DIGITAL DENTISTRY
CUSTOM-MADE MEDICAL DEVICES

CUSTOMIZED BONE GRAFTS

3D-BONE

THE NEW DIGITAL FRONTIER IN REGENERATIVE AND RECONSTRUCTIVE BONE SURGERY

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1. **Composition**
The material has a biphasic composition.
- **70%** slow resorbing *hydroxyapatite* (HA) to preserve bone volume.
- **30%** fast resorbing *beta tricalcium phosphate* (β-TCP) to facilitate osseointegration.

2. **70% Porosity**
The material features 2 different, interconnected POROSITIES.
- **MACRO 300-600 μm**
- **MICRO 20 μm**
This structure has been devised to favour osteogenic processes.

3. **Compressive strength 10 MPa.**

4. **Highly hydrophilic.**

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**CHARACTERISTICS**

**INDICATIONS FOR USE**
- Reconstructive and regenerative bone surgery
- Vertical regeneration
- Periodontal defects
- Peri-implant defects
- Sinus lift
- Cystic cavities
- Post-extraction cavities
- Crestal defects

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**PICTURE** | **TYPOLOGY** | **DIMENSION** | **CODE**
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[Image] | MINI | 10x15x15 mm (for small reconstructions) | C72BF...
[Image] | MEDIUM | 24x22x15 mm (for medium reconstructions) | C73BF...

In addition to custom-made grafting, a BONE GRAFT REPLICA (code C71PE...) is made in biocompatible material (PEEK).
On request, a resin BONE MODEL (code C42SP..., C45SP...) can also be product, by means of high resolution 3D printing.

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WHY CHOOSE 3D-BONE

BIOCOMPATIBILITY
- Excellent osteoconductivity.
- Optimal porosity.
- Highly hydrophilic properties.

MECHANICAL PERFORMANCES
- Controlled morphology.
- High loading strength and high resistance to mechanical stress.
- High dimensional stability.

INNOVATION
- Innovative digital process.
- Precise preoperative planning.
- Drastic reduction of intraoperative time.
- Traceability.
- Optimization of the bone-graft interface.
- Verified process.
- Holes for cortical screws already present in the graft.

INNOVATION
In addition to the custom-made bone graft, we deliver a replica made of PEEK, a biocompatible material. It is a copy of the graft and already has the holes for the cortical screws.

It is very useful in the first surgical phases:
1. Simulation of the surgery on the model, before performing actual surgery.
2. Correct management of flaps and soft tissues.
3. Checking of the fitting.
4. Surgical guide for drills, to make the holes for the cortical screws.

BT-SCREW SURGICAL KIT
Fixation screw kit for advanced surgery.
DIGITAL WORKFLOW
BTK 3D-BONE

CONE BEAM CT AND PRODUCTION OF A 3D VIRTUAL BONE MODEL
The fundamental requirement is a Cone Beam CT of the jaw, with a special focus on the area with the defect. The process starts with the acquisition of the patient’s tomographic examination. The DICOM file is sent by the clinician to the BTK TEAM using the Web, for the beginning of the design phase (http://upload.btk.dental/btk3d).

DIGITAL PROCESSING OF THE 3D-BONE STRUCTURE
Based on the patient’s situation, the device is designed using the CAD modelling software within the framework of a fully digitalized workflow. The morphological and dimensional features of the device and the position of the holes for the cortical screws are specifically designed so as to fit the patient’s anatomy, while preserving the noble structures.

CHECK AND APPROVAL BY THE PRESCRIBING CLINICIAN
The clinician receives a three-dimensional digital model of the requested custom-made block, can check its compliance and authorize its production. Alternatively, the virtual graft is remodelled as needed until it is approved. To authorize production, the clinician sends a prescription of the custom-made device.

PRODUCTION OF THE GRAFT AND OF THE REPLICA
The graft is made out of a BTK synthetic bone block. It is produced by subtractive technology, using a dedicated machine for the biomaterial: an extremely precise multi-axis milling machine. At the same time, BTK produces the graft replica in biocompatible material.

CHECKING, PACKAGING AND STERILIZATION
Upon completion of the manufacturing phase, production standards are scrupulously checked by means of compliance tests. Then the device is cleaned in an ultrasonic automatic machine and packed in a clean room under controlled atmosphere. The product is sterilized by means of GAMMA RAYS following a validated sterilization process.

http://upload.btk.dental/btk3d
Immediate uploading of the DICOM file of the patient’s tomography.

For more INFO write to: btk3d@btk.dental

FOLLOW US ON
CUSTOMIZED BONE GRAFTS

The new digital frontier in bone regeneration surgery.

3D-BONE is the rapid and reliable solution for effective bone integration.

Based on the patient’s CBCT, the bone graft is produced using CAD-CAM technology. It can be used for small and medium sized bone reconstructions and to prepare the site for receiving one or more dental implants needed to replace missing teeth.

100% DIGITAL, 100% CUSTOMIZED.
IT MEETS THE EXPECTATIONS OF CLINICIANS AND PATIENTS.
STATE OF THE ART PRECISION AND CUSTOMIZATION.

REduced Surgical times
REduced Surgical risks
Perfect Anatomic Conformation
Technical Support
Dedicated Surgical Kit with Cortical Screws

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