

THE ARGEN CORPORATION

Alloy Specification Sheet

ARGEDENT Y86

Color: YELLOW **Type:** 4 **ADA Classification:** HIGH NOBLE (HN) **PGM:** 98%

Metal Content %

Au	Pt	Pd	Ir	In
86	10	1.9	x	2

'x' denotes a content of less than one percent.

Thermal Properties

Melting Range		Casting Temperature		Coefficient of Linear Thermal Expansion ($\mu\text{m/m}\cdot^{\circ}\text{C}$)		Mechanical Properties	
1915-2085°C		2300°C		25-500		23-600	
1045-1140°C (VHN)		1260°C (0.2% Offset)		14.4 (GPa)		14.7 (%)	
A.F.		A.F.		76		A.F.	
Soft		Hard				Hard	
160		195				12 9	
		58,700 psi 405 MPa		68,000 psi 469 MPa		18.4	

PROCESS

INSTRUCTIONS FOR USE

Modeling

Maintain a minimum wax thickness of 0.3 to 0.4 mm. The wax pattern design should have lingual collars and no sharp corners. Lingual eyelet rings help support castings during firing.

Spruing (Single Crowns)

Use direct sprues, 8-10 gauge, (3.3-2.6 mm diameter) and 1/2 in. (12 mm) long with adequate reservoirs. There should be no more than 1/4 in. (6 mm) of investment from the top of the pattern to the top of the investment.

Spruing (Multi-Units & Bridges)

Use a 6 gauge (4.1 mm diameter) runner bar, connecting the units to the bar with 10 gauge (2.6 mm diameter) sprues 1/8 in. (3 mm) long and joining the bar to the sprue base with 8 gauge (3.3 mm diameter) and 1/2 in. (12 mm) long sprues coming from a domed central entry point. There should be no more than 1/4 in. (6 mm) of investment from the top of the pattern to the top of the investment.

Alloy Quantity

18.4 g/cm³ * (Wax Weight) = Required Alloy Quantity.

Investing

Use debubbler and blow off any excess before investing. Recommended Investment: Phosphate Bonded. Follow the manufacturer's instructions.

Burnout	After adequate set-up time, place the ring(s) in a room temperature oven and raise the temperature to 790 °C / 1455 °F for 1 hour plus 10 minutes for each additional ring. If you are using a rapid fire investment, follow the manufacturer's instructions.	
Reusing Cast Alloy	Use only clean buttons and at least 35 percent new alloy.	
Crucible Type	Graphite / Ceramic	
Torch Casting	Use either a natural gas/oxygen or a propane/oxygen torch with a multi-orifice tip. Ensure that the flame is on a natural setting when casting. The fuel proportions should be one-part fuel to two-parts oxygen	
Induction or Electrical Casting	Use a ceramic crucible and a casting temperature of a least 150°C / 300°F over liquidus temperature. Every casting machine is different. The casting temperature may require adjustment based upon the alloy and the amount of metal being cast.	
Cooling	Allow casting ring to cool to room temperature. DO NOT quench in water.	
Divesting and Cleaning	Lightly sandblast the outer surface of the work with 50 micron aluminum oxide at two (2) bars of pressure (30psi). Place the work in a plastic container with a hydrofluoric acid substitute in an ultrasonic cleaner to remove the remaining investment. Rinse with distilled water in the ultrasonic.	
Finishing	If the work was waxed to finish then no grinding is required. Otherwise, finish with fine cross-cut carbides at low speed. Do not sandblast. Wash with distilled water in an ultrasonic cleaner. Blot dry. Do not use stones or steam cleaners.	
Oxydizing or Degassing	650-980°C, 1200-1800°F,	no hold, Do not remove oxide, no vacuum
Presolder	Solder joints should be as large as possible (at least 5 mm ²). Soldering gap approximately 0.05-0.2 mm. The solder joints should be parallel and free of debris. Preheat invested units and pressure blast with 50 micron just before soldering to remove oxide. If flux is used, it should be water soluble.. Use: Y, YSF INTERNATIONAL / U.S.	
Porcelain Application	Follow the recommendations of the porcelain manufacturer. For a better bond, fire a thin wash 10 - 15 °F (10 °C) above normal temperature, followed by regular opaque coats. We recommend drying paste opaque from the inside out; this is done by utilizing a hot plate. The units are placed on a honeycomb	

sagger tray with metal pins. This is placed on top of the burner set a low to medium setting (approx. 250°F).it will take approximately 8-10 minutes or until the opaque turns chalky white or flat color. Then place in furnace for entry and maturing.

Post Soldering After Firing

Solder joints should be as large as possible (at least 5 mm²). Soldering gap approximately 0.05 - 0.2 mm. Cover ceramically-veneered units with wax before investing. The soldering investment should not come in contact with the ceramic. The soldering surfaces should be parallel, smooth and free of debris.

Use: 800PF / 650, 720

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Hardening

Heat Treat for 30 min. at 550°C / 1022°F

Laser Wire

Polishing

For high noble gold colored ceramic alloys use diamond paste and/or Tripoli and rouge. Yellow crown & bridge golds use Tripoli and rouge with soft bristles, chamois wheels. High shine with clean soft bristle brushes!

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