Fabrication CAD/CAM of frameworks with Pekkton® ivory by Cendres+Métaux SA.

Framework criteria, material processing and veneering.

Model and stump preparation

Careful preparation of the work models is required to obtain a well fitting crown or bridge. The dies must fit reproducibly and be removable. It is advisable to apply a sealer to harden the surface and to protect the die.
Two layers of spacer are applied to max. 1mm from the preparation margin.

Anterior tooth

Posterior tooth

Scanning

The digital data of the tooth stump, neighboring teeth and antagonists can be recorded in 2 ways:

a) Direct scanning in the patient's mouth.

b) Scanning a previously fabricated master model in the laboratory.

Design (CAD)

The minimum wall thickness should be at least 0.6 mm circular and 0.8 mm occlusal. The connector dimensions of anterior bridges is at least 12 mm^2, of side bridges 14 mm^2. The change from framework to veneering material may not occur in the functional contact area.

The maximum possible framework thickness should be the aim by maximizing the connector dimensions and a full anatomy designed if necessary in the lingual area that is not critical esthetically to achieve the maximum possible connector dimensions.
For optimal color reproduction, a veneering thickness of 0.5 mm is recommended.

Removable restorations

The long-term stability depends on the dimensioning of design of the prosthesis.
The cross section of a Pekkton® ivory framework stand against works in metal should be by a factor of 1.5 increased.

The following parameters are important for a good fit:	3shape Scanner and CAD-Software	Imetric Scanner (with Exocad CAD-Software)	
		Posterior teeth	Anterior teeth
Crown edge: Recommended minimum width	0.3 mm	0.3 mm	0.3 mm
Cement GAP	0.010 mm	0.03 – 0.06 mm	0.02 mm
Extra Cement GAP	0.035 mm	–	–
Start Cement GAP	–	1.5 mm	max. (3 mm)
Occlusal Cement GAP	–	0.05 mm	0.02 mm
XY (Vertical) Cement GAP	–	0.075 mm	0.00 mm
Edge / Border thickness	0.15 mm	0.15 – 0.2 mm	0.15 – 0.2 mm
Thickness	0.6 mm	0.6 mm	0.6 mm
Drill radius	1.1 mm	1.1 mm	1.1 mm
Drill compensation	yes	yes	yes
Distance to margin line	1.5 mm	–	–
Smooth	0.2 mm	–	–
Remove undercuts	yes	yes	yes
Offset Angle	72°	–	–

An open STL standard format is required for data transfer.

Advice: Please note the detailed information in the instructions for use.

Data transfer and order processing

1. Contact Cendres+Métaux SA by phone at +41 58 360 20 00 or by e-mail at dental-cadcam@cmsa.ch for the initial order with your customer number (if available), name and e-mail address.
2. We open your personal account on our server: https://data.cmsa.ch (data protection: 15 years).
3. You receive a user name and password by e-mail and brief instructions for uploading data.
4. Upload the STL file to your personal account and send the order by e-mail to dental-cadcam@cmsa.ch.
5. Fabrication in the milling center of Cendres+Métaux SA and shipment to the customer. 2–3 days after data input.

Note:
For the configuration, the master module must be made available to process the initial order.

Conditioning

Cross-toothed milling is used to finish the framework.

Speed limit max. 15,000 rotations/min.
Do not work on the object if the pressure is too high.

Roughen the surface using a diamond milling cutter before sandblasting the framework.

After milling is complete, sandblast the framework with aluminum oxide 110μm under 2 bar pressure and clean well using oil-free compressed air.

Veneering and polishing

Recommended veneering composites:
AnaxBlend, AnaxFlow, Ceramage, GC Gradia, Signum, S.LAY, SR Nexco and Vita VM.

Before veneering, it is imperative that the Pekkton® ivory framework is treated with composite primer (Recommended: visio.link, Art. No. 08000570).

First apply the opaque with a brush and in several thin layers, if necessary. The opaque must cover the framework, but the layers should be applied as thin as possible.

The ultimate shape is achieved and polished with suitable burs, rubber polishers and various aids.

Advice: Please note the detailed information in the instructions for use.

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