bone & tissue regeneration

botiss biomaterials

maxgraft®
maxgraft® cortico
maxgraft® bonebuilder
maxgraft® bonering

PROCESSED HUMAN ALLOGRAFT

hard tissue







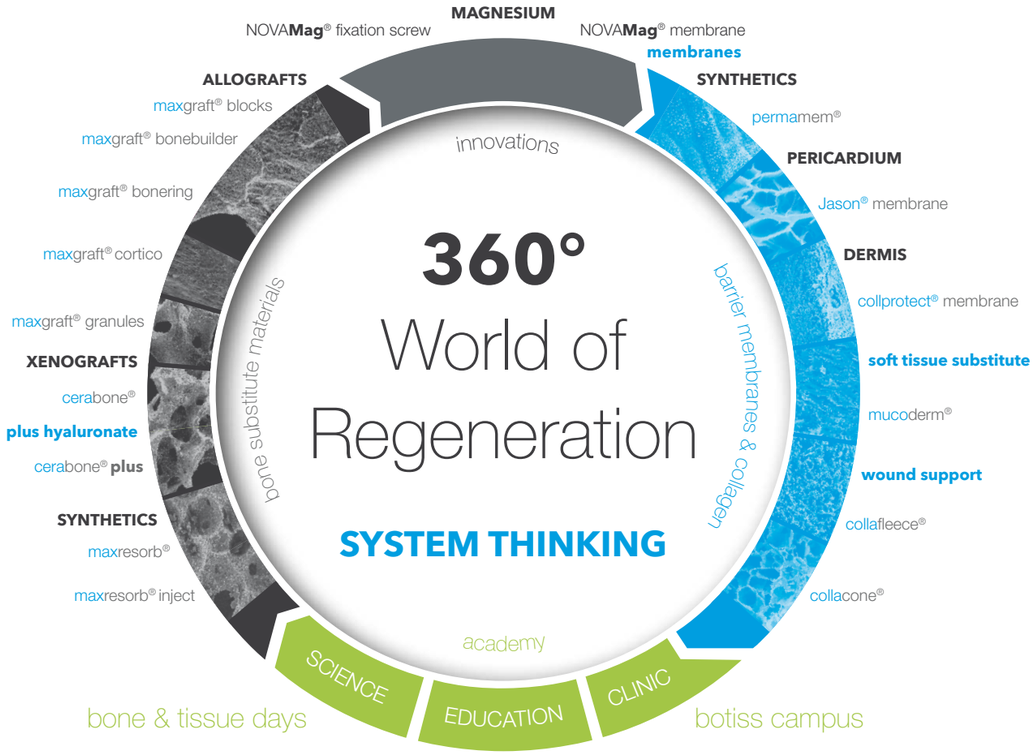



safe

biologic

successful

botiss regeneration system



Development / Production / Distribution

maxresorb®

Synthetic biphasic calcium phosphate

maxresorb® inject

Synthetic injectable bone paste

cerabone®

100% pure bovine bone mineral

cerabone® **plus**

cerabone® mixed with hyaluronate

maxgraft®

Processed allogenic bone graft

maxgraft® cortico

Processed allogenic bone plate

maxgraft® bonering

Processed allogenic bone ring

maxgraft® bonebuilder

Patient matched allogenic bone implant

NOVAMag® fixation screw

Resorbable magnesium screw

NOVAMag® membrane

Resorbable magnesium membrane

permamem®

High-density PTFE barrier membrane

Jason® membrane

Native pericardium GBR / GTR membrane

collprotect® membrane

Native collagen membrane

mucoderm®

3D-stable soft tissue graft (Collagen)

collacone®

Collagen hemostat (Cone)

collafleece®

Collagen hemostat (Sponge)

Processed human allograft

INTRODUCTION

Various bone graft materials are available to replace and regenerate bone matrix lost by tooth extraction, cystectomy or bone atrophy following loss of teeth or inflammatory processes.

Of all grafting options autologous bone is considered the „gold standard“, because of its biological activity due to vital cells and growth factors.

Yet, the autologous bone from intra-oral donor sites is of restricted quantities and availability, and the bone tissue obtained from the iliac crest is described to be subject to fast resorption[1]. Moreover, the harvesting of autologous bone often requires a second surgical site associated with an additional bone defect and potential donor site morbidity[2]. Thus, application of processed allogenic bone tissue demonstrates a reliable and predictable alternative.

The immunological compatibility of processed allogenic bone is not different from autologous tissue[3,4]. In patients who received allogenic bone grafts for ridge augmentation, no circulating antibodies could be detected in blood samples[5].

Moreover, several histological[6,7] and morphological studies[8] have well documented that there was no difference in the final stage of incorporation and new bone formation between allograft and autologous graft.

1. Mertens et al. (2013). Clinical oral implants research, 24(7), 820-825.
2. Palmer et al. (2008). West Indian Medical Journal, 57(5), 490-492.
3. Raggatt et al. (2010). Journal of Biological Chemistry, jbc-R109.
4. Turner et al. (1981). Journal of periodontal research, 16(1), 89-99.
5. Quattlebaum et al. (1988). Journal of periodontology, 59(6), 394-397.
6. Al-Abedalla et al. (2015). Journal of Oral and Maxillofacial Surgery, 73(11), 2108-2122.
7. Laino et al. L. (2014). BioMed research international, 2014.
8. Schlee et al. Head Face Med. 2014 May 28;10(1):21.

Classification

Autologous:
- Patient‘s own bone, mostly harvested intra-orally or from the iliac crest
- Intrinsic biological activity

Allogenic:
- Bone from human donors (post mortem donors or femoral heads of living donors)
- Natural bone composition and structure

Xenogenic:
- From other organisms, mainly bovine origin
- Long-term volume stability

Alloplastic:
- Synthetically produced, preferably calcium phosphate ceramics
- No risk of disease transmission

Cells+Tissuebank Austria

JOINTLY BUILDING BRIDGES

C+TBA austria

maxgraft® - the allogeneic bone grafting materials from botiss, all originate from the Cells+Tissuebank Austria (C+TBA). C+TBA is a non-profit organization for the medical supply of allografts to surgeons under pharmaceutical conditions. C+TBA serves as a platform for the definition of safety standards and assurance of compliance with defined product qualities. As the largest tissue bank in Austria, C+TBA specializes in human bone tissue.

The quality standards for donor selection, procurement, processing, quality control, storage and distribution of human tissue and cells are mandatory committed in the European Directives 2004/23/EC, 2006/17/EC and 2006/86/EC. In addition, at the national level, the legal requirements are defined by the Austrian Tissue Safety Act (GSG).

To meet and comply with both European and national requirements, C+TBA has implemented a quality assurance system at pharmaceutical level, which is regularly audited by the competent national authority, the Austrian Federal Office for Safety in Health Care (BASG / AGES).

The C+TBA is certified as a tissue bank according to §19 and §22 of the Austrian Tissue Safety Act.

Tissue donation and procurement

maxgraft® products basically originate from living donors by explantation of femoral heads (hip replacement surgery). Only cortico-cancellous blocks and cortical struts originate from post mortem tissue donors.

The procurement, standardized by a predefined protocol, is carried out by certified procurement centers according to the European Directives. Tissue donations will only be carried out after the donor's written consent. In addition, the health status of the potential donor is assessed in the context of a risk analysis and the donor is then selected on the basis of strict exclusion criteria. For all donors the highest ethical and safety-related requirements are met.

Donor tissue is only approved for processing after having passed a thorough inspection including a strict serological screening protocol

SEROLOGICAL TESTING

Virus	Test	Specification
Hepatitis B Virus (HBV)	HBsAg,HBcAb, NAT	negative
Hepatitis C Virus (HCV)	Ab, NAT	negative
Human Immunodeficiency Virus (HIV 1/2)	Ab, NAT	negative
Human T-Lymphotropic virus (HTLV 1/2)	Ab, NAT	negative
Virus	**Test**	**Specification**
Treponema pallidum (Lues)	CMIA, TP Ab	negative

After donor acceptance a series of serological testing is performed. In addition to antibody screening (Ab), nucleic acid tests (NAT) are performed. By using this method infections can be identified before antibodies are detected in the blood[9].

Blood samples are taken simultaneously to tissue explantation during total hip replacement surgery or within 24h post mortem

9. Kalus et al. Transfus Med Hemother. 2011;38:365-372

NATURAL BONE
Composition and structure

Thanks to its natural bone composition consisting of mineralized human collagen, maxgraft® shows a high biological regeneration capability in combination with natural remodelling. Therefore maxgraft® is an excellent alternative to autologous bone, meaning that there is no need for an intraoral surgical donor site, which reduces morbidity for the patient[10,11,12].

MINERALIZED HUMAN COLLAGEN

The purification process retains the natural collagen matrix and biomechanical properties of the bone tissue. The natural collagen (~30%) of the organic phase provides the flexibility of the allogenic material; the mineral phase (~70%, mostly hydroxyapatite) provides the stability. The microscopic pores within the material ensure rapid rehydration of the grafting material[13, 14].

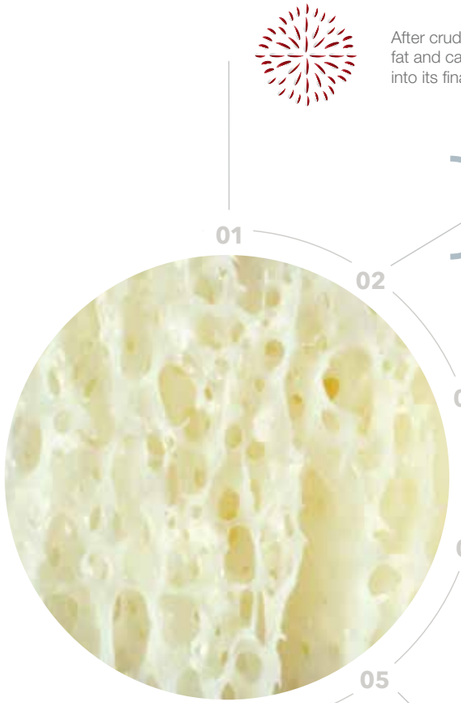
SAFETY AND QUALITY

After thorough donor anamnesis, maximum safety is assured via a series of strict serological testing combined with the C⁺TBA´s Allotec® purification procedure. The final sterilization by gamma irradiation guarantees a sterility assurance level (SAL) of 10^{-6} while ensuring structural and functional integrity of the product and its packaging within a shelf-life of 5 years at 5-30°C.

10. Kloss et al. Clin Oral Implants Res 2018, 29(11):1163-1175.
11. Kloss et al. Clin Case Rep. 2020, 8(5):886-893.
12. Tunkel et al. Clin Case Rep. 2020, 9(2):947-959.
13. Trajkovski et al. Materials 2018, 11(2):215.
14. Barbeck et al. Materials 2019, 12(19):3234.

THE ALLOTEC® PROCESS
maxgraft® – Manufacturing process

Gentle purification procedure (only volatile reagents) preserves the material's structure[13,14]



01 After crude removal of surrounding soft tissue, fat and cartilage, the donor tissue is brought into its final shape.

02 The defatting of the donor tissue with ultrasonic bath allows moderate penetration of solvents during subsequent processing.

03 A treatment with alternating durations of diethyl ether and ethanol leaches out cellular components and denatures non-collagenic proteins, thereby inactivating potential viruses.

04 An oxidative treatment further denatures persisting soluble proteins, thereby eliminating potential antigenicity.

05 Freeze-drying preserves the natural structure of the tissue and maintains a residual moisture of <10%, allowing quick rehydration and easy handling.

06 Double packing and final sterilization by gamma-irradiation guarantee a 5 years shelf-life at 5-30°C.

maxgraft®

INDICATIONS

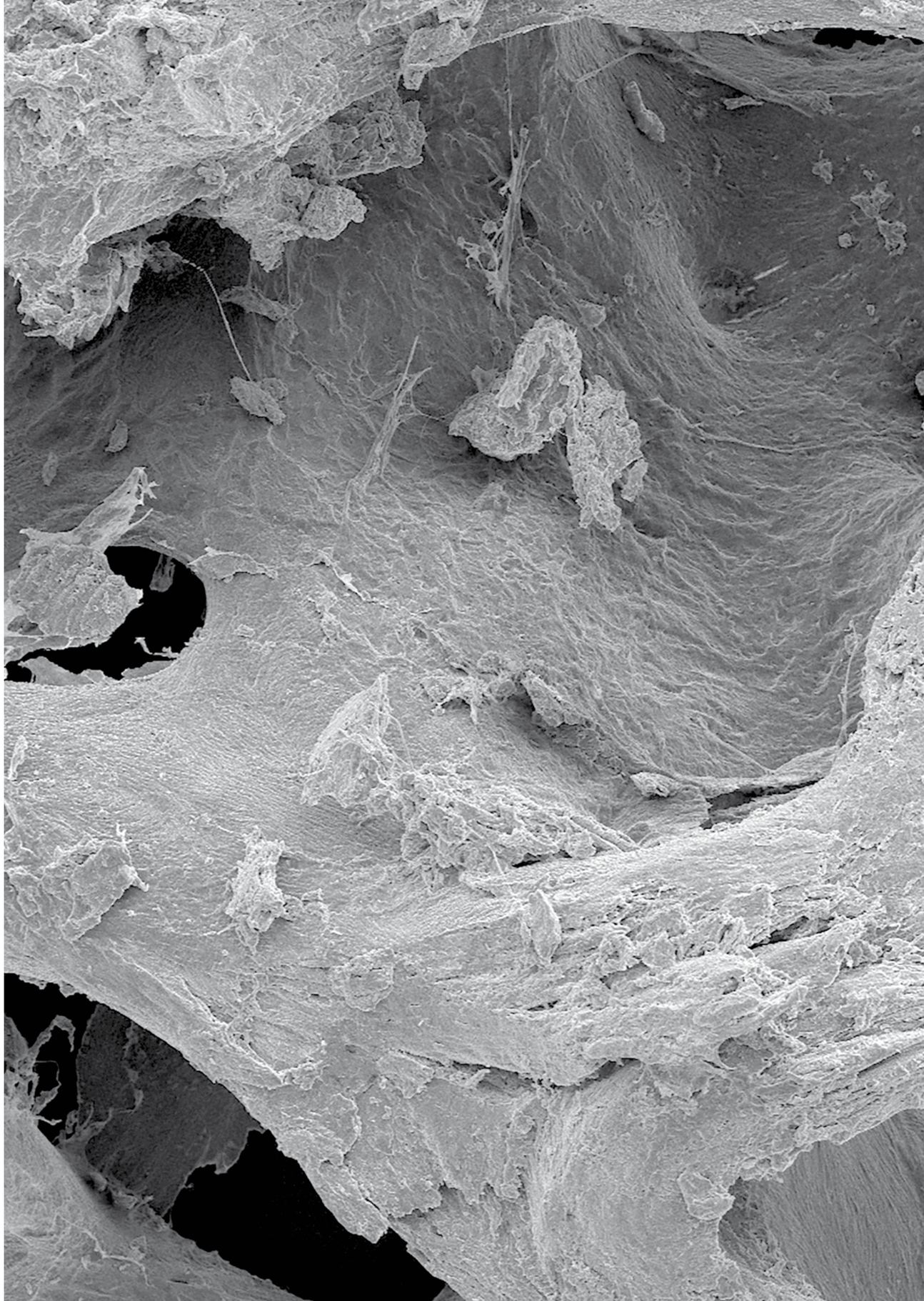
Implantology, Periodontology and Oral and CMF Surgery

- Regeneration of periodontal osseous defects
- Regeneration after cyst and root tip resections
- Regeneration of extraction sockets
- Regeneration of missing bone tissue around dental implants
- Regeneration of gaps around block grafts
- Sinus augmentation
- Horizontal augmentation of alveolar ridges
- Three-dimensional (horizontal and/or vertical) augmentation of alveolar ridges

PROPERTIES

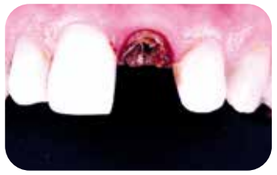
- Bone from human donors (living donors: femoral heads, post mortem donors: diaphysis)
- Natural bone composition - mineralized human collagen
- High biological regeneration capability and natural remodelling[15]
- 5 years shelf-life at 5-30°C

15. Wen et al. J. Periodont. 2019, 91(2):215-222.



CLINICAL CASE BY
Dr. Algirdas Puišys, Vilnius, Lithuania

BUCCAL AUGMENTATION WITH MAXGRAFT® GRANULES AFTER IMMEDIATE IMPLANT PLACEMENT


Initial situation, 36 year old lady


Atraumatic extraction


Flapless implant placement


Occlusal view


Rehydrated maxgraft®


Filing the gap with maxgraft®


Soft tissue thickening with mucoderm®

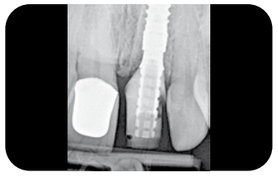

Soft tissue thickening with mucoderm®

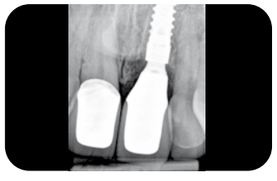

Immediate temporary

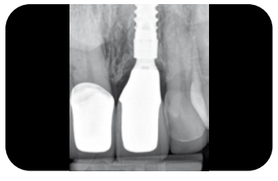

Immediate temporary


After 3 months


3 years after prosthetic delivery


After surgery

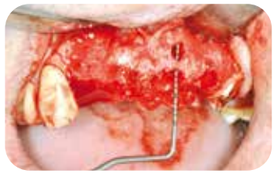

After 1 year

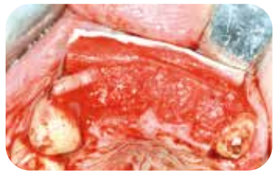

3 years after

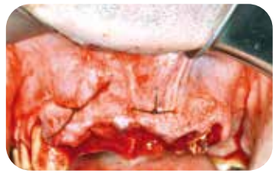
CLINICAL CASE BY
Dr. Fernando Rojas-Vizcaya, Castellón, Spain

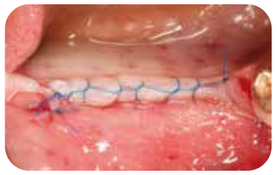
SOCKET PRESERVATION WITH MAXGRAFT® GRANULES

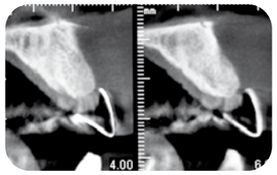

Clinical situation in the maxilla before extraction


Situation after tooth extraction and mobilization of mucosal flap


Augmentation of the maxillary ridge and filling of extraction sockets with maxgraft® granules. Placement of mucoderm® to improve soft tissue situation and Jason® membrane to cover surgical site

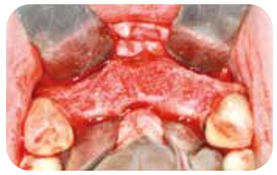

Mobilization and pre-fixation of the surrounding soft tissue

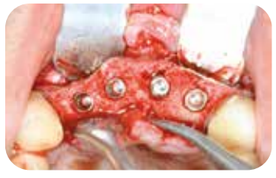

Tension-free wound closure

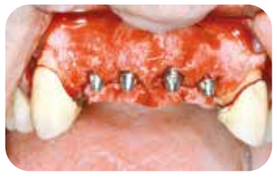


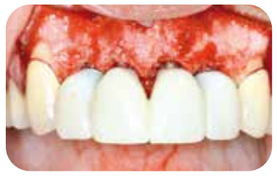
Four months post-operative: bone is at the level of the planned crowns

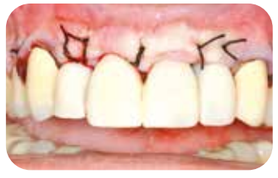

Clinical situation four months post-operative


Maxillary ridge *in situ* after preparation of mucosal flap


Insertion of four implants


Placement of abutments

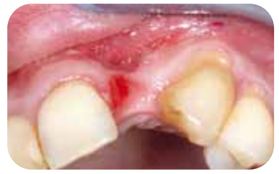

Positioning of prosthesis

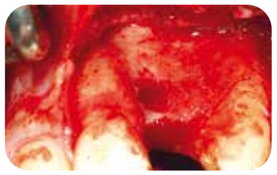

Closure of mucosal flap

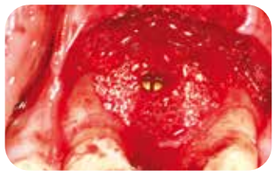

After immediate loading protocol: prosthesis will guide soft tissue during healing process

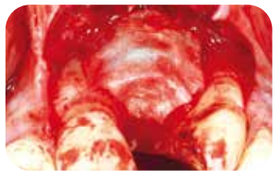
CLINICAL CASE BY
Dr. Ross Cutts, Cirencester, UK

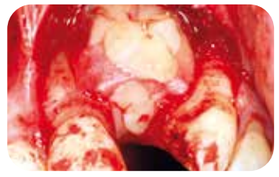
BLOCK AUGMENTATION WITH MAXGRAFT® IN THE MAXILLA

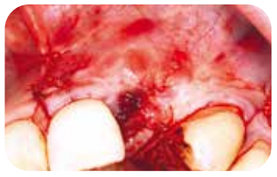

Clinical preoperative situation


Horizontal bone defect

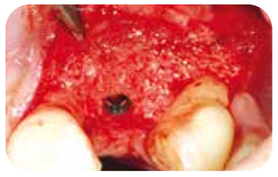

Fixation of the maxgraft® block and contouring with cerabone®

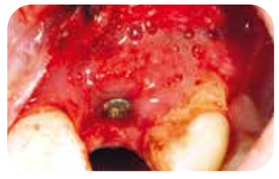

Covering with Jason® membrane

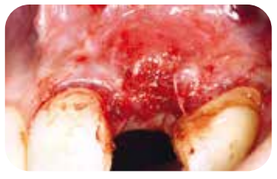

PRGF matrices for the promotion of wound healing


Tension-free wound closure

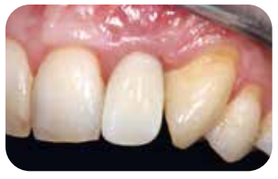

Two weeks post operative: complication-free wound healing


Implantation by Straumann BLT implant 3.3 mm


Application of enamel matrix derivative

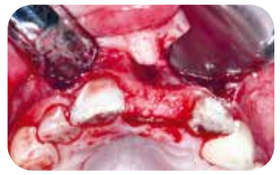

Eight weeks post operative: good soft tissue situation


Screw-retained crown with customized CAD/CAM abutment

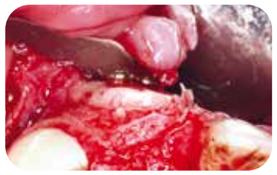

Fit of final restoration

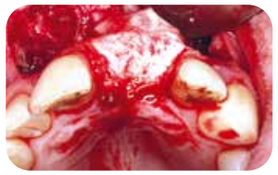
CLINICAL CASE BY
Dr. Hassan Maghaireh, Leeds, UK

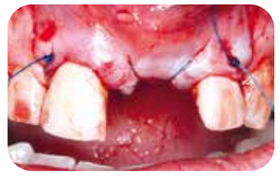
BLOCK GRAFTING IN THE AESTHETIC ZONE WITH A UNI-CORTICAL MAXGRAFT® BLOCK

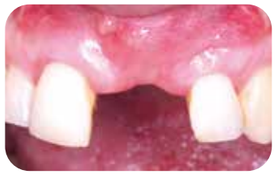

Full thickness flap and degranulation

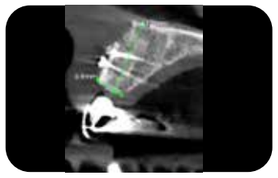

Shaping and preparing the uni-cortical maxgraft® block


Stabilisation of the bone block with two 10 mm fixation screws placed oblique

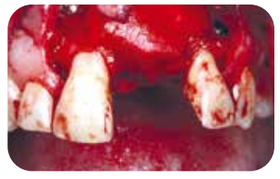

Layer of maxgraft® cancellous particles used to fill any gaps and covering with Jason® membrane


Flap closure using 5/0 monofilaments Prolene sutures


After six months healing - healthy soft tissue contour, satisfactory convexity


Post op CBCT shows sufficient augmentation

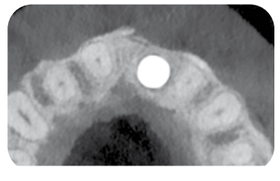

Prosthetic driven implant placement Straumann Roxolid BLT

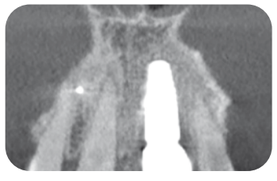

GBR at re-entry - added cerabone® small particles to increase the convexity. Jason® membrane stabilised with titanium pins and sutured palatally


Final implant impression with Straumann RC customised impression pick up with an open tray for final screw retained implant crown on UL1 and Porcelain veneer on UR1


Final fit of screw retained implant crown with CAD/CAM Ti abutment on UL1 and Porcelain veneer on UR1. Lab work: Guglielmo Parziale - Napoli - Italy


5 years clinical review - stable outcome


5 year post op CBCT - Axial view at the coronal 2 mm level


5 year post op CBCT - Coronal view showing implant

maxgraft® cortico

SHELL TECHNIQUE WITH **ALLOGENIC BONE PLATES**

maxgraft® cortico is a prefabricated plate made of processed allogenic bone. Similarly to the autogenous bone, it can be used for the shell technique.

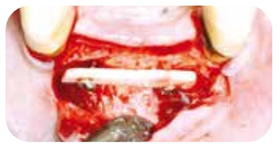
maxgraft® cortico was developed to avoid the donor-site morbidity and to prevent the time-consuming harvesting and splitting of autologous cortico-cancellous bone plates.

Preparation of the augmentation area

The proper size of the plate is estimated after the elevation of the mucosal flap or preoperatively using a digital planning software. Rehydration is recommended (10 min in saline solution). Using a diamond disc, the plate is then cut extraorally.

Fixation and adaption

To create a fixed compartment, maxgraft® cortico must be positioned immobile in the adequate distance but still in contact with the local bone. Based on the ideal implant position, the strut should be positioned with at least a 1 mm distance to the implant surface when placed laterally. To prevent perforations of the soft tissue, sharp edges need to be removed, e.g. by using a diamond ball.



Augmentation of a frontal mandibular defect

INDICATIONS:

Implantology, Oral and CMF Surgery

- Vertical augmentation
- Horizontal augmentation
- Complex three-dimensional augmentations
- Single tooth gaps
- Fenestration defects

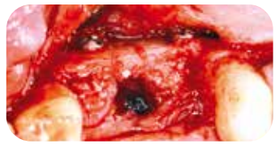
More details on the surgical procedure on:

BOTISS-DENTAL.COM

The shell technique with maxgraft® cortico

Filling and wound closure

The space between local bone and cortical plate can be filled with a variety of different particulated bone grafting materials, autologous or allogenic granules are recommended[10,11]. Then, the augmentation area needs to be covered with a barrier membrane (e.g. Jason® membrane, collprotect® membrane) and a tension-free and saliva-proof closure must be applied.



Six months after augmentation, stable integration of the plate

ADVANTAGES

- Significant reduction of operation time
- No donor-site morbidity

PROPERTIES

- Standardized size
- 5 years shelf life at 5-30°C

Product Specifications

maxgraft® cortico

Art.-No.	Dimension	Content
31251	cortical strut, 25 x 10 x 1 mm*	1 x
31253	cortical strut, 25 x 10 x 1 mm*	3 x 1

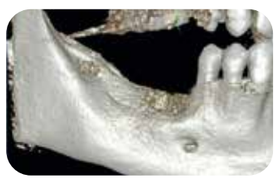
*: post mortem donors

cortico trimmer

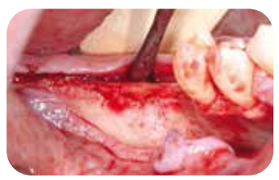
Art.-No.	Content
34000	cortico trimmer 1 x

CLINICAL CASE BY
Dr. Robert Würdinger, Marburg, Germany

COMPLEX THREE-DIMENSIONAL AUGMENTATION



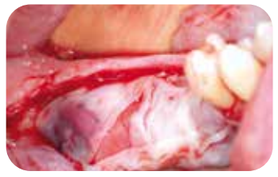
Preoperative CBCT-scan; vestibular view



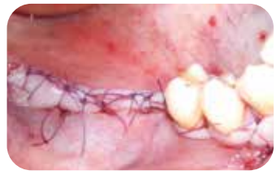
Situation after defect uncovering: careful detachment of the lingual mucosa from the suprahyoid muscles for flap mobilization

Combined horizontal and vertical 3D-bone augmentation with the shell technique. Adaptation of the cortical plates and fixation with 1 mm microscrews

Defect fill and contouring using autologous and allogenic (maxgraft®) particles. Covering of the augmentation site with Jason® membrane



Additional application of L-PRF matrices for improved wound healing



Saliva-tight and tension-free wound closure by a combination of horizontal mattress and single button sutures

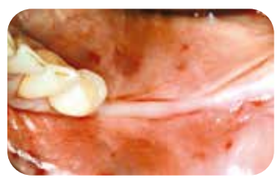
Implantation of two implants in accordance to the attachment level of the neighboring teeth

Situation after re-entry via stab incision with soft tissue displacement

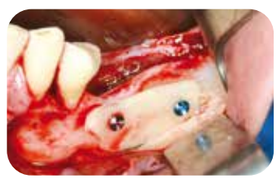
Final dental crowns with temporary restoration of the screw channels

CLINICAL CASE BY
Jan Kielhorn, Oehringen, Germany

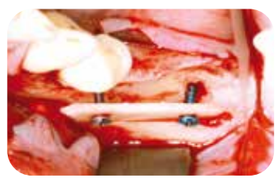
FREE-END SITUATION IN THE MANDIBLE



Clinical situation

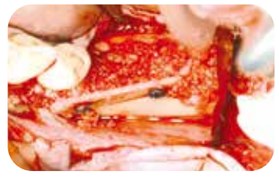


Fixation of maxgraft® cortico, taking into account the bone level of the next tooth and thorough removal of sharp edges

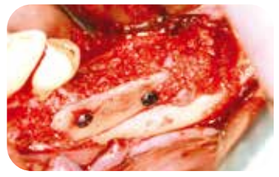


Adequate distance to the local bone, angulated positioning of the screws and application of the groove technique

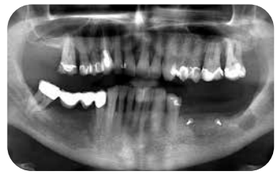
Mix of allograft and autogenous bone chips



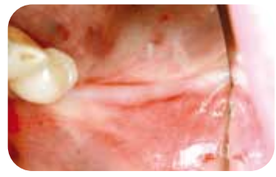
Filling of the defect



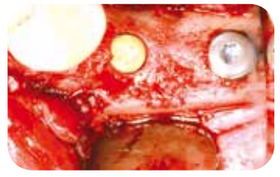
Contouring with particles also outside of maxgraft® cortico to prevent soft tissue perforations



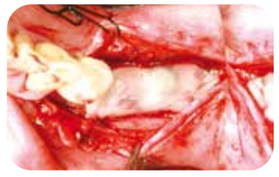
OPG post-augmentation



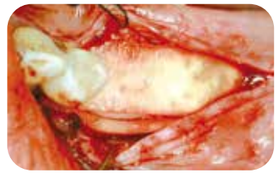
Uneventful soft tissue healing



Implant insertion eight months after augmentation

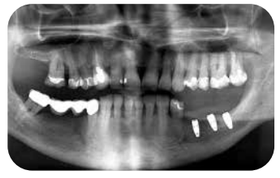


Covering with PRF matrix

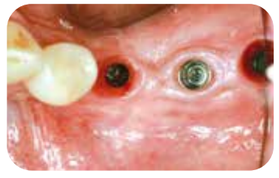


Soft tissue improvement with mucoderm® crestally and laterally

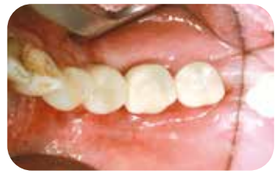
Tension-free wound closure



OPG post-implantation



Emergence profile prior to installation of provisionals



Provisional restoration in place

maxgraft® bonebuilder

CUSTOMIZED
ALLOGENIC BONE BLOCK

maxgraft® bonebuilder is a customized allogenic bone block, which is individually adjusted to the bone defect.

With maxgraft® bonebuilder, harvesting of autologous bone and manual adjustment of the obtained block is no longer required for the treatment of extensive defects. Donor site morbidity, operation time and costs can be significantly reduced.

INDICATIONS:

Implantology, Oral and CMF Surgery
- Horizontal and vertical augmentation
- Extensive bone defects

PROPERTIES

- Natural mineralized collagen
- Fast graft incorporation and complete remodelling potential
- 5-6 months healing-/ integration time
- 5 years shelf life at 5-30°C

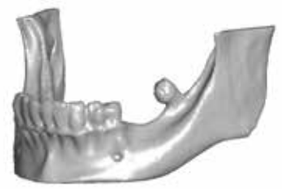
Product Specifications

maxgraft® bonebuilder

Art.-No.	Content
PMIa	Individual planning and production of a bone block max. dimensions 23 x 13 x 13 mm
PMIa2	additional block(s) for this patient

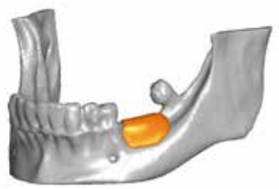
bonebuilder dummy

Art.-No.	Content
32100	Individual 3D printed model of the patient's defect including the planned maxgraft® bonebuilder block(s) for demonstration purposes, material: synthetic filament



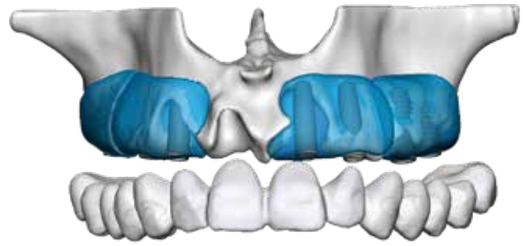
The CT/CBCT-data of the bone defect is transfered into a 3D model

Based on this model botiss designs a virtual block, which matches the surface structure of the defect and allows stable implant insertion after 5-6 months healing time



The customized maxgraft® bonebuilder block allows precise horizontal and vertical reconstruction of the atrophic ridge

The maxgraft® bonebuilder technology



The maxgraft® bonebuilder technology allows complex reconstruction in cases of extensive jaw atrophy

In-house planning

botiss virtually designs the patient customized allogenic bone block based on the CT/CBCT-scan of the bone defect.

1. Upload of CT/CBCT-data on www.botiss-bonebuilder.com

After registration, CT/CBCT-data of the patient can be uploaded on the botiss server. All radiological data have to be single-frame data images. The only data type suitable for 3D planning is DICOM (*.dcm).

2. Block design

botiss designers create a three-dimensional model of the radiological images and design a virtual bone block in consultation with the clinical user.

Each block is designed individually according to the defect and the desired dimension of the augmentation

3. Design quality check

The clinical user receives a 3D PDF file containing the virtually constructed maxgraft® bonebuilder block and has to confirm its design.

4. Individual order

The production of the block starts after the clinical user fills in the patient based order form for the bone block to the attention of botiss biomaterials.

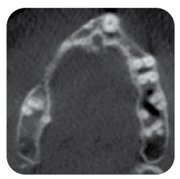
5. Production of the individual bone block

Each individual maxgraft® bonebuilder is milled from a processed allogenic cancellous block under cleanroom conditions, double-packaged and sterilized using gamma irradiation.

www.botiss-bonebuilder.com

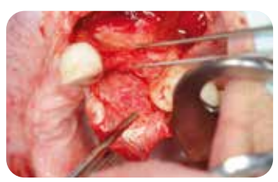
CLINICAL CASE BY
Dr. Oliver Blume, Munich, Germany

RIDGE AUGMENTATION IN THE MAXILLA

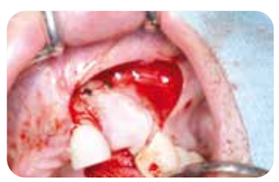
Pre-operative clinical and radiological situation before augmentation

3D reconstruction of the bone defect and planned maxgraft® bonebuilder blocks



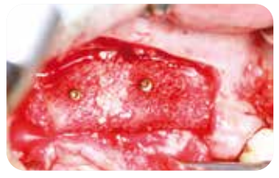
Severe ridge atrophy

Fixation and contouring with allogenic particles

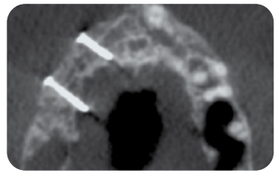


Covering with Jason® membrane and one layer of PRF matrices

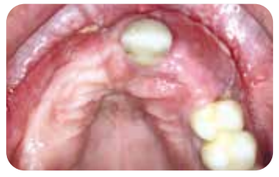
Tension-free wound closure



Perfect fit and fixation on right side



CBCT six months post-operative



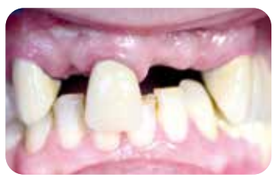
5 months post-operative clinical situation

Extended alveolar ridge width for stable implant placement

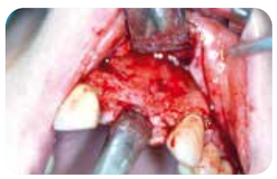
Temporary restoration

CLINICAL CASE BY
Dr. Frank Kloss, Lienz, Austria

RIDGE AUGMENTATION IN THE AESTHETIC ZONE



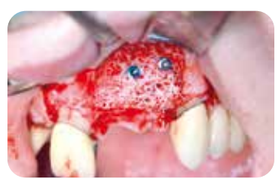
Clinical situation before augmentation



Complex bone defect of the buccal wall

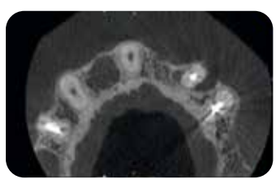
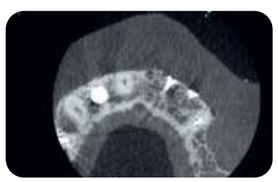
3D reconstruction of the bone defect and planned maxgraft® bonebuilder

maxgraft® bonebuilder



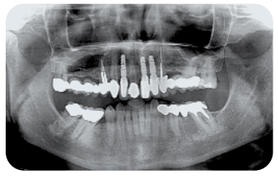
Perfect fit and fixation

Contouring with cerabone® and covering with Jason® membrane

Pre-operative CBCT scan and five months post-operative outcome

Osseointegrated implants at re-entry



Three years follow-up: stable situation

maxgraft® bonering

PROCESSED ALLOGENIC BONE RING

maxgraft® bonering is a pre-fabricated cancellous ring of human donor bone, which is placed press-fit into a trephine drill-prepared ring bed. At the same time, an implant is inserted into the ring. The bony integration of both, maxgraft® bonering and the implant, occurs via the surrounding vital bone.

Preparation of ring bed

After determination of the position of the implant by the planator tip and the pilot drill, the ring bed is prepared with the trephine. Subsequently, the planator allows even paving of the local bone for optimal contact with maxgraft® bonering and in addition, removes the cortical layer for improved graft revascularisation. Rehydration is recommended (10 min in saline solution).

The bone ring technique allows bone augmentation and implantation in a one-stage procedure.
The technique is applicable for almost all indications, including sinus lift with limited maxillary bone height.

The height of maxgraft® bonering is adjustable to the defect

The Bone Ring Technique enables vertical bone augmentation and direct implantation

Immediate implant insertion through maxgraft® bonering ensures primary stability of implant and graft

Compared to the classical, two-stage augmentation with i.e. bone blocks, this technique reduces the entire treatment period by several months and saves the re-entry.

INDICATIONS:

Implantology

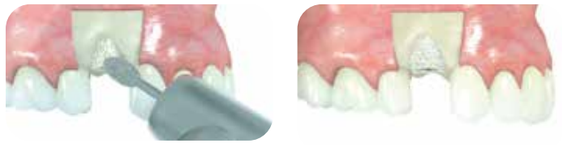
- Vertical augmentation (in combination with horizontal augmentation)
- Single tooth gap
- Edentulous space
- Sinus lift (4 mm – 1 mm residual bone height)

ADVANTAGES

- Simultaneous implant placement and bone augmentation
- No second surgical procedure
- Significant reduction of treatment time

Simultaneous bone augmentation and implant placement

Smoothing



Sharp edges should be smoothened to avoid soft tissue perforation and to support wound healing. Moreover, maxgraft® bonering should be covered with a slowly resorbable bone regeneration material (e.g. cerabone®) to fill the residual defect volume and to avoid potential adaption resorption of the graft

Soft tissue management

After covering of the graft with a collagen membrane (e.g. Jason® membrane) a tension-free suturing of the operation site must be assured to avoid tissue perforation and graft exposure

maxgraft® bonering surgical kit

With this surgical kit, botiss provides all necessary instruments to apply the maxgraft® bonering technique. The kit includes two convenient sizes of trephines, which precisely fit together with the maxgraft® bonering diameters.
The planators allow paving of the local bone to create a congruent and fresh contact surface of the implant area. The diamond disc and the diamond tulip help to shape the maxgraft® bonering for excellent adjustment to the local bone and for improved soft tissue healing. Altogether, these instruments allow optimal preconditions for the bony ingrowth of maxgraft® bonering. All instruments are made of high quality surgical steel.

trephine 7 mm | trephine 6 mm | planator 7 mm | planator 6 mm | diamond disc 10 mm | diamond tulip 3 mm

Product Specifications

maxgraft® bonering 3.3

(Height 10 mm, recommended for implant diameters from 3.3 - 3.5 mm)

Art.-No.	Dimension	Content
33160	cancellous ring, Ø 6 mm	1 x
33170	cancellous ring, Ø 7 mm	1 x

maxgraft® bonering 4.1

(Height 10 mm, recommended for implant diameters from 4.1-4.5 mm)

Art.-No.	Dimension	Content
33174	cancellous ring, Ø 7 mm	1 x

maxgraft® bonering surgical kit

Art.-No.		Content
33000	trephine, 7 mm	1 x
	trephine, 6 mm	1 x
	planator, 7 mm	1 x
	planator, 6 mm	1 x
	diamond disc, 10 mm	1 x
	diamond tulip, 3 mm	1 x

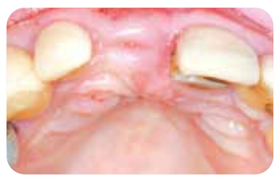
CLINICAL CASE BY

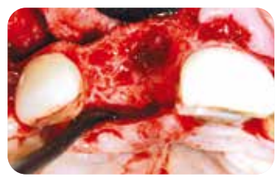
Amit Patel, Birmingham, United Kingdom

BONE AUGMENTATION AND IMPLANTATION IN SINGLE-TOOTH GAPS

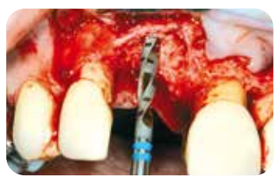
Restoration of buccal bone lamella with maxgraft® bonering

Initial situation shows bone loss due to lack of physical load of bridge retained region 11

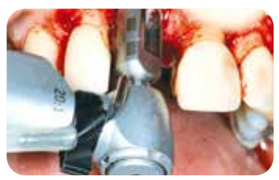




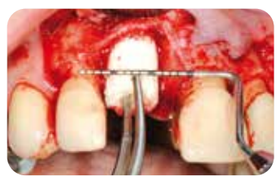
Clinical situation at time of entry shows loss of buccal bone lamella



Pilot drill to determine later implant position

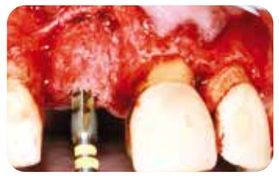


Trephine drill 7 mm for maxgraft® bonering 7 mm

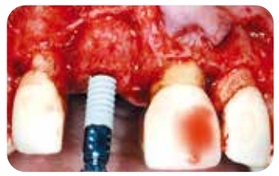


After preparation with the planator, the necessary length of maxgraft® bonering 7 mm is estimated

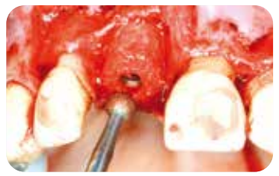
Cutting maxgraft® bonering to the required size with bonering fix



Implant bed preparation through maxgraft® bonering



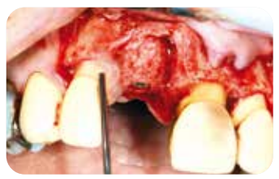
Placing the implant in order to fixate maxgraft® bonering



Smoothing the edges of maxgraft® bonering

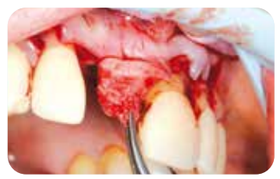
maxgraft® bonering and implant in place

PrefGel® applied as root surface conditioner

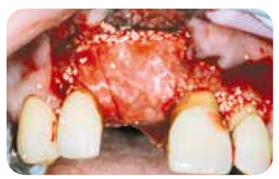


Application of enamel matrix derivative for regeneration of bone around the roots of adjacent teeth

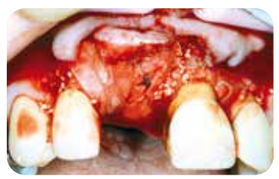
cerabone® granules for contouring the defect and to help slow down resorption of the bone



Mobilization of soft tissue; double layered



Jason® membrane to protect the bone graft from soft tissue ingrowth



Flap is sutured with mattress suture to prevent micromovements of the grafted area

Sutured free of tension

Rest of enamel matrix derivative applied to support wound healing

Four weeks after surgery eventless healing and healthy soft tissue

Prosthetic restoration six months after surgery with aesthetical outcome

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videos and handling tips visit:
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Product Specifications

maxgraft®

maxgraft® cancellous granules

Art.-No.	Particle Size	Content
30005	< 2.0 mm	1 x 0.5 ml
30010	< 2.0 mm	1 x 1.0 ml
30020	< 2.0 mm	1 x 2.0 ml
30040	< 2.0 mm	1 x 4.0 ml
30005S	0.25 - 1.0 mm	1 x 0.5 ml
30010S	0.25 - 1.0 mm	1 x 1.0 ml
30020S	0.25 - 1.0 mm	1 x 2.0 ml
30040S	0.25 - 1.0 mm	1 x 4.0 ml
30005L	1.0 - 2.0 mm	1 x 0.5 ml
30010L	1.0 - 2.0 mm	1 x 1.0 ml
30020L	1.0 - 2.0 mm	1 x 2.0 ml
30040L	1.0 - 2.0 mm	1 x 4.0 ml

maxgraft® cortico-cancellous granules

Art.-No.	Particle Size	Content
31005	< 2.0 mm	1 x 0.5 ml
31010	< 2.0 mm	1 x 1.0 ml
31020	< 2.0 mm	1 x 2.0 ml
31040	< 2.0 mm	1 x 4.0 ml
31005S	0.25 - 1.0 mm	1 x 0.5 ml
31010S	0.25 - 1.0 mm	1 x 1.0 ml
31020S	0.25 - 1.0 mm	1 x 2.0 ml
31040S	0.25 - 1.0 mm	1 x 4.0 ml
31005L	1.0 - 2.0 mm	1 x 0.5 ml
31010L	1.0 - 2.0 mm	1 x 1.0 ml
31020L	1.0 - 2.0 mm	1 x 2.0 ml
31040L	1.0 - 2.0 mm	1 x 4.0 ml

maxgraft® blocks

Art.-No.	Dimension	Content
31111	uni-cortical*, 10 x 10 x 10 mm	1 x Block
31112	uni-cortical*, 20 x 10 x 10 mm	1 x Block
32111	cancellous, 10 x 10 x 10 mm	1 x Block
32112	cancellous, 20 x 10 x 10 mm	1 x Block

Living donors
*: post mortem donors
Tissuebank: Cells*Tissuebank Austria, Krems, Austria

bonebuilder dummy

Art.-No.	Content
32100	Individual 3D-printed model of the patient`s defect and the planned bonebuilder for demonstration purposes made of synthetic filament

maxgraft® bonebuilder

Art.-No.	Content
PMIa	Individual planning and production of a bone block max. dimensions 23 x 13 x 13 mm
PMIa2	additional block(s) for the same patient

maxgraft® bonering

Art.-No.	Dimension	Content
33160	cancellous ring 3.3 ø 6 mm*	1 x
33170	cancellous ring 3.3 ø 7 mm*	1 x
33174	cancellous ring 4.1 ø 7 mm**	1 x

* Height 10 mm, recommended for implant diameters from 3.3 - 3.5 mm

** Height 10 mm, recommended for implant diameters from 4.1- 4.5 mm

maxgraft® bonering surgical kit

Art.-No.	Dimension	Content
33000	trephine 7 mm	1 x
	trephine 6 mm	1 x
	planator 7 mm	1 x
	planator 6 mm	1 x
	diamond disc, 10 mm	1 x
	diamond tulip, 3 mm	1 x

maxgraft® cortico

Art.-No.	Dimension	Content
31251	cortical strut, 25 x 10 x 1 mm	1 x*
31253	cortical strut, 25 x 10 x 1 mm	3 x 1*

*: post mortem donors

cortico trimmer

Art.-No.	Content	
34000	cortico trimmer	1 x

bone & tissue regeneration

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