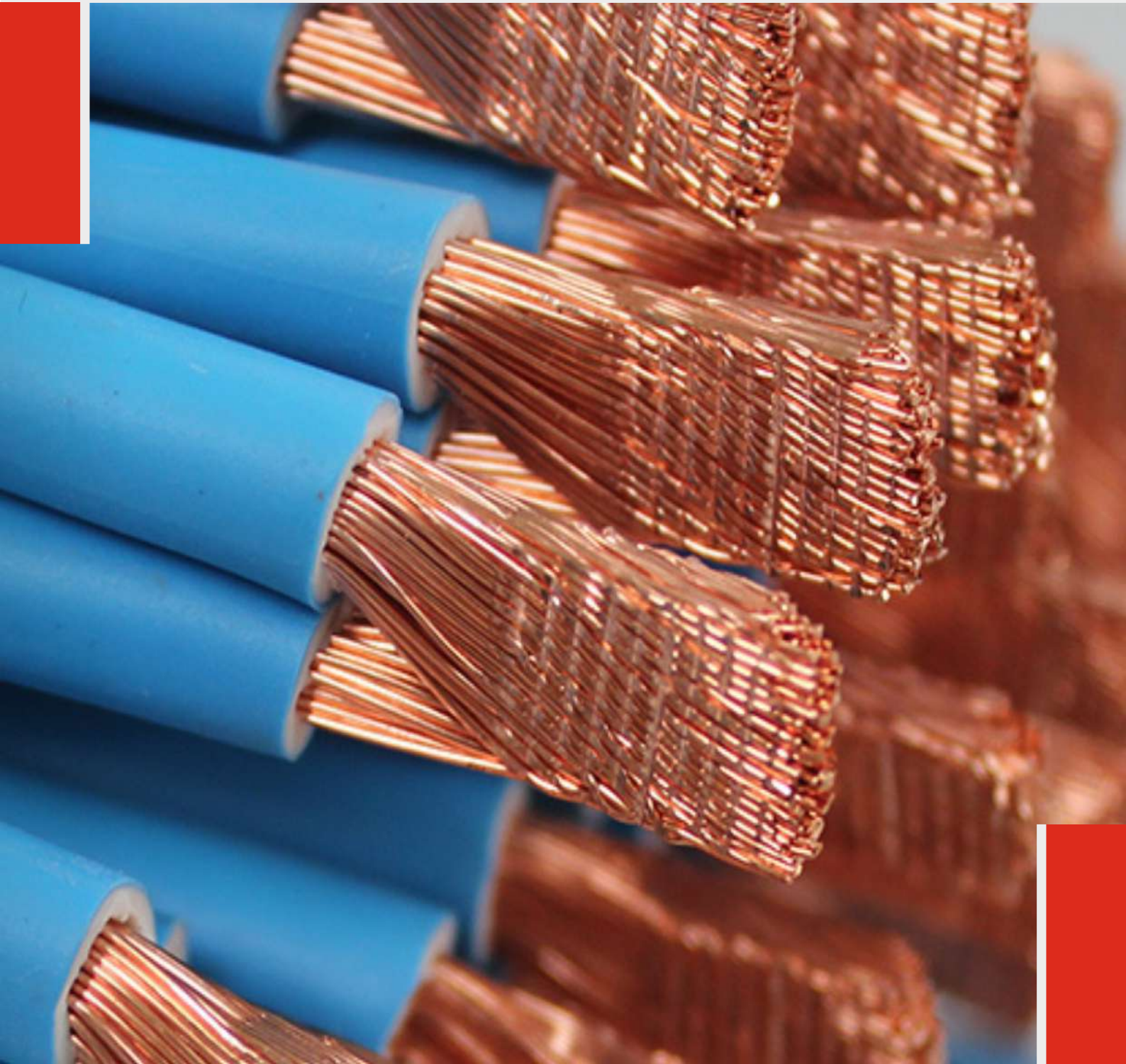


# ***Ultrasonic Metal Welding Systems***



## ***Joining Of NonFerrous Metals***

POWERHOUSE OF ULTRASONIC TECHNOLOGY<sup>®</sup>



# Ultrasonic Metal Welding Systems

Ultrasonic metal welding is described as a friction welding process, where oxides and other contaminations present on the material surfaces are broken up.

The parts to be welded are then brought together under simultaneous pressure, allowing molecular bonding to occur, similar to conventional cold-press welding.

**The greater the challenge, the stronger is our commitment:**

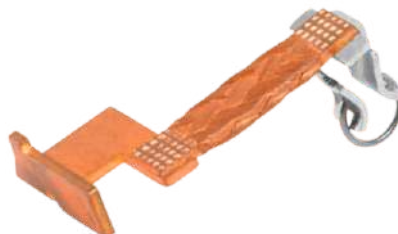
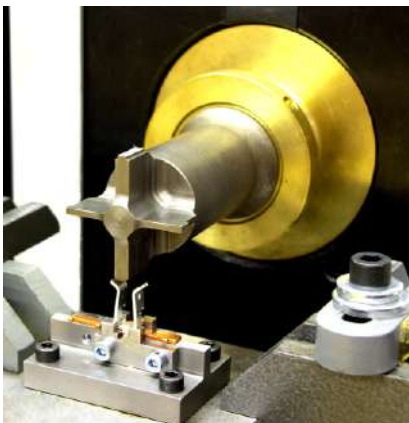
The market demands ease of automation, weld parameter monitoring, and statistical process control, as these are essential for the use of ultrasonic metal welding in industrial production environments.

Based on solid engineering expertise and precision machine building, we offer application-specific welding systems for both semi-automated and fully automated production processes.



## Advanced Features

- Welds similar and dissimilar non-ferrous material
- Excellent weld quality and helium tight welding
- Fast, reliable, consistent welding quality with microprocessor controller
- No need of any filler materials
- Low power consumption
- Clean and safe process (no sparks, flames and smoke formation) and hence, environmental friendly
- 100% bond conductance
- Can be easily automated
- Continuous welding operation possible



## Splice Master

RTUL offers high-power, high-precision ultrasonic equipment for wire splicing in the automotive industry. The Ultrasonic Auto Splicer ensures superior electrical conductivity and durability in wire harnesses, delivering reliable, long-lasting connections.

With semi-automatic operations and a quality control interface, it provides a more efficient alternative to traditional methods like crimping and resistance welding, offering minimal energy consumption and detailed process monitoring.

### Specifications

Splicing range: 0.26mm<sup>2</sup> to 40mm<sup>2</sup>

Digital Wire Splicer Actuator with vortex cooling

20kHz Special Steel Alloy Horn

HP Generator - WG-20 (3kW, 20kHz)

Siemens PLC/HMI for easy operation

Auto Stroke Adjustment for various wire sizes



## Aluminium Foil Welding System

The RTUL Aluminium Foil Separator Machine efficiently separates paired aluminum foils, ensuring high-quality production in the final stages of aluminum foil manufacturing. With horizontal and vertical models available, vertical machines are preferred for higher production efficiency and larger diameters. Ultrasonic seam welding technology enhances performance by overcoming challenges faced by traditional methods, offering faster, cleaner, and stronger welds.

### Specifications

Splicing range: 6 microns to 50 microns

Pneumatically Operated Rotary Actuator with 20kHz ultrasonic setup

Special Steel Alloy Rotary Horn (20kHz)

Generator: WG-22, 1000W, 20kHz

Siemens PLC/HMI for control and operation

Vertical/Horizontal travel mechanism for welding head

## Ultrasonic Tube Sealer and Cutter Setup

RTUL's Ultrasonic Tube Sealer and Cutter is a powerful tool which provides a reliable, hermetic seal for copper and aluminum tubes in a one-step process.

In a short cycle time, this system crimps, seals, and cuts off charged tubes with unmatched speed and precision.

**Designed for high-volume operations, it is ideal for automation, significantly enhancing both efficiency and productivity.**

This setup operates at 20kHz and is portable, making it a versatile tool for a wide range of applications.

It can effectively seal copper tubes up to 12mm in diameter (feasibility dependent on tube thickness).

With precise controls, it ensures consistent, high-quality seals, removing the dependency on operator expertise—a significant improvement over traditional brazing methods.



### Specifications

Pneumatically Operated Ux. Actuator with pneumatic controls & vortex cooling mechanism

Generator: 4.5kW, 20kHz

Special HP Converter

Special Steel Alloy Horn: 20kHz

Special Steel Alloy Anvil

Controller MPS-1

Connecting cables and tool kit

### Sonotrodes

An acoustic tool designed to have a specific longitudinal natural resonant frequency which transfers sound energy to the plastic part. Every Plastic welding job needs the welding tool specially made to required specifications. So also the fixtures. RTUL designs horns of perfect profiles, machined out of the right alloy for longer life and for efficient transmission of ultrasonic power to the welding spot. Developing of custom made horns, is our speciality.



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