

Cobalt-Chrom Bonding Alloy

ecoNEM star

acc.to DIN EN ISO 22674

Item no. 7397 3 001

Delivery form Cylinder Ø 7.0 x 15 mm

Indication Crowns; bridges of middle, larger and large span width; milling technique

QM-System certified
according to DIN EN ISO
13485 for medical products



Description

- Cobalt-chrom bonding alloy, free of nickel and beryllium
- Outstanding biocompatibility
- High resistance to corrosion
- Optimized for laser welding due to the extreme low carbon content of <0.1%
- Increased efficiency in working: neither oxide firing nor long-term cooling are required
- Easy shaping and polishing due to a low Vickers hardness of 285 (HV10)
- After polishing a high-glazing silver surface is obtained
- Can be easily casted by flame-, centrifugal or vacuum casting procedure
- Low CTE, ideal suited for all classic ceramics

Type	Colour	Density g/cm ³	Composition Mass contents in %					
			Co	Cr	W	Mo	Si	others
4	White	8.8	59.5	25.0	9.5	3.5	1.0	<1.5

Technical data

Vickers hardness HV 10/30	0,2 % proof stress MPa	Elongation A5 %	Modulus of elasticity MPa	Middle lin. CTE µm/m K 20-600 °C	Melting range °C	Pre- heating temp. °C	Casting temp. °C
280 - 295	650	8.0	200.000	14.0	1305- 1400	850 - 1050	1550

Instruction for use

Instruction for use ecoNEM star

1. Modelling and Sprue System

To guarantee a safe flow of the modelling, the thickness of the cap should not be under 0.3 – 0.4 mm

The sprue system of the objects is made as usual with sprue reservoirs or crossbars (crossbar should be divided for large bridges). Massive bridge parts should be provided with air outlets.

2. Investment and Preheating

Any commercial phosphate bonded investments, which are suitable for a preheating temperature of 900°C, are qualified for the investing (the investment material manufacturer's instructions for use have to be strictly complied with).

Large casting objects should only be heated linear (no speed investment).

3. Casting

The optimum preheating temperature of the muffel is 950°C. A ceramic crucible must be used for the melting of the alloy (no graphite crucible!). Casting steam should be exhausted.

Melting of the alloy with open flame (acetylene/oxygene) requires a neutral flame without melting powder. When the casting cubes are completely melted (melting moves under flame pressure), the casting procedure should start immediately. The oxide layer must not crack, because otherwise alloy components might burn and change the characteristics of the alloy.

When melting the alloy in the high frequency centrifuge, the casting procedure is to be started immediately after all cubes have collapsed and as soon as the shadow over the melting has disappeared. Here as well, the oxide layer must not crack!

Let the muffle slowly cool down in the air. You should always use new casting cubes, as after repeated casting of the alloy important adhesive oxide former will evaporate and an optimum bonding between metal and ceramic is no longer guaranteed.

For the elaboration of the modelling use suitable carbon mills, stones and diamonds. The thickness of the cap should be at least 0.2 – 0.3 mm.

4. Firing of the ceramic

An oxide firing is not necessary. If an oxide firing is desired, it must be effected under atmosphere for 5 min at a temperature of 960°C (wash firing is not applicable for bonder firing). Then sandblast with aluminium oxide 110µm and clean with distilled water.

5. Soldering and Welding

Commercially available solder on cobalt base is suitable for soldering. Never use gold solder or palladium solder for the soldering of NE objects.

Cleaning in ultrasonic bath or with steam blasting.