1. General instructions for use

These are the instructions for use when working with non-precious remanium® star alloy. Any deviations to the norm or specialized additional information about remanium® star can be found in the specific alloy supplement supplied in each individual alloy package or in the internet under www.dentaurum.de.

Our dental technical team is available to answer any questions that may arise. Dental Technical Hotline Tel No: + 49 72 31 / 803-410.

Information on contraindications and side effects can be found at the end of these instructions for use.

2. Design of the frame

The design of the frame is based on the standard dental technical rules.

The shape of the metal copings should correspond in a reduced scale to the final shape of the finished crowns.

Missing portions of teeth should be compensated like fig. to .

A 0.4 mm minimum thickness of the copings guarantees a high stability.

The following thickness of the metal copings is not to be exceeded: for anterior and lateral crowns: 0.3 mm

For the stability of the bridges the largest possible cross section of the connectors should be sought but at least: for the anterior area: 4 – 6 mm2 / for the lateral area: 6 – 9 mm2

A uniform thickness of ceramic ensures stress free adhesion to metal, see fig. to .

Apply ceramic to the framework in an equal thickness.

The ceramic layer should cover the incisal edge of the crown in order to prevent chipping.

Areas to be soldered after casting (or firing), should be waxed up spaciously, see fig. , and . Rounding the metal / ceramic interfaces to will provide neat junctures and aesthetic shading.

Pontics must be designed with a collar. The outstanding properties of remanium® star allow very thin connections to be used between the crowns and pontics. Thus the teeth can be shaped more individually and a ”block appearance” can be avoided.

3. Finishing

General information:

Caution: Always use suction units when grinding, cutting and polishing!

The higher physical characteristics of the non-precious alloys require grinding and polishing tools different to those normally used for processing precious metal alloys.

The grinding tools selected should only be used for one alloy.

Observe the minimal coping thickness of 0.2 – 0.3 mm.

Always grind in one direction without applying too much pressure. Avoid overlapping of the metal. Remove irregularities.

4. Processing and polishing steps

Steps	**Tools**	**REF**	**Remarks**
Processing, fine	Tungsten carbide burs	123-582-00 123-584-00 123-585-00 123-601-00	General processing with “rough“ tungsten

carbide burs. Fine grinding can be done with fine tungsten carbide burs.
Fine grinding Aloxin stones 135-852-00
135-853-00
Pure aluminium oxide abrasives for smooth even transitions, especially metal occlusal surfaces.
Buffing Silichrom polishers 138-645-00
138-640-00
Grey rubber polishers 138-102-00
138-302-00
Green rubber polishers 138-101-00
138-301-00
Fast effective material removal (rough buffing).
Medium abrasive effect.
Fine abrasive effect.
Polishing Polishing brushes 141-800-00
Polishing paste Tiger brillant 190-350-00
Universal Finishing Paste
Tiger Starshine 190-301-00
Universal polish with hand tool.
Fast acting high shine polishing paste.
The ideal paste for final finishing.
Burnishing of crown‘s inner surfaces
Al2O3 – 50 µm, 128-017-00
high lustre shot blasting beads 128-211-00
For use with pen-type blasting tool.
Important! Cover ceramic edges with wax.

5. Preparation of surfaces for ceramic veneering

Grind the metal surfaces with tungsten carbide tools to ensure a gradual transition. Blast the surfaces with a fine “pen-type“ shot blasting tool using pure aluminium oxide of medium grain (125 µm) at a low pressure of 2 – 3 bar. Clean with ultrasonic cleaner in distilled water.

6. Oxide firing

Oxidation firing is not required with remanium® star. It is advisable to fire an oxide bake in order to visually check the framework condition (5 minutes without vacuum at the firing temperature of the opaque, unless otherwise indicated by the ceramic manufacturer). Following the bake, the oxide should be removed by blasting with single use aluminium oxide abrasive, grain size 125 µm and low pressure of 2 – 3 bar. Afterwards the surface must be cleaned again.

7. Ceramic veneering

remanium® star can be veneered using conventional ceramics such as Dentaurum ceramics as long as the CTE is suitable with the alloy (see alloy info supplement).
The coefficient of thermal expansion (CTE) of many ceramic varieties increases, depending on the amount of times the ceramic is fired and the length of time within the firing furnace. The longer and the more often the ceramic is fired, the higher the CTE. The metal CTE

remains constant; the adhesion takes place by applying cooling times after firing and standby temperatures.
The opaque material can be applied to the sandblasted and cleaned metal framework according to the ceramic manufacturer's recommendation.
It is important to dry the opaque thoroughly. Always ensure the ceramic furnace is calibrated!
The ceramic is then applied according to the instructions for use!
If no other information is given by the ceramic manufacturer, the object is cooled as recommended in the alloy info supplement.
Important: After each firing, brush the framework under running water and allow it to dry.

8. Soldering

Try to avoid soldering if possible in order to prevent a material mixture. If however, it is necessary to solder, please ensure a suitable solder with the correct composition and melting temperature which is appropriate for the alloy used.
Roughen the joint areas with fine corundum stones.
Connect the parts using wax or acrylic, remove from the dies and fix in investment material for soldering. Boil out. Apply a coat of flux to the solder joint areas. Allow the model to dry, then preheat at 600 °C / 1112 °F for 10 min. Apply a further coating of flux and heat the casting until it is red hot. Cut the solder to the appropriate length, dip the pieces into the flux and place them into the soldering gap. The flux on the pieces of solder and soldering gap must be heated with a hot flame until it covers the joint area completely. Only then bring the solder to flow through the hot flame.

Caution: Soldered units should cool slowly after the ceramic has been fired.

8.1. Soldering after firing

It is not recommended to solder after having applied the ceramic. The reason for this is that the corrosive resistance is reduced and the low diffusion ability of precious metal solders to non-precious alloys. Recommended alternatives are joining techniques such as laser welding,
WIG welding and adhesive joining.

9. Laser welding

The laser welding technique produces a solder-free, mechanically strong and corrosion resistant joint.
It is important to observe the framework design, the surface structures, the welding sequence and the welding parameter of each individual laser machine. Suitable welding material is laser welding wire adapted to all remanium® alloys.

10. Cleaning

Crowns and bridgework made in remanium® star can be cleaned, after finishing, with ultrasonic solution P.

11. Contraindications and side effects

Signs of intolerance to remanium® star are rare after correct processing.
If the patient has a proven allergy against any component within the alloy, for safety reasons this alloy must not be used.
If various alloys have been used, it is possible that galvanic effects may occur.
Some patient have shown traces of local irritation caused by electrochemical reactions.