

# WIRONIUM<sup>®</sup> extra-hard

Cobalt-chrome-molybdenum  
partial denture alloy  
(without nickel)



## Processing instructions

For further information see "Partial denture technique - a manual" (Languages: (D) (GB) (F) (E) )

CE0044

DIN EN ISO 6871-1

### Safety hint

Metal dust is **harmful** to your health.  
When deflasking and blasting use a **suction extraction system!**

# GB

## Alloy characteristics (standard values)

Biocertificate	<input checked="" type="checkbox"/>
Density [g/cm <sup>3</sup> ]	8.4
Vickers hardness (HV 10)	350
Elongation limit (Rp 0.2) [MPa]	670
Tensile strength (R <sub>m</sub> ) [MPa]	970
Ductile yield (A5) [%]	7.5
Modulus of elasticity approx. [MPa]	220 000
Melting interval [°C]	1350 - 1330
Casting temperature [°C]	1450

## Standard analysis, % by weight (elements)

Co	61.0
Cr	30.0
Mo	5.0
C	max. 0.17
Miscellaneous	Si, Mn, Fe, N

## Modelling

Always place sprues in the most solid wax-up areas, e.g. at the transition between saddle and base. Provide solid places which the melt can only reach through a thinly modelled area with an additional sprue (Ø 3 mm).

## Investing and preheating

Use phosphate-bonded partial-denture investment materials (Wirovest<sup>®</sup>, Wiroplus<sup>®</sup>, Wiroquick). Spray wax-up with a wetting agent such as Aurofilm prior to investment and then dry or apply Wiropaint fine investment (follow processing instructions!).

### Preheating temperature

for vacuum pressure casting (Nautilus<sup>®</sup>) 950 - 1000 °C,  
high-frequency centrifugal casting (Fornax<sup>®</sup>) 1000 - 1050 °C,  
flame centrifugal casting (Fundor) 950 - 1050 °C.  
Always preheat ceramic crucible as well (exception: Nautilus<sup>®</sup>)!

## Melting and casting

General: Do not overheat alloy. Use only clean crucibles, one crucible per alloy.  
Recommendation: to enable an exact identification of each case cast new metal only.

### Moment for casting:

Vacuum pressure casting (Nautilus<sup>®</sup>) – follow operating instructions for Nautilus<sup>®</sup>.

High-frequency centrifugal casting (Fornax<sup>®</sup>): 2 seconds after the disappearance of the shadow of the glow.

Flame centrifugal casting (Fundor): Cast when the cast metal has melted and the melt moves due to the flame pressure.

**After casting** Critical areas - e.g. inner clasp sides and stress breakers - are to be blasted extremely carefully (Duostar or TopTec blasting units, Korox<sup>®</sup> 50 blasting material. Use fine carbide, ceramically bonded stones or BEGO sintered diamond milling tools for finishing. Polishing (Eltropol polishing unit, Wirolyt polishing liquid), rubber-polishing (BEGO rubber polisher, black) and finish-polishing (BEGO cobalt chrome polishing paste, blue). Clean thoroughly (steam clean or boil in aqua dest.).

## Soldering

BEGO cobalt chrome soldering rods (Order No. 52520) and Minoxid flux (Order No. 52530) are recommended).

## Laser welding

Filler material: Wiroweld wire Ø 0,5 mm (Order No. 50005).

**Secondary effects** Such as allergies to contents of the alloy or electrochemically based reactions may very rarely occur.

**Reciprocal actions** In case of occlusal or approximal contact of different alloys electrochemically based reactions may very rarely occur.

**Reactions** In case of known incompatibilities and allergies to contents of the alloy.

**Warranty** Whether given verbally, in writing or by practical instructions, our recommendations for use are based upon our own experience and trials and can only be considered as standard values. Our products undergo constant further development and are therefore subject to modification regarding design and composition.