



# Wax veneers

## Wax veneers

**Efficient waxing-up with  
GEO Aesthetics**

Renfert  
Dental Technology Team

**Renfert**  
Ideas for dental technology

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Dear Reader,

the knowledge that quality and rationalisation are key factors in the secret of success, is nothing new. The fact that this simple business tactic is regularly implemented in the dental field, means that an increasing number of dental laboratories are becoming more successful. The Wax Facing Set *GEO Aesthetics* allows you to stay true to this trend when fabricating dental wax-ups. The system saves a substantial amount of time due to the fact that 70% of the work has already been completed. At the same time the preformed natural shape of the veneers gives the piece of work a highly aesthetic quality.

Whilst developing this system we made a conscious decision to find the happy medium: a neatly arranged assortment for quick and comfortable selection, and yet so precise, that scarcely any individualisation is necessary. The facings are classified according to typecasting familiar throughout the dental trade, i.e. athletic, pyknic and leptosome, so it allows all technicians to quickly recognise and apply.

As in every Renfert manual, our authors have remained true to laboratory reality. The examples do not present academic surveys, instead they show the advantages of this technique in a step by step manner with practical case examples in the following fields:



- press-over technique
- conventional layering techniques
- temporary restorations
- veneers.

This manual is directed at senior technicians interested in enhancing their skills and knowledge and at novices who will enjoy the well structured guidelines.

We hope you enjoy reading,

***Your Renfert Team of Authors***

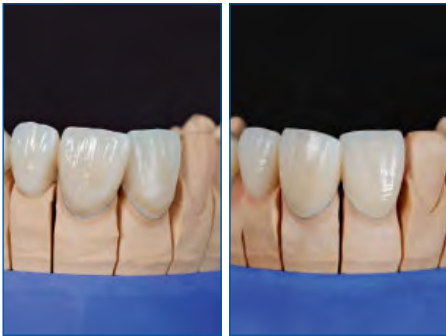
# Content Content

<b>1</b>		Build-up and press-to ..... 3 ■ Framework design ..... 3 ■ Press-to technique ..... 9 ■ Conventional layering technique ..... 12
<b>2</b>		Laboratory made Temporary Restoration ..... 16
<b>3</b>		All-porcelain veneers ..... 25
<b>A</b>		GEO Aesthetics ..... 30
<b>A</b>		Equipment, Instruments and Materials ..... 33

# Build-up and press-to

## Build-up and press-to

1



### Framework design

Aim:

Fabricating a four-unit anterior bridge

A: with the press-to technique  
(press to metal)

B: with the conventional layering  
technique



Initial Situation

Teeth 11, 21, 23 prepared; 22 bridge  
pontic

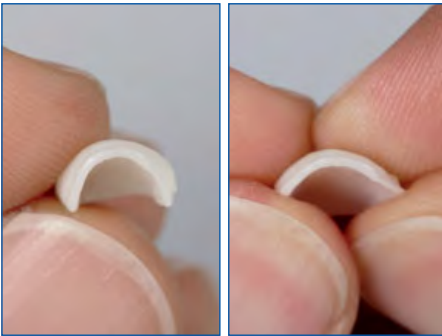


At first, the correct facings are chosen  
with the help of the comparative model.

1



They are then checked for fit and interferences on the dies.



The facings are flexible and can be individually adjusted to fit.



Interferences are removed with a scalpel.



The facings are then fixed to the dies or bridge pontic using a small portion of *GEO Fix* positioning wax.



At this point, the *GEO Aesthetics* wax facings are still adaptable and can be easily aligned on the dies.



The facing's anatomic tooth position, length, and inclination and the functional jaw excursions are checked on the articulator and their position adjusted as necessary.



Now the facings are firmly and selectively fixed using *GEO Aesthetics Add wax*.

**Note:**

The affixed facings must withstand the pressure of the kneadable silicone.



The kneadable silicone is pressed carefully against the *GEO Aesthetics* Facings and adjacent teeth from the vestibular side. The silicone should only slightly overlap the lingual/palatal side of the incisal edge.

**Note:**

Make sure the silicone is thicker than 5 mm.



After the silicone has hardened, remove both the silicone and facings and store for later use.

**Note:**

Remove completely any wax residue from the dies (steam clean).



For the best visual control, reduce the silicone wall around the height of the maximum incisal edges and in the area of the adjacent teeth to between 5 and 10 mm.



The cleaned dies are then isolated using a wax separating agent.



Produce copings in the usual manner using dipping wax (see Waxing up Manual, page 8 + 9).





The wax pontic is best positioned with positioning wax before fixing to the wax copings.



Check the availability of space for the following press-to veneers with the silicone index. If necessary, reduce or build up the framework.



**Note:**

- Uneven porcelain layer thickness leads to tension within the porcelain (cracking).
- Thick porcelain layers lead to chipping once in the patient's mouth.
- Thin porcelain layers lead to loss of aesthetic or may impede the pressing process. 0.8–1.5 mm is a safe guideline.

The framework is sprued as accustomed ...





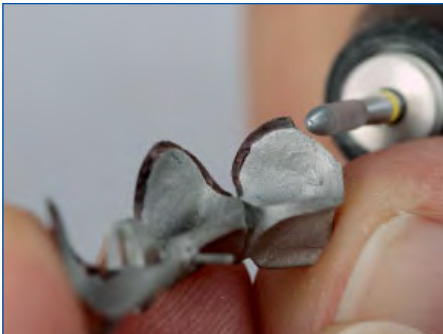
... and cast.



Highly flexible, break-resistant glass-fibre reinforced separating discs are best suited for cutting off sprues.



Following fitting, the sprues are ground back and the surface trimmed.



In preparation of a porcelain shoulder, the metal margin is cut back.

**Note:**

Marking the margin in advance gives a better view when cutting back.



Prior to oxide firing, the surface is blasted with aluminium oxide grit (90–125 µm) and steam cleaned.

**Note:**

To avoid contamination with fats, do not touch the framework with bare hands or use compressed air.



Then apply a covering layer of opaque and fire according to manufacturer's instructions.

**Note:**

Individual shading of the opaque layer supports the aesthetic effect.



**VARIATION A:  
Press-to technique**

Affix the previously used facings in the index.

**Note:**

Interferences must be removed at this stage.



The facings are then fixed to the opaqued bridge framework using a small portion of modifying wax *GEO Aesthetics Add wax*.



The tooth contours are completed using modifying wax and rechecked in the articulator.



Carry out final contour adjustments with a modelling instrument and cut back exactly any access wax around the cervical margin as necessary.



A 3 mm sprue no more than 8 mm long is used. The framework is subsequently pressed in porcelain.

**Note:**

The sprues can be attached and aligned with positioning wax.



Glass-fibre reinforced separating discs size 0.5 x 40 mm are equally suitable for opening the press muffle.



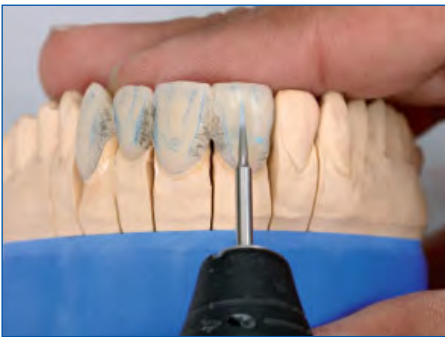
Cut off and grind back the sprues with suitable sintered diamond coated discs or grinding discs for ceramics.

**Note:**

To avoid overheating the framework, we recommend low pressure and low RPM. In addition, the framework should be permanently wetted and cooled with water.



High spots are ground down in the articulator.



Make any form corrections with diamond coated burs.

**Note:**

Simplify correction by marking the required form characteristics with a graphite-free pencil to give a better orientation.



Before staining/ glaze firing, the framework is once more carefully blasted with aluminium oxide (50 µm).

**Note:**

Modern stains allow time saving customisation without elaborate reduction of the dentine core and relayering.

1



The finished bridge.



### VARIATION B Conventional layering technique

The framework for conventional layering.



Any undercuts on the silicone index must be carefully removed with a scalpel.



The silicone index is then isolated against porcelain.

**Note:**

Porcelain adheres less to fine-pored index material.



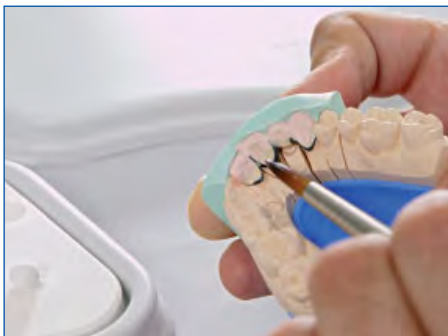
Layer the dentine porcelain material in the silicone index.



Position the index with the still wet porcelain against the model.

**Note:**

Light tapping against the model densifies the porcelain in the index.



The remaining areas of the bridge are completed from palatal with dentine material.



Excess moisture is absorbed repeatedly with a cloth.

1



Carefully remove the silicone index.



The vestibular form is reduced to the dentine core with a porcelain instrument.



Build up the incisal area layer-by-layer using incisal and transparent material.

**Note:**

To avoid uncontrolled cracking of the porcelain (shrinkage), separate the interdental spaces before firing.



The bridge after firing.





Reductive form corrections are made with diamond coated burs ...



... and additive adjustments subsequently in the second firing.



Before staining/ glaze firing, the bridge is carefully blasted once more with aluminium oxide (50  $\mu\text{m}$ ).



The finished bridge.

# Laboratory made Temporary Restoration



Aim:  
Anterior temporary restoration



Initial Situation:  
11, 21, 23 prepared; 22 bridge pontic



Analogous to page 3, the facings are chosen and fitted.



Immediately after sealing, the dies are coated with a thin layer of wax separating agent. No die spacer required.

2



Thin copings are then made.

**Note:**

Modifying wax is well suited for dipping (see the Waxing up Manual, page 8–9).



Using a small amount of positioning wax ...



... the *GEO Aesthetics* Facings are fixed and positioned on the copings.



The correct position and function is checked on the articulator.



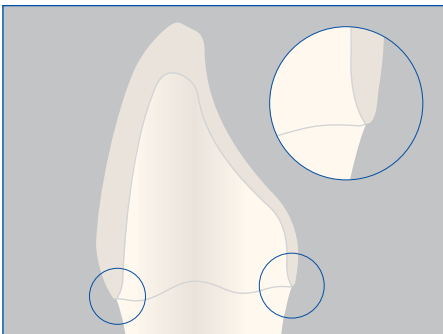
Complete the form with modifying wax. Recheck the functional excursions on the articulator.

**Note:**

Modifying wax is very stable and flexible (high break resistance). *GEO Snow-white L* and *GEO Natural* are softer (easier to carve) and allow a more individual aesthetic.



Final form corrections are made with a suitable modelling instrument.



Observe the following when reducing: Resin's increased contraction must be compensated through thickness in the margin area (build up when necessary). Otherwise there is a risk the margin will break when the temporary denture is removed from the model.



Remove the bridge as accustomed.

**Note:**

The exact fit including marginal fit must be checked before lifting off the restoration (separate and splint again if necessary).



Fill the gaps between sections in the dental arch with block out wax.



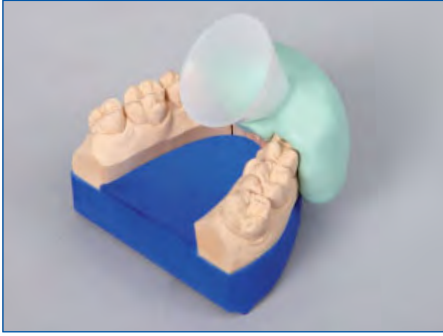
Cover remaining sections of the model with a thin layer of wax up to the preparation margin.



Replace the bridge on the model and carefully press the kneadable silicone on to the pattern, also covering the adjacent teeth.

**Note:**

Ensure the index is thick enough (at least 5 mm).



Make a palatal funnel to simplify filling. It also prevents leakage.

**Note:**

Place the funnel over the largest cavity (in this case over the bridge pontic). The opening should be as small as possible and as large as required.



Once hardened, remove the index and check to make sure all areas are covered correctly.



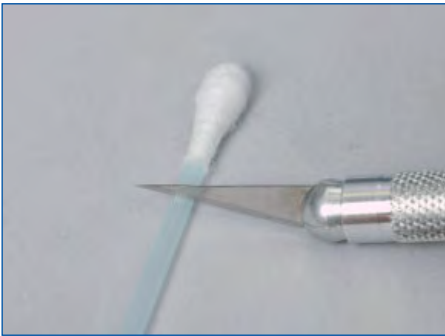
Reduce the overlapping part of the index to around 5–10 mm. This makes it easier to position the index later and to ensure correct fit.



Widen the funnel entry point with a scalpel to allow better pouring of resin.



To prevent air locks inside the resin, make sufficient air vents in the index.



**Tip:**

Lengthen the air vents simply using a cut off cotton bud ...



... thus preventing an uncontrolled flow of resin.



Cover the dies and the preparation margin with a very thin layer of wax.

**Note:**

The wax layer needs to be slightly thicker 1 mm above the preparation margin.

2



Replace the silicone index on the model.

**Note:**

Check for exact fitting of the index.



Seal the borders of the index with sticking wax.



Pour the resin slowly into the funnel.

**Note:**

Make sure you fill enough resin into the mould, as it will shrink during polymerisation.



Place the model in the pressure curing vessel and polymerise according to manufacturer's instructions.

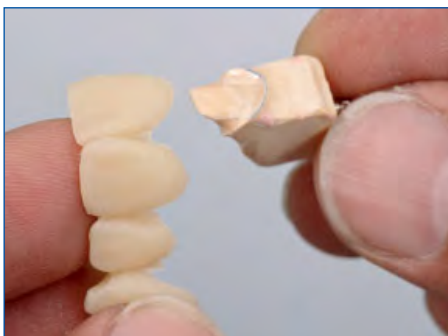
**Note:**

Position the model correctly in advance to prevent the liquid resin running out.





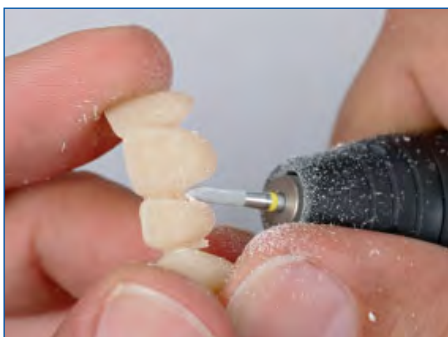
Once hardened, remove the index and carefully lift the bridge from the model with the dies still in place.



Remove the dies one at a time.

**Note:**

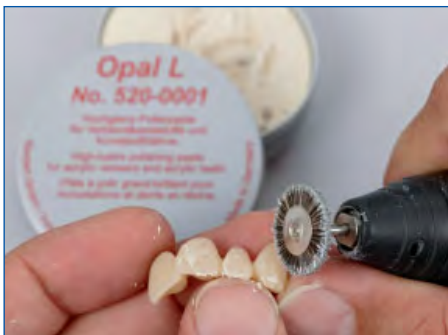
Prior to removing the dies, allow the whole construction to warm up in 70–80 °C warm water. The wax warms up and allows the dies to be removed without damaging them.



Use suitable resin burs and sandpaper discs to make any final corrections. Check the occlusion, protrusion, and laterotrusion once again in the articulator.

**Note:**

The margin may now be trimmed back to their correct thickness. The incisal edge can be trimmed back and individually completed with light-curing incisal or transparent materials.



Following this step, the bridge is pre-polished using a *Bison*-brush and a suitable polishing paste.

2



Polishing paste and cotton buffs give a high-gloss finish in seconds.



The finished temporary restoration.

# All-porcelain veneers

## All-porcelain veneers

3



Aim:  
All porcelain veneers



Initial situation:  
Veneers on teeth 11 and 12 (partially prepared).



Analogous to page 3, the facings are chosen and fitted.



Once the dies are sealed, they are covered with a layer of washable die spacer.



A thin layer of wax separating agent is then applied to the whole die to below the preparation margin.



Apply a thin layer of modifying wax.



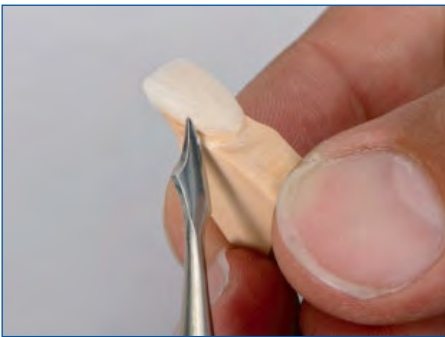
Apply a small portion of positioning wax on the dies.



Fit the *GEO Aesthetics* Facings on the dies and position as needed. Check the anatomic position of the facing and all excursions on the articulator.



Complete the form and contact points with *GEO Aesthetics Add wax* or, alternatively, with *GEO Snow-white L/GEO Natural*.



Use a wax instrument to carry out final corrections and cut back exactly excess wax around the cervical margin.



Sprue and press according to the manufacturer's instructions.



Cut off / cut back the sprues with suitable diamond-coated discs or grinding discs for porcelain.

**Note:**

To avoid overheating the porcelain, we recommend using only light pressure and low RPM.



Remove the washable die spacer from the die with a soft brush under running water before fitting down.



The washable die spacer compensates most of the pressable ceramic's expansion and thus simplifies fitting.



Characterise the surface with a diamond-coated bur.

**Note:**

Simplify trimming by marking the required form characteristics with a graphite-free pencil to improve orientation.



Before staining/ glaze firing, the veneer is once more carefully blasted with aluminum oxide (50 µm).

Characterise the veneer with stains according to the information provided by the dentist or the shade determination on the patient.

3



The finished veneer.

**GEO Aesthetics – Wax veneers for efficient wax-up technique**

- 70% of the work already completed
- Natural aesthetics achieved immediately

The contrasting comparison models enable the correct shape and size to

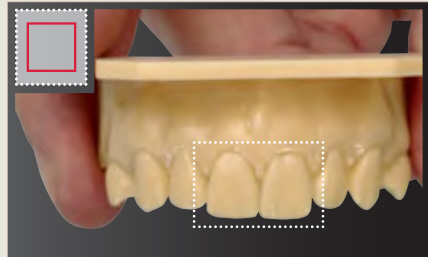
be found quickly. The assortment is so extensive that very little individualisation is required. Crowned with positioning wax and modifying wax. The rational path to higher quality.

**Application in three steps**

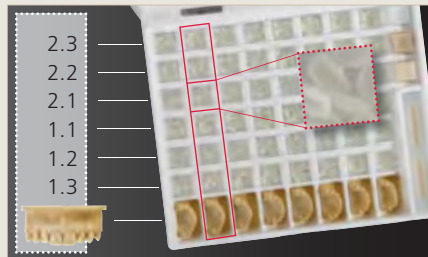
1. Patient situation: Determine the tooth shape: Rectangular, triangular, oval



2. Compare with the demonstration model and select the relevant type: Rectangular, triangular, oval



3. Select the tooth (correct position and shape) according to the model







GEO

# Aesthetics

The models allow the veneers to be viewed three dimensionally. Each model can be set in two different positions. This enables an optimal view of the anterior region during the wax-up.



Overview of the various different tooth types:

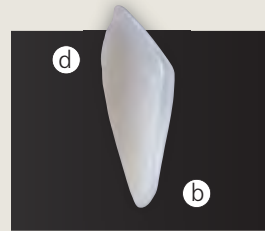
Athletic

Pyknic

Leptosome

S = Small

L = Large



**(a) Anatomical tooth shape with light surface structure.**

Suitable for all wax-up indications, quick individualisation possible where necessary.

**(b) Complete incisal edge:**

Makes lingual or palatal filling easier. Speeds up the anatomical wax-up.

**(c) Central area of veneer very thin (only 0.6 – 0.9 mm)**

Also for use in areas of limited space without requiring palatal reduction.

**(d) Anatomically shaped approximal and labial veneer surfaces. A slight indentation cervically to show the transition to the neck of the tooth.**

Less time and effort for the wax-up with top results.

**Useful accessories**

Optimally adapted supplements for realistic demonstration and show models for dentists and patients.


 GEO

# Aesthetics



Accessories	Art. No.
GEO Aesthetics Set	505-000x
<input type="checkbox"/> S Demonstration model	505-1100
<input type="checkbox"/> S Single veneers	505-11xx
<input type="checkbox"/> L Demonstration model	505-1200
<input type="checkbox"/> L Single veneers	505-12xx
<input type="radio"/> S Demonstration model	505-2100
<input type="radio"/> S Single veneers	505-21xx
<input type="radio"/> L Demonstration model	505-2200
<input type="radio"/> L Single veneers	505-22xx
<input type="checkbox"/> S Demonstration model	505-3100
<input type="checkbox"/> S Single veneers	505-31xx
<input type="checkbox"/> L Demonstration model	505-3200
<input type="checkbox"/> L Single veneers	505-32xx
S Lower demonstration model	505-4100
S Lower veneer	505-41xx
L Lower demonstration model	505-4200
L Lower veneer	505-42xx
GEO Fix, 15 g	505-0110
GEO Natural transparent, 75 g	499-0400
GEO Aesthetics Add wax, 75 g	505-0100
GEO Snow-white L transparent, 75 g	499-0201

# Equipment Equipment



## **Waxlectric I + II**

Accurate and comfortable work, and save 20% of your waxing-up time. No contractions of the wax-patterns with accurately adjusted, constant and evenly distributed temperature at the instrument tip. Programming function: fast, reproducible results.

Save up to 50% of your time with the *Waxlectric* and *Vario E* system.

*Waxlectric II*, 230 V, Art. No. 2157-0000

*Waxlectric II*, 120 V, Art. No. 2157-1000

*Waxlectric I*, 230 V, Art. No. 2156-0000

*Waxlectric I*, 120 V, Art. No. 2156-1000

## **Vario E**

The *Vario E* preheats sculpting waxes to an optimum working temperature.

*Vario E*, 230 V, Art. No. 1452-0000

*Vario E*, 120 V, Art. No. 1452-1000



## **hotty / hotty LED**

The *hotty LED* is a wax-dipping unit with controlled temperature settings.

*hotty LED*, 230 V, Art. No. 1461-0000

*hotty LED*, 120 V, Art. No. 1461-1000

*hotty*, 230 V, Art. No. 1460-0000

*hotty*, 120 V, Art. No. 1460-1000



# Instruments

## Instruments

A



### **Ceramicus**

New-type brush bristles with properties superior to both types of brush known so far.

Set with 6 sizes, Art. No. 1716-0000  
 Staining brush set, Art. No. 1703-0000  
 Single size, Art. No. 1716-0xxx

### **Tropicana**

Large porcelain mixing palette with moisture-retention function.

≈ 235 × 170 mm, Art. No. 1067-0000



### **ERGO Ceramic**

Double-sided special instruments for modelling porcelain.

Set with 2 instruments, Art. No. 1161-1000  
 Single instrument, Art. No. 1161-1xx0

# Instruments + Materials

## Instruments + Materials

A



### **GEO Triangular casting sprues**

Set of casting sprues for effective attachment of the wax model.

≈ 100 pieces, Art. No. 680-3000

### **ERGO Wax**

Latest design with an optimised combination of sculpting tips. Suitable for all possible areas in dental technology.

Set with 5 instruments, Art. No. 1034-2000  
Single instrument, Art. No. 1034-200x



### **Dynex**

Extremely robust separating discs with double, cross linked, high-tec fibreglass reinforcement. Suitable for cutting and grinding all conventional alloys.

0,3 × 22 mm, 20 pieces, Art. No. 57-0322

0,5 × 40 mm, 20 pieces, Art. No. 57-0540

1 × 40 mm, 20 pieces, Art. No. 57-1040

### **Bison + Opal L**

Mounted high-lustre brushes available in two diameters for polishing using a hand-piece. Ideal polishing results with *Opal L* polishing paste.

*Bison*, Ø 14 + 18 mm, Art. No. 76x-1x00

*Opal L*, 35 g, Art. No. 520-0001



# Materials Materials

A



## **Picosep**

Thin, silicone based isolating agent – specially developed for wax-dipping techniques.

30 ml, Art. No. 1552-0030

## **Pico-Fit**

High quality die spacer varnish with good contrast on the most popular plasters.

Set 15 ml gold and silver varnish + 30 ml Thinner, Art. No. 1954-0400

Single, 15 ml, Art. No. 1954-0x00

Thinner 30 ml, Art. No. 1954-0700



## **Aqua-Fit**

Water-washable die varnish in tooth colour.

Varnish, 15 ml, Art. No. 1966-0000

Thinner, 15 ml, Art. No. 1966-0100

## **GEO Dip**

Special waxes for processing within an electronic wax die pot.

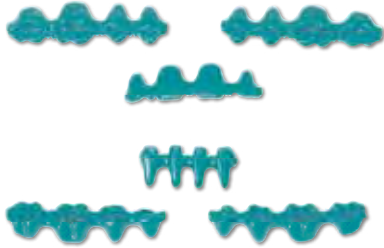
Yellow, approx. 200 g, Art. No. 482-3000

Orange, approx. 200 g, Art. No. 482-3200

Green, approx. 200 g, Art. No. 482-3300



# Materials Materials



## **GEO Pontics**

A set of pontics for modelling anterior and posterior bridges for veneer technique with acrylic or porcelain.

Set, 10 pieces, 6 sizes, Art. No. 500-0000  
Single, 20 pieces, Art. No. 500-0x00

A

## **Know-how... for you**

It has been vital for a long time now to keep up with the ever changing information and training in dental technology.

- Catalogue
- Renfert Report
- Wax-up manual
- Manual on Functional Model Fabrication
- Manual on Model Casting Technique
- etc.



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# Step by step to success



Your dental dealer:

As our products are subject to continuous development, product illustrations are intended only as examples.

Renfert offers a **3-year** guarantee on all equipment provided it is used according to instructions. The original sales invoice of the dental supplier is required for a claim under guarantee. The guarantee excludes parts that are subject to normal wear and tear. Incorrect use, disregard of the operating, cleaning, maintenance and installation instructions, in-house repairs or repairs by unauthorised personnel, use of replacement parts from another manufacturer and exceptional factors not covered by the instructions for use render the guarantee invalid. A successful claim under the guarantee does not extend the guarantee period.



Renfert GmbH | Industriegebiet | 78247 Hilzingen | Germany  
or: Postfach 1109 | 78245 Hilzingen | Germany  
Tel.: +49 (0)7731 8208-0 | Fax: 8208-70 | [www.renfert.com](http://www.renfert.com) | [info@renfert.com](mailto:info@renfert.com)

USA/Canada/Mexico:  
Renfert USA | 3718 Illinois Avenue | St. Charles IL 60174 | USA  
Tel.: 630 762 1803 | Fax: 630 762 9787 | [www.renfert.com](http://www.renfert.com) | [richardj@renfertusa.com](mailto:richardj@renfertusa.com)  
Free call 800 336 7422

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Ideas for dental technology