopaque
- Implants can be conveniently and accurately monitored post-operatively³



CT Scan Data



3D Anatomical Rendering of the Patient Defect



Model of Skull with Patient-Matched Implant

References:

1. Eppeley, Barry L., Matthew Kilgo, and John J. Coleman. Cranial Reconstruction with Computer Generated Hard Tissue Replacement Patient-Matched Implants: Indications, Surgical Technique, and Long Term Follow Up. *Plastic and Reconstructive Surgery* (2001):109:3: 864-71. p. 869
2. Eppeley, Barry L., Michael Sadove, Hans Holmstrom, and Karl-Erik Kahnberg. HTR Polymer Facial Implants: A Five Year Clinical Experience. *Aesthetic Plastic Surgery* (1995): 445-50
3. Kwan, JY, et al. Clinical and Histological Evaluations of Hard tissue Replacement Alloplastic Grafting Material, Case Reports. Abstract 89 46 02; Compendium of Dental Residents' Research Projects and Literature Reviews, USAF School of Aerospace

HTR-PEKK

Patient Matched Cranial Implant

HTR-PEKK introduces state-of-the-art technology and material for manufacturing implants. Through laser sintering or 3D printed manufacturing, HTR-PEKK offers complex solutions to match patient needs.

HTR-PEKK Material

PEKK (poly-ether-ketone-ketone) is a biocompatible material from the same polymer family as PEEK. This family of materials has been utilized in orthopedics and trauma since the 1980s.¹

Surgeons can now select a material for medical device implants offering properties such as radiolucency² and high mechanical strength.³

HTR-PEKK Offers:

- A high strength material with compressive strength of 24.9 Kpsi⁴
- Proven biocompatibility⁵
- Four fit options for patient specific aesthetics
- Simplified CT data transfer through FTP and PACS

HTR-PEKK is manufactured in partnership with Oxford Performance Materials (OPM) using OsteoFab™ Technology

Timeline – 7 days from CT data upload to manufacture

* dependant on surgeon approval & excluding shipping

References:

1. Kurtz S. and Devine J., PEEK biomaterials in trauma, orthopedic, and spinal implants. *Biomaterials*, 2007. 28; p. 4845-4869.
2. Converse, G. et al. Hydroxyapatite whisker-reinforced polyetherketoneketone bone ingrowth scaffolds. *Acta Biomaterialia*. 2010. (6) pg 856-863.
3. ASTM F2820 material standards on file.
4. OPM material Spec, on file. OsteoFab Medical Parts and Implants
5. OPM Internal test report, ISO 10993.



Skull Defect



Patient-Matched PEKK Implant



Model of Skull with Patient-Matched implant

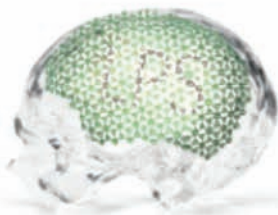
CranioCurve™ Preformed Mesh



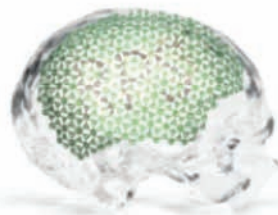
CranioCurve™ Preformed Mesh is a titanium cranioplasty solution and is part of our comprehensive cranioplasty portfolio, for efficient coverage of cranial defects in multiple anatomic regions.

Features

- 0.6mm grade II titanium for a balance of strength and flexibility
- Region specific anatomic shape for efficient and aesthetic placement
- Etched labels on the implant for easy recognition
- Compatible with our 1.5 Neuro Plating System for easy integration
- 5 preformed mesh pieces for off-the-shelf convenience.



Left Parietal, Small



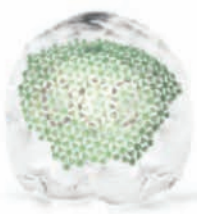
Right Parietal, Small



Left Parietal, Large



Right Parietal, Large



Occipital Mesh



Compliment CranioCurve™ Mesh with iQ® Intelligent System

Insert screws faster¹ with the iQ Intelligent System for an even more efficient delivery.

1. Hatcher, Brian Ph. D., Biomet Microfixation White Paper, Evaluation of the IQ Intelligent System for Rapid Screw Insertion. 2010

Neuro Plating Systems

Features

- Sterile product
- Improved lot traceability
- Efficient inventory
- Used with HT self-drilling screws
- Variety of plate selections for any cranial-flap closure.

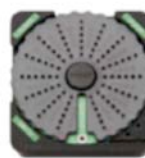
Indications

These devices are implantable bone plates and bone screws for cranial procedures including:

- Fractures
- Osteotomies
- Reconstructive procedures
- Revision procedures where other treatments or devices have failed



Specialty Plating



1.5 Neuro: 15-5000



Thin Flap: 19-5000

Implant Caddies



Par Level Indicators



LactoSorb SE



Among Biomet's most widely known and used products is LactoSorb® SE. First introduced in 1996, the LactoSorb plating system represented a major step forward in craniomaxillofacial fixation. Over ten years later with no change to the original formulation, the LactoSorb plating system remains the most thoroughly proven product of its kind.

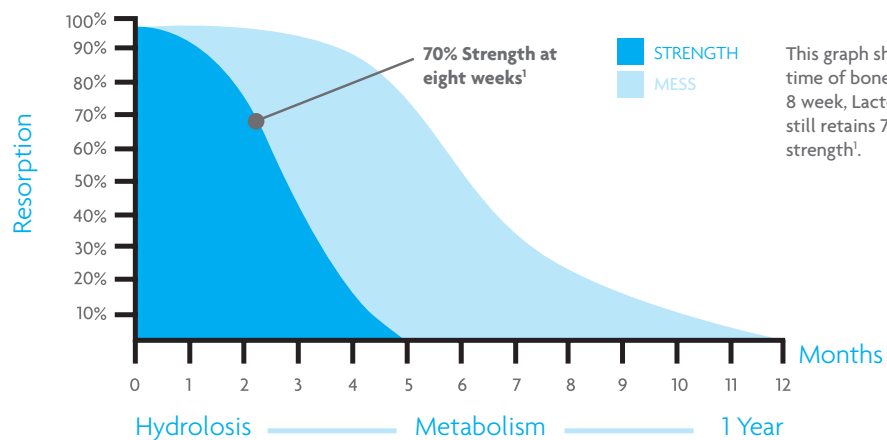
Indications For Use

- Infant craniofacial surgery
- Pediatric reconstructive procedures
- Pediatric mid-face and craniofacial trauma
- Craniotomy flap fixation
- Brow-lift procedures
- Orbital floor fractures
- Bone-graft procedures in the mid-face, mandible or craniofacial skeleton
- Trauma and reconstructive procedures of the midface or craniofacial skeleton, including frontal, parietal, temporal, sphenoid and occipital bones
- Fractures of the maxilla, zygoma, zygomatic arch, orbital rim, frontal sinus wall, nasal, ethmoid and lacrimal bones
- Iliac crest graft cover
- Mandibular osteotomies
- Tumor reconstruction in the mid-face or craniofacial procedures
- Lefort fractures (I, II, III)



RESORPTION IN APPROXIMATELY ONE YEAR OR LESS

At initial placement, LactoSorb is comparable to that of titanium plating and it retains approximately 70% of its strength at eight weeks, allowing for complete osseous union in the craniomaxillofacial skeleton¹.



This graph shows that at the time of bone union, typically 8 week, LactoSorb plating still retains 70% of its initial strength¹.

References:

1. Pietrzak WS, Caminear DS, Perns SV. Mechanical Characteristics of an Absorbable Copolymer Internal Fixation Pin. J Foot and Ankle, Volume 41, 2002;379:388. For more information, please visit www.biomet.com

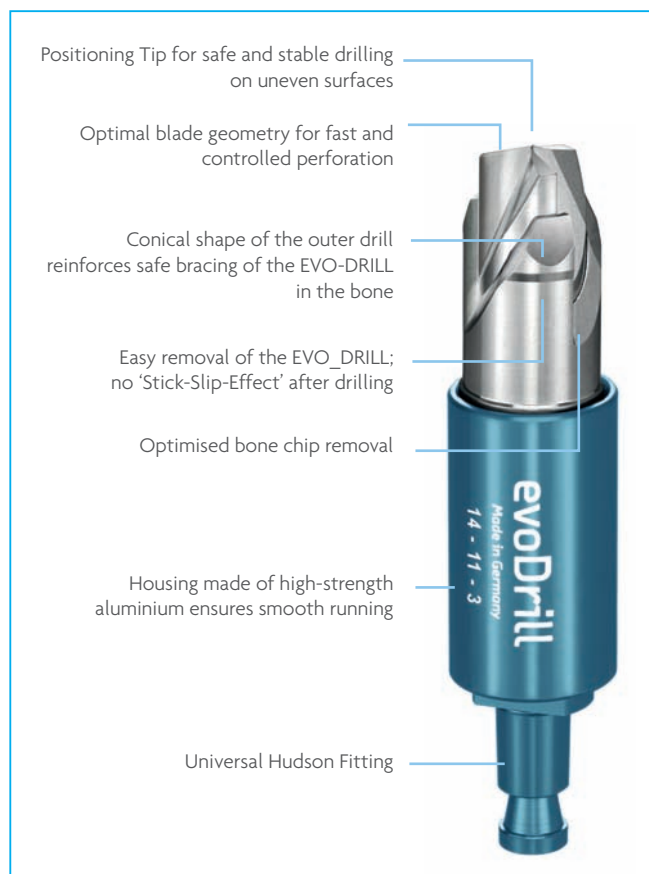
Cranial Perforators - Evonos

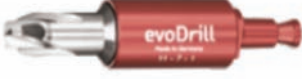
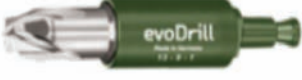
The Evonos 'Evo Drill' range is designed to achieve safe and accurate drilling, with optimal blade geometry for a fast, controlled performance and a high strength aluminum casing to ensure smooth running.

The range consists of 8 different versions, 4 diameters each to help tackle thick and thin bone areas. Single-Use-Perforators are available in eight versions: four different diameters each for thin and thick bone areas.

evonos

medical technology at the head



EVO-DRILL Single Use	Diameter outer/inner	Intended use	Adult	Pediatric	Colour	
26-000002	9 mm / 6 mm	for cranial bones from 1mm thickness		•	yellow	
26-000003	9 mm / 6 mm	for cranial bones from 3mm thickness	•		yellow	
26-000004	11 mm / 7 mm	for cranial bones from 1mm thickness		•	red	
26-000005	11 mm / 7 mm	for cranial bones from 3mm thickness	•		red	
26-000006	13 mm / 9 mm	for cranial bones from 1mm thickness		•	green	
26-000007	13 mm / 9 mm	for cranial bones from 3mm thickness	•		green	
26-000008	14 mm / 11 mm	for cranial bones from 1mm thickness		•	blue	
26-000009	14 mm / 11 mm	for cranial bones from 1mm thickness	•		blue	

LiquoGuard



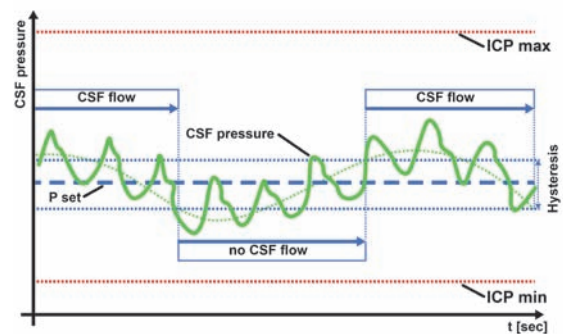
LiquoGuard® is a revolutionary step in cerebrospinal fluid (CSF) management. Through the use of LiquoGuard® the safety of drainage can be maximized, the well-being of patients increased, treatment costs reduced, and a unique level of patient mobility can be achieved.

LiquoGuard® has been designed to support clinical personnel, and to save their valuable time.

LiquoGuard® is the only CSF management system in the world that drains and simultaneously measures CSF pressure under controlled circumstances. The first generation was introduced in 2006 and to this day enjoys the highest level of popularity worldwide. Since 2011 the second generation, LiquoGuard® 7, has been available, it extends the product range and has been setting new standards in CSF management.

The *LiquoGuard®* product line consists of *LiquoGuard®*, *LiquoGuard® 7* and the extensive offering of accessories and consumables.

In addition to all *LiquoGuard®* functions, *LiquoGuard® 7* offers a number of new features that further increase patient safety and application safety, significantly reduce the number of alarm situations, facilitate evaluation of data, and enable connection to other systems.



Lifenet

CMF and Neuro Applications

LifeNet Health offers a variety of tissue grafts for craniomaxillofacial applications. Our tissue grafts are clinically proven in more applications than any other allograft bio-implant provider. As a result, we are the world's most trusted provider of transplant solutions, from new innovations in tissue grafts and technologies, to regenerative medicine and cellular therapies. Since 1995, over 5 million bio-implants processed using Allowash® technology have been distributed by LifeNet Health with no disease transmission.

Lifenet Products Currently Available;

Cancellous Chips, Cortico-cancellous chips, Readigraft BLX Putty, Readigraft BLX Sponge for ;

- Augments implants used for Spinal Fusion
- Adolescent Scoliosis Surgery
- CMF Reconstruction
- Ankle and Foot Reconstruction

The 3 key features that guarantee effective and safe bone grafting solutions;

- 1. Allowash XG - Patented Sterilization Technology validated to remove or kill viruses and bacteria**
 - Sterilization of SAL 10-6 reduces likelihood of infection
 - Maintains biomechanical & biochemical properties & preserves product integrity
- 2. Preservon - Fully Hydrated, Ambient Preservation Technology**
 - No change in biomechanical or biochemical properties
 - Biocompatible
 - Convenient ambient storage and no rehydration saves valuable OR time
 - Reduces possibility of brittle product, improving integrity
- 3. PAD - Demineralization Technology Designed To Ensure Optimal Osteoinductive Potential**
 - 1 – 4 % residual calcium exposes cascade of growth factors
 - Promotes bone healing



Cortico-cancellous chips



DBX Putty

Koven - ES100VX MiniDoppler® - Vascular Ultrasound Doppler

Doppler Features

- Cost effective hand-held pocket Doppler
- Compact & battery operated
- Ideal for pedal pulses and systolic pressures
- Wide selection of interchangeable probes



CAT.NO	DESCRIPTION
ES-100VX	Mini-Doppler Detector Only inc. Strap and Carry Case
BDP10MS	Probe adaptor for 10 Mhz mini-tip probes
BDP20MS	Probe adaptor for 20 Mhz mini-tip probes
NDP-10 10	Mhz Neurovascular Surgical Probe Bayonet Single Use Sterile
NDP-20 20	Mhz Neurovascular Surgical Probe Bayonet Single Use Sterile

