**JELENKO**

**Alloy Specification Sheet**

**METEOR**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Color:** | PALE YELLOW |  | **Type:** | 4 | **ADA Classification:** | HIGH NOBLE (HN) |  | **PGM:** | 96.1% |

**Metal Content %**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Au** | **Pt** | **Pd** | **Ag** | **Ir** | **In** | **Sn** | **Cu** | **Fe** |
| 76.6 | 9.9 | 9.3 | 1.2 | x | 1.7 | x | x | x |

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

**Thermal Properties**

|  |  |  |
| --- | --- | --- |
| **Melting Range**  | **Casting Temperature**  | **Coefficient of Linear Thermal Expansion** **( um/m-ºC )** |
| 2100-2245**º**F | 2515**º**F | **25-500**  | **25-600**  |
| 1150-1230 **º**C | 1380 **º**C | 14.1  | 14.4 |

**Mechanical Properties**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Vickers Hardness** **(VHN)** | **Yield Strength** **(0.2% Offset)** | **Modulus of Elasticity** **(GPa)** | **Elongation** **( %)** | **Density** **(g/cm³)** |
| **A.F.** | **Soft** | **Hard** | **A.F.** | **Hard** | 101 | **A.F.** | **Hard** | 17.6 |
| 240 | --- | 245 | 76,900 psi | 91400 psi | 12 | 11 |
| 530 MPa | 630 MPa |

|  |  |
| --- | --- |
| **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 1/2in. (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** | 17.6 g/cm3 \* (Wax Weight) = Required Alloy Quantity.  |

|  |  |
| --- | --- |
| **Investing** | Use debubblizer 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 820 °C / 1505 °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** | 650-950°C,  | no hold, Do not remove oxide, no vacuum  |
|   | 1200-1740°F, |

|  |  |
| --- | --- |
| **Presolder** | Solder joints should be as large as possible (at least 5 mm²). 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: Jel O SpecialINTERNATIONAL / 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: 18-650INTERNATIONAL / U.S. |

|  |  |
| --- | --- |
| **Hardening** | Heat Treat for 60 min. at 550°C / 1022°F |

|  |  |
| --- | --- |
| **Laser Wire**  | LWT77 |

|  |  |
| --- | --- |
| **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! |

16-Apr-2009