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ALLOY 52

TECHNICAL DATA

NOMINAL COMPOSITION	Nickel	50.5% ± 1.0
	Silicon	0.10% Max.
	Manganese	0.30% Max.
	Iron	Remaining
	Other Elements, Total	0.05% Max
PHYSICAL PROPERTIES	Color	Metallic Gray
	Liquidus	1435°F (780°C)
	Recommended Brazing Temperature	1435-1535°F (780-835°C)
	Density (g/cm³)	8.2
	Yield Strength (MPa)	340
	Tensile Strength (MPa)	610
	Thermal Conductivity (@ 20°C)	17 W/(m•K)
	Coefficient of Thermal Expansion	10x10 ⁻⁶ /K (20-100°C)
	Temp. Coefficient of Resistance	2900 ppm/°C (20-100°C)
	Specific Heat Capacity (@ 20°C)	0.50 kJ/(kg•K)
	Electrical Resistivity	
	@ 20°C:	0.37 Ω•mm ² m ⁻¹
USES	@100°C:	0.492 Ω•mm ² m ⁻¹
	Curie Temperature	530°C (986°F)
BRAZING CHARACTERISTICS	Elongation (%)	30
	Alloy 52 is a low thermal expansion alloy with low resistivity and a high temperature coefficient of resistance. This alloy is typically used in voltage regulators, timing devices, temperature sensitive resistors, temperature compensating devices and low temperature heating applications.	
PROPERTIES OF BRAZED JOINTS	Alloy 52 can be brazed by a variety of different processes including induction and atmospheric furnace brazing. It is important to ensure that the base components are properly cleaned prior to the application of the braze alloy. A joint clearance of 0.002-0.004 in. is recommended for brazing depending on base alloy type and joint configuration.	
	The properties of a brazed joint are dependent upon numerous factors including base metal properties, joint design and metallurgical interaction between base metals and filler metal.	
SPECIFICATIONS	Alloy 52 conforms to: NA	
AVAILABLE FORMS	Strip, engineered preforms, specialty preforms, powder and paste	
SAFETY INFORMATION	The operation and maintenance of brazing equipment or facility should conform to the provisions of American National Standard (ANSI) Z49.1, "Safety in Welding and Cutting."	

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:

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