



PRODUCT NAME:Dental Alloy

TYPE:DAMCAST NB

User's manual

Damcast NB, A high strength nickel chrome with beryllium alloy, used for dental ceramic restorations

Technical Data & Compositions

Melting Range	1232°C - 1288°C	Nickel	76 %
Yield Strength	552 MPa	Chrome	15 %
Elongation	11 %	Molybdenum	5%
Density	7.9 (g/cc)	Aluminium	2 %
Coefficient of the Liner Expansion (25-500°C)	$13.8 \times 10^{-6} \text{K}^{-1}$	Beryllium	1.7%
		others	<3%

Instructions for use

WAXING: Mininum metal thickness (after grinding) should be 0.3mm.Waxing could be as thin as 0.3 mm to 0.35 mm.

SPRUEING:

A- Direct for single units. Sprueing should be 6 mm in length. Based on the size and the thickness of crowns use 6-8 gauge sprues.

B- Indirect for multiple units. Use straight 8 gauge sprue, about 3 or 4 mm in length, and connect it to the unit.

For long spanned bridges use and additional sprue connected to the last unit.

INVESTING:Use high heat investments; follow the manufacturer's instructions carefully.

After investment has set, scrape the top of the investment to allow gases to escape.

BURNOUT:Place the ring in the furnace at room temperature,increase the temperature to 980-1050°C ,with one hour holding time. Add 10/15 extra minutes for each additional ring.

MELTING & CASTING:

Can be melted with the induction machine or with gas/oxygen torch.

A- Torch casting: Use multiple orifice torch tips. Do not use crucible used for other

alloys. Move the torch allowing even distribution of heat. Adjust oxygen regulators at approximately 10-13 kg. Adjust Propane valves until the inner flame cone is blue and approximately 12mm long; the outside of the flame cone should be 80mm from the inner cone. Preheat the crucible. Release the casting arm when the ingots lose definition and puddle: molten ingots usually vibrate from the force of the flame. Bench cool the cast until the redness goes away.

- B- Induction Casting: Set the temperature to 1400°C. Set the casting arm speed between 425 and 450 rpm. When ingot pool together and shadow disappears, release the arm.

METAL FINISHING: Sandblast the investing with pure non-recycled aluminum oxide. Do not smooth the surface of the frame bearing porcelain. Use carbides, discs, diamonds and stones for metal finishing.

METAL PREPERATION: Sandblast the area bearing porcelain, and do not touch the area accepting porcelain; clean with ultrasonic cleaner. De-gasing the metal is to achieve the desirable oxidation. Place the metal work in a furnace at 650°C, creates a vacuum and increase the temperature 38°C per minute to 980-1020°C; brake the vacuum and let it cool down.

OPAQUE & PORCELAIN APPLICATION:

Bonding slurry must be applied to all surface bearing porcelain, apply slurry and dry it quickly in the oven with open muffle; fire the slurry coating in ten degrees higher temperature, as per instructions for opaque. Quicker method is using the same procedure with degas procedure. Use opaque manufacturers instructions. Try to complete opaque firing in a single step.

PORCELAIN APPLICATION: Follow the instructions of the ceramics manufacturers. Building up your porcelain and try to save extra firing.

Note: For best results use at least 50% new metal with 50% sandblasted and cleaned buttons.

Caution: This alloy contains Ni & Be, not to be used in individuals with Ni sensitivity. Inhalation of Be dust and fumes can be toxic, grind and polish with adequate ventilation and wear protective clothing.

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