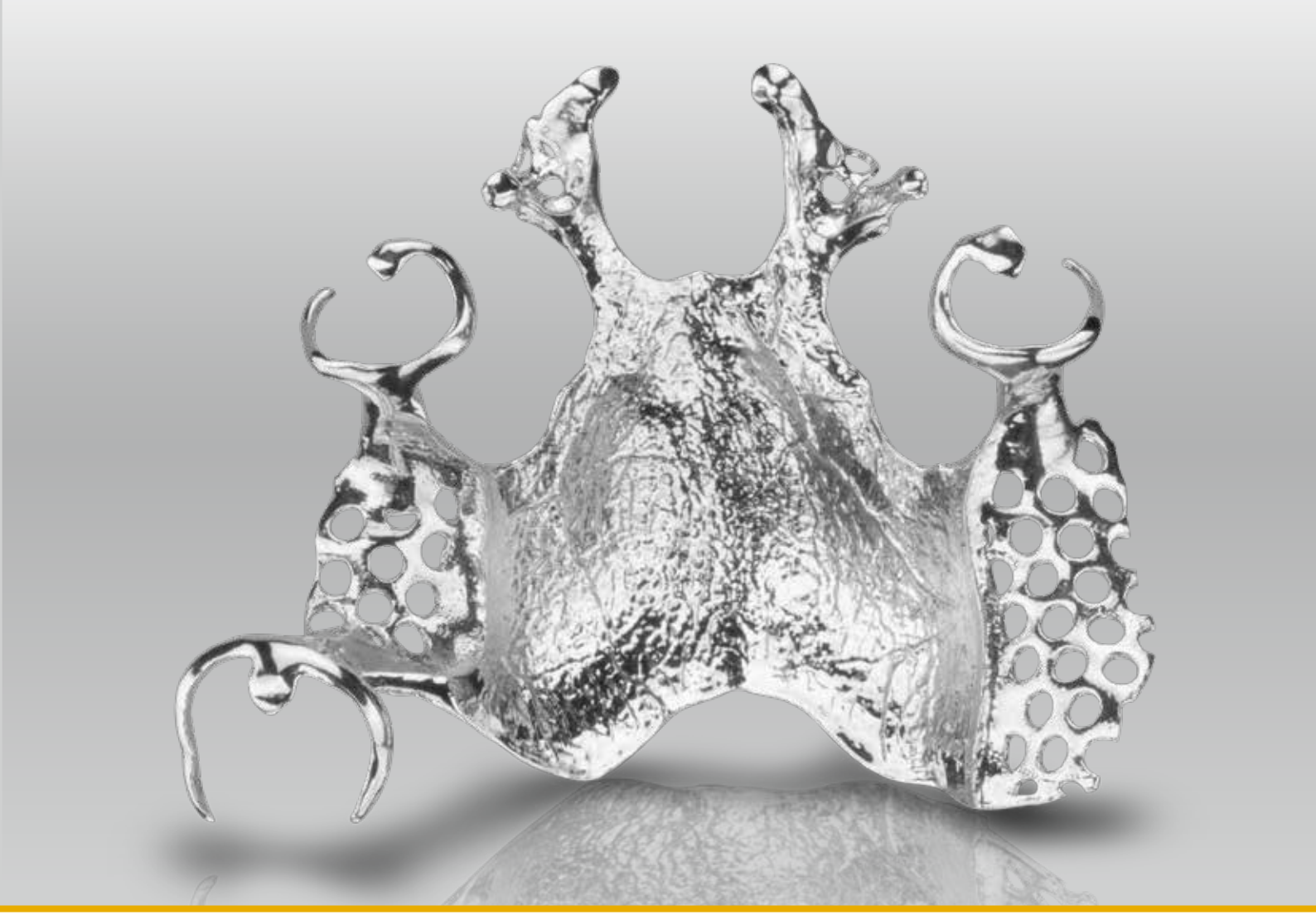


Processing Information

WIRONIUM® RP

for SLM-manufactured
clasp partial dentures

Partners in Progress

BEGO

WIRONIUM® RP

for SLM-manufactured clasp partial dentures

With the proven partial denture alloy WIRONIUM® (product by BEGO Bremer Goldschlägerei Wilh. Herbst GmbH & Co. KG) used millions of times, you obtain a previously unattained high level of product safety. WIRONIUM® RP complements the product range a powder variant for the SLM process used at BEGO Medical for the production of partial denture in exemplary quality. The CAD/CAM products manufactured by BEGO Medical are custom-made products for individual patients. WIRONIUM® RP restorations are corrosion-resistant, biocompatible and offer an excellent accuracy of fit.

Indications

WIRONIUM® RP is a cobalt-chrome dental alloy for SLM processing. It is suitable for the manufacturing of partial dentures (clasp partial denture).

Contraindications

Brackets, tubes, archwires, ceramic veneers, and attachments for orthodontic appliances. Further unwanted biological reactions (such as allergies to contents of the alloy) or electrochemically based reactions may very rarely occur.
In case of known incompatibilities and allergies to contents of the metallic material it should not be used.

Partial denture base/CAD modellation

In order to achieve the clinically required stability of, the base should possess, as part of the design process, a minimum thickness of 0.6 mm and 0.5 mm after finishing.
At critical object locatiosn, e.g. at the transition of a minor connector to a clasp, the wall thickness should be set to approx.
1.2–1.5. mm × 1.8–2.0 mm.

Transversal bands/Skeletal plates

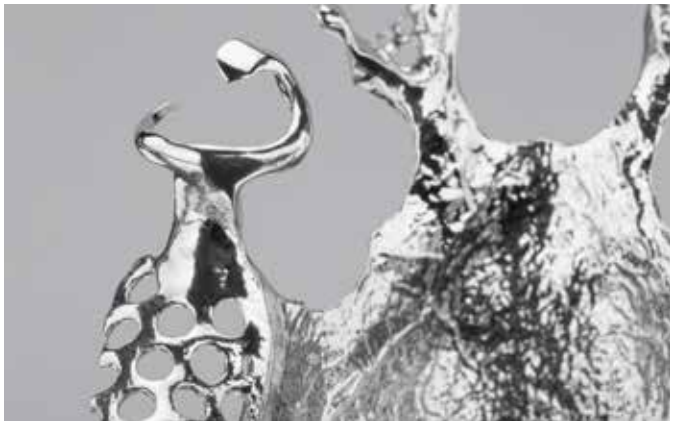
The minimum thickness of transversal bands is strongly dependent on the width of the band itself. For widths 10.0mm or greater, a minimum thickness of 1.7 mm must be maintained over a width of 5.0 mm in order to provide the appropriate stability. They may be tapered to 0.6 mm towards the edge.

The skeletal plate must have a minimum thickness of 0,6 mm × 5,0 mm.

Please note: Since the stability of an upper jaw base consists of a combination of shape, expansion and material thickness, 0.5 mm should be considered as the minimum. The design basics for the partial denture technique must be adhered to.
Tip: Standard upper jaw partial denture possess a base thickness of 0.75–0.85 mm, smaller bands or skeletonized frames 1.0–1.2 mm. Lower jaw brackets should possess a thickness of approx. 1.8–2.0 mm × 4.0–4.2 mm.

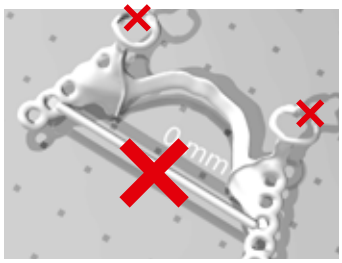
Care must be taken to ensure that all parts of the model casting are firmly connected to each other, comparable to a conventional design. The Transitions from the base/sublingual bar to the retentions are to be designed flat and, if necessary, reinforced by closing individual retention holes. The end edge should not be placed on the line of the underlay wax/block-out to avoid material weakening. In the last step, care must be taken to smooth out edges or unevenness in the entire component.

To stabilize the framework it is not necessary to use supporting structures to the construction or to close the clasps. BEGO Medical supports the framework for fabrication individually. Existing support structures can be defined in this step as a disruptive factor and impair the production process.



Partial denture from WIRONIUM® RP, polished

Partial denture from WIRONIUM® RP, sand-blasted



Note: Since the stability of a maxillary base is determined by a combination of shape, expansion, and material thickness, 0.5 mm are to be considered the minimum. The design fundamentals of the partial denture technique must be observed.
Tip: The standard upper jaw partial denture has got a basic thickness of approx. 0.75–0.85 mm, narrow bands or skeletonized frameworks have got a basic thickness of 1.0–1.2 mm. Lower jaw bars should have a thickness of about 1.8–2.0 mm x 4.0–4.2 mm.**Clasp design**
The design of the clasps is based on their position and function, on the extension of the restoration and on the specifications of the practitioner. In the clasp shoulder area, the transition from minor connector to clasp is to be rounded off. In this area, clasps ideally possess a thickness of approx. 1.5–2.0 mm and taper off towards the clasp tip to 1.2–1.5 mm. The clasp tip has to be round off. At critical object locations, e.g. at the transition of a minor connector to a clasp, the wall thickness should be set to approx. 1.2–1.5 mm × 1.8–2.2 mm. Edges or areas that fall below the material thickness can be smoothed and reinforced with the „modify“ tool. The shapes of the clasp profiles and the parameters have to be selected and set accordingly.

Retentions

In order to achieve sufficient stability of the component, retentions are to be designed with a minimum thickness of 0.6 mm. The inner diameter of hole retentions and retention grids must have a minimum diameter of 2 mm. The distances of the retention holes for hole and grid retentions must be between 0.4 and 1 mm.
These specifications correspond to the wax patterns commonly used in dental technology.
When using retention pins, it is recommended to use the retention pins specified by BEGO in order to guarantee a smooth production process. The retention pins must be completely connected to the retention basally. When positioning on grid and hole retentions, the the affected hole has to be filled.

Post-processing of the objects

For finishing the fabricated WIRONIUM® RP objects, use fine-toothed tungsten carbide burs or fine grinding tools (REF 43160, REF 43180, REF 43200, REF 43280) commonly used for the partial denture technique. Electrolytic polishing, in preparation for the final polishing, is possible.

Soldering

Affix parts to be soldered with a soldering investment material (e.g. Bellatherm REF 51105). The maximum parallel-walled soldering gap is 0.2mm. Use suitable BEGO flux (e.g. Minoxyd REF 52530). After soldering, flux residue and metal oxides must be removed and the surfaces are to be cleaned through steam blasting. For soldering with open flame, we recommend: Cobalt-chrome-solder (REF 52520).

Please note: Due to the low thermal conductivity of the BEGO non-precious alloys, the soldering temperature required is obtained much later than with precious alloys.

Laser welding

If possible, work with x-sutures and filler material. Please follow the instructions for use and safety instructions of the equipment manufacturer.

Acrylic saddle

In order to fabricate the acrylic parts, the relevant instructions of the acrylics manufacturer must be followed. The retention areas for acrylic saddles are not polished; instructions for preparation can be found in the instructions for use of the respective acrylics manufacturer.

Acrylic veneering

For the processing of the veneering systems on back protection plates, the corresponding instructions of the manufacturer must be observed. For polished partial dentures, the retention areas for plastic saddles must be roughened before processing.
Please refer to the instructions for use of the respective acrylic manufacturers for information on further processing.

Final work and polish

On-veneered metal surfaces are to be regrinded, rubber-polished and polished. In order to facilitate the rubber-polishing, it is possible to blast-polish the respective surfaces with Perlablast micro (REF 46092). If needed, electrolytic glazing with Eltropol is also possible (Wirolyt polishing liquid REF 52460). Then, rubber-polish with suitable rubber polishers and polish using suitable pre- and post-polishing pastes.
The blue BEGO cobalt-chrome polish paste (REF 52310) or the Diapol diamond polish paste can be applied for high-gloss polishing. For the polishing of possibly existing acrylic veneers or acrylic saddles, please follow the instructions for use of the acrylics manufacturers.
Finally, surfaces are to be cleaned thoroughly by rinsing and steam-blasting.

Composition and physical material data WIRONIUM® RP

Chemical composition in %

Co	66.2
Cr	28.2
Mo	5.5
N	<1

Physical material data

Density	8.5 g/cm³
Modulus of elasticity	235 GPa
0.2 % Elongation limit ($R_{p0.2}$)	800 MPa
Tensile strength (Rm)	1,300 MPa
Ductile yield (A_5)	13 %
Hardness (HV10)	395

Notes

Restorations are custom-made products in accordance with Directive 93/42/EEC.
WIRONIUM® RP is a cobalt-based dental alloy and complies with ISO 22674 and ISO 9693-1.
Please report all incidents occurring in connection with restorations made of WIRONIUM® RP to BEGO Medical GmbH and the responible authorities.

Warnings

Metal dust is harmful to health. Grinding and blasting should be performed using an appropriate extraction system. Respiratory protection of type FFFP3 EN149 is recommended.

Precautions

In the case of approximal or occlusal contact with other metals, electromechanically-related numbness may occur in very rare cases. There are no findings on the safety and effectiveness of treatment for children or pregnant or breastfeeding women. WIRONIUM® RP may disrupt the analysis of MRI exams and should be separated before such examinations.

Adverse effects

WIRONIUM® RP has no known adverse effects. However, individual reactions (e.g. allgergies or incompatibilities) to components of WIRONIUM® RP in very rare cases cannot be excluded. In such cases, Wironium RP restorations should no longer be used.

Warranty

Application-related recommendations provided by us, whether given verbally, in writing or by wayof practical instructions, are based on our own experience and tests and may therefore only be regarded as general guidelines. Our products are subject to continuous development. Therefore, we reserve the right to make modifications in design and composition.
If any severe incidents should occur in relation to the use of WIRONIUM® RP, please notify BEGO Medical GmbH and the responsible authorities.

Identification

Manufacturer

Use

Use by qualified stuff only.

Rx only

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