



ULTRACOAT

LucasMilhaupt®

A STEEL PARTNERS COMPANY



Figure 1: Example of Ultracoat (flux coated strip)

ULTRACOAT

Lucas Milhaupt leads the industry in application problem solving and takes brazing optimization to the next level with . . .

Ultracoat: Flux coated braze foil designed to improve productivity, reduce cycle times, and eliminate variability.

In cases where two flat surfaces are to be brazed, many customers turn to braze alloy in the form of strip. Strip is ideal for covering large surface areas or for sitting flush between two components where wire would cause the parts to sit unevenly. This makes strip ideal for pre-placing shims between two components such as a carbide blank and a steel body or else pre-placing a preform such as a washer between two parts that need to have intimate contact during the braze cycle.

While alloy form and selection are critical aspects of a braze joint, flux is also an integral part in torch and induction brazing. To promote strong joints, a proper amount of flux is required and, in most cases, when left to manual application, flux is either under or over applied. When flux is underapplied, the flux present will saturate quickly during heating, and oxide build up will prevent the braze alloy from flowing and bonding effectively along both substrates. When flux is overapplied, the alloy cannot effectively flush the flux out of the joint resulting in flux inclusions and voids which leads to lower joint strength.

The Ultra Efficient Solution

So how can a company eliminate variability, drive down overconsumption, and improve part quality? Lucas Milhaupt solves all the variables in the brazing equation with one simple solution: Ultracoat. As the industry leader in solution driven support, Lucas Milhaupt introduces its Ultracoat product line—flux coated strip that eliminates the need for separate flux and alloy application. By coating the strip with a precise amount of flux, operator variability is eliminated and first pass yield increases. The amount of flux coating on the braze foil is calculated precisely for your application and helps ensure the proper amount of fluxing action for superior alloy wetting without increasing the amount of flux inclusions and porosity left inside the joint.

Figure 2 shows the benefits of the Lucas Milhaupt's Ultracoat product versus standard manual flux and alloy application. By driving down porosity and improving alloy wetting, no joint strength is sacrificed, and, in many cases, joint strength is higher than joints that use manual flux and braze alloy.

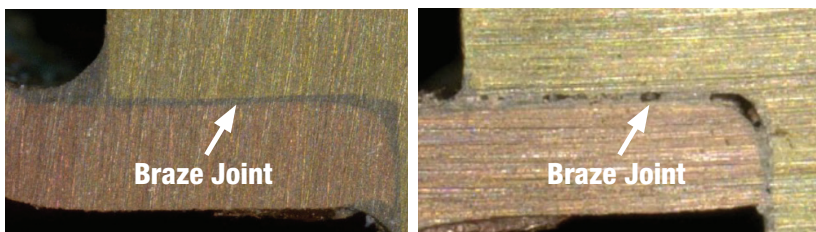


Figure 2: Ultracoat (left, no porosity) vs Separate Flux and Alloy (right, high porosity)

Ultracoat Benefits

- No separate flux application so operator variability is reduced and productivity is increased
- Flux coating specific to your application means less flux porosity in the braze joint
- Less flux on the part means less time wasted cleaning parts post braze
- Intimate contact between Ultracoat and base material means improved heat transfer and faster cycle times
- Improved wetting and less porosity compared to standard flux and alloy which means better bond and higher strength

Ultracoat Capabilities

- Multiple fluxes available to meet your brazing needs
- LM's application engineering team can work directly with your application and provide feedback on the most suitable product from the Ultracoat family as well as give insight on process improvements
- Fluxes for brazing carbide, stainless steel, steel, copper, brass, and aluminum
- Ultracoat can be supplied in bulk strip or in engineered preforms designed for a customer's unique application



Available Forms

Ultracoat is available as:

Ultracoat Clad

- Ultracoat Clad combines an aggressive, high performance braze flux with clad silver alloy
 - Clad material in the ratio of 1-2-1 for silver alloy-copper-silver alloy helps to reduce thermal stress on materials such as carbide and steel
 - Available as:
 - **Ultracoat Clad 259:** Our Silvaloy 505 in clad form with a premium flux coating, ideal for standard carbide brazing
 - **Ultracoat Clad 215:** Our Silvaloy 491 in clad form with a premium flux coating, ideal for more difficult to wet carbides
 - **Ultracoat Clad 258:** Our cadmium bearing Easy Flo 3 in clad form with a premium flux coating, ideal for low temperature carbide brazing
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Ultracoat Clean

- Non-corrosive flux that eliminates the need for post braze cleaning
- Reduced cleaning time means reduced process time and increased throughput
- Ideal for copper to brass
- Discs, washers, or shims can be preplaced between the joint surfaces and provide higher joint integrity as compared to copper-brass joints that use no flux or GasFlux only
- Not recommended for ferrous materials or aluminum bronze



Ultracoat Ag

- Standard silver braze alloy coated with a premium flux for optimized braze performance
 - General purpose allows it to be used across a wide array of industries and applications
 - Available as:
 - **Ultracoat 505:** Our Silvaloy 505 with a premium flux coating, ideal for general purpose applications and especially stainless steel or where improved flow and good corrosion resistance are needed
 - **Ultracoat 560:** Our Silvaloy 560 with a premium flux coating, ideal for general purpose applications and especially where low temperature and quick heating cycles are needed
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Ultracoat HT

- High temperature braze alloy coated with a premium high temperature flux for optimized braze performance
 - Designed for applications where high service temperatures will be encountered and alloy strength and toughness are paramount, e.g. road cutting tools, wear surfaces
 - Available as:
 - **Ultracoat 548:** Our Hi-Temp 548 with a premium high temperature flux coating, ideal for applications where good strength at elevated temperatures is needed
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Ultracoat AL

- Aluminum braze alloy coated with a non-corrosive flux
- Ideal for automotive applications or other operations where flux flow needs to be controlled



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