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Handy-One® Flux Cored Silver Brazing Alloys
Braze 300

THE PRODUCT

Handy One is a trade name for a family of flux-cored brazing materials that offers numerous advantages compared to traditional metal joining methods. It consists of a filler metal in strip form that is rolled around a powdered flux. Formulations currently exist for silver (and aluminum based) brazing filler metals and it is available on spools, coils or rods for wire feed applications and as preformed rings and shapes for automated production lines.

Some of the primary advantages of Handy One cored wire include:

- It simplifies the brazing process by eliminating the manual fluxing operation; this also reduces flux exposure to your brazing personnel.
- Joint quality and throughput can be improved due to the consistent application of flux and filler metal.
- Reduces heating time and secondary post braze operations, increasing productivity and throughput
- Improved strength due to a reduction in flux inclusions at the joint interface
- Reduces the flux in your wastewater effluent by as much as 75%
- Multiple formulations exist for a variety of base metals, joint designs and heating methods.

This product will join ferrous and non-ferrous metals including steel, copper, brass and bronze.

NOMINAL COMPOSITION	*BRAZE 300*
Silver	30.0% ± 1.0%
Copper	38.0% ± 1.0%
Zinc	32.0% ± 1.0%
Total Other Elements	0.15% max.

PHYSICAL PROPERTIES	*BRAZE 300*
Color	Light Yellow
Solidus (Melting Point)	1250°F (675°C)
Liquidus (Flow Point)	1410°F (765°C)
Specific Gravity	8.84
Density (Troy oz./cu.in.)	4.66
Electrical Conductivity (% IACS)	24.4
Electrical Resistivity (Microhm-cm)	6.85

USES

Braze 300 is an economical, general-purpose low-temperature brazing filler metal for use in cadmium-free brazing applications, such as air conditioning and refrigeration which involve the joining of steels, copper, copper alloys and nickel alloys. It is an intermediate temperature brazing alloy for use on base materials that melt above 1450°F (765°C). This could also include the brazing of nickel-silver hollow knife handles and electrical equipment.

BRAZING CHARACTERISTICS

Braze 300 is an intermediate temperature silver brazing alloy with a fairly long (160°F/70°C) melting range. This long melting range is helpful when wide gap joints are brazed and is useful in producing large joint fillets to reduce the notch effect on stressed assemblies. Where the higher brazing temperature and characteristics of this alloy are permissible, the lower silver content affords a saving.

PROPERTIES OF BRAZED JOINTS

In tests at room temperature, torch brazed, "wiped" butt joints yielded the following average results:

	Tensile Strength psi	Elongation % in 2"
Copper	30,000-35,000	15.0-25.0
Brass	35,000-45,000	16.0-31.0
Nickel-Silver	35,000-40,000	7.0-17.0

CORROSION RESISTANCE

Braze 300 is not considered to be particularly resistant to corrosion but tests have shown that, in general, it is as resistant as the metals with which it is customarily used.

The following corrosion tests have been made on Braze 300:

Solution	Test Temperature °F	Test Temperature °C	Conditions	Loss in Weight Mgs/dcm^2/ Day
5% Sulphuric Acid	Room		Constant Immersion	15.57
5% Sulphuric Acid	160	70	Constant Immersion	1115.5
10% Sulphuric Acid	Room		Constant Immersion	15.7
10% Sulphuric Acid	160	70	Constant Immersion	207.6
20% Sulphuric Acid	Room		Constant Immersion	13.9
20% Sulphuric Acid	160	70	Constant Immersion	181.1

In addition to the tests above, brazed joints of copper, brass and nickel-silver were subjected to corrosion tests. At the conclusion of these tests, the brazed joints showed less corrosion than the base metal and the brazing alloy stood up in relief where the base metal had dissolved faster than the joint.

BRAZING FLUXES AVAILABLE

Lucas-Milhaupt, Inc. has several different fluxes available depending upon the material form (wire or preformed shape) as well as base metals and heating methods utilized.

Restrictive Flux – protects the parts being joined, yet restricts the flow of the filler metal, enabling the building of fillets and minimizing post braze secondary operations. This flux is recommended for most hand feed or wire feed applications. Flux content is typically 12% (± 3%) of the total volume.

Free Flowing Flux – This very fluid flux provides excellent protection of your parts and facilitates filler metal flow. Recommended for preformed ring applications, it is typically 18% (± 3%) of the total volume.

Heat Resistant Flux – Boron modified flux for large mass assemblies or long heating cycles. It is also typically 18% (± 3%) of the total volume and also recommended for preformed ring applications.

Please Note: Flux percentages may vary depending upon material size and finished form, please contact Lucas-Milhaupt's Technical Services Department for specific product and process parameters.

SPECIFICATIONS

This alloys conforms to the following specifications:

AWS A5.8	BAg-20
ASME Boiler & Pressure Vessel Code, Sec II-C, SFA-5.8	BAg-20

AVAILABLE FORMS

Wire (.047, .060 and .075" diameter), rod form (20 inch lengths of .075 dia.) and preformed rings and shapes to specification.

WARRANTY CLAUSE

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