Prince & Izant Company
12999 Plaza Drive
Cleveland, Ohio 44130
T: 216-362-7000
F: 216-362-7456
princeizant.com

GOLD BRAZE 35623 (BAu-3/BVAu-3)

TECHNICAL DATA

NOMINAL COMPOSITION

Gold	35.0% ± 1.0
Nickel	3.0% ± 0.5
Copper	Remainder
Other Elements Total	0.15%
Vacuum Grade Trace Elements	
Cadmium	0.001% max.
Zinc	0.001% max.
Phosphorus	0.002% max.
Lead	0.002% max.
Carbon	0.005% max.
Other volatile elements each*	0.002% max.
Volatile elements total	0.010% max.
Total non-volatile elements (Grade 1)	0.01% max.
Total non-volatile elements (Grade 2)	0.05% max.

*Elements with a vapor pressure higher than 10^{-7} torr at 932ºF (such as Mg, Sb, K, Li,TI,S,Cs,Rb,Se,Te,Sr, and Ca) are limited to 0.001% each for Grade 1 and 0.002% for Grade 2.

PHYSICAL PROPERTIES

Color	Copper
Solidus	1832 ºF (1000 ºC)
Liquidus	1886 ºF (1030 ºC)
Recommended Brazing Temperature	1936-1986°F (1058-1086°C)
Density (Troy Oz/in.^{3})	5.81
Yield Strength (MPa)	185
Tensile Strength (MPa)	427
Thermal Conductivity (W/(m*K))	70
CTE (x10^{-6}/^{0}C)	17.8
Electrical Resistivity (x10^{-9} ohm*m)	110
Electrical Conductivity (x10^6 / (ohm*m)	9.1
Elongation (%)	27.5
Recommended Brazing Temperature	1900º-1950ºF (1038-1066ºC)

USES

The most common use of BAu-3 is for step brazing with BAu-1 & BAu-2. BAu-3 has excellent wetting to Ni, Mo, SS, Kovar and Mo-Mn with minimal diffusion. Also used for high-integrity joints in aerospace and automotive applications, vacuum tubes, wave guide and Klystron assemblies and power surge arrestors. BAu-3 is often brazed under partial pressure due to the high vapor pressure of copper.

BRAZING CHARACTERISTICS

Wets well to superalloys and provides high ductility due to high levels of copper. BAu-3 exhibits lower corrosion resistance than other Au-Ni alloys.

PROPERTIES OF BRAZED JOINTS

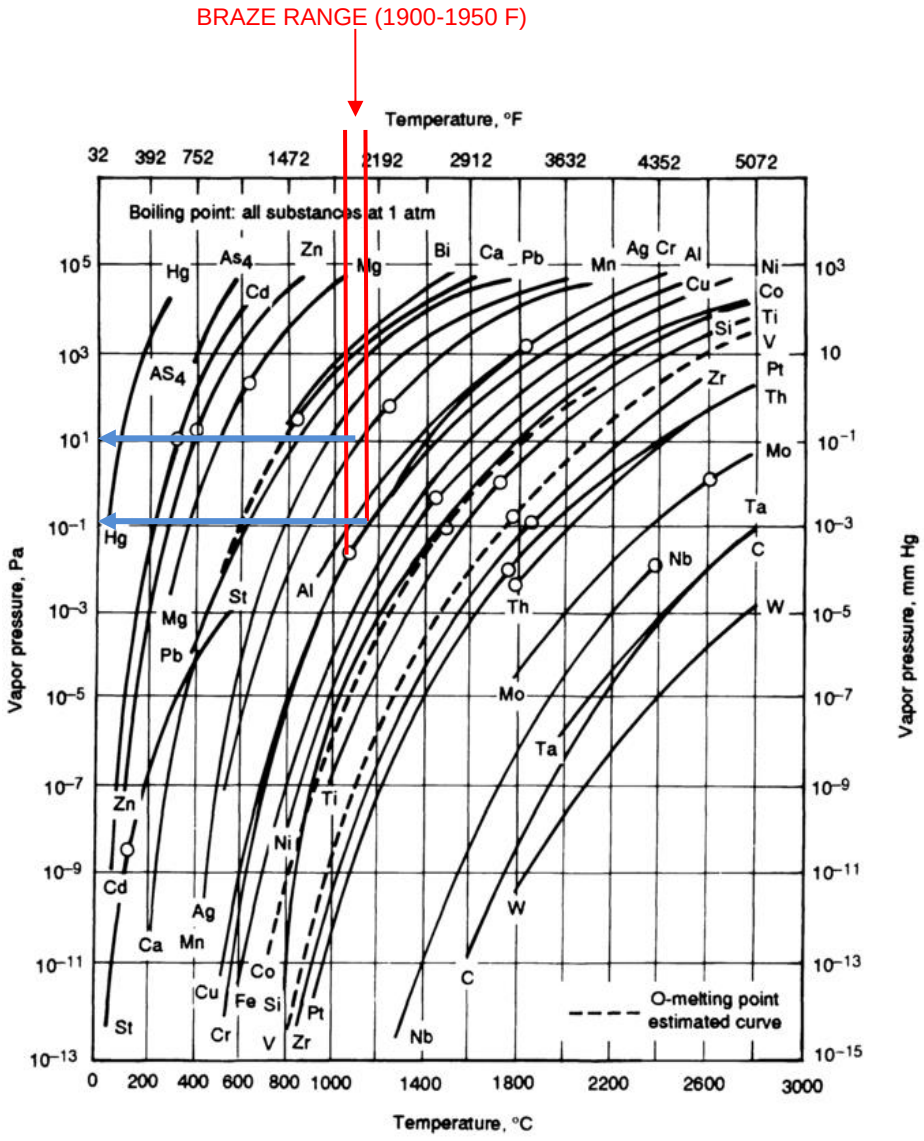
The properties of a brazed joint are dependent upon the base metal, joint design and brazing technique. For atmospheric brazing the recommended radial joint clearance for gold base alloys fall within .0015-.002” range.

This alloy contains high levels of copper compared to other BAu alloys. The brazing temperature of BAu-3 is high enough that the outgassing of Cu must be taken into consideration when establishing a brazing profile for a vacuum furnace.

VACUUM BRAZING

Recommended brazing pressure

Out-gassing pressure for Cu (at braze range)



BAu Comparison

The table below shows some of the physical properties of commonly used BAu alloys.

AMS	AWS	Au	Ni	Cu	Pd	Solidus	Liquidus	Wetting	Corossion Resistance	Density (Toz/in.^{3})	Yield Strength (MPa)	Tensile Strength (MPa)	Thermal Conductivity (W/(m*K)	CTE (x10^{-6}/^{0}C)	Electrical Reistivity (x10^{-9} ohm*m)	Electrical Conductivity (x10^6/(ohm*m))	Hardness (KHN)	Elongation (%)
AMS 4787	BAu-4	82	18	-	-	1742	1742	Excellent	Excellent	8.41	686	792	28	17.5	274	3.7	-	14
AMS 4786	BAu-6	70	22	-	8	1841	1899	Excellent	Excellent	7.79	758	847	21	14	369	2.7	327	20
AMS 4784	BAu-7	50	25	-	25	2016	2050	Excellent	Excellent	7.05	655	827	29	17	269	3.7	337	28
-	BAu-3	35	3	62	-	1832	1886	Excellent	Good	5.81	185	427	70	17.8	110	9.1	-	28

SPECIFICATIONS

GB356523 alloy conforms to: Unified Numbering System (UNS) P00351 and American Welding Society (AWS) A5.8/A5.8M BVAu-3 Grade 1 and Grade 2.

AVAILABLE FORMS

Strip, wire, powder, and preforms to specifications.

Individuals requiring further information and Engineering Specification Documents may wish to contact the Engineering Society for Advanced Mobility, Land Sea Air and Space, The Society of Automotive Engineers http://www.sae.org/ (SAE AMS) or The American Welding Society (AWS) http://aws.org/

NOTE:

DISCLAIMER

The information and recommendations contained in this publication have been provided without charge & compiled from sources believed to be reliable and to represent the best information available on the subject at the time of issue. No warranty, guarantee, or representation is made by the Prince and Izant Company, Inc. as to the absolute correctness or sufficiency of any representation contained in this and other publications; Prince and Izant Company, Inc. assumes no responsibility in connection therewith; nor can it be assumed that all acceptable safety measures are contained in this (and other publications, or that other or additional measures may not be required under particular or exceptional conditions or circumstances.