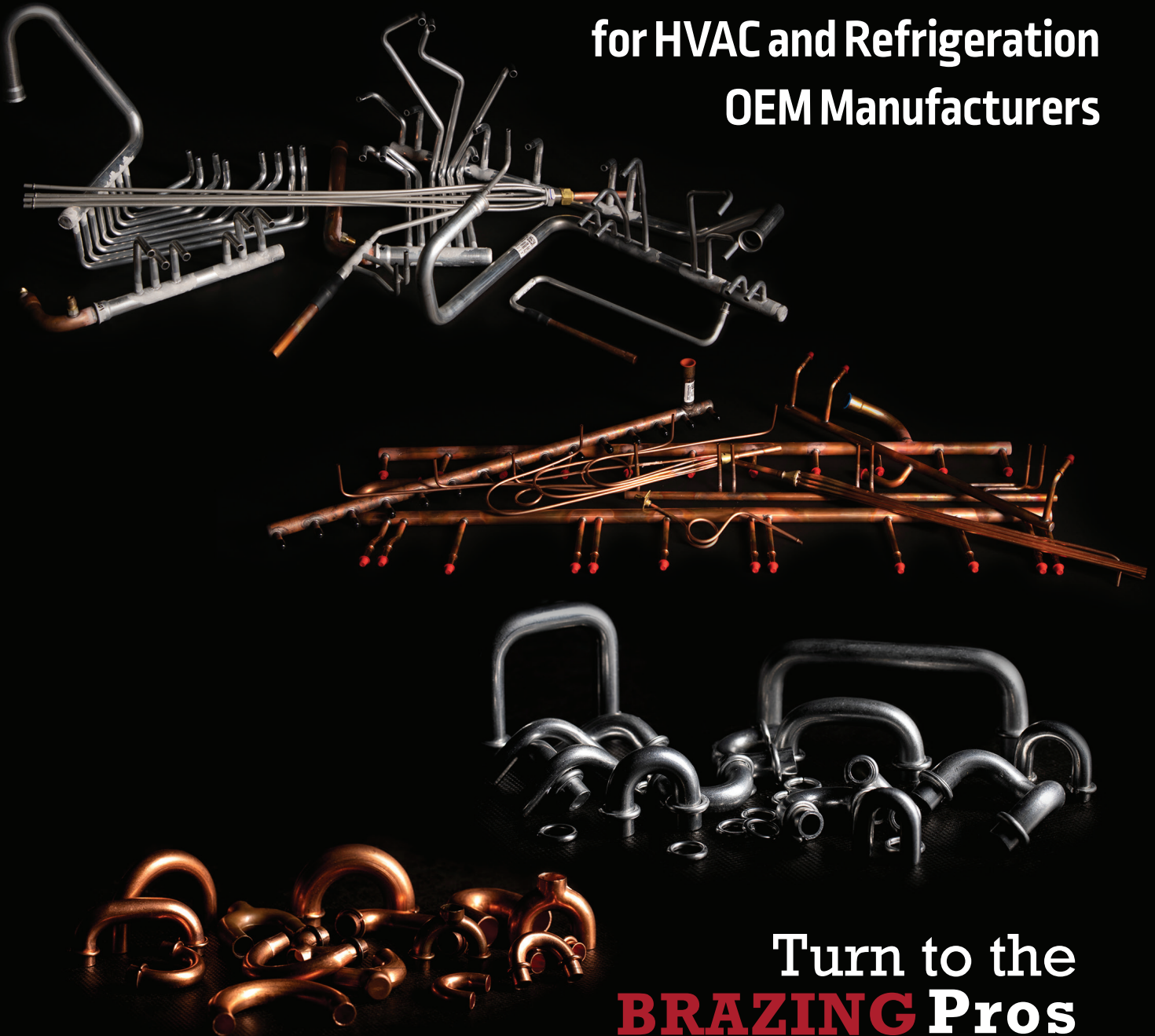




OEM FABRICATED PARTS

Complete Brazing Product Portfolio
for HVAC and Refrigeration
OEM Manufacturers



Turn to the
BRAZING Pros

R&D ENGINEERING TO DELIVERY – WE CAN MAKE IT HAPPEN.

We specialize in fabricating simple to complex tubular assemblies built to your *exact OEM specifications*.

All jobs are cost-engineered for maximum efficiency and value – and monitored through an ISO-9001 quality system. Plus, every member of our team is dedicated to delivering your products on time and within budget.

No job is too big or too small. We excel at engineering and constructing single prototypes or delivering low and high-volume production runs of brazing alloys, return bends and crossovers, as well as fabricated tube assemblies.

We can provide engineering assistance at a variety of levels, from troubleshooting and DCR (Documented Cost Reduction program) as well as recommendations to turnkey component design and testing. In fact, some of our OEM partners rely on us as an extension of their in-house R&D department to handle overloads or specialty projects, while others ask us to serve as their dedicated engineering department.

About Us

Harris Products Group is a global industry leader in flow control and industrial products and one of the world's largest manufacturers of copper and aluminum fabricated parts, brazing alloys, and equipment.

Founded in 1899, Harris has served OEM partners in diverse industries, such as air conditioning, refrigeration, heating, plumbing, automotive, marine, food service, medical, appliance, military, nuclear, architectural, and more.

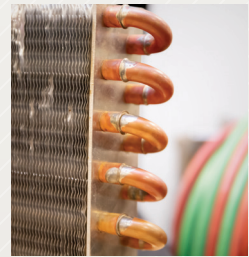
Dedicated to Help OEM Manufacturers Succeed

In particular, Harris has made a special commitment to the HVAC and refrigeration industry by dedicating exclusive facilities to support the growing and transitional needs of this industry. Our locations are ISO 9001 registered, and our experienced and highly skilled workforce consistently produces superior product quality, on-time delivery, and proactive customer service.

Harris Products Group is a leading North American manufacturer of fabricated tubular assemblies. With years of experience with a wide range of tubing sizes and materials, including copper, aluminum, brass, steel, and stainless steel, Harris is uniquely positioned to provide our OEM partners with everything from one-time job shop orders and prototypes to high-volume production runs of tubular fabrications.

Our Manufacturing Capabilities:

- Large and small diameter tube CNC bending as well as mandrel and non-mandrel bends
- CNC drilling and punching, cutting, end forming, crimping and press fit connections
- T-drill/collared holes
- Spin-closed tubing ends
- Extrusion and spinning technology
- Automated hydroforming capabilities
- Brazing - hand, induction, automated CNC, and furnace braze capabilities
- Certified braze technicians
- Custom tooling and fixturing design
- Helium and mass spectrometer leak testing
- Pressure testing
- Cleanliness testing
- Assembly
- Short run production
- High volume automation
- High speed CNC tube fabrication
- Warehousing
- Kitting



Our Alloy and Equipment Capabilities:

Providing world-class OEM fabricated parts is only part of what Harris offers our production brazing customers. We also offer brazing alloys and accurate, reliable, and safe brazing equipment, which is critical in your manufacturing process to improve productivity and reduce failures.

Brazing Consumables

- Phos Copper Alloys
- Flux Cored Aluminum Alloys
- High Silver Alloys
- Flux Cored High Silver Alloys
- Solder Alloys
- Rings
- Strip
- Preforms
- Pastes
- Powders
- Fluxes

Brazing Equipment

- Torch Handles
- Gas Mixers
- Tip Tubes
- Brazing Tips
- Oxy/Fuel Gas Regulators
- Perfect Flame Equipment

Our Technical Support

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 our customer's operations 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.

Vertically Integrated Production Delivers Unprecedented Quality

Harris offers a broad array of tubular products ranging from 3/16" to 3-1/8"OD tubing. Capability in copper, steel, and aluminum tubing assemblies; copper, aluminum, and steel manifolds; return bends and crossovers; and complex tubular assemblies. No other company can offer the complete range of HVAC and refrigeration products, expertise, quality, and customer service.



We Are Well-Positioned to Service Our Customers in North America and Abroad with Vertically-Integrated Engineering and Manufacturing Facilities



FABRICATED PRODUCTS EXAMPLES

Aluminum Return Bends, Crossovers, Offset Crossovers, and Aluxcor™ Flux Cored Aluminum Rings



Capabilities:

Sizes: 7 mm, 9 mm, 3/8"

Capabilities to make custom sizes

Aluminum Return Bends



Aluxcor™ Rings



Aluminum Straight Crossovers



Aluminum Offset Crossovers



Introducing the New Aluxcor™ Rings for Return Bends and Crossovers – Reengineered for Better Outcomes

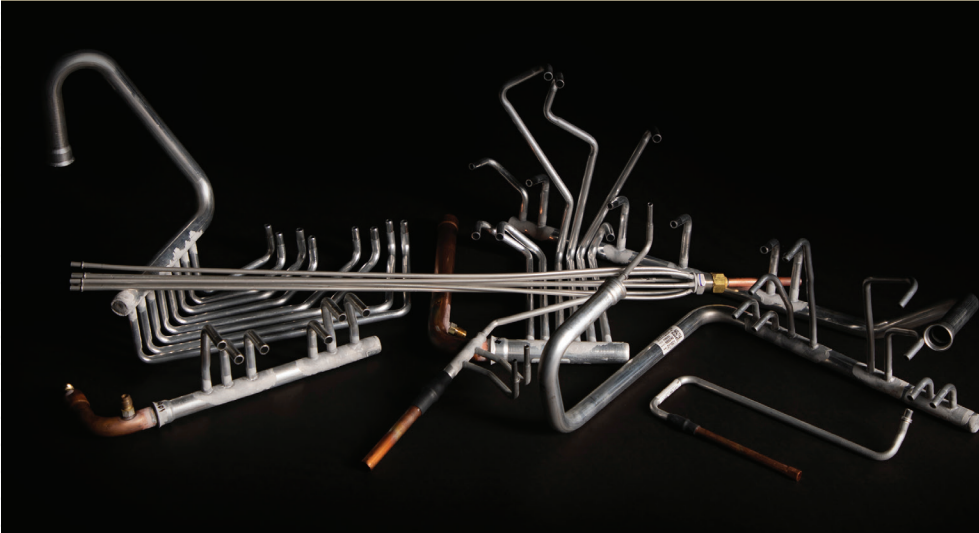
Harris is proud to introduce the new Aluxcor™ Rings. These new rings will perform better due to improvements made in shape and cut. The addition of these improvements to the already excellent performance of Aluxcor will result in HVAC coil manufacturers experiencing even fewer rejects, both during the manufacturing process and in the field.

- **A smaller gap** for more alloy coverage
- **An improved cut** for less flux loss from material handling
- **A rounder shape** for better ring retention



ALUXCOR

Aluminum Fabricated Parts for Residential



Products:

- Aluminum Coil Headers/Manifolds
- Aluminum Distributor Assemblies
- Other Fabricated Tube Assemblies

Which Can Include:

- Copper Transition Tubes
- Service Ports
- Heat Shrink Sleeves
- Braze Rings

PRODUCT EXAMPLES



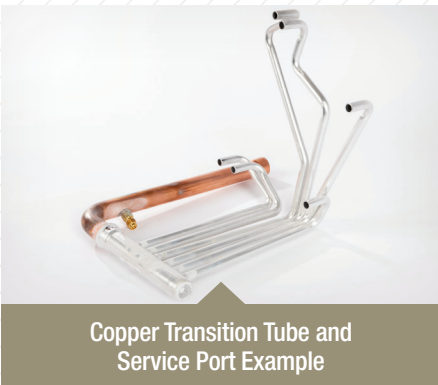
A-Coil Aluminum Header/Manifold



Aluminum Header/Manifold



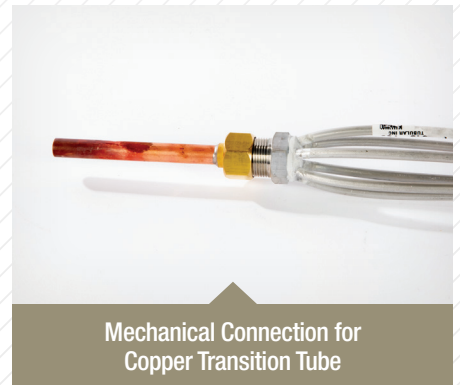
A-Coil Aluminum Header/Manifold



Copper Transition Tube and Service Port Example



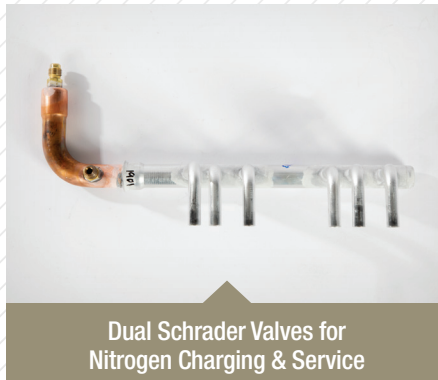
Aluminum Distributor



Mechanical Connection for Copper Transition Tube



Heat Shrink Sleeve Example



Dual Schrader Valves for Nitrogen Charging & Service



Liquid Tube with Copper Transition

Copper Return Bends, Crossovers, Open End Bends, and Pre-Form Brazing Rings



Capabilities:

Sizes: 7 mm, 5/16", 3/8", 1/2"

Capabilities to make custom sizes

Copper Return Bends



Copper Crossovers



Copper Open End Return Bends



Harris Phos Copper Brazing Rings



Brazing rings are a popular and effective method of filler metal placement. Harris rings are made in a variety of alloy compositions and sizes. When heated, the brazing ring melts and flows into the capillary space to make a complete bond. Brazing rings are often used with automated brazing equipment to ensure braze filler metal placement at the exact location. Each ring is sized for a specific part, eliminating waste from excess filler metal applications. Rings can be located on the external service or inserted inside and drawn-out during heating. Harris rings are created with exact dimensional tolerances and reliable flow characteristics.

Copper Fabricated Parts for Residential



Products:

- Copper Residential Headers/Manifold
- Fabricated Tubes
- Capillary Assembly-Service Charging Ports
- Pre-Formed and Straight Copper-Brass Residential Distributors

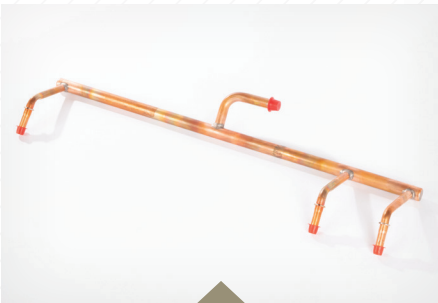
Which Can Include:

- Belled, Swaged, and Beaded Connections
- T-Drill/Collared Capabilities
- Spun-Closed Ends
- Multi-Axis Bends
- Brazed Components

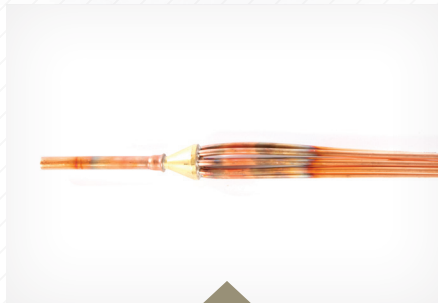


Swaged Ends and Collared/T-Drill Example

PRODUCT EXAMPLES



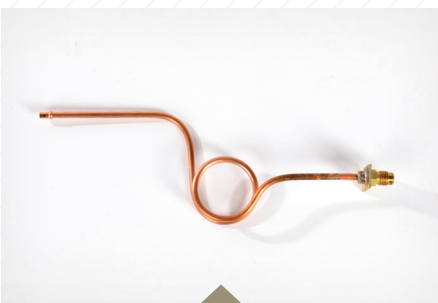
Copper Residential Header/Manifold



Copper-Brass Residential Distributor



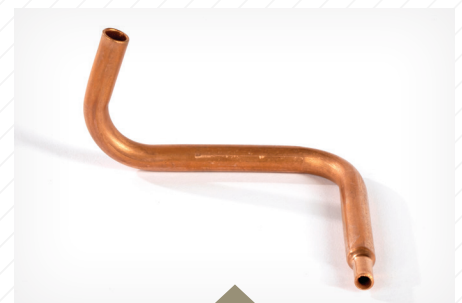
Copper-to-Brass Brazing Capabilities



Capillary Assemblies – Service Charging Port



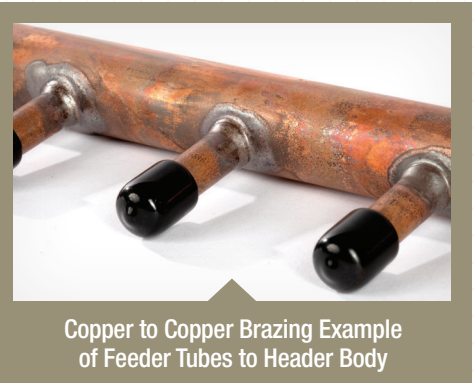
Capillary Assemblies – Service Charging Port



Multi-Axis Bend and Swaged End

Copper Fabricated Parts for Residential (cont.)

PRODUCT EXAMPLES



Copper Fabricated Parts for Commercial



Products:

- Copper Commercial Headers for Fin & Tube Coils
- Copper Commercial Headers for Micro-Channel Coils
- Fabricated Tubes
- Copper Commercial Manifolds
- Copper-Brass Commercial Distributors
- Connector Tubes
- Commercial Copper Elbows
- Complex TXV Assemblies

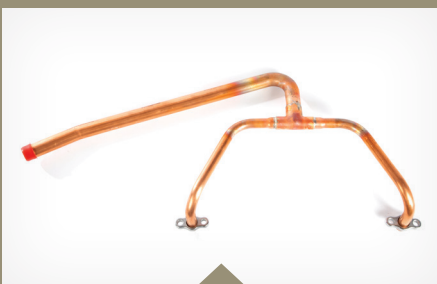
Which Can Include:

- Victaulic Grooves
- Belled, Swedged, and Beaded Connections
- T-Drill/Collared Capabilities
- Spun-Closed Ends
- Multi-Axis Bends
- Brass Couplings
- Steel Mechanical Inlets and Outlets
- Roto-Lock Connections



Fabricated Tube with Victaulic Grooves Example

PRODUCT EXAMPLES



Copper Commercial Headers for Micro-Channel Coils



Fabricated Tube with Victaulic Grooves



Mechanical Connection for Micro-Channel Coils



Commercial Copper Elbows



Commercial Copper Elbow with Brass Coupling

Copper Fabricated Parts for Commercial (cont.)

PRODUCT EXAMPLES



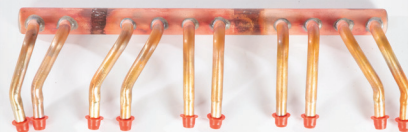
Complex TXV Assemblies



Copper Commercial Manifold with Roto-Lock Connection



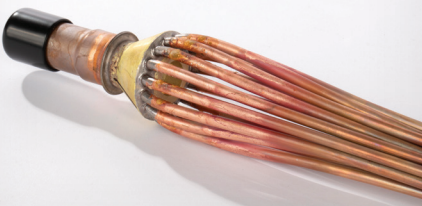
Copper Header-Manifold



Copper Commercial Distributor



Copper-to-Brass Brazing Distributor Example



Multi-Axis Bend Example



Orders: 1.800.733.4043

THE HARRIS PRODUCTS GROUP
www.harrisproductsgroup.com





ABOUT THE HARRIS PRODUCTS GROUP

The Harris Products Group has been manufacturing quality braze filler metals in the United States for over 100 years. We are leaders in developing brazing and soldering products to meet the industry needs for new metal joining methods. Certified to ISO 9001 and ISO 14001 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 operations 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.

The addition of our Fabricated Parts portfolio in 2021 makes us the global leader in supporting brazing operations for HVAC and Refrigeration OEM Manufacturers.



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