Technical Procedures

PEGASUS

610037 Rev F

WAXING AND SPRUING

Direct Spruing
The direct technique may be used for spruing single units. Use a 10 gauge (2.6mm Ø) sprue.

Indirect Spruing
The indirect technique is always preferred for spruing bridges, multiple units, and single units. With bridges use 10 gauge (2.6mm Ø) feed sprues 1/16 inch (1.6mm) long. For multiple units use the same size feed sprue. Attach the feed sprues along the length of a 8 gauge (3.3mm Ø) runner bar and connect the runner bar by two 6 gauge (4.1mm Ø) indirect sprues to the crucible former.

INVESTING

Use a phosphate bonded, high heat, ceramic investment. Both graphite containing and non-graphite investments are acceptable. Follow the manufacturer's instructions.

BURNOUT

Place the ring in a cold furnace and run it directly up to 1450˚F (788˚C). Heat soak the ring for one and a half hours. Allow additional time for large rings, multiple rings, and for very thin patterns. 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

Preheat a high heat, quartz crucible. Use oxygen, at 10-20 psi, with natural gas, propane, or butane. Adjust the flame large enough to completely cover all the alloy in the crucible. Do not direct the flame steadily at one region of the metal, but rather keep the torch tip circling around it.

Use a 1:1 ratio of old to new alloy. Melt the button, then add new metal ingots to the melt.

Permit the casting machine arm to stop by itself. Allow the ring to cool 5 minutes on the bench then quench it.

METAL PREPARATION

Grind and contour the surfaces of the casting which are to receive porcelain. Use aluminum oxide stones or carbide burs dedicated for use only with a particular alloy.

Sandblast the casting with 50 micron, virgin aluminum oxide abrasive at an air pressure of 75-80 psi.

Clean the casting in an ultrasonic bath for 5 minutes using a general purpose cleaner, then rinse thoroughly under running water.

DEGASSING

Place the casting in a porcelain furnace at 1200˚F (649˚C) and raise the temperature to 1900˚F (1038˚C). Fire the casting in air – 5 minute hold time.

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.

SOLDERING

Pre-soldering
Mf-Y yellow solder is preferred. Use of flux is not necessary – any flux residue remaining on the casting will contaminate the porcelain.

Post-soldering
Chrome 2 white solder is recommended for all ceramic alloys. If you want a yellow color, use 585 fine or 615 fine solder. Use a low temperature flux such as Sterngold Sigma Low Flux. Dip the solder into the flux. Do not apply the flux to the cast units so as to avoid contamination of the porcelain.

HEAT TREATMENT

To harden, place crowns or bridges into an 1100˚F (600˚C) oven after porcelain firing. Fire in air for 30 minutes. Cool restorations slowly. Polish alloy as needed.