

SOLUTION
SILVER-FREE WHITE CERAMIC ALLOY

PROPERTIES

Melting Range.....	2030° F to 2210°F
Coefficient of Thermal Expansion	
from 25°C to 500°C.....	13.5x10 ⁻⁶ C ⁻¹
from 25°C to 600°C.....	13.9x10 ⁻⁶ C ⁻¹
Grain Size.....	10 microns
Density.....	10.7 g/cm ³
Hardness.....	305 HV
Tensile Elongation.....	32%
Tensile Yield Strength (PSI).....	106,210
Ultimate Tensile Strength (PSI)....	134,000

CHEMISTRY

Palladium.....	78%
Copper.....	10%
Gallium.....	7%
Indium.....	4%
Contains less than 1%	
Zinc, Ruthenium	
Classification Noble	

PROCESSING TECHNIQUE

WAXING

Wax to a minimum of .3mm for single units and .5mm for bridge work. Avoid sharp angles and wax to provide for an even thickness of porcelain.

SPRUNG

The indirect method is recommended for multi-units. Use an 8 gauge runner bar with 10 gauge connectors. If preferred, the direct method may be used on both single units and small bridges. Use a 10 gauge sprue 1/4" (6mm) to 3/8" (9mm) long. Sprues longer than 3/8" (9mm) should have a reservoir 1/16" (1.5mm) from pattern. Patterns should be a maximum of 1/4" (6mm) from top of investment.

INVESTMENT

A phosphate-bonded high heat investment without carbon is recommended.

BURNOUT

Place in a cold furnace and raise temperature to 1450°F (785°C). Hold at 1450°F temperature for 1-1/2 hours. Increase hold time for larger or multiple rings.

MELTING AND CASTING

Wind casting arm one turn more than used for casting gold. Use a multi-orifice torch with 10 PSI gas and 20 PSI oxygen. Add 50% new metal to button. Use a high heat crucible. Heat the button and ingots until they pool together. After the alloy becomes molten, count slowly to 10 before releasing the casting arm. The casting temperature is 2300°F (1260°C).

DEVESTING AND FINISHING

Blast with aluminum oxide to remove investment particles. Shape and finish down metal with aluminum oxide stones. Blast outer surface with non-recycled aluminum oxide (50 micron-white preferred). Clean in ultrasonic for 10 minutes in distilled water.

CONDITIONING

Oxidize from 1200°F (650°C) to 1850°F (1010°C) under vacuum. Remove and bench cool. Proceed with opaque according to porcelain manufacturer's instructions.

SOLDERS AND FLUX

Pre-Solder:	Spirit Solder
Post-Solder:	1400 Solder
Flux:	Brown Fluoride Flux for both pre and post soldering