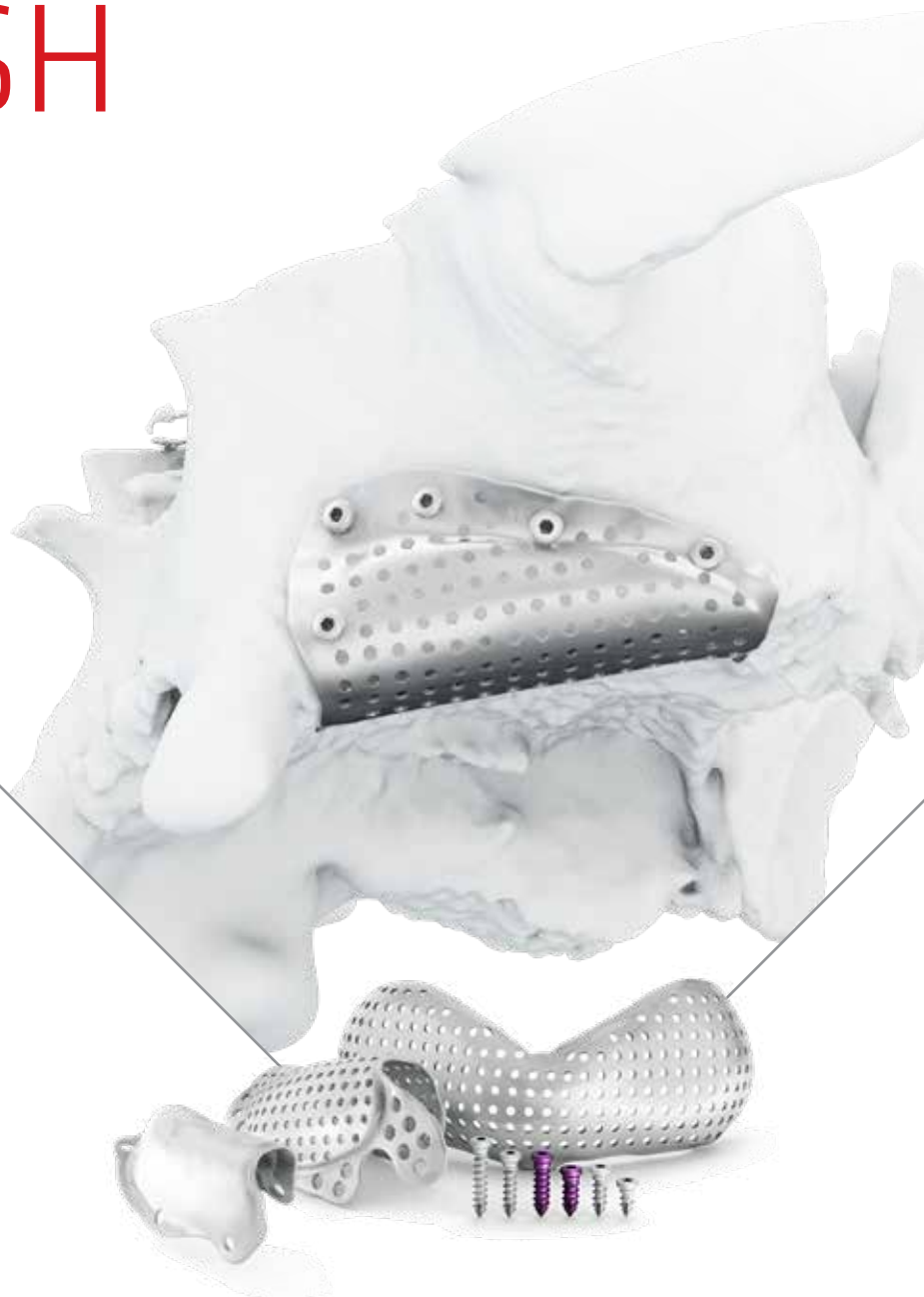


GBR MESHES

3D-MESH



THE IDEAL,
CUSTOMISED SOLUTION
FOR GUIDED BONE REGENERATION (GBR).

GBR MESHES

3D-MESH



It allows the biomaterial to adapt perfectly to the patient's bone anatomy and reduces the duration of surgery, thereby enhancing the success of bone regeneration.

The 3D-MESH bone regeneration mesh is an implantable medical device made to measure for each single patient, in compliance with Directive 93/42/EEC and its subsequent amendments and integrations.

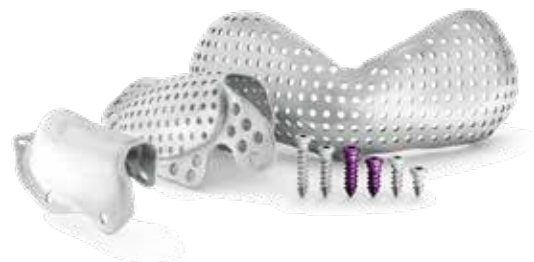
It is used by dentists in GBR procedures and it is applied where there is the need to make up for the lack of autologous bone of edentulous patients.




The specific purpose of the GBR mesh is to keep the regeneration material inside the bone defect cavity identified by the clinician and to guide the remodelling process according to specifically defined morphology and volume parameters. Furthermore, the device permits to keep the bone tissue separate from the soft tissue, thereby protecting the inserted biomaterial and favouring bone regeneration.

3D-MESH is developed based on the clinician's plan and it is made in compliance with the specific treatment needs of each individual patient.

CHARACTERISTICS

- 100% DIGITAL WORK FLOW
- HIGH CAD-CAM PRECISION
- TITANIUM LASER MELTING
- OPEN/CLOSED WEAVE
- DEDICATED OSTEOSYNTHESIS SCREWS
- THIN, STRONG, FLEXIBLE



	TYPOLOGY	DIMENSION	CODE
	SMALL	20x20x25 mm (for small reconstructions)	C32TL10.00
	MEDIUM	30x30x25 mm (for medium reconstructions)	C32TL20.00
	LARGE	60x30x25 mm (for big reconstructions)	C32TL30.00

AVAILABLE WITH OPEN OR CLOSED WEAVE

On request, the BONE MODEL and a COPY OF THE MESH in resin can also be produced, by means of 3D printing.

SURGERY INDICATIONS



SURGICAL INDICATIONS

Titanium meshes are used in GBR procedures to favour the regeneration of bone volumes. They are usually associated with the usage of chips of autologous or heterologous bone or synthetic biomaterial. The assessment of the type of defect and suitable surgical skills in managing soft tissues are fundamental elements in achieving successful surgery.

INSERTION SEQUENCE



1
Anaesthesia and preparation of the surgical field.



2
Incision of tissues.



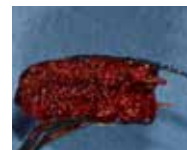
3
Raising of the flap and skeletonisation.



4
Preparation of the recipient bed and possible harvesting of autologous bone.



5
The sterilised mesh is taken out of the package.



6
Use of biomaterial.



7
Placement of the mesh and insertion of the cortical screws.



8
Covering of the mesh with resorbable membrane (recommended procedure).



9
Suture of surgical flaps.

Photo: Courtesy by dr.Alessandro Cucchi

REMOVAL SEQUENCE



1
Anaesthesia and preparation of the surgical field.



2
Incision of tissues and uncovering of the mesh.



3
Removal of fixation screws using the dedicated drivers.



4
Removal of the bone regeneration mesh.



5
Checking of the state of regeneration.



6
Possibly, implant techniques chosen by the surgeon.



7
Suture of the surgical flaps.

Photo: Courtesy by dr.Alessandro Cucchi

BT SCREW SURGICAL KIT

Fixation screw kit for advanced surgery.



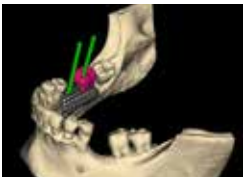
DIGITAL WORKFLOW

BTK 3D-MESH



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-MESH STRUCTURE

Based on the patient's situation, the device is designed using the CAD modelling software within the framework of a fully digitalized work flow. **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.** The outcome of the 3D-MESH structure is shared with the prescribing dentist, who can make changes and who confirms it before production takes place.



TITANIUM LASER MELTING - 3D PRINTING

After receiving the dentist's prescription, BTK produces the component by means of the "Selective Laser Melting" technique. Homogeneous layers of highly pure titanium powder are molten using a laser in a selective way, based on the virtual 3D model. The final object meets **high purity and microstructural homogeneity standards** that guarantee high mechanical performance.

On request, it is also possible to deliver the bone model and a copy in resin of the regeneration mesh made by means of 3D printing.



CLEANING, DECONTAMINATION, PACKAGING AND SHIPPING

After the surface is electro-polished, the product is decontaminated and packaged, ready for sterilization in the clinician's office. All BTK production cycles are controlled and registered so as to **guarantee the traceability of the product, in compliance with the most restrictive standards of reference.**



SURGERY AND SURGICAL APPLICATION

The surgery is performed under local anaesthesia or conscious sedation. The device must remain in situ for the time established by the clinician, in function of the patient's clinical situation, to guarantee correct bone regeneration. After this time period, the device must be surgically removed and then the placement of dental implants is considered, provided that the right clinical conditions are met.

<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



TITANIUM MESHES FOR BONE REGENERATION.

The digital future of guided bone regeneration.

BTK 3D-MESH is an innovative customized titanium mesh.

Based on the patient's CBCT, the mesh is designed using CAD-CAM technology and can be used for small and medium sized bone reconstructions. 3D-MESH is printed in TITANIUM using SELECTIVE LASER MELTING technology, thereby guaranteeing top quality, performance and precision.

100% DIGITAL, 100% CUSTOMIZED.

MEETS THE EXPECTATIONS OF CLINICIANS AND PATIENTS.

CONTROLLED AND VALIDATED PRODUCTION PROCESS.

STATE OF THE ART PRECISION AND CUSTOMIZATION.

**REDUCED
SURGICAL
TIMES AND RISKS**

**PERFECT
ANATOMIC
CONFORMATION**

**TECHNICAL
SUPPORT**

**DEDICATED
SURGICAL KIT
WITH CORTICAL
SCREWS**

BIBLIOGRAPHY

[1] Boyne PJ. Autogenous cancellous bone and marrow transplants. Clin Orthop Relat Res 1970;73:199–209.

[2] Gongloff RK, Cole M, Whitlow W, Boyne PJ. Titanium mesh and particulate cancellous bone and marrow grafts to augment the maxillary alveolar ridge. Int J Oral Maxillofac Surg 1986;15:263–268;

[3] Von Arx T, Hardt N, Walkamm B. The Time technic: Local osteoplasty with micro-titanium mesh (TIME) for alveolar ridge augmentation. Schweiz Monatsschr Zahnmed 1995; 105:650–663.

[4] Von Arx, Kurt B. Implant placement and simultaneous peri-implant bone grafting using a micro titanium mesh for graft stabilization. Int J Periodontics Restorative Dent 1998;18: 117–127.

[5] Di Stefano D, Cazzaniga A. Chirurgia ossea ricostruttiva pre-e perimplantare. Ed. Elsevier Masson, 2008;

[6] Di Stefano D, Cazzaniga A. Tecniche rigenerative e ricostruttive in chirurgia implantare. Ed. Elsevier, 2012] ed essere oggetto di studi clinici a breve e lungo termine.

[7] Von ArxT, Kurt B. Implant placement and simultaneous ridge augmentation using autogenous bone and a micro titanium mesh: a prospective clinical study with 20 implants. Clin Oral Impl Res. 1999; 10:24-33

[8] Rocuzzo M, Ramieri G., Bunino M., Berrone S. Autogenous bone graft alone or associated with titanium mesh for vertical alveolar ridge augmentation: a controlled clinical trial; Clin. Oral Impl. Res. 18, 2007 / 286–294

[9] Louis PJ, Gutta R, Said-Al-Naief N, Bartolucci AA.; Reconstruction of the maxilla and mandible with particulate bone graft and titanium mesh for implant placement. J Oral Maxillofac Surg. 2008 Feb;66(2):235-45.

[10] Corinaldesi G, Pieri F, Sapigni L, Marchetti C.. Evaluation of survival and success rates of dental implants placed at the time of or after alveolar ridge augmentation with an autogenous mandibular bone graft and titanium mesh: a 3- to 8-year retrospective study. Int J Oral Maxillofac Implants. 2009 Nov-Dec;24(6):1119-28

[11] Miyamoto I., Funaki K., Yamauchi K., Kodama T., Takahashi T. Alveolar Ridge Reconstruction with Titanium Mesh and Autogenous Particulate Bone Graft: Computed Tomography-Based Evaluations of Augmented Bone Quality and Quantity; Clinical Implant Dentistry and Related Research, Volume 14, Number 2, 2012

[12] Rakhmatia Y.D., Ayukawa Y., Furuhashi Y., Koyano K. "Current barrier membranes: Titanium mesh and other membranes for guided bone regeneration in dental applications". Journal of Prosthodontic Research 57 (2013) 3–14

[13] Malchiodi L, Scarano A, Quaranta M, Piattelli A. Rigid fixation by means of titanium mesh in edentulous ridge expansion for horizontal ridge augmentation in the maxilla. Int J Oral Maxillofac Implants 1998;13:701–5

BTK PERSONAL TUTOR

A program for individual case planning and execution supported by experienced professionals in order to leverage know-how and maximize clinical experience with the aim to achieve sustainable high patient satisfaction rates.

BTK is always at your disposal for any request for further follow-up or information, promoting periodic and ad-hoc training course.

CERTIFIED QUALITY SYSTEM

**BIOTEC is certified UNI EN ISO 9001
and UNI EN ISO 13485.**

Custom-made device, in accordance with Directive 93/42/EEC and subsequent modifications and additions.

The Company is registered at Italian Health Ministry Register of custom-made medical device manufacturers.

MADE IN ITALY USED GLOBALLY



We constantly ensure that the quality of our products and services meet the high expectations of our customers and their patients.

Specialized professionals are taking care to offer comprehensive solutions in applied research, engineering, education and related activities.

