



NEW HARRIS[®] HIGH SILVER BRAZING ALLOYS

**Manufactured in Europe,
Trusted Worldwide**

**Turn to the
BRAZING Pros**

INTRODUCING THE NEW HARRIS® HIGH SILVER BRAZING ALLOYS

Now with ISO 17672 Standards

For years, countless customers have trusted Harris high silver brazing alloys. And now, Harris can better supply high-quality alloys to OEM customers throughout the world from our Portugal manufacturing facility.



Harris High Silver Brazing Alloys produced in Portugal to better serve customers throughout Europe, Asia, Middle East, Africa, and more!

HARRIS HISTORY

THE HARRIS PRODUCTS GROUP WAS OFFICIALLY FORMED ON MAY 01, 2006, WITH THE MERGER OF GAINESVILLE, GA BASED HARRIS CALORIFIC & MASON, OH BASED J.W. HARRIS CO.

THE MERGER RESULTED FROM A SERIES OF ACQUISITIONS BY THE LINCOLN ELECTRIC COMPANY



NEW HIGH SILVER BRAZING ALLOYS

The Harris Products Group manufactures a complete line of cadmium-free brazing alloys in its factory in Portugal, with the same dedication and commitment to the highest standards of quality that have characterized our brand for more than a century.

Harris develops our high silver alloys to provide excellent mechanical properties by utilizing only pure base metals. Precision production procedures ensure consistency in product quality, composition, chemistry, dimension, and performance. These filler metals are used for joining most ferrous and nonferrous metals, except aluminum and magnesium.

Lower brazing temperature and improved performance

Performance improvements can come from the addition of a small amount of silicon. This can effectively reduce the brazing temperature, as well as improve wettability and flow to help to prevent leaks. Faster and better-flowing alloy improves factory throughput, which reduces costs. The addition of silicone also reduces zinc volatilization and refines the microstructure of the alloy, which results in strength improvement.

Standard Alloy/Flux Coated Ratios Available:

85/15	75/25	62/38
80/20	70/30	58/42

*Custom ratios available upon request

Standard Color Alloy/Flux Coated Designations:

20% Yellow	45% Navy Blue
30% White	56% Rose
40% White/Orange	

*Alternative colors designations available upon request



HARRIS HIGH SILVER ALLOYS ARE USED IN THESE INDUSTRIES, AND MORE:



AIR CONDITIONING



APPLIANCES



REFRIGERATION

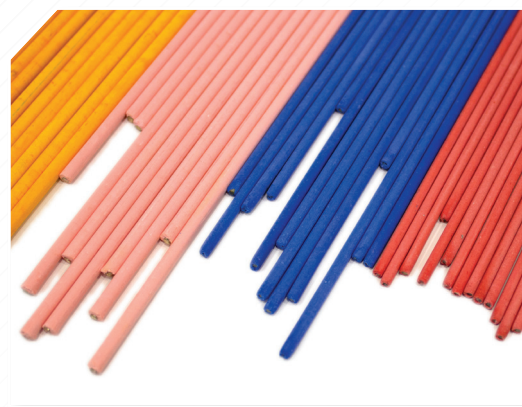


TOOLING

A WIDER VARIETY OF HIGH SILVER ALLOY CHEMISTRIES AVAILABLE.

All alloys are available in bare rods, flux coated rods, solid wires and rings, in both metric and imperial sizes according to ISO 17672 standards.

Silicon-free alloys are also available upon request.



High Silver Alloys

Alloy	ISO 17672	EN-1044	AWS A5.8	Ag %	Cu %	Zn %	Sn %	Melting Range °C	Si %	Fluidity Rating*	Typical Application
Harris 20	Ag 220	Ag 206	–	20	44	36	–	690-810	0,15	5	Economical alloy with large melting range. The wetting and flow characteristics make L-Ag20 an appropriate choice to join similar and dissimilar base metals (excluding aluminium). Colour Brass - Yellow.
Harris 25 T Si	Ag 125Si	AG 108	–	25	40	33	2	680-760	0,15	5	Steel to copper alloys. Dissimilar metal joint should be in compression on cooling.
Harris 30 T Si	Ag 130Si	AG 107	–	30	36	32	2	665-755	0,15	5,5	Steel and copper to copper and copper to brass. Good wetting and fluidity. Can be used for equipment and tools in the food industry. Also to be used in the refrigeration industry. Recommended clearance 0.05 to 0.13 mm (.002 to .005")
Harris 34 T Si	Ag 134Si	AG 106	–	34	36	27	2,5	630-730	0,15	6	
Harris 35	Ag 235	–	BAG-35	35	32	33	–	685-755	–	6	Mainly used in the refrigeration industry.
Harris 40 T Si	Ag 140Si	AG 105	BAG-28	40	30	28	2	650-710	0,15	6,5	Good flow properties. Suitable for ferrous and nonferrous base materials. Good results with bigger gaps, even with a narrower melting range.
Harris 44	Ag 244	AG 203	–	44	30	26	–	675-735	–	6,5	
Harris 45 T Si	Ag 145Si	AG 104	BAG- 36	45	28,5	25,5	2,5	640-680	0,15	7	Good flow properties. Suitable for ferrous and nonferrous base materials. Better fluidity due to narrow melting range.
Harris 49 NiMn	Ag 449	AG 502	Bag-22	49	16	23	Mn 7,5 Ni 4,5	680-705	–	8	Highly appropriate on tungsten carbides – high alloyed steels applications. These filler metals provide excellent flow characteristics on carbides getting strong / large resistance joints becoming an excellent choice where high stress working conditions are required.
Harris 55 T Si	Ag 155Si	AG 103	–	55	21	22	2	630-660	0,15	9	For ferrous and nonferrous alloys. Often used to braze stainless steel for food services. Lowest melting range and best fluidity properties.
Harris 56 T Si	Ag 156Si	AG 102	BAG- 7	56	22	17	2	620-655	0,15	8	

THE HARRIS PRODUCTS GROUP
www.harrisproductsgroup.com



A LINCOLN ELECTRIC COMPANY

HARRIS HAS THE BRAZING ALLOYS, EQUIPMENT AND VALUE-ADD SERVICES OEM CUSTOMERS NEED

Providing world-class brazing alloys is only part of what Harris offers our production brazing customers. Accurate, reliable and safe equipment is as critical in the brazing process as the brazing and soldering alloys used.

Some of our more popular products and services include:



An engineered solution, the Perfect Flame® delivers consistent results for repetitive, high-volume handheld brazing applications.

This innovative system, which recently became CE compliant, includes torches, tips, flow control devices and software that work together to improve and produce consistent joint quality. This process results in better flame control, which leads to overall better brazing quality, fewer leaks and rejects and reductions in operational costs related to labor, training and gas.

For more information about the Perfect Flame™, please visit:

www.harrisperfectflame.com

Documented Cost Reduction (DCR) Program

The Harris Products Group is committed to going above and beyond the expectations of a normal supplier by helping our customers improve their brazing operations. We strive to help you lower costs, decrease leaks, increase production, and improve quality.

To do this, we have created the **DCR Program** to help you identify potential areas for improvements. This program begins with an on-site **Facility Brazing Audit** so we can better understand your specific operations.

The Facility Brazing Audit consists of two steps. First, we will conduct a Preliminary Audit where we gather information to develop a structured agenda for the full process audit.



And secondly, the Full Audit is a half- to full-day, detailed audit to validate your current process or identify deficiencies for future improvements. This includes a full audit of the six steps in the brazing process, which includes Clearance, Filler Metal, Cleaning, Heat Input, Flux and the Post Braze Processes.

After completing the full audit and gathering the required technical information, we will provide a DCR Report. This report will outline projects for potential improvement and the savings associated with these projects.

And should you decide to move forward with our recommendations, we will then help you design and implement a program to achieve results.



ABOUT THE HARRIS PRODUCTS GROUP

The Harris Products Group has been manufacturing quality braze filler metals for over 100 years. And now with the addition of our Portugal manufacturing facility in 2021, we are global leaders in developing brazing and soldering products to meet the industry needs for new metal joining methods. Certified to ISO 9001 and ISO 14000 standards, we have developed proprietary manufacturing technology to ensure the highest standards of quality and traceability.

Our experienced sales and technical personnel are trained to assist our customers in producing sound, cost effective brazed assemblies. Our international presence means we can assist in our customer's operation anywhere in the world. Harris is backed by the financial strength and technical resources of The Lincoln Electric Company -

THE GLOBAL LEADER IN WELDING SYSTEMS AND FILLER METALS.



A LINCOLN ELECTRIC COMPANY

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