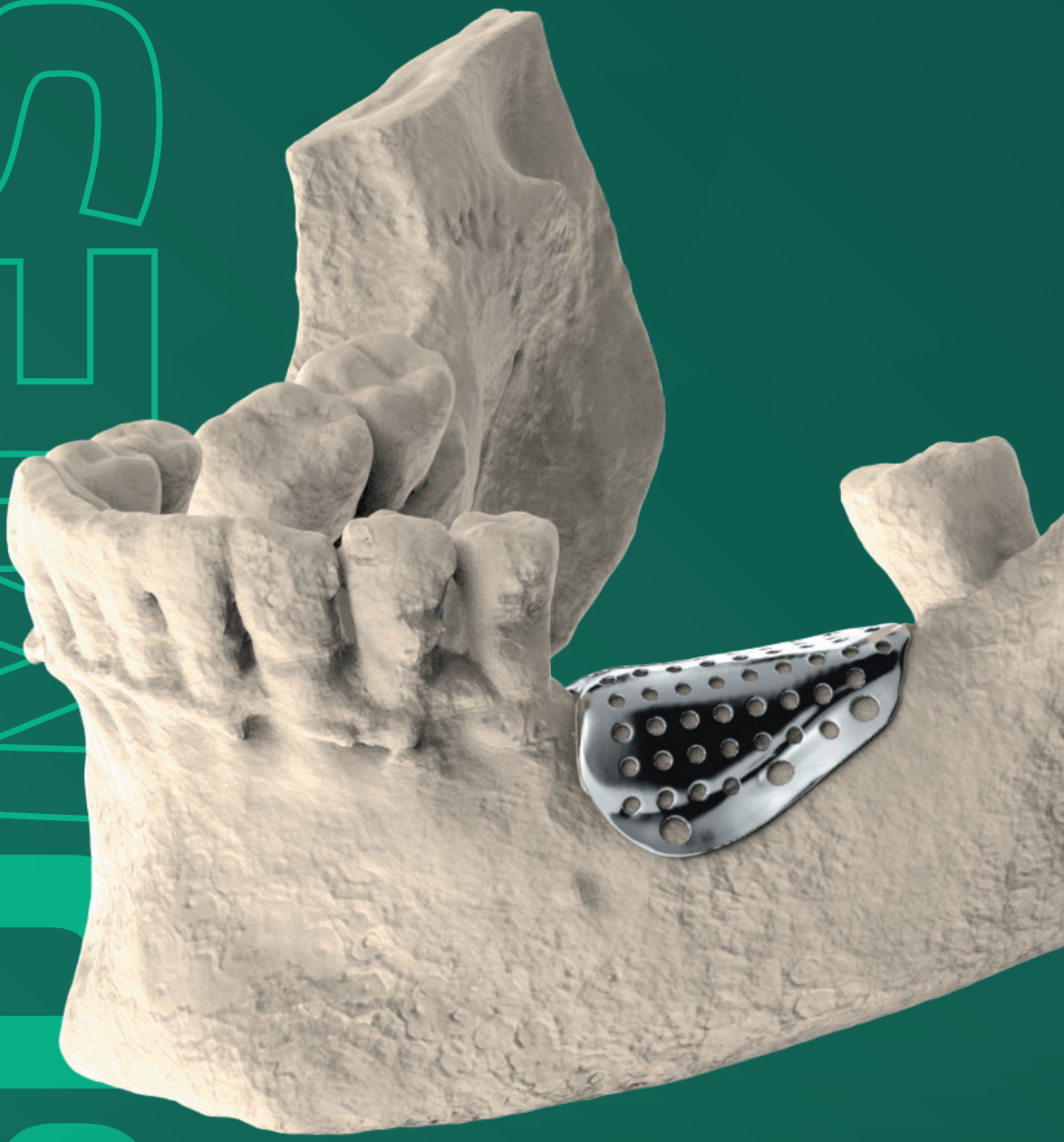
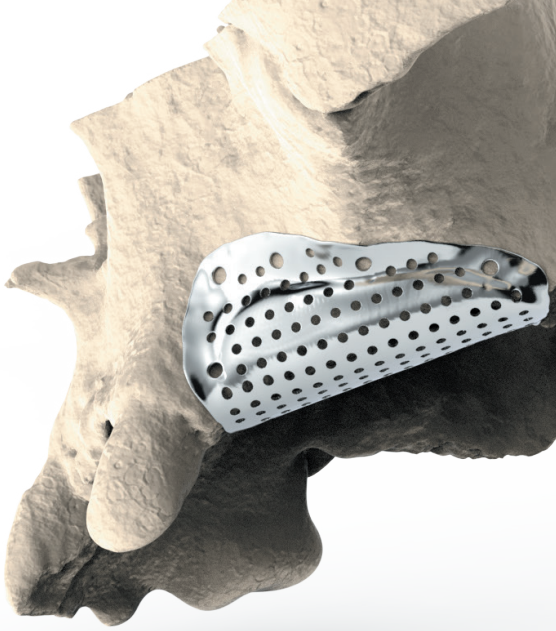
btk Implanting Trust, Smile Again!

# 3D MESH

SOLUTIONS FOR GUIDED BONE REGENERATION



SOLUTIONS FOR GUIDED
BONE REGENERATION
**3D MESH**



# 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.**

## INNOVATIVE FEATURES OF 3D MESH

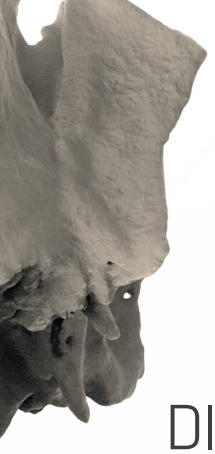
- DEDICATED TECHNICAL ASSISTANCE
  from planning to surgical intervention.
- 100% DIGITAL WORKFLOW
  customized for each patient.
- CUSTOMIZED REPORT FOR EACH CASE
  with three-dimensional project previews and a detailed analysis of the grid and screws in relation to critical anatomical structures.
- MEDICAL TITANIUM WITH 3D PRINTING
  to ensure maximum biocompatibility and strength.
- SHAPED SCREW HOLES
  to guarantee maximum precision and facilitate surgery.
- OPEN/CLOSED MESH
- THIN, RESISTANT, FLEXIBLE
- HIGH CAD-CAM PRECISION

| PICTURE | 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 |

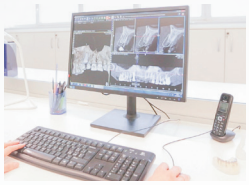
AVAILABLE WITH OPEN OR CLOSED WEAVE

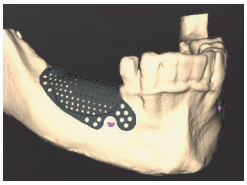
On request, the BONE MODEL and a COPY OF THE MESH in resin can also be product, by means of 3D printing.

visit **btk.dental**



# DIGITAL WORKFLOW
# 3D MESH



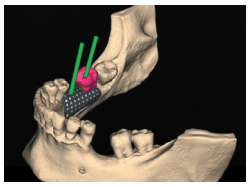


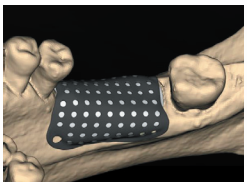
## CONE BEAM CT AND PRODUCTION OF A 3D VIRTUAL BONE MODEL

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.**

Immediately upload the DICOM file
of the patient's Tomographic examination.

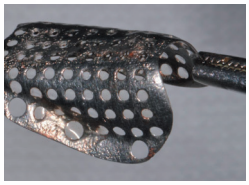
http://upload.btk.dental/btk3d

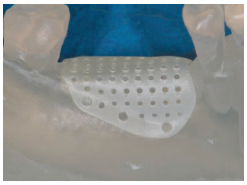




## DIGITAL PROCESSING OF THE 3D-MESH STRUCTURE

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

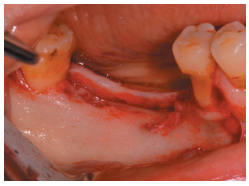
After receiving the dentist's prescription, BTK produces the component by means of the "Selective Laser Melting" technique. Homogeneous layers of highly pure titanium powder are molten using a laser in a selective way, based on the virtual 3D model. The final object meets **high purity and microstructural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

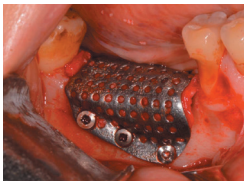
**On request, it is also possible to deliver the bone model and a copy in resin of the regeneration mesh made by means of 3D printing.**



## 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.

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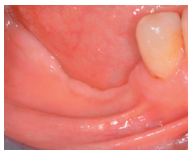
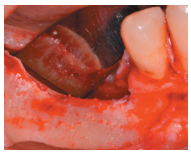
# SURGICAL INDICATIONS

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.

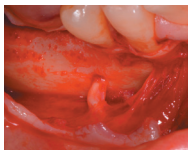
## INSERTION SEQUENCE



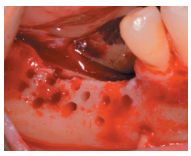
**1** Anaesthesia and preparation of the surgical field.



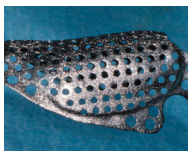
**2** Incision of tissues.



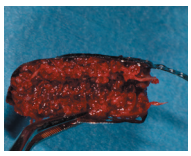
**3** Raising of the flap and skeletisation.



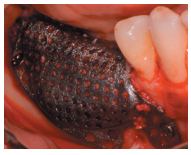
**4** Preparation of the recipient bed and possible harvesting of autologous bone.



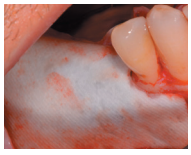
**5** The sterilised mesh is taken out of the package.



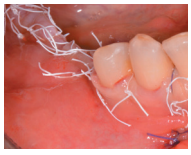
**6** Use of biomaterial.



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



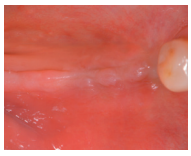
**8** Covering of the mesh with resorbable membrane (recommended procedure).



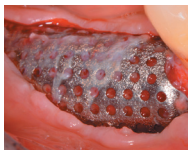
**9** Suture of surgical flaps.

Photo: Courtesy by dr.Alessandro Cucchi

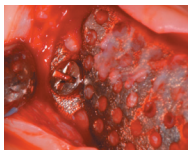
## REMOVAL SEQUENCE



**1** Anaesthesia and preparation of the surgical field.

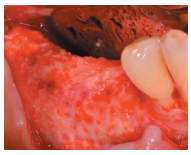


**2** Incision of tissues and uncovering of the mesh.

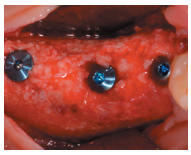


**3** Removal of fixation screws using the dedicated drivers.

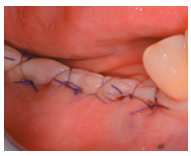
**4** Removal of the bone regeneration mesh.



**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

## SURGICAL KIT BT SCREW

Advanced surgery pin and cortical screw kit.

Kit Ref. 667NA001

SOLUTIONS FOR GUIDED
BONE REGENERATION
**3D MESH**

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# TITANIUM MESHES FOR BONE REGENERATION

The future of guided bone regeneration in the digital era.

**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

SOLUTIONS FOR GUIDED
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**3D MESH**

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## BTK ACADEMY

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

**Scan the QR CODE to find out the next BTK courses.**

## CERTIFIED QUALITY SYSTEM

**Certified quality system UNI EN ISO 9001 and UNI EN ISO 13485.**

CE

CE marked product, in accordance with the directive 93/42/CEE and regulation (UE) 2017/745.

Biotec company is recorded on the Register of medical devices manufactures according to the Health Ministry regulation.

## 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.


btk the smile system®

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