FAQ

requently asked uestions

maxgraft® cortico

botiss
biomaterials

How is maxgraft® cortico produced?

Where does maxgraft® cortico derive from?

maxgraft® cortico is cut directly from fresh frozen long bones of the lower extremities of post mortem donors. After cutting the struts, they are cleaned, disinfected, and sterilized by Allotec® process (special cleaning process of C⁺TBA) to ensure adequate penetration of the solutions into the dense cortical bone.

Is it possible to receive maxgraft® cortico from living donors?

POST MORTEM DONORS Femur diaphysis
Only: maxgraft® cortico

No.

The only possible source of living donor bone tissue is femoral heads, which are predominantly cancellous in structure. Due to the fully cortical structure of maxgraft® cortico, it cannot be produced from femoral heads.

Should maxgraft® cortico be rehydrated?

Yes, rehydration of maxgraft® cortico is recommended. It has been shown that rehydration of maxgraft® cortico (10 minutes in saline solution) results in more flexibility and improves the breaking strength of the strut[1].

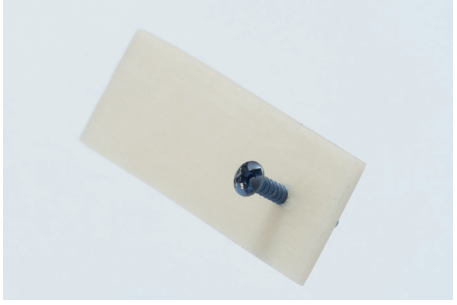
1. Pabst A, Ackermann M, Thiem D, Kämmerer P. Influence of Different Rehydration Protocols on Biomechanical Properties of Allogeneic Cortical Bone Plates: A Combined in-vitro/in-vivo Study. J Invest Surg. 2020 May 22:1-7. doi: 10.1080/08941939.2020.1767735.

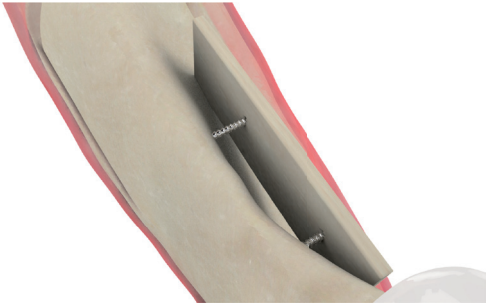
How should maxgraft® cortico be fixated?

maxgraft® cortico should be positioned within a certain distance to the bone defect by predrilling through the plate and local bone, fixating with screws and therefore creating a compartment/container.

The position should enable the placement of a later implant with a distance of at least 1 mm from the cortical strut. To prevent micro-movements, the predrilling of holes in maxgraft® cortico should not exceed the diameter of the screws, so that the strut remains immobile on the screw threads. The drilling holes in maxgraft® cortico should have the same diameter as the adjusting screws. Screws consisting of surgical steel with a diameter of 1.0–1.2 mm, or titanium with 1.2–1.4 mm and a length of 8–11 mm are appropriate for most defects. The use of flat-headed osteosynthesis screws is strongly recommended.

https://www.youtube.com/watch?v=xqckW6pKimI





After placing the screws, maxgraft® cortico is still mobile.

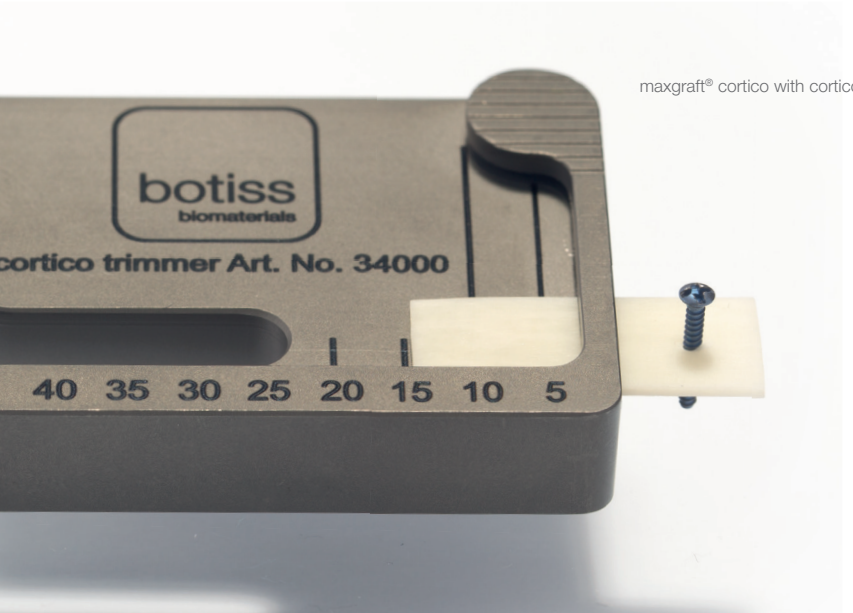
Is it possible to compact particulate material into the defect to stabilize the strut?

It is theoretically possible, but we advise against this method.

If a resorbable particulate material is applied, the chance is high that the strut is not fully integrated before the granular grafting material is resorbed. The cortical strut would be mobile again and could cause serious problems. **We recommend fixating maxgraft® cortico with more screws to ensure immobility.**

Can maxgraft® cortico be bent to follow the ridge contour?

No, maxgraft® cortico is fully mineralized cortical bone and not flexible. The strut can be cut using the cortico trimmer. For the incisor region, it is advised to cut the strut in the middle and fixate the two parts to shape the ridge contour. To prevent perforations of the soft tissue, it is recommended to remove sharp edges by using a diamond ball bur.



maxgraft® cortico with cortico trimmer

maxgraft® cortico is fractured during fixation. What do I do?

What can be done to prevent this?

Careful handling of maxgraft® cortico is important. It must be fixated free of any movements without excessive pressure or tension. In the unlikely event of a fracture, it must be fixated with an additional screw or replaced by a new bone strut. It is advised to store at least one spare strut during the first couple of applications.

The use of the cortico trimmer reduces the risk of fracture during cutting and extraoral drilling and is ideal for precise adaptation. The screw diameter should not extend 1.4 mm. The recommended screw system is not self-tapping and the screw diameter ideally 1.0-1.2 mm. Very good experience has been reported with Stoma micro screw set, Stoma Dentalsysteme GmbH & Co KG Emmingen-Liptingen, Modus® 0.9/1.2, Medartis AG Basel, Switzerland or the Bone-fixation-Set, Ustomed Instrumente, Tuttlingen, Germany, all of which have a non-aggressive thread design and no increased diameter directly underneath the head.

maxgraft® cortico with cortico trimmer

Can remaining fragments be resterilized?

Can I cut the strut and reuse the residue for another patient?

Each strut is meant for single use only to guarantee sterility.

maxgraft® cortico is not approved for resterilization. This is indicated by symbols on the packaging and in the IFU. Autoclaving or dry heat sterilization will destroy the structure, rendering the product ineffective. In the case of resterilization, botiss assumes no liability for the product.

Which material should be used for filling the created container?

Can I use cerabone®?

The container created with maxgraft® cortico should be filled with autologous or allogenic granules, or a combination of them. The regenerative capacities of other bone substitute materials of xenogenic or synthetic origin alone might be insufficient in bigger defects to allow proper and stable integration of maxgraft® cortico. A xenogenic material, such as cerabone®, is not needed as maxgraft® cortico provides enough volume stability, and the focus should be more on fast remodeling within the created container, which can be achieved by autologous or allogenic material.

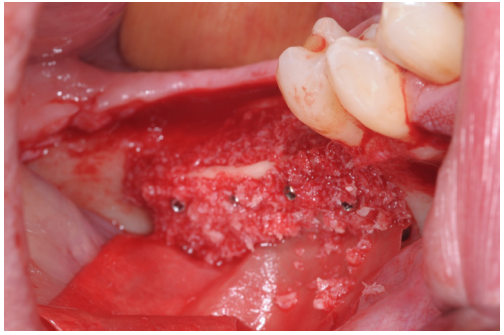
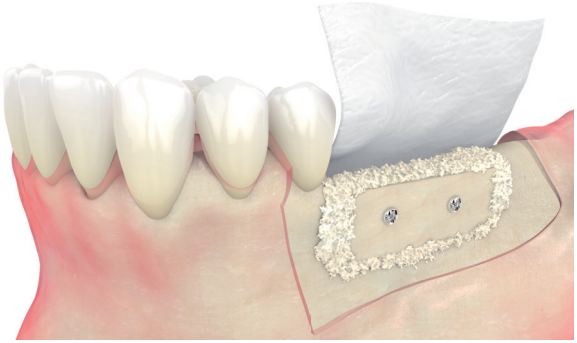


Photo courtesy of Dr. R. Würdinger, Germany

Is it mandatory to use a membrane, as there are no membranes used with autogenous shell technique?

In terms of guided bone regeneration, a membrane is mandatory. The barrier membrane prevents the ingrowth of soft tissue into the particulate material and resorption of the particles in case of open containers created with only one cortical strut. In situations of open containers, it is also recommended to contour the exposed site.



Covering of maxgraft® cortico

What is the recommended healing time until implant placement?

This depends on the chosen grafting material and the defect size. Usually, 4–6 months should be long enough to ensure stable integration and remodeling of the grafting material to allow implant placement.

However, the right time for re-entry needs to be assessed individually by the surgeon, but in general autologous and allogenic (maxgraft®) bone substitute material allows a faster re-entry than xenogenic or synthetic material.

At re-entry, maxgraft® cortico is nicely integrated
but appears to be vital. Is this a reason to be concerned?

In which case should the strut be removed?

maxgraft® cortico is an allogenic cortical strut which functions analogously to autologous bone transplants in shell technique applications. Due to the cortical bone properties, maxgraft® cortico is not resorbed quickly but will be secondarily remodeled. Nevertheless, it should be completely integrated into the newly formed bone at the time of re-entry and is not intended to be removed.

However, if a cortical strut fails to integrate and is mobile at the time of re-entry, it should be removed. The augmentation site under the strut is usually regenerated.

After normal wound healing, late soft tissue perforation occurred.
What should I do?

Do I have to remove the cortical strut?

In the absence of any signs of infection, maxgraft® cortico does not need to be removed, but sharp edges should be reduced and free-standing parts should be removed. Free parts of the strut may be covered using Solcoceryl®.
In case of irritations of surrounding soft tissue, use the following rinsing protocol: rinsing with ethacridine lactate (Rivanol®) and/or H_2O_2 once a week for approximately four to six weeks. Soft tissue management may be performed earliest after six weeks if necessary.

Can maxgraft® cortico be used with simultaneous dental implant placement?

No, the shell technique with maxgraft® cortico is indicated for two-stage alveolar ridge augmentation.

Depending on the location, type, and extent of the defect, the healing time is approximately four to six months.