

## **SILVALOY® 852** **(BRAZE™ 852, SILVALOY® Z85M)**

### ***NOMINAL COMPOSITION***

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Silver	85.0% ± 1.0%
Manganese	Remainder
Other Elements (Total)	0.15% Max

### ***PHYSICAL PROPERTIES***

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Color	White
Melting Point (Solidus)	1760°F (960°C)
Flow Point (Liquidus)	1780°F (971°C)
Brazing Temperature Range	1780°F - 1900°F (971°C - 1038°C)
Specific Gravity	9.88
Density (Troy oz/in <sup>3</sup> )	4.98
Electrical Conductivity (% IACS) <sup>(1)</sup>	4.60
Electrical Resistivity (Microhm-cm)	37.5

<sup>(1)</sup> IACS = International Annealed Copper Standard

### ***PRODUCT USES***

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Silvaloy 852 is a specialty alloy used in applications requiring good strength at elevated service temperatures. This braze filler metal can be used in brazing of stainless steels, Stellite and Inconel. It is also effective for brazing certain complex chromium-titanium carbides.

### ***BRAZING CHARACTERISTICS***

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Silvaloy 852 is a high temperature, free flowing silver brazing filler metal usable both for torch and atmosphere furnace brazing. Due to high flow point of this alloy; torch brazing may be accomplished with Handy® Hi-Temp Flux or Handy® Hi-Temp Flux Boron Modified. These fluxes may also be required as a supplement when brazing parts in a controlled atmosphere furnace. Even at 2000°F (1093°C) a dew point of -80°F (-62°C) or better is required to reduce manganese oxides in hydrogen.

### ***PROPERTIES OF BRAZED JOINTS***

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The properties of a brazed joint are dependent upon numerous factors including base metal properties, joint design, metallurgical interaction between the base metal and the filler metal. Butt joints and overlap joints have been brazed and tested for tensile strength at room temperature, on the listed metals, with the following typical results:

# Technical Data Sheet

## PROPERTIES OF BRAZED JOINTS (CONT.)

<u>Base Metal</u>	<u>Type of Joint(s)</u>	<u>Test Temp.</u>	<u>Tensile Strength (lbs/in<sup>2</sup>)</u>
316 Stainless Steel	Butt Joint (2" Diameter Rod)	Room	46,000 - 50,000
		1000°F (538°C)	28,000
		1200°F (649°C)	23,000

<u>Base Metal</u>	<u>Type of Joint(s)</u>	<u>Test Temp.</u>	<u>Shear Strength (lbs/in<sup>2</sup>)</u>
316 Stainless Steel	Sleeve / Lap Joint (0.25" Overlap)	Room	25,000
		1000°F (538°C)	8,000
		1200°F (649°C)	6,000

<u>Base Metal</u>	<u>Type of Joint(s)</u>	<u>Test Temp.</u>	<u>Tensile Strength (lbs/in<sup>2</sup>)</u>
SAE 1020 Steel	Butt Joint (2" Diameter Rod)	Room	52,000
		400°F (204°C) <sup>(2)</sup>	62,000
		600°F (315°C) <sup>(2)</sup>	58,000
		800°F (427°C)	40,000
		1000°F (538°C)	20,000
		1200°F (649°C)	10,000

<u>Base Metal</u>	<u>Type of Joint(s)</u>	<u>Test Temp.</u>	<u>Shear Strength (lbs/in<sup>2</sup>)</u>
SAE 1020 Steel	Sleeve / Lap Joint (0.25" Overlap)	Room	25,000
		800°F (427°C)	21,000
		1000°F (538°C)	15,000
		1200°F (649°C)	9,000

<sup>(2)</sup> Increase over room temperature value due to hardening effect. The above data is based on short time elevated temperature tests. Long time exposure of joints to an oxidizing atmosphere (1000°F (538°C) and above) will result in oxidation of the manganese and eventual disintegration of the joint.

## AVAILABLE FORMS

Wire, engineered preforms, specialty preforms per customer specification.

## SPECIFICATIONS

Silvaloy 852 alloy conforms to the following specifications:

- American Welding Society (AWS) A5.8/A5.8M BAg-23
- ASME Boiler & Pressure Vessel Code, Sec II-C, SFA-5.8 BAg-23
- Society of Automotive Engineers (SAE) / AMS 4766
- Federal Specification QQ-B-654 BAg-23
- International Organization for Standardization (ISO) 17672 Ag 485
- British Standard (BS) EN 1044 Ag 501
- Deutsches Institut für Normung (DIN) 8513 Part 3 L-Ag85

## APPLICABLE PRODUCT CODE(S)

# Technical Data Sheet

The applicable Lucas-Milhaupt product code(s) for this technical data sheet: A00000010, Legacy Codes: 32-852, 2170.

## ***SAFETY INFORMATION***

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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". For more complete information refer to the Material Safety Data Sheet for Silvaloy 852.

## ***WARRANTY CLAUSE***

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