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Harris STAY-SILV 15

HARRIS STAY-SILV 15 PHOS-COPPER SILVER BRAZING ALLOY Instruction Manual

Model: STAY-SILV 15 (PN: PRD-PNN-9452750)

Product Overview

The HARRIS STAY-SILV 15 Phos-Copper Silver Brazing Alloy is a specialized filler metal designed for joining copper to copper, copper to brass, and brass to brass. Its unique composition, including 15% silver, 5% phosphorus, and 80% copper, provides excellent flow characteristics and joint strength, particularly in applications where close fit-up is not achievable or where the joint will experience agitation and vibration.

The phosphorus content in this alloy acts as a self-fluxing agent when brazing copper to copper, simplifying the process. For brazing brass to copper or brass to brass, the use of an appropriate brazing flux, such as Stay-Silv White Brazing Flux, is recommended.



Image: HARRIS Stay-Silv 15 Phos-Copper Silver Brazing Alloy rods, shown partially extracted from their protective cylindrical packaging. The packaging is black with the "HARRIS" logo and "Stay-Silv 15" branding, along with multilingual text indicating "SILVER BRAZING ALLOY".

Safety Information

Always adhere to standard safety practices when working with brazing alloys and high-temperature equipment. This includes, but is not limited to:

- Wearing appropriate Personal Protective Equipment (PPE), including safety glasses or a face shield, heat-resistant gloves, and protective clothing.
- Ensuring adequate ventilation in the work area to disperse fumes.
- Keeping a fire extinguisher readily available.
- Avoiding contact with skin and eyes. In case of contact, rinse thoroughly with water and seek medical attention if irritation persists.
- Consulting the Material Safety Data Sheet (MSDS) for complete safety guidelines.

Setup

Proper setup is crucial for effective and safe brazing. Follow these steps:

1. **Prepare the Work Area:** Ensure the brazing area is clean, well-ventilated, and free from flammable materials.
2. **Clean Joint Surfaces:** All surfaces to be joined must be thoroughly cleaned of oxides, dirt, grease, and oil. Use mechanical cleaning (e.g., wire brush, abrasive cloth) followed by chemical cleaning if necessary.
3. **Ensure Proper Fit-up:** While STAY-SILV 15 is suitable for situations where close fit-up does not exist, optimal results are achieved with joint clearances between 0.002" and 0.006".
4. **Apply Flux (if necessary):** For brazing brass to copper or brass to brass, apply a thin, even layer of appropriate brazing flux (e.g., Stay-Silv White Brazing Flux) to the joint surfaces. Flux is generally not required when brazing copper to copper with this alloy due to its self-fluxing properties.
5. **Secure Components:** Position and secure the components to be brazed to prevent movement during the heating and brazing process.

Operating Instructions

Follow these steps for effective brazing with HARRIS STAY-SILV 15:

1. **Heat the Joint:** Using a suitable heat source (e.g., oxy-acetylene torch, MAPP gas torch), apply heat evenly to the base metals around the joint area. The goal is to bring the base metals to the brazing temperature, which is above the alloy's liquidus temperature (1480°F / 804°C).
2. **Introduce the Alloy:** Once the base metals reach the appropriate temperature, touch the end of the STAY-SILV 15 brazing rod to the joint. The heat from the base metals should melt the alloy, causing it to flow into the joint by capillary action. *Do not melt the alloy directly with the torch flame.*
3. **Ensure Full Penetration:** Allow the alloy to flow completely around the joint, ensuring full penetration. The fluidity rating of 3 indicates good flow characteristics.
4. **Remove Heat:** Once the joint is filled, remove the heat source.
5. **Cool and Clean:** Allow the brazed joint to cool naturally. Do not quench with water unless specified for the application, as this can cause stress. After cooling, remove any flux residue (if flux was used) with warm water and a brush.

Key Characteristics:

- **Composition:** Silver-15%, Phosphorus-5%, Copper-80%.
- **Solidus:** 1190°F (643°C)
- **Liquidus:** 1480°F (804°C)
- **Fluidity Rating:** 3
- **AWS Classification:** BCuP-5

Maintenance and Storage

To maintain the quality and performance of your HARRIS STAY-SILV 15 brazing alloy:

- **Storage:** Store the brazing rods in their original packaging in a dry environment to prevent contamination and oxidation.
- **Handling:** Handle rods with clean gloves to avoid transferring oils or contaminants to the alloy surface, which can affect brazing performance.
- **Inspection:** Before use, inspect rods for any signs of damage or contamination. Do not use rods that appear corroded or heavily oxidized.

Troubleshooting

Common issues and their solutions during brazing:

Problem	Possible Cause	Solution
Poor alloy flow or incomplete joint filling	Insufficient heating of base metals; dirty joint surfaces; incorrect joint clearance; alloy melted directly by torch.	Ensure base metals reach brazing temperature; thoroughly clean surfaces; verify joint clearance; melt alloy with heat from base metals, not direct flame.
Porous or weak joint	Contamination on joint surfaces; overheating; improper flux usage (if applicable).	Re-clean surfaces; avoid excessive heat; ensure correct flux application and removal.
Alloy not adhering to brass	No flux or incorrect flux used for brass.	Apply appropriate brazing flux (e.g., Stay-Silv White Brazing Flux) when brazing brass.

Specifications

Attribute	Detail
Product Name	HARRIS STAY-SILV 15 PHOS-COPPER SILVER BRAZING ALLOY

Attribute	Detail
Model Number	PRD-PNN-9452750
Manufacturer	Harris
Composition	15% Silver, 5% Phosphorus, 80% Copper
Solidus Temperature	1190°F (643°C)
Liquidus Temperature	1480°F (804°C)
AWS Classification	BCuP-5
Joint Clearance	0.002" / 0.006" recommended
Item Weight	Approximately 4-5 ounces (package of 7 pieces)
Product Dimensions	19.69 x 0.12 x 0.05 inches (per rod)
Pieces per Package	7 pieces

Warranty and Support

For specific warranty information or technical support regarding HARRIS STAY-SILV 15 brazing alloys, please contact the manufacturer, Harris, directly. Refer to the official Harris website or product packaging for the most current contact details and warranty terms.
General inquiries can also be directed to your point of purchase,Amazon.com product page.

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