

Cobalt-chrome metal-to-ceramics alloy for metal-ceramics containing no beryllium or nickel



**Processing instructions**

For further information see

"Alloys for metal-ceramics

containing no precious metals"

(Languages: (D) (GB) (F) (E))

CE 0044

DIN EN ISO 9693

**Safety hint**

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

**Alloy characteristics** (standard values)

Biocertificate	<input checked="" type="checkbox"/>
Type	extra-hard (4)
BEGO-GOLD colour code	silver
Density [g/cm³]	8.5
Vickers hardness (HV 10)	310
Elongation (Rp 0.2) [MPa]	480
Ductile yield limit (A5) [%]	6
Mod. of elastic. approx. [MPa]	210 000
Melting interval [°C]	1380 - 1270
Casting temperature [°C]	approx. 1470
Preheating temper. [°C]	900 - 1000
CTE [10 <sup>-6</sup> K <sup>-1</sup> ]	20 - 600 °C 14.2
	25 - 500 °C 14.0

**Standard analysis, % by weight** (elements)

Co	61.0
Cr	26.0
Mo	6.0
W	5.0
Si	1.0
Fe	0.5
Ce	0.5
C	max. 0.02

**Modelling**

- Minimum metal thickness (after grinding): for ceramic veneering 0.3 mm, for acrylic veneering with retention pearls 0.3 mm.
- Shape groove in cervical and palatal area. Avoid sharp edges.
- In the case of work on long bridges, divide plastic hollow stick between the front teeth and in the area around the canine teeth.

**Investing and preheating** Use phosphate-bonded crown and bridge investment materials (e.g. Bellavest®). Always preheat ceramic crucible as well (exception: Nautilus®).

**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.

In case of re-casting: only re-cast identical alloys. Blast old material. Add at least 50 % of new material.

- Use only ceramic crucibles.
- Moment for casting:** Vacuum pressure casting (Nautilus®) – follow operating instructions for Nautilus®. High-frequency centrifugal casting (Fornax®): Cast immediately when the last ingot has sunk completely into the melt and the shadow of the glow has disappeared. Flame centrifugal casting (Fundor): Cast immediately when the cast metal has melted.

Use fine carbide, ceramically bonded stones or BEGO sintered diamond milling tools for finishing.

**Ceramic** Use ceramics according to DIN EN ISO 9693 with firing temperatures of up to approx. 980 °C (e.g. Carat, Bident, Duceram, IPS-Classic, Omega, VMK 95). Also suitable: Ceramics with reduced firing temperature (e.g. Omega 900). Always follow the ceramic manufacturer's instructions!

- Always blast the surface to be veneered (Korox® 250, 3 - 4 bar) and clean the frame thoroughly (steam clean or boil in aqua dest.). After cleaning, hold with artery clamps and refrain from touching.
- If oxide firing is carried out to check the surface, always blast the oxide again with Korox® 250. Clean thoroughly (steam clean or boil in aqua dest.).
- Always apply basic material in two firing operations. The first coating thin (washbrand), the second coating opaque. Wash off frame under running water before application of next ceramic coating.
- Long-term cooling recommended (cooling phase up to approx. 600 °C).
- Remove ceramics only mechanically. Hydrofluoric acid (HF) corrodes the metal frame.

**Final work** Blast visible metal surfaces with Korox® 50, then blast-polish external surfaces with Perlablast®. Then blast-polish external surfaces with, and after that finish-polish with cobalt-chrome polishing paste (blue). Clean thoroughly (steam clean or boil in aqua dest.).

**Soldering** Soldering prior to firing with the flame (1180 °C): Wirobond® solder (Order No. 52622) and Fluxsol flux (Order No. 52531). Soldering after firing in the furnace (860 °C): WGL solder (Order No. 61079) and Minoxid flux (Order No. 52530).

Long-term cooling recommended (cooling phase up to approx. 600 °C).

**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.

