Model casting technique

Analysis, planning and manufacture

Renfert
Dental Technology Team

Renfert
Ideas for dental technology

Dear reader,

The partial denture is worldwide one of the most utilized forms of therapy. It covers almost all the options for treating missing teeth with various degrees of complexity and different levels of treatment. Many books have already been written to illustrate the variety of this subject, most of them very comprehensive. That is good, as they are essential as reference or as speciality books.

However, because of that many people are intimidated by this subject. That is a pity and unnecessary, as partial denture work is no witchcraft. Renfert would like therefore to shed light on and bring you closer to an important area of dental laboratory practice in this handbook series. We consciously concentrate on the widespread area of the clasp-retained chrome cobalt denture. This is worldwide the basis of treatment that is varied, predictable and cost effective.

As in the previously published Renfert handbooks, the authors do not intend to show restorations and techniques far removed from the daily routine just to display exaggerated perfectionism. To us it is far more important to fit the frame of daily laboratory and practice timing.

The reader will get a step-by-step explanation, from analysis to planning and fabricating the denture, with many proven, mostly self-explanatory, detailed pictures.

As is so often the case, good planning is the basis for quick, precise fabrication of a partial denture. Therefore we especially emphasise this part.

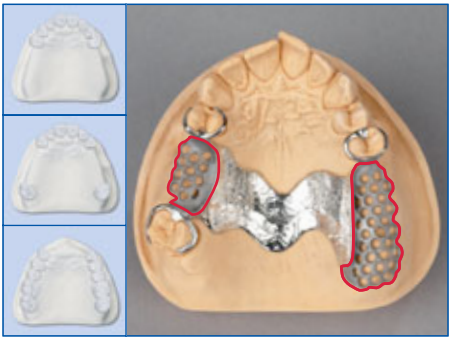
We suggest the Renfert Cast-denture-system handbook to all those, who are just starting, to those who still feel somewhat insecure, but also to those who want to improve.

We wish you lots of fun reading

Your team of Renfert authors

Contents

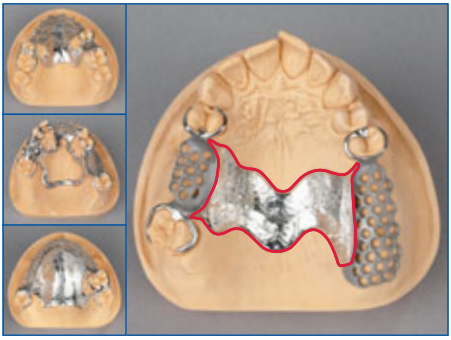
Contents



Kennedy Classes

The model in our example is a modification of Kennedy Class II.

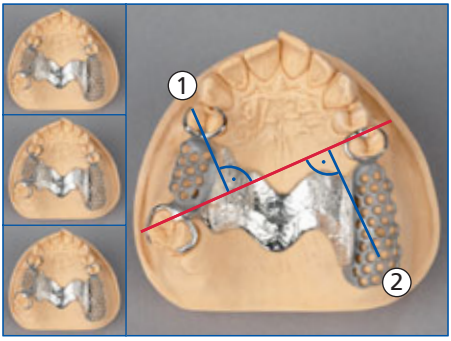
For classification of the four main Kennedy Classes refer to Page 37.



Framework design

In our example the framework is designed as a transversal plate.

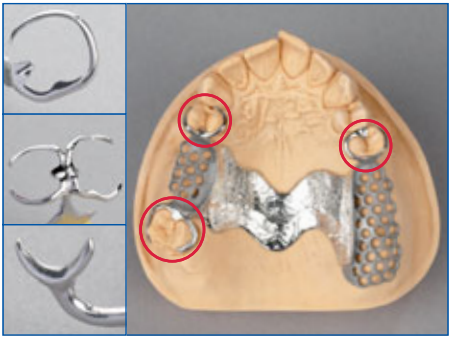
For other types of frameworks refer to Page 38.



Statics

The basic requirements of a CrCo denture are compensation of the forces, retention and stability. For different stages in analysis refer to Page 39.

① Lever arm | ② Work arm



Types of clasps

This example uses a G-clasp and two E-clasps, which are variations of the double arm clasp.

For other types of clasps and their application refer to Page 42 – 43.

1

Model production

Model production

Use a Class IV dental stone for fabricating the working model and mix bubble-free in a vacuum mixer.

Tip:
Programmable vacuum mixers guarantee reproducible results.

Using a base former saves time when fabricating the model base.

Also refer to the guide on functional model fabrication
(see Page 46).

Tip:
Trimming the model base at right angles facilitates removing it from the duplicate mould at a later stage.

Initial Situation

Upper Kennedy Class II with an additional bounded saddle.

There is a bounded saddle in the first quadrant. The dentist has prepared rests next to the saddle on 14 and 17, the teeth to be clasped.

There is a free-end saddle in the second quadrant.

A rest has also been prepared here. It is away from the saddle on the premolar 25.

Model Preparation

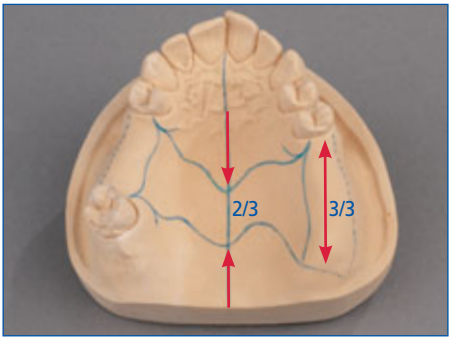
Model Preparation

Marking the CrCo framework

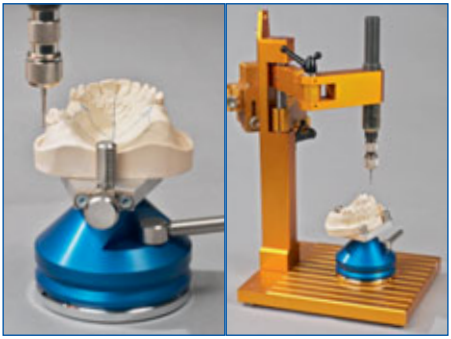
First the centre of the palate is marked as a symmetrical reference point. This usually runs along the palatal suture starting at the incisive papilla.

To avoid the CrCo framework compressing the gingiva, allow adequate clearance at the gingival margin of the respective teeth.

The relineable saddles are marked on the model.

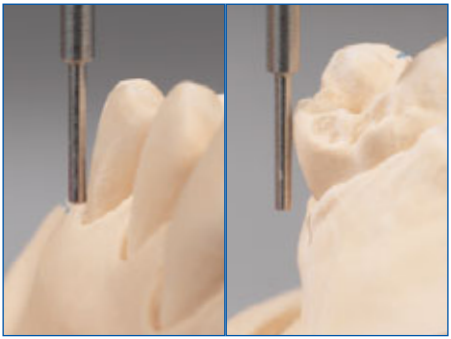


The average width of the transversal plate is about two-thirds of the length of the longest saddle. This rough guide ensures the necessary stability with minimum dimensions.

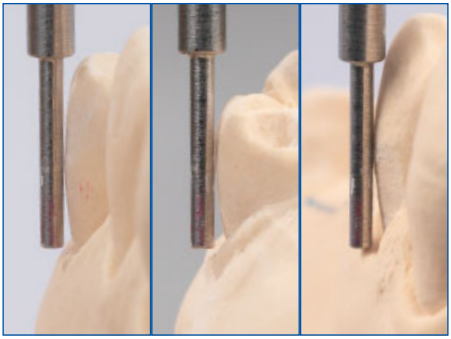


Determining the path of insertion

The model is securely clamped on a model table. A common path of insertion for the clasps is determined as follows using the surveying rod of the parallelometer.



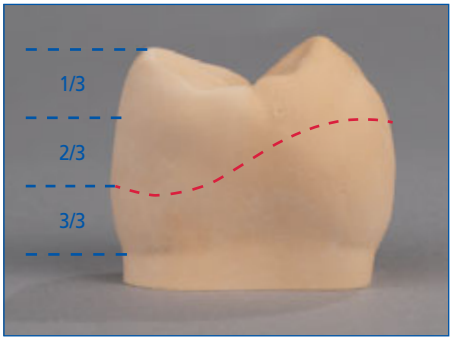
Taking into account all the teeth to be clasped, the model is tipped out of the initial position ...



... to establish a suitable undercut. This produces the prosthetic equator of the individual teeth.

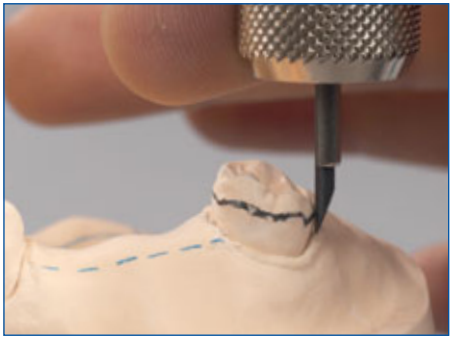
The model should be aligned so that the prosthetic equator is in the lower third of the tooth in the region of the clasp tip.

3



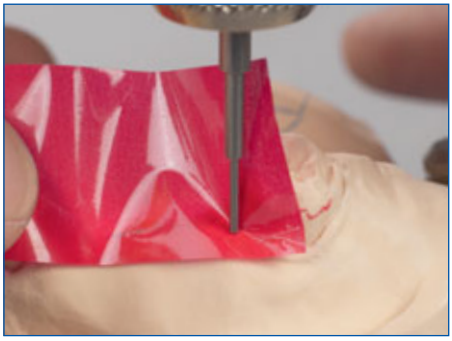
The prosthetic equator indicates the greatest circumference of a tooth in relation to the common path of insertion of all the teeth to be clasped.

The part of the tooth below the equator is the retentive section.



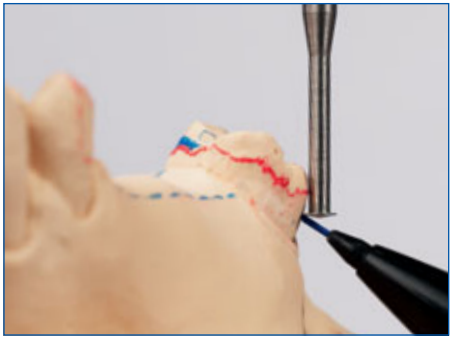
OPTION A

The prosthetic equator is marked with pencil lead.



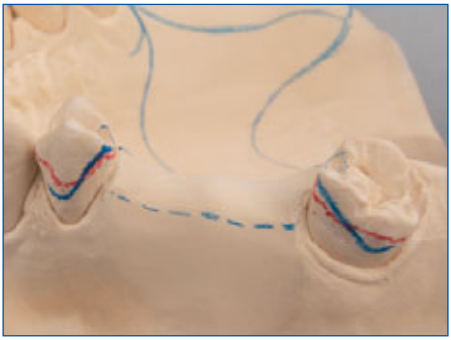
OPTION B

The prosthetic equator can also be marked by placing occlusal foil against the tooth and moving the surveyor rod along the foil.



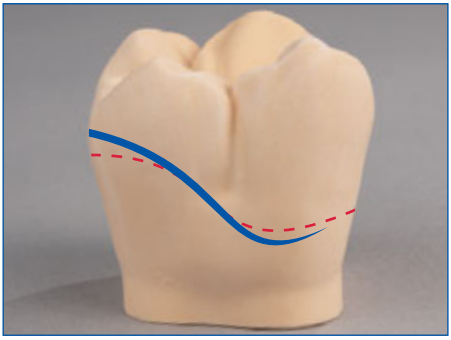
The deepest position of the retention arm in the retentive section is determined using a depth gauge. The depth gauge should be in contact with the tooth.

Note:
A Ney depth gauge size 1 (0.25 mm/0.0098 inch) is used with CrCo alloys, as shown in the example.

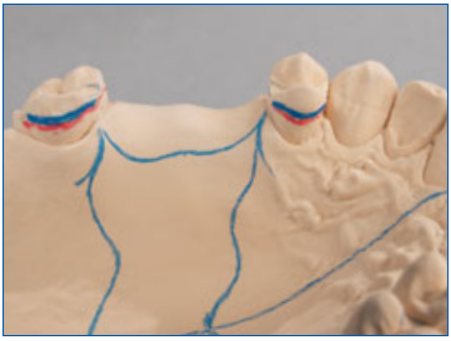


Marking the position of the clasps

The clasp contour can now be marked, preferably using a graphite-free pencil (*Sakura*), and should take the following aspects into consideration:



Ideally one-third of the retention arm should lie below the prosthetic equator, one third on the equator and one third above it.

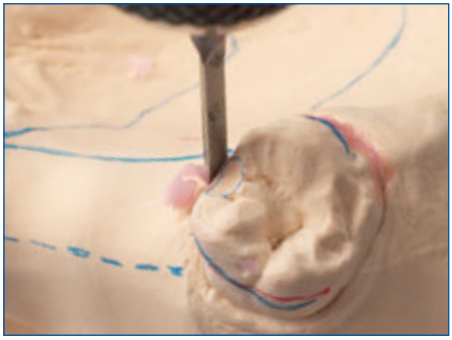


The support arm, which should not be placed below the prosthetic equator, is used as a reciprocal arm to the clasp arm.

Blocking out undercuts

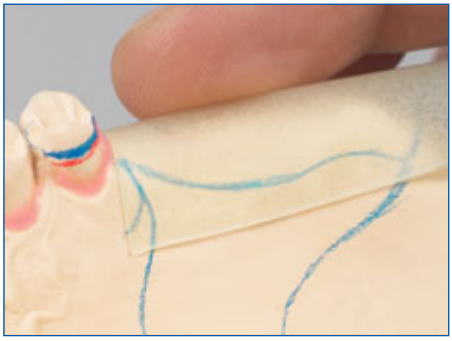
The undercuts are then blocked out with blockout wax (except for the areas used for retention).

Deep areas in the palatal rugae and interdental spaces should also be blocked out. This facilitates subsequent removal from the duplicate mould.



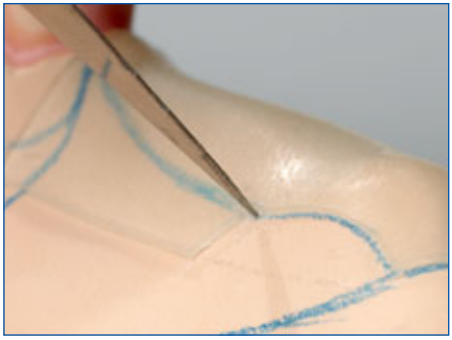
Blocked out areas are carefully reduced to a minimum using a parallel carver (until the carver comes into contact with the tooth).

Tip:
Tooth surfaces next to the saddle should be blocked out with a min. 2° angle.

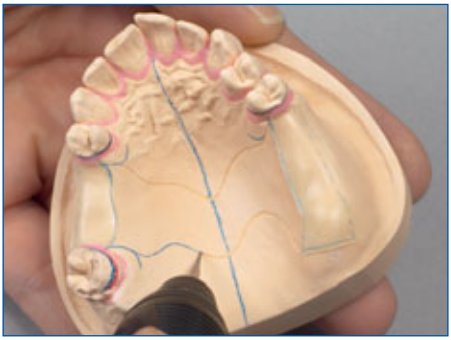


Preparing the saddle area

Self-adhesive *Casting Wax* is applied to the surfaces of the marked saddle areas. The adhesive wax prevents duplicating silicone flowing underneath the wax.



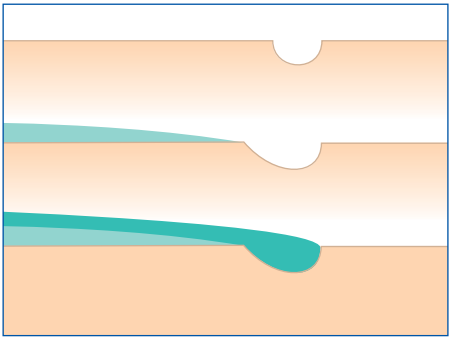
The *Casting Wax* is then reduced to the marked contours of the saddle area. Position the scalpel so that the finishing edge is undercut, as this will provide better retention for the acrylic.



Preparing the finishing margins

The finishing margins of the transversal connector marked on the model are ground to a maximum depth of 0.5 mm/0.019 inch with a 1 mm/0.039 inch round bur. This increases the suction of the denture.

The prepared finishing margins ...



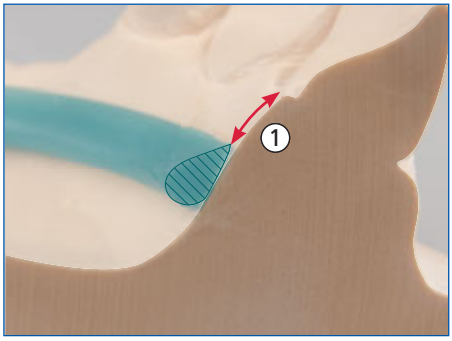
... are trimmed towards the plate to avoid any sharp edges or pressure points.

The finished prepared upper model can now be duplicated.

Lower Model Preparation

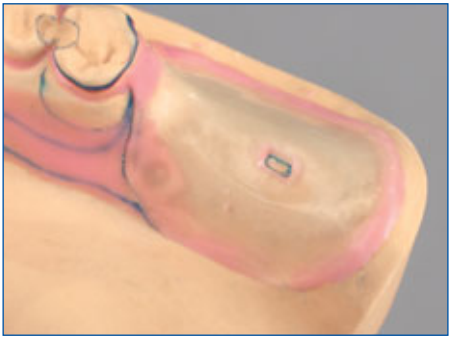
The lower model is prepared slightly differently from the upper model.

The planned sublingual bar has a convex design at the lingual frenum. This prevents irritation of the moveable lingual frenum.



The sublingual bar should be placed approx. 4 mm/0.157 inch (1) from the gingival margin without coming into contact with the moveable mucosa on the floor of the mouth.

In contrast to the upper palatal plate, the sublingual bar should be hollowed by 0.5 mm/0.019 inch to prevent pressure points. Another advantage of this is improved cleansing by the saliva and no apposition of food debris.



With free-end saddles a notch (metal stop) is cut out in the distal region of the casting wax spacer. This provides support and ensures that this region does not sink when pouring the acrylic and that the fit of the denture is maintained.

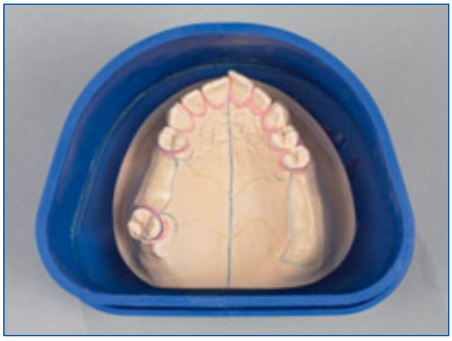
Lower model prepared for duplication.

Duplication

Duplication

5

Secure the model to the middle of the flask base with sticky wax.



Ensure that there is a uniform gap (approx. 1 cm/0.393 inch) between the model and the edge of the sleeve so that the silicone mould has adequate stability.

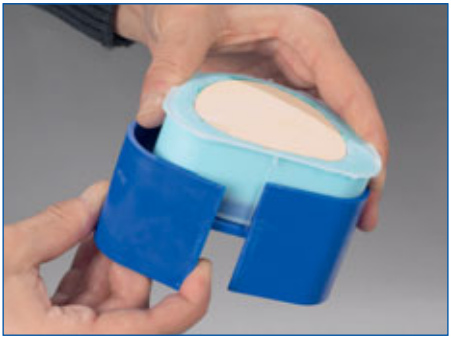
The duplicating silicone is mixed bubble free in a vacuum mixer.

Adhere to the manufacturer's instructions for use!

Tip:
Use of a vacuum mixer guarantees that the silicone is bubble-free and homogeneous.

The duplicating silicone is poured slowly into the duplicating flask from a height of approx. 30 cm.

Tip:
To avoid bubbles forming, do not pour the duplicating silicone too quickly or directly onto the wax pattern.



Remove the sleeve after the duplicating silicone has set.

Tip:
Using compressed air facilitates removal of the model from the duplicate mould.

After loosening the stone model, it should be carefully removed from the duplicate mould.

Tip:
Ensure that no wax sections are left in the duplicate mould.

Investment model

Spray the duplicate mould with silicone wetting agent to avoid bubbles forming in the investment model.

5

The CrCo investment is mixed bubble free in a vacuum mixer according to manufacturer's instructions.

The investment is poured slowly into the duplicate mould with the aid of a vibrator.

It is important to use the correct oscillation mode for the material at the optimum level of vibration to ensure that the model is poured without bubbles.

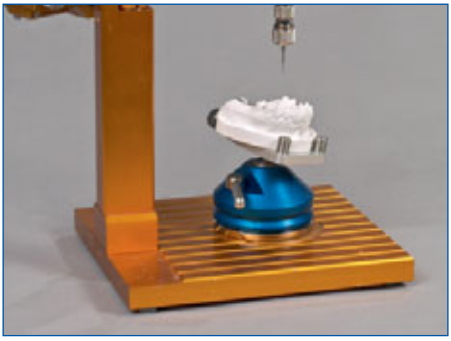
The model can be carefully removed after the investment has set.

Tip:
A jet of compressed air also facilitates removal of the model here.

Finished investment models.

Investment model preparation

After removal, the models should be dried in the furnace at approx. 100°C /212° F for 15 min.



The markings from the duplicate mould often transfer automatically onto the investment model. If this does not happen, the undercuts at the teeth to be clasped have to be surveyed again.

Lightly spray the model with model spray to smooth the surface and improve adaptation of the preformed wax patterns.

Waxing Up

Waxing Up

6

Before waxing up, heat the model until it is hand-hot (e.g. place on a steam cleaner) to facilitate adaptation of the wax.

First fill the post dams of the transversal connector and the beading at the saddle area with CrCo sculpting wax.

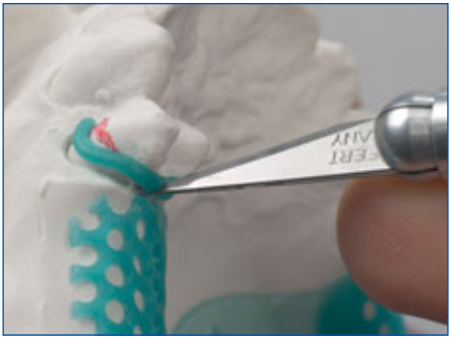
Adapt a 0.5 mm/0.019 inch wax wire to the middle of the transversal connector along the length of the plate as a strengthener.

The areas between the wax wire and post dams are filled with sculpting wax and smoothed. The layer thickness at the wax wire should be 0.5 mm/0.019 inch and taper thinly towards the post dam.

Round retention mesh is placed on the saddle and waxed onto the transversal connector.

Ensure that there is an adequate retention area for the acrylic.

The tip of the preformed clasp patterns are adapted first in the retention area and then placed along the marking.

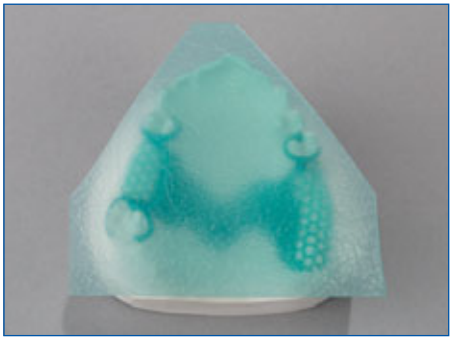


The clasp is cut to the height of the rest using a scalpel.

The reciprocal clasp arm is placed using the same technique. Ensure that the clasp arm is not placed below the prosthetic equator so that there is no retention on this side of the tooth.

The wax-up of the rest and minor connector to the round retention mesh is completed with CrCo sculpting wax.

A thin waxing-up tip is recommended for use in intricate areas.



A 0.4 mm/0.015 inch thick stippled sheet of casting wax is cut in the shape of a triangle.

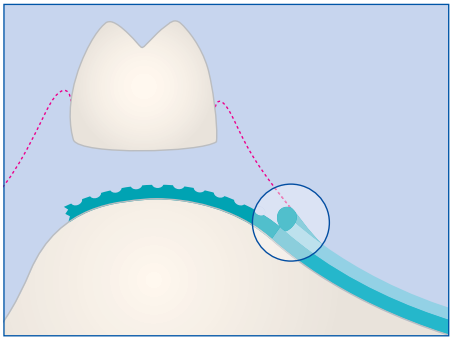
Slits in the stippled sheet casting wax prevent cracks when adapting it into the palate.

A soft sponge is recommended for adapting the wax, as this preserves the stippling and avoids pressure points.

A soft sponge is recommended for adapting the wax, as this preserves the stippling and avoids pressure points.

A smooth wax band of approx. 1 mm/ 0.039 inch is prepared with a knife at the edge of the margins.

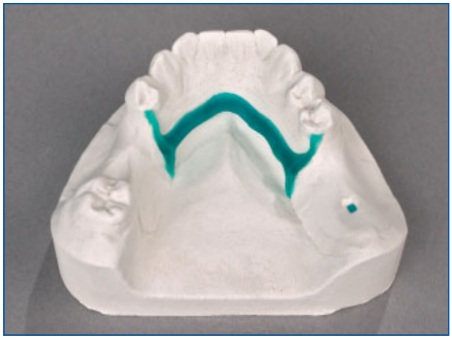
A 1 mm/0.039 inch wax wire is placed as beading at the saddle area and then filled with CrCo casting wax and smoothed.



Ensure that the contour of the sheet casting wax follows the contour of the acrylic saddle.

Tip:
Seal the contact areas between the wax pattern and investment model with a thin application of *GEO Waxfinish*. This prevents investment flowing underneath the pattern and reduces the subsequent preparation time by up to 10%.

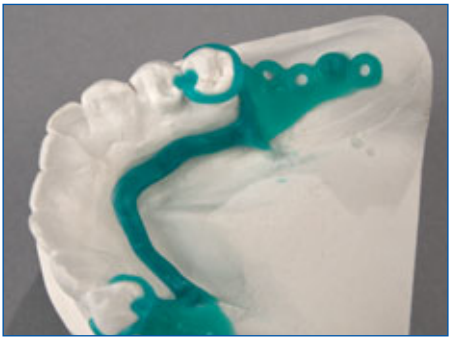
Finished upper pattern on the investment model



Lower

In the lower, the preformed wax bar is adapted to the investment model following the contour of the marking.

The indent in the saddle prepared at an earlier stage is filled with wax.



When placing the round retainer, ensure that it is positioned in the centre of the alveolar ridge. The area towards the sublingual bar is filled with wax to strengthen it.

Tip:
Retention can be further reduced in this area if required.

Leave adequate space at the gingival margin to avoid pressure points.

The clasps and beading are placed in the same way as with the upper and waxed flush with CrCo casting wax.

Investing

Investing

3.5–4 mm/0.137–0.157 inch diameter sprues are used for casting.

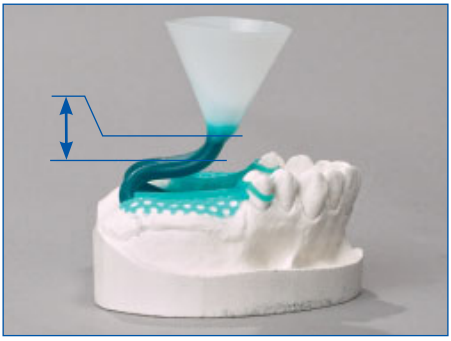
The sprues should have a uniform contour without angles and the surface of the wax should be very smooth.

This allows the metal to flow freely and avoids miscasts.

When connecting the sprues to the pattern, ensure that flow path of the sprue into the pattern is continuous.

The sprues meet in the middle of the model:

A preformed crucible former is placed on the ends of the sprues and waxed flush to the sprues.



The distance between the bottom of the crucible former and the highest point of the pattern should be approx. 5–10 mm.

The investment model is secured to the middle of the flask base with sticky wax.

Check the height of the crucible former before pouring the investment.

Tip:
The sleeve should be lubricated with a little Vaseline beforehand so that it is easier to remove.

The lower is prepared in the same way as the upper.

Mix the investment bubble-free under vacuum according to the manufacturer's instructions.

Pour the investment slowly and at a vibration level to suit the material.

Tip:
Too long or too powerful vibration can cause segregation of the investment material.

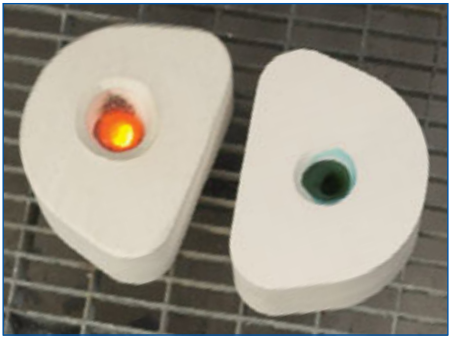
After the investment has completely set, the sleeve, base and crucible former are removed.

Sharp edges on the crucible and on the outer surface margins of the mould should be removed.

The crucible should be free from investment residue before placing the casting mould in the furnace.

The mould can now be placed in the preheat furnace with the crucible opening facing downwards.

The four-sided heating of the *Magma* preheat furnace guarantees uniform, rapid heating of all the moulds.



After casting, allow the mould to cool to room temperature.

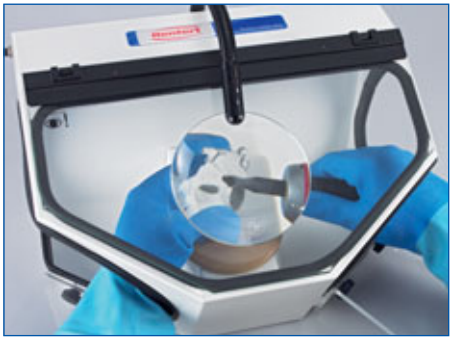
Tip:
Do not quench hot moulds with cold water, as this causes stresses in the casting and impairs the accuracy of fit of the casting.

Preparation

Preparation

To avoid stresses in the CrCo framework, a pneumatic devesting chisel should be used for initial devesting.

Devesting with pliers or a hammer often causes distortion and stresses in the casting.



To avoid inhalation of hazardous quartz dust, castings should be devested in a dust extractor or in a suitable sandblasting unit.

After initial devesting, the CrCo framework can be sandblasted in a fully automatic recycling sandblaster to save time ...

... or sandblasted manually, also in a recycling sandblaster.

An abrasive grit size of 250 µm/60 mesh (Al2O3 aluminium oxide) is ideal for sandblasting.

The CrCo framework should be free of investment and oxide after sandblasting.

Separate the sprues approx. 1 mm/ 0.039 inch from the framework with a fibreglass reinforced cut-off wheel.

The residual sprues can be quickly and efficiently removed and smoothed with an abrasive disc.

The margins of the transversal connector are prepared to a uniform contour with a coarse grit abrasive stone.

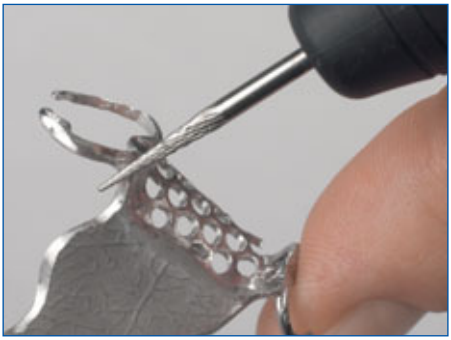
Tip:
The abrasive stone should not come into contact with the fitting surface of the post dams to ensure suction is maintained.

The non-fitting surface of the margins is also smoothed and tapered thinly with an abrasive stone.

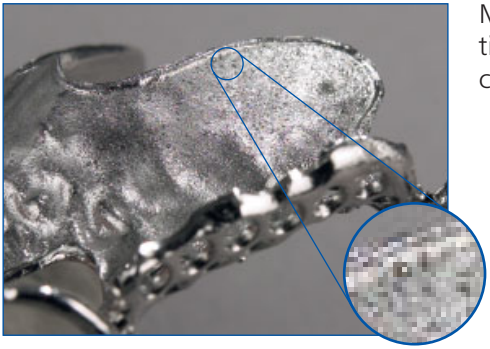
A narrow rotary instrument is used to define the basal margins of the saddle.

This produces a flush junction between the metal and acrylic at a later stage.

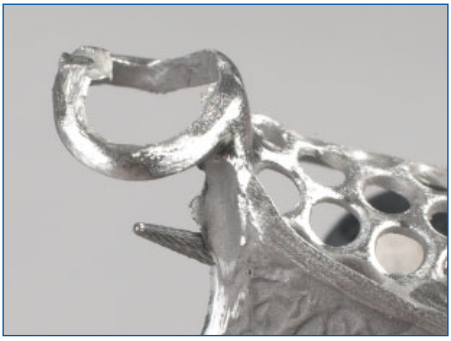
Flash is carefully removed from the edges of the clasps with a fine grit rotary instrument.



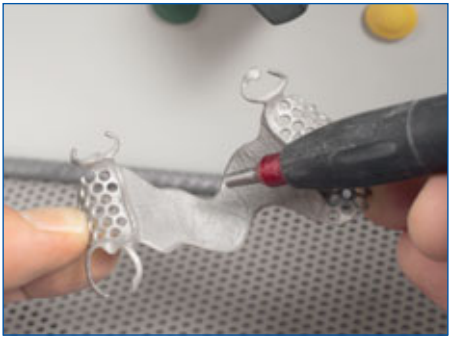
A tapered tungsten carbide cutter is used for preparing areas that are difficult to access.



Microblows and sharp edges on the fitting surface (basal surface) should be carefully removed with an abrasive stone.



Any metal flash that is not part of the original pattern is also removed.



POLISHING OPTION

To reduce the time required for polishing, the entire metal framework is sandblasted with aluminium oxide (125 µm/115 mesh, 3–4 bar) and then electrolytically polished.

The manufacturer's instructions on electrolytic polishing should be strictly followed to avoid any damage to the CrCo framework. Protective varnish can be applied to sensitive areas (clasp tips).

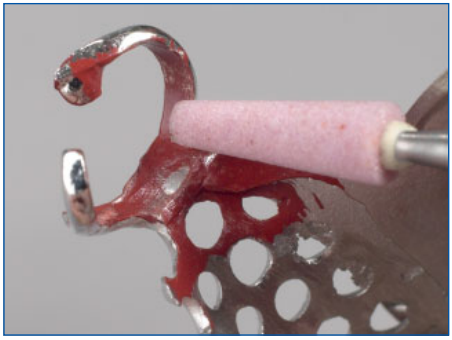
Fitting the framework

Before fitting the CrCo framework, wax residue should be completely removed from the master model.

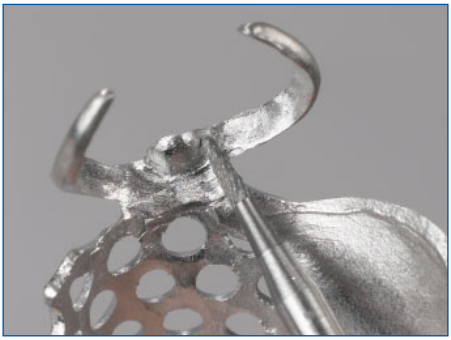
Great care should be taken when fitting the CrCo framework to the master model.

High spots between the CrCo framework and the stone are best detected using a liquid marker.

This pinpoints the high spots to be removed.



A fine-grit stone point is used to remove the high spots.



Any casting beads under the rests can be removed with a tapered tungsten carbide cutter.

Accurately fitting upper CrCo framework before preparing the surface.

Accurately fitting lower CrCo framework before preparing the surface.

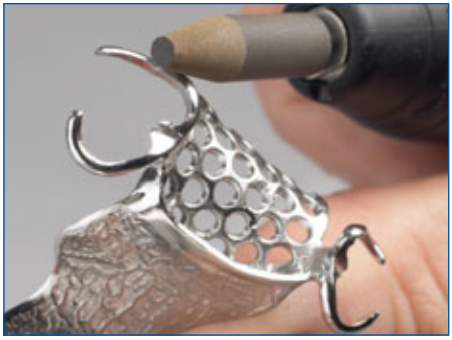
Polishing

Various types of rubber polishers can be used to ensure that the surface is properly prepolished.

The polishers can be easily trimmed to the required shape with a dressing stone.

The *Polisoft A* polishing wheel is ideal for prepolishing the finishing margins of the non-fitting surface of the palatal plate.

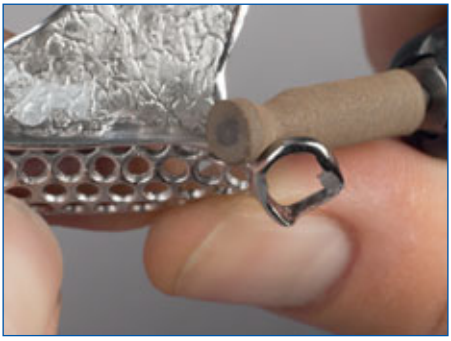
The polishing wheel is also used for prepolishing the non-fitting surfaces of the clasps.



The finishing margins of the palatal base and the non-fitting surfaces of the clasps are prepared with a rubber polishing cylinder to produce a higher polish.

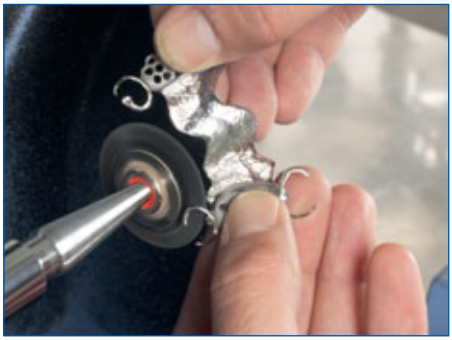
The surface is prepolished with a *Polisoft* rubber polishing cylinder without applying excessive pressure.

The stippled surface is also prepolished with a rubber polishing cylinder using light pressure. Ensure that the stippling is preserved when prepolishing.



The shape of the rubber polishing cylinder is customized with the dressing stone for areas that are difficult to access.

The CrCo framework is polished to a high lustre on the polishing motor with a special brush for CrCo and *Saphir* polishing paste.



A narrow brush can be used for areas that are difficult to access.

A pleated buff made from fine cotton and green high-lustre polishing paste are used to produce a high-lustre finish.

Caution:
Hold the CrCo framework securely.
Polishing brushes can easily become caught in the clasps.

Finished upper CrCo framework with clasps.

Finished lower CrCo framework with clasps.

Kennedy Classes

We recommend using the Kennedy classification to facilitate model planning.

Class I:
Bilateral shortened dentition
(free-end saddles).
2 support points (rests)

Class II:
Unilateral shortened dentition
(free-end saddle).
3 support points (rests)

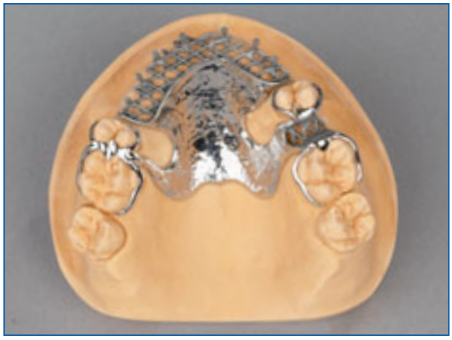
Class III:
Bilateral bounded saddle partially
edentulous
4 support points (rests)

Class IV:
Crossing the midline, anterior bound-
ed saddle partially edentulous.
4 support points (rests)

Framework Design

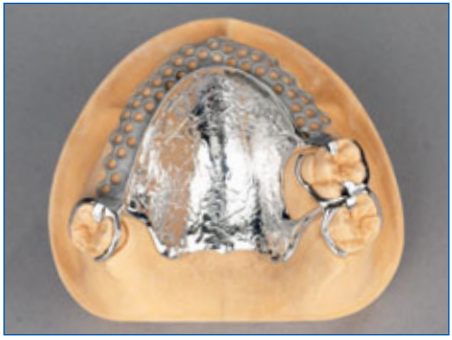
Framework Design

A transversal connector is recommended with free-end saddles (Cl. I + II) and/or posterior bounded saddles (Cl. III).



A horseshoe plate is often used with anterior saddles (Cl. IV) in combination with a free-end saddle or posterior bounded saddle and also with V-shaped palates.

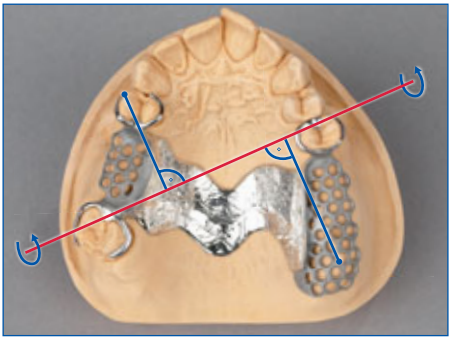
A skeletal framework is an option for anterior saddles (Cl. IV), possibly in combination with small bounded saddles in the posterior region.



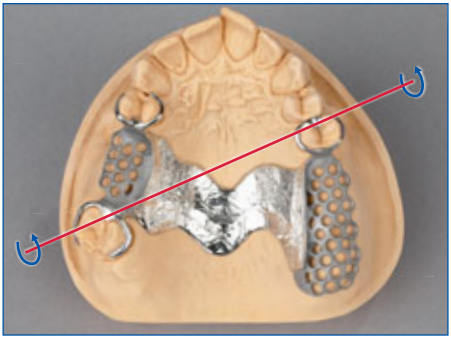
A full plate is used if there is very little residual dentition. A large support surface prevents the denture sinking into the mucosa and undesired leverage.

Statics

The statics of the framework alters with a reduced dentition. A well-planned design ensures stable positioning and compensation of the forces..

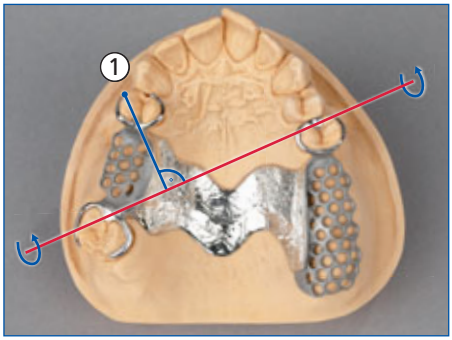


The axis of rotation, work arm and lever arm should be taken into account in the design.



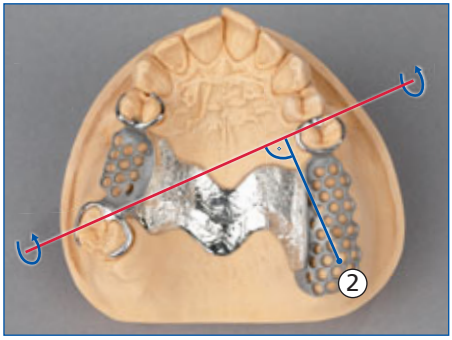
Axis of rotation:

The axis of rotation connects the support points around which the denture pivots when loaded.



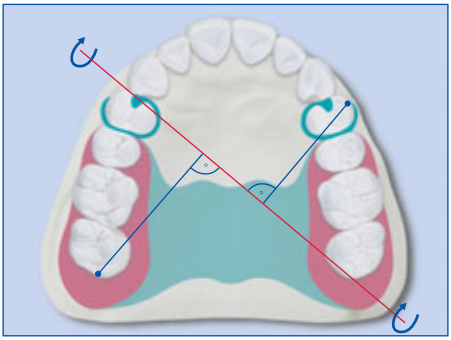
Lever arm:

The lever arm counteracts the tensile forces of the work arm. It runs from the axis of rotation at right angles to the furthest placed clasp tip.



Work arm:

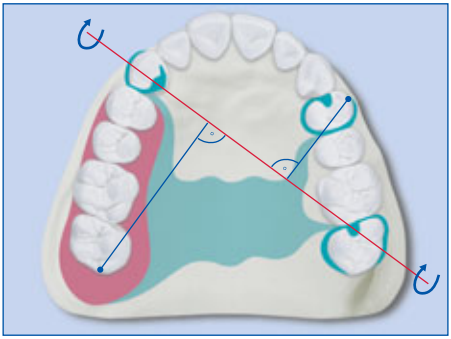
The work arm transfers the leverage to the axis of rotation. It runs from the axis of rotation at right angles to the distal of the denture teeth.



EXAMPLES

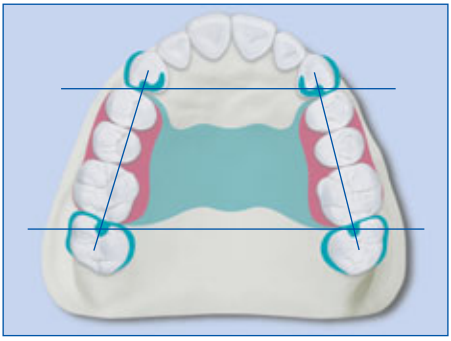
Class I:

The forces applied in this case have to be supported by a wide base (snowshoe principle). (Rests are placed away from the saddle.)



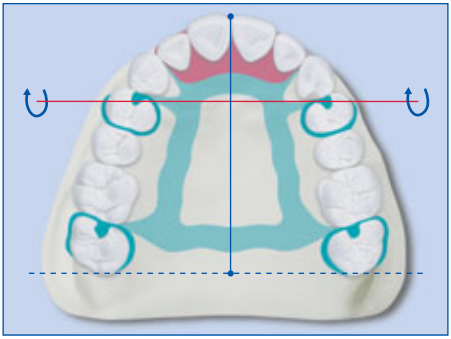
Class II:

The longer the work arm, the greater the force that is applied to the premolar clasp tips. (Rests are placed away from the saddle.)



Class III:

If the support points are connected (thrust-lines), it produces a geometric area. Denture sections placed within this area are stable. (Rests are placed next to the saddle.)

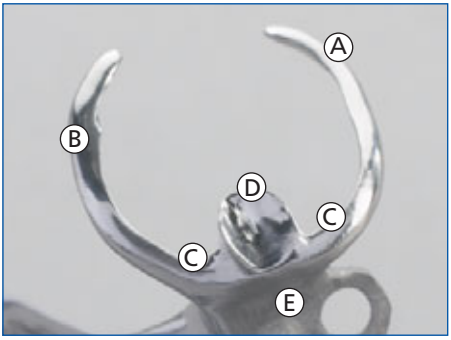


Class IV:

With an anterior saddle the work arm runs from the axis of rotation to the outer edge of the dental arch. The clasp retention should be placed as far dorsally as possible (long lever arm).

Types of Clasps

Types of Clasps



The components of a cast clasp:

Ⓐ Retention arm
Ⓑ Support arm/Reciprocal arm
Ⓒ Clasp shoulder
Ⓓ Clasp rest
Ⓔ Minor connector

Double arm clasps:

This is the type of clasp most commonly used.
The rest can either be placed next to the saddle (E-clasp) ...

... or away from the saddle (G-clasp).

Ring clasps:

These are frequently used with distal molars in the lower jaw.

Bonwill clasp:

This clasp provides excellent retention. There should, however, be adequate space to allow for the opposing dentition.

Bonyhard clasp:

This type of clasp is mainly used if the arm of a double arm clasp would be visible (e.g. canine).

Examples on the Model

Examples on the Model

Upper CrCo framework with large surface area support of the palatal plate. Placing a metal backing palatally (12; 22) is recommended when replacing single anterior teeth. The distal rests on 11 and 21 prevent the framework sinking into the mucosa. A continuous clasp was placed on 23 and 24 to relieve the free-end saddle.

A palatal plate extending dorsally relieves the abutment teeth. The palatal metal backing design of 11 to 22 was required in this case due to a lack of space. The distal rest on 13 and the continuous clasp on 23 and 24 also relieve the free-end saddle.

The transversal connector can have a very slimline design in this case. The E-clasps on 14 and 17 provide excellent stability.

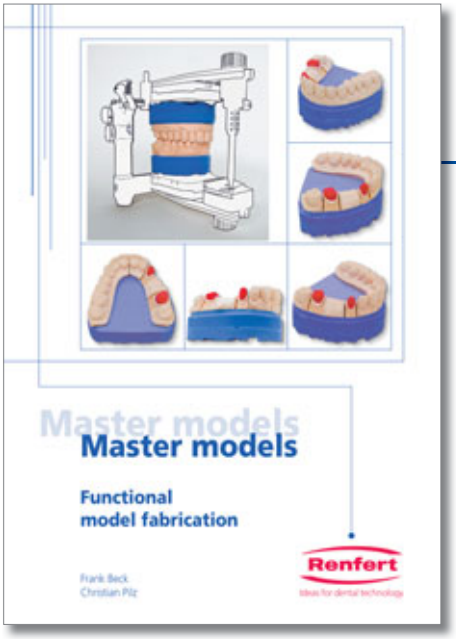
The excellent periodontal support allows a skeletal palatal plate design in this case. The occlusal surfaces of 14 and 15, the teeth to be replaced, were fabricated in metal due to a lack of space.

This is an unfavourable situation with regard to stability. Rests are placed mesially and distally on 33 and 43 to prevent the free-end saddle and the anterior bounded saddle sinking into the mucosa. Additional pin retention was placed to support the anterior teeth to be replaced.

It would have been preferable to place clasps on 33 and 43. Clasps were not, however, placed on these teeth for aesthetic reasons. Mesial and distal rests were placed on teeth 34 and 44 to improve stability.

The double arm clasp on 45 was extended mesially onto 44, as there was not sufficient retention. The Bonwill clasp on 35 and 36 ensures excellent stability.

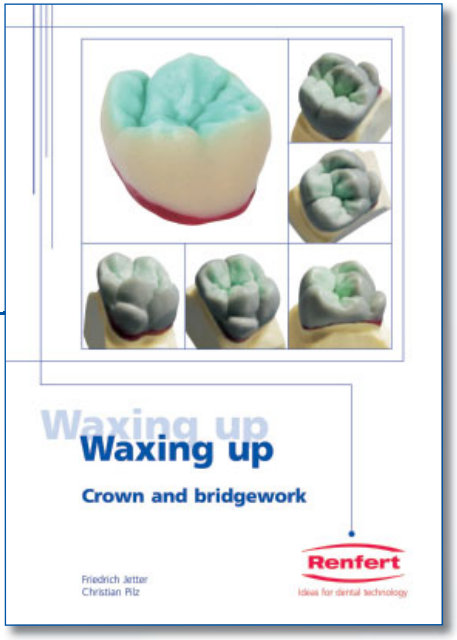
Order now or download at www.renfert.com...



Model fabrication manual

Accurate master models are the basis of all dental work. The model fabrication manual explains step by step how to make accurate models for everyday work. Time, function and aesthetics are the primary considerations.

A



Waxing-up manual

Waxing-up made easy. The authors use three everyday examples to explain how accurate modelling in crown and bridge technique leads to anatomically correct and aesthetically outstanding results.

Equipment for model casting

Equipment for model casting

3 YEAR GUARANTEE

Twister evolution

Convenient, programmable vacuum mixer with pre-mixing function. Optimum and reproducible mixing results at the push of a button. Successfully prevents formation of air bubbles in plaster and investment compounds. Mixing bowl with paddle available in five different sizes.

230 V, art. no. 1822-0000
120 V, art. no. 1822-1000
100 V, art. no. 1822-2000

Twister venturi

Economical vacuum mixer with extra-fast vacuum build-up by compressed air. Vacuum and speed can be controlled during the mixing process.

230 V, art. no. 1824-0000
120 V, art. no. 1824-1000

A

MT plus – Pure Power

Powerful plaster trimmer for effortless trimming. Wet and dry trimming, convertible with just a few adjustments. Power motor with 1300 watts (230 V) or 2.0 hp (120 V). Angle of trimmer table can be precisely adjusted.

230 V, incl. *Klettfix* trimmer disc,
art. no. 1803-0000
120 V, incl. *Klettfix* trimmer disc
art. no. 1803-4000

3 YEAR GUARANTEE

Equipment

Equipment

Vibrax – Always the right vibration

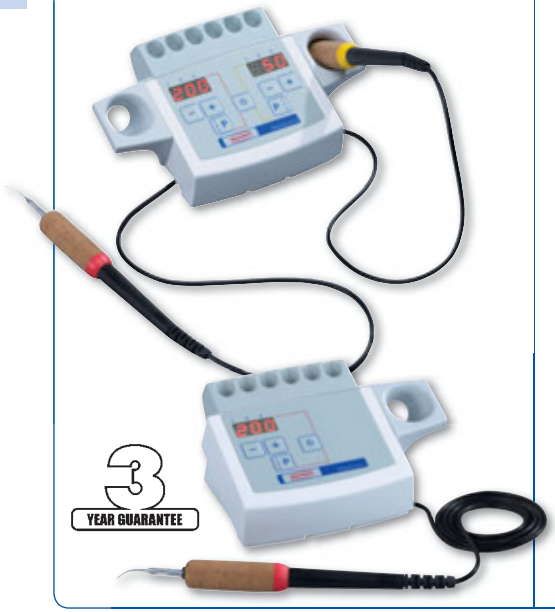
This compact vibrator provides the optimum vibration for all requirements of the various viscosities of plasters and investment compounds. Maximum accuracy with 2 waves and 4 intensity levels.

Lowest transmission of vibrations to the table with decoupled housing.

230 V, art. no. 1830-0000
120 V, art. no. 1830-1000
100 V, art. no. 1830-2000

Optional:
Vibrating ball, art. no. 1830-0001

3 YEAR GUARANTEE



3 YEAR GUARANTEE

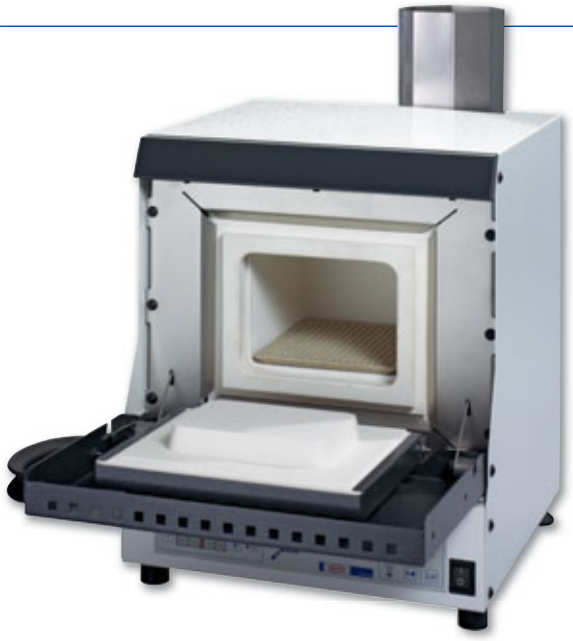
Waxlectric I + II –
Rational Waxing-up

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

for model casting

for model casting



3 YEAR GUARANTEE

Exception: thermal sensor. Heating elements to max. 6000 operating hours.

Magma – Heat at the highest level

Preheating furnace with optimum, evenly distributed heat output throughout the interior with four-sided heater. High-quality components such as the PtRh-Pt temperature sensor guarantee accuracy, reliability and long life.

99 programmes and 1 speed programme give you sufficient variation options in the heating process and enable use of all investment compounds. The spacious interior can hold nine 3x casting rings.

An optional catalytic converter burns off combustion gases and significantly improves the quality of the air in the laboratory.

Magma 230 V, art. no. 2300-0000
Magma for use with catalytic converter, 230 V, art. no. 2300-0500
Catalytic converter, 230 V, art. no. 2300-0001

A

Equipment

Equipment

Pillo/Power pillo – Deflasking made easy

Robust and maintenance-free deflasking chisel for gentle and quality-oriented removal of plaster or investment material.

High-quality components guarantee professional deflasking and long life.

Pillo starter deflasking chisel:
art. no. 5022-4000
Power Pillo high-end deflasking chisel:
art. no. 5022-5000

Chisels:

① ② ③ ④

Art. no.:
1) 5022-0100
2) 5022-0200
3) 5022-0300
4) 5022-0400

Demco – Professional trimming and separating

Powerful and robust device with easy handling for fast and clean separating and trimming of casting sprues and castings.

230 V, art. no. 1204-0000

for model casting

3 YEAR GUARANTEE

Vario jet – The cost saving marvel

Fully automatic sand-blasting unit for economical and efficient sand-blasting of up to seven objects simultaneously.

Blasting pressure and time can be set individually.

The blasting nozzle is directed to the object at the optimum angle, which greatly reduces blasting time.

50% lower blasting material consumption. Working time for manual blasting reduced to 100% = amortisation within one year!

230 V, art. no. 2961-0000
120 V, art. no. 2961-1000

Equipment

Equipment

Vario basic – All in one unit

The flexible 2-in-1 solution. Combination of recyclable sandblaster and fine sandblasting unit. Up to two sandblasting tanks can be optionally fitted.

Minimum blasting material consumption with intelligent extraction. The compact design makes it ideal for small and medium-sized laboratories for all blasting work required in dental technology with top quality.

230 V, art. no. 2960-0000
120 V, art. no. 2960-1000

3 YEAR GUARANTEE

3 YEAR GUARANTEE

Tripla Typ 6 E – Professional spot-welding and soldering

Spot-welder and soldering unit with electronic controls for accurately adjustable output in dental welding technology.

230 V, art. no. 1001-3000

for model casting

for model casting

Dustex master plus – clean and convenient

Dust box for safe, accurate working with integrated lighting and laminated glass protective pane. Freedom of movement, easy working.

230 V, art. no. 2626-0100
120 V, art. no. 2626-1100

Optional:
quality magnifier, 2x magnification:
art. no. 2626-0300
gold filter complete:
art. no. 2626-0600

3 YEAR GUARANTEE

Silent – powerful and quiet

Extraction with enormous suction power and variable adjustment of extraction efficiency. The compact dimensions, very quiet operation and convenient automatic start-up make it an ideal workbench and equipment extraction system. Simple and clean filter replacement.

230 V, art. no. 2921-0000
120 V, art. no. 2921-1000
100 V, art. no. 2921-2000

3 YEAR GUARANTEE

Silent motors are excluded from the guarantee.

A

Systems

Systems

A

Efficient wax-up technique also in partial prosthetics

Use of the *Waxprofi* and the electric wax-spatula sets specific demands on the quality and carving characteristics of any wax.

GEO Special Modelling Wax retains when used with *Waxprofi* the necessary uniform consistency without any annoying surface coating. It can also ideally be used with the new *large wax knife*.

230 V, art. no. 1440-0000
120 V, art. no. 1440-1000

Large wax knife

This instrument permits both tasks in prosthetics to be completed simultaneously: application of large quantities of wax and delicate and anatomically correct modelling.

art. no. 2155-0112

500 g, art. no. 652-0500
2.5 kg, art. no. 652-2500

Instruments

Instruments

Universal instrument

The high-quality instrument with clamp and 5 different inserts can be used in many aspects of dental technology.

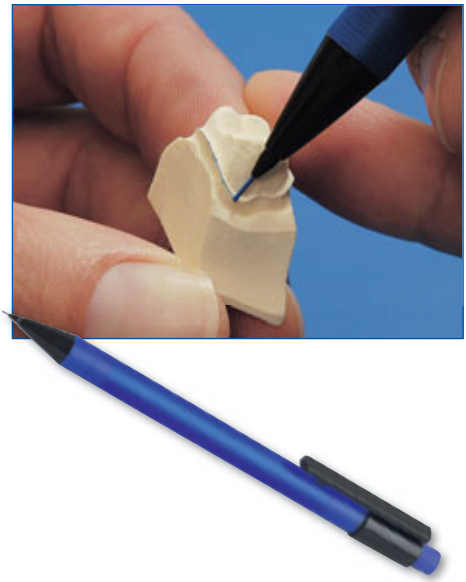
1 handle with 1 wide blade,
1 smooth blade, 1 serrated blade,
art. no. 1030-1000

Sakura marking pen

Graphite-free pen for all common markings and drawings in dental technology.

Particularly suitable for preparation in model casting. No negative effects on chemical processes by graphite.

art. no. 1199-0000



Model spray

Smooths and hardens the surface of investment models in model casting.

Optimum base for safe wax-up of frameworks and adaptation of wax profiles. CFC-free.

300 ml, art. no. 1736-0000

Waxes

Waxes

Model casting system – rational waxing technique

The clearly designed assortment includes the most important prefabricated wax components for rational waxing. The „One-Color Concept" for model casting ensures that the appearance of the wax model corresponds to the appearance of the cast partial denture.

art. no. 633-0000

GEO blockout wax

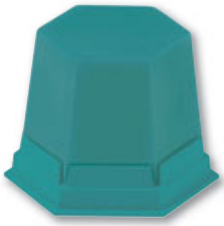
For blocking out and preparation of undercuts, cavities and defects of the model before duplication. Does not react with monomers, standard silicones and plaster.

pink-opaque, 75 g, art. no. 650-0000

GEO sculpturing wax for model casting

For modelling model casting components on the investment model. Accurate matching on prefabricated profiles means the best bonds.

turquoise-transparent, hard, 75 g
art. no. 649-1000



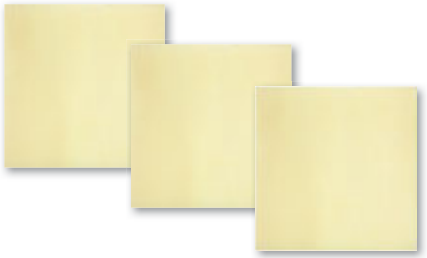
for model casting

for model casting

GEO Casting Wax

Self-adhesive preparation wax for hollowing acrylic saddles.

0.3 mm, 32 pieces, art. no. 445-3003
0.4 mm, 32 pieces, art. no. 445-3004
0.5 mm, 32 pieces, art. no. 445-3005
0.6 mm, 32 pieces, art. no. 445-3006



GEO lingual bars

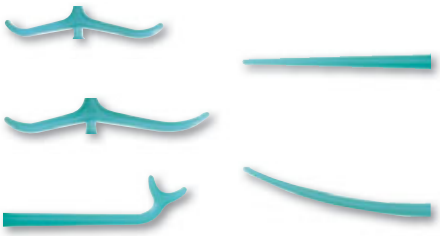
Wax profiles for fabrication of lingual bars.

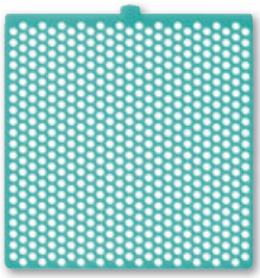
4 × 2 mm, approx. 65 g,
art. no. 667-3042

GEO clasps

Anatomically shaped clasps of easily adaptable wax. High stability to pressure, suitable for molars and premolars. Available with self-adhesive coating.

Normal, art. no. 688-30xx
self-adhesive, art. no. 638-30xx





GEO round-hole mesh

Hole diameter 2.0 mm. High stability to pressure, easily shaped.

Normal, 20 pieces:
art. no. 688-3009
self-adhesive, 20 pieces:
art. no. 638-3009

Waxes for model casting

Waxes for model casting

GEO casting wax fine/coarse stippled

Turquoise-transparent sheet wax with fine and coarse surface structure in sheet thicknesses 0.3 to 0.6 mm.

fine 0.30–0.60 mm, art. no. 641-30xx
coarse 0.30–0.60 mm, art. no. 643-30xx

GEO wax wire in rods

Wax profile for shaping marginal ridges or individual retentions. Easy deformation of wax with high pressure stability and low restoring force.

0.6–1.2 mm, art. no. 668-30xx

A

GEO wax wire

With its special wax mixture *GEO* wax wire is tension-free and does not develop restoring forces.

turquoise, hard, 2.0–5.0 mm:
art. no. 676-20xx
blue, medium-hard, 2.0–5.0 mm:
art. no. 678-30

GEO Waxfinish

For an even, smooth wax surface that makes subsequent finishing and polishing much easier.

Set with 15 ml lacquer and 30 ml thinner:
art. no. 1553-0000

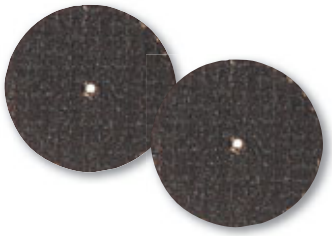
Other accessories

Other accessories

Glass-fibre-reinforced cutting discs

High-quality and wear-resistant. Particularly good cutting performance with extreme break resistance. For separating casting sprues and processing model cast frameworks.

40 mm, 25 pieces, art. no. 59-1040
22 mm, 25 pieces, art. no. 59-1022



Grinding discs

Ideal for processing cobalt-chromium frameworks with very aggressive grinding properties. The discs can be used very effectively with the fast grinder (e.g. *Demco*).

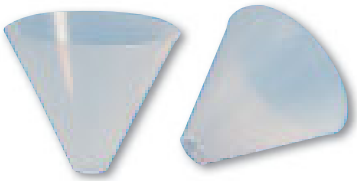
Ø 25 × 3 mm, 100 pieces:
art. no. 612-2000

Ø 35 × 3 mm, 100 pieces:
art. no. 615-2000

Casting funnels

Prefabricated acrylic funnels for producing the casting funnel when investing models.

150 pieces, art. no. 1747-0000



Other accessories

Other accessories

Polisoft A

For soft polishing and strong smoothing of harder alloys. Finishing striations are removed and a matt lustre is produced on the surface.

50 pieces, art. no. 90-0000

Polisoft cylinder

For soft polishing and strong smoothing of harder alloys. Generates a matt lustre and condenses the surface.

small, 12 pieces, art. no. 93-1000
large, 12 pieces, art. no. 93-2000

Electrolyte

Liquid for electrolytic polishing of model frameworks. Special additives save time and increase effectiveness.

2 l, art. no. 1524-1000
10 l, art. no. 1524-2000

Special brush for model casting

Particularly suitable for polishing cobalt-chrome frameworks with polishing paste.

12 pieces, art. no. 199-1000
100 pieces, art. no. 199-2000

Other accessories

Other accessories

Slender brush

The classical brush for polishing cobalt-chrome or hard precious-metal alloys with the polishing unit.

12 pieces, art. no. 787-1000

Pleated buff of fine nettle cloth

Ideal for high-lustre polishing of metals with polishing paste.

4 pieces, art. no. 210-0002

Pico–Mark

Quickly identify trouble spots on the contact area. Particularly suitable for systematic grinding of occlusal equilibration and for fitting all types of casting objects.

Set with 12 ml red varnish and
30 ml thinner:
art. no. 1934-0000
white varnish, 12 ml, art. no. 1934-0200

A

Service

3-year warranty on all equipment

= reliability

3

10-year spare parts supply

= investment security

Loaner service

= readiness

48-hour repair service

= operational security

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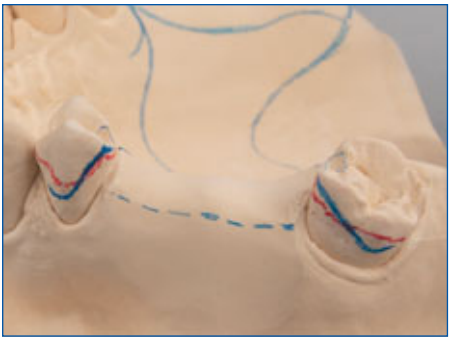
Notes

Notes

Step by step to success



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