

WAXING

A minimum wax thickness of 0.3mm for single crowns and 0.5mm for multiple units is recommended. The connection area of abutments must be greater than 3mm x 3mm. Sprue each unit individually with 3mm wax rods. Reservoir bars should be a minimum of 4mm in diameter and vent rods 1mm if used. Avoid sharp joints and ensure all shoulders and edges are well rounded.

INVESTING

Only use suitable high temperature investment powders that are described as graphite or carbon free. Invest the wax pattern according to the manufacturer's instructions.

BURNOUT

Follow the normal procedures for wax burnout and then heat the investment according to the manufacturer's instructions. Heat soak the casting ring for a minimum of 1 1/2 hours at 1500°F (815°C). Time necessary to successfully heat soak the casting ring increases with size. If there is any plastic in the mold, a two-stage burnout is required. Place the ring in a cold furnace and raise the temperature at a rate of 10°F (6°C)/minute to 600°F (315°C). Heat soak at this temperature for 30 minutes. Raise the temperature to the normal burnout temperature at a normal rate and heat soak.

CASTING

Always melt Galaxy in ceramic crucibles. Clean scrap may be reused provided a minimum of 50% new metal is in the charge. NEVER reuse metal if contaminated with carbon or other alloys is suspected. Ensure the alloy is fully liquid and spinning before casting. The time taken to reach both melting and casting temperature must be kept to a minimum and the alloy cast promptly. Over heating the metal results in miscasts and porosity. If using an oxy-propane torch to melt the metal, the flame must be correctly adjusted to avoid contamination by carbon. Allow the castings to bench cool. Quench the metal after 5 minutes.

CLEANING

De-vest and clean by brushing or by sand blasting with non-recycling aluminum oxide. Prepare the surface of the metal with stones kept solely for use on GALAXY. Use of worn diamond stones or those used with other alloys causes bonding problems due to contamination. Finally clean the castings in steam, acetone or by ultrasonic cleaner. The use of strong acids such as HF is not advised.

DEGASSING AND OXIDATION

Degassing creates an oxide layer for bonding porcelain. Place the casting in a porcelain furnace at 1200°F (649°C) and raise the temperature to 1850°F (1010°C). No hold time. To remove excess oxide, sandblast the casting with 50 micron, virgin aluminum oxide abrasive. Clean the casting well before opaquing using your method of choice – steam cleaner, ultrasonic bath, alcohol, etc. Apply porcelain according to the manufacturer's instructions.

PORCELAIN APPLICATION

Porcelain bonding will benefit from the application of an opaque wash. Both this and porcelain application should be carried out as specified by the supplier and with consideration to the furnace used. GALAXY requires a short cooling cycle after porcelain firing.

Pre-soldering

Soldering prior to applying porcelain can be completed using Galaxy silver-free solder and Sigma-High Flux. Be sure to remove any flux residue by sandblasting and/or grinding. Any flux residue will contaminate the porcelain.

Post-soldering

Chrome 2 white solder is recommended for all ceramic alloys. Use Sigma Low Flux. Use very little flux to avoid contamination of the porcelain. You may want to dip the solder into the flux and not apply the flux to the casting units to avoid porcelain contamination.