

# PULSE N3

## NOBLE WHITE PORCELAIN ALLOY

**PULSE N3** as it's name implies, was developed as a noble dental alloy option ideally suited for the Pulse Press-to-Metal system. It is, however, extremely well suited as a general use PFM alloy with a wide variety of modern dental porcelains. PULSE N3 is copper free, so you won't have to deal with the very dark oxide common to many of the high palladium alloys. It is a low silver (4%) formulation containing 3% gold. PULSE N3 offers highly stable margins, high melting range, excellent strength, and reliable porcelain to metal bond. A great noble alternative without many of the hassles of other high palladium systems, PULSE N3 works best with lower to moderate expansion ceramics.

PROPERTIES	
Melting Range	2075-2390°F 1135-1310°C
Coefficient of Thermal Expansion	
from 25°C to 500°C	13.8x10 <sup>-6</sup> K <sup>-1</sup>
from 25°C to 600°C	14.0x10 <sup>-6</sup> K <sup>-1</sup>
Density	11.5 g/cm <sup>3</sup>

CHEMISTRY	
Gold	3%
Palladium	79.7%
Silver	4%
Indium	6.5%
Gallium	6.3%
Contains less than 1% Zinc, Ruthenium, Rhenium	
Classification - Noble	

AFTER PORCELAIN FIRING	
Hardness	250 HV
Tensile Elongation	32%
Tensile Yield Strength/Proof Stress	79,325 psi (545 MPa)
Ultimate Tensile Strength	122,065 psi (840 MPa)
Modulus of Elasticity	17.3 x 10 <sup>6</sup> psi (119,000 MPa)

### PROCESSING TECHNIQUE

<b>WAXING</b>	0.3mm for single units and 0.5mm for bridgework
<b>INVESTMENT</b>	Phosphate-bonded high heat investment with or without carbon
<b>BURNOUT</b>	1550°F (845°C). For Press-to-Metal®, use a rapid burnout technique.
<b>MELTING AND CASTING</b>	Wind the casting arm one more time than normal (3-4 winds). Multi-orifice torch: 10 psi fuel and 20 psi oxygen (0.7 bars fuel and 1.4 bars oxygen). Heat until cloudy surface clears before releasing the casting arm. <b>DO NOT OVERHEAT. DO NOT USE CASTING FLUX.</b> Casting temperature ~2490°F (1365°C).
<b>FINISHING</b>	Finish with aluminum oxide stones. Blast porcelain receiving surfaces with non-recycled aluminum oxide. Clean in ultrasonic for 10 minutes.
<b>OXIDATION</b>	Oxidize from 1200°F (650°C) to 1850°F (1010°C) at 145°F/min (80°C/min) in air with 5 minute hold time. Bench cool. Do not remove oxide. For Pulse Press-to-Metal, use 950°C Paste Opaque.
<b>SOLDERS AND FLUX</b>	Pre-solder: P-80 or LX Solder Post-solder: 615 or 1400 Solder Flux: Brown Fluoride Flux (for both pre & post soldering)

5240Y r3

