

Yxoss CBR® fully-protect



Customized Solutions

marketed by

Geistlich

the regeneration
experts

**The Yxoss CBR®
to fully protect
your complex
augmentations**



How the design idea was conceived

Interview with Dr. Marco Ronda, co-developer of Yxoss CBR® fully-protect

What sparked the idea for Yxoss CBR® fully-protect?

As a clinician, I recognized the challenges involved in treating complex bony defects and the limitations that occasionally occur using Titanium-reinforced dense PTFE membranes in these cases. They might not receive adequate stabilization during major vertical augmentation, leading to a poor space-making effect. Additionally, certain defects may not be adequately conformed to by them, sometimes leaving dangerous edges, and their occlusivity impairs graft vascularization, which affects the maturation of the bone.

All in all, I observed the need for volumetric stability and improved bone quality in complex cases. This led me to conceive the design idea for Yxoss CBR® fully-protect, aiming to address these specific challenges and provide a solution that meets the clinical needs in GBR procedures.

How did the collaboration with ReOss and Geistlich shape the development?

I am grateful to Geistlich and ReOss for bringing the design idea to life. They listened to my clinical thoughts, believed in them, and worked closely with me to develop the Yxoss CBR® fully-protect. Together, we maintained the original idea and implemented it with new small details, resulting in a fantastic device that meets the needs I envisioned.

What are the key benefits of Yxoss CBR® fully-protect?

Being custom-made, the scaffold reduces surgery time due to precise fit and fixation with self-tapping screws. It provides the required space-making effect, ensuring volumetric stability and successful regeneration in complex cases. Its "smart" barrier function prevents connective tissue ingrowth while allowing fluid passage for optimal bone maturation. The microperforated surface facilitates easy removal and prevents tissue ingrowth.

Clinical need



- > Complex bone augmentation to reconstruct severe bony defects i.e., horizontal and/or vertical

Challenges with Ti-reinforced dense PTFE membranes



- > Limited vertical bone gain
- > Insufficient defect conformation
- > Sometimes leave dangerous edges
- > Occlusivity affects bone maturation
- > Technically difficult and challenging to teach

Solution: Yxoss CBR® fully-protect

- > Customized fit reduces surgery time
- > Stabilizes large bone volumes
- > 'Smart' barrier function
- > Ensures well-structured, vascularized regenerated bone
- > Facilitates easy removal

The microstructure of Yxoss CBR® fully-protect shields the augmentation site from soft tissue competition while enabling blood perfusion which is essential for **optimal bone regeneration in structure and quality.**

Dr. Marco Ronda

How does Yxoss CBR® fully-protect impact GBR and clinical education?

From my point of view, Yxoss CBR® fully-protect revolutionizes traditional bone regeneration by enabling prosthetically guided regeneration (PGR): virtual implant placement, around which we can recreate the ideal virtual bone volume, allows through laser printing technology to produce the custom-made device. While Yxoss CBR® fully-protect greatly simplifies GBR procedures, it does not replace the need for proper skills in flap passivation. Proper training is essential!

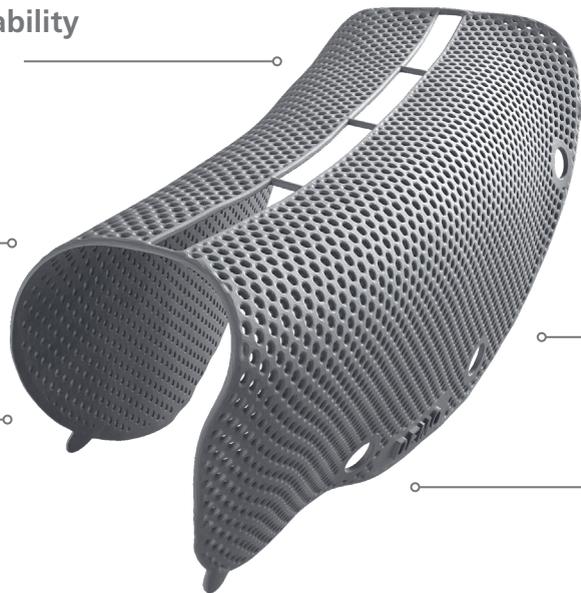


Features of Yxoss CBR[®] fully-protect

Titanium for reliable stability and space maintenance

Precise patient-specific 3-D printing

Less surgery time due to perfect fit without shape adaptation



Fully microstructured surface protects from tissue ingrowth

Calculation of augmentation volume (optional)

Integrated implant positioning (optional)

"I have been using the new Yxoss with a dense structure for the last 2 years and I can state that they are **very effective and predictable devices** for horizontal and vertical ridge augmentation. When associated with 70% of autogenous bone chips and 30% of DBBM their efficacy is **comparable with the one of traditional PTFE non-resorbable membranes, but much easier and faster to be installed.**"

Prof. Massimo Simion



Head-to-head comparison as assessed by Dr. Seiler and Dr. Ronda



Yxoss CBR[®] classic



Yxoss CBR[®] protect



Yxoss CBR[®] fully-protect



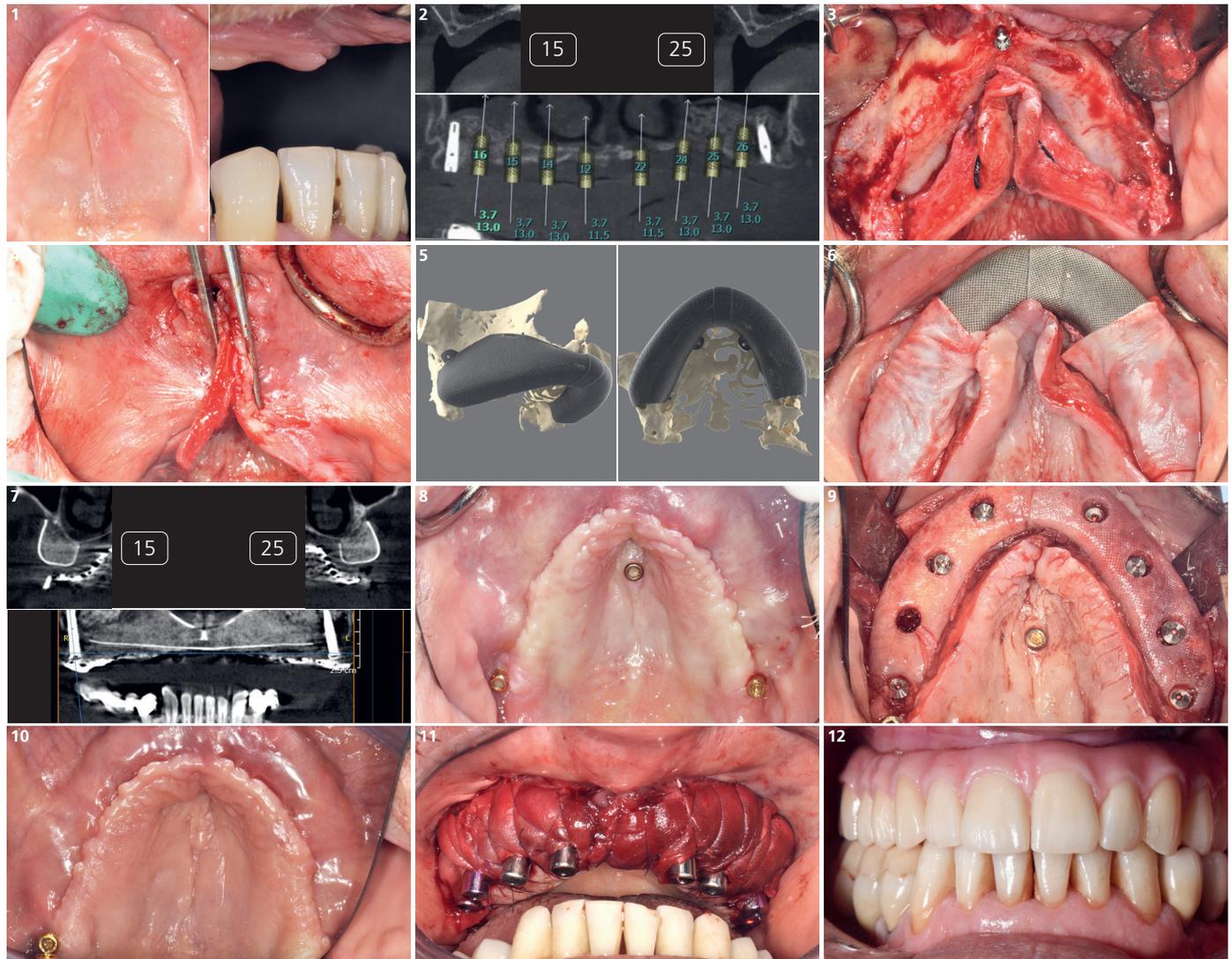
Reinforced PTFE membrane

Properties	Yxoss CBR [®] classic	Yxoss CBR [®] protect	Yxoss CBR [®] fully-protect	Reinforced PTFE membrane
	Uniformly open	Occlusal part: open Apical area: micropores	Micropores across complete scaffold	No micropores
Bone maturation	✓ ✓ ✓	✓ ✓ ✓	✓ ✓	✓
Soft tissue quality	✓	✓	✓ ✓	✓ ✓
Removal	✓	✓ ✓	✓ ✓ ✓	✓ ✓

Severe bone atrophy (Full arch) – Maxilla



Surgery and concept by
Dr. Marco Ronda, DDS
(Genova, Italy)

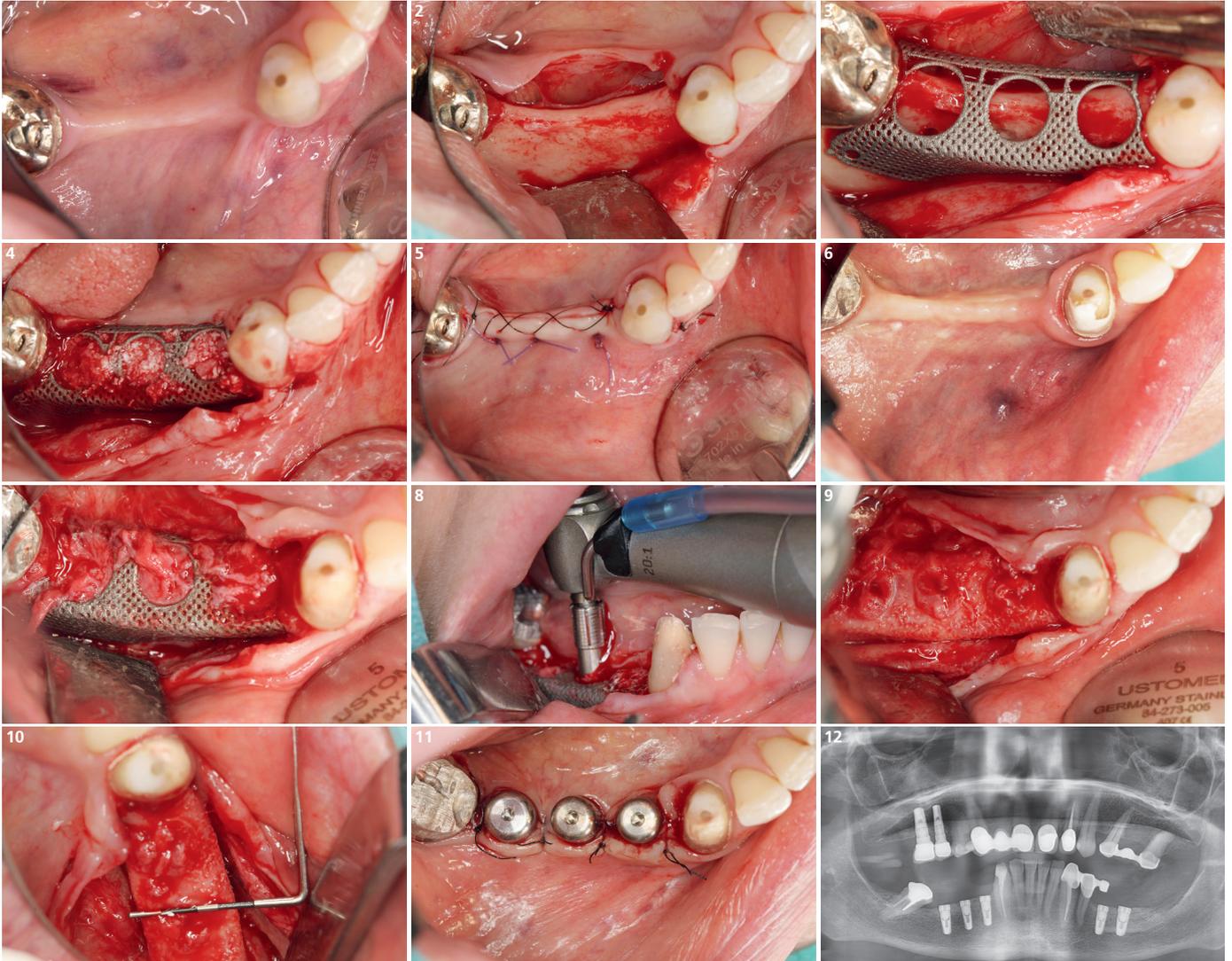


- Clinical view of initial situation showing severe atrophy: complete loss of alveolar bone and part of the basal bone component.
- Imaging acquired after bilateral sinus lift and placing 3 strategic implants. CBCT-based virtual planning of the implants, around which the new bone volume shall be built.
- Surgical stage showing skeletonization of entire maxilla: single continuous incision in the thickness of adherent gingiva with two deep discharge cuts beyond implants, distal to and starting from head of strategic implants.
- Crucial stage of the procedure: by first performing a periosteal incision and later the Brushing Technique^{1,2} the two buccal flaps are passivated significantly but their integrity is preserved.
- The Yxoss CBR® fully-protect lattice was custom-made precisely based on the planned bone volume surrounding the 3-D positioning of the implants according to the virtual prosthetic design.
- Yxoss CBR® fully-protect in situ filled with DBBM (Geistlich Bio-Oss®) & autologous bone (50:50), fixed with self-tapping screws. Covered with a collagen membrane (Geistlich Bio-Gide®) to improve quality of regenerated bone.
- CBCT cross-sections before lattice removal: a considerable quantity of regenerated bone volume is appreciated appearing compact and well-structured (12 months of healing).
- Occlusal clinical image 12 months after GBR: pink soft tissues without any distress or exposure. Patient wore prosthesis held by the three strategic implants and one mucosal support positioned on palatine vault.
- Removal of Yxoss CBR® fully-protect after 1 year: note the amount of compact and well-structured regenerated bone which allowed implant placement according to prior 3-D planning using a surgical guide.
- Clinical situation of the soft tissues above the regenerated bone: the fornix has almost disappeared and there is not enough keratinized gingiva on the ridge.
- The alveolar mucosa is now repositioned and anchored apically on the buccal side. The periosteal bed has been fully covered and protected with Geistlich Mucograft® tissue substitute.
- Definitive dento-skeletal zirconia prosthesis. Although more than 10 mm of bone was regenerated in vertically by GBR with Yxoss CBR® fully-protect, an additional 5-6 mm of pink height had to be used.

Horizontal/Vertical defect (3 teeth gap) – Mandible



Surgery and concept by
Dr. Marcus Seiler, MSc MSc
(Filderstadt, Germany)



- 1 Initial clinical and radiological situation of the vertical and horizontal defect.
- 2 A crestal incision reveals the combined vertical and horizontal bone defect.
- 3 Yxoss CBR® fully-protect is used to augment the defect. The microstructured surface protects against soft tissue ingrowth.
- 4 The titanium lattice is then filled with a 50:50 mixture of autologous bone and Geistlich Bio-Oss® and is inserted.
- 5 With deep absorbable mattress sutures and single button sutures, the mucoperiosteal flap is sutured in two layers without tension over Yxoss CBR® fully-protect.
- 6 Clinical situation seven months after augmentation.
- 7 Upon reopening no soft tissue ingrowth into the microstructure which allowed easy removal. Note there is no separation between soft tissue and bone in the area of planned openings for implant placement.
- 8 The pilot drilling can be performed through the pre-planned backward holes.
- 9 Subsequently, the Yxoss CBR® fully-protect was removed. The result is a harmonious bone contour with good bone quality.
- 10 With the Yxoss CBR® fully-protect, a horizontal bone width of approx. 10 mm could be achieved.
- 11 Due to the good quality of the regenerated bone, transgingival healing is possible.
- 12 Radiological findings four months after healing of the implant. Soon on www.reoss.eu: Clinical 3-year follow-up after prosthetic restoration with all-ceramic crowns.



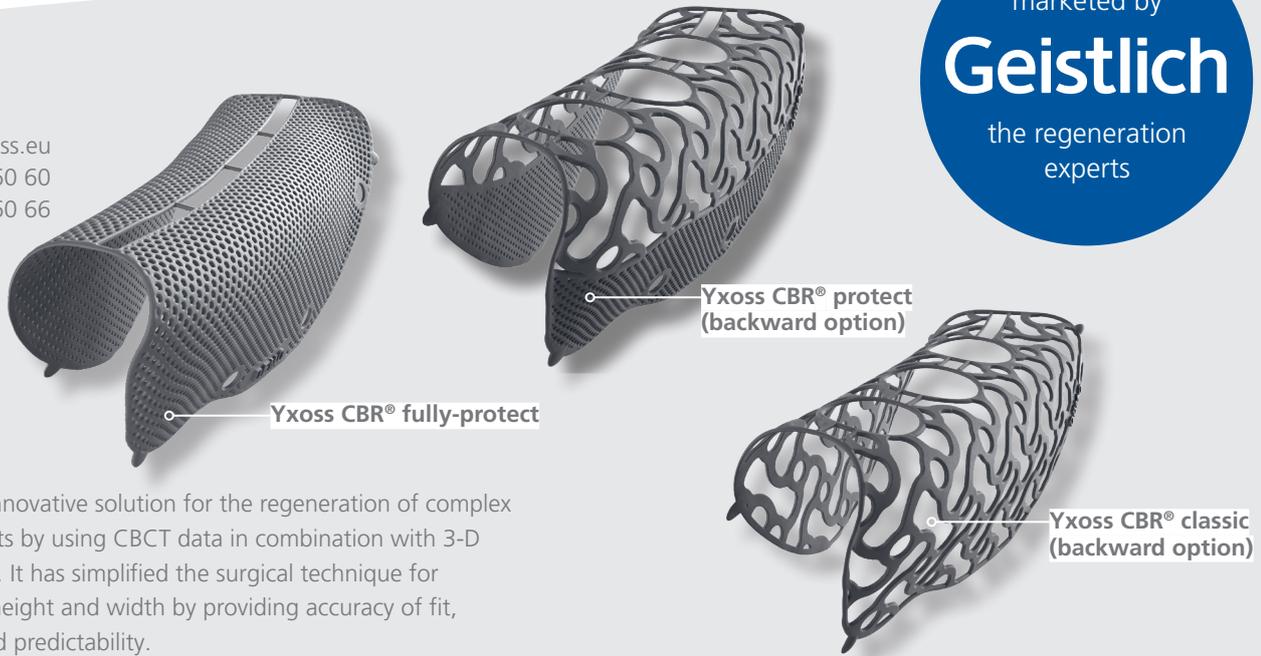
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Yxoss CBR® is an innovative solution for the regeneration of complex alveolar bone defects by using CBCT data in combination with 3-D printing technology. It has simplified the surgical technique for gaining new bone height and width by providing accuracy of fit, volume stability, and predictability.



Geistlich Bio-Oss®

Stable scaffold for new bone.^{3,4,5,6} The slow resorption of Geistlich Bio-Oss® increases the stability of the augmentation material⁷ – the best prerequisite for long-term implant survival rates.⁸



Geistlich Bio-Gide®

Stabilizes the grafted area, protecting bone particles from dislocation.⁹ The natural collagen structure permits prompt and homogeneous vascularization and allows optimal tissue integration and wound stabilization.¹⁰ The combination of flexibility, good adhesion, and tear resistance contribute to easy handling, in turn saving time, and simplifying the surgical procedure.¹¹

- 1 Ronda M et al., Int J Periodontics Restorative Dent. 2011 Sep-Oct; 31(5): 505-13.
- 2 Ronda M et al., Int J Periodontics Restorative Dent. 2015 Nov-Dec; 35(6): 795-801.
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- 7 Orsini G et al., Oral Diseases. 2007; 19: 357-368.
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- 11 Data on File. Geistlich Pharma AG, Wolhusen, Switzerland.



For more information incl. a comprehensive brochure with both Yxoss CBR® versions please visit:
www.reoss.eu
www.geistlich-pharma.com

CAUTION: Federal law restricts these devices to sale by or on the order of a dentist or physician. For more information on contraindications, precautions, and directions for use, please refer to the Instructions for Use at: dental.geistlich-na.com/ifu