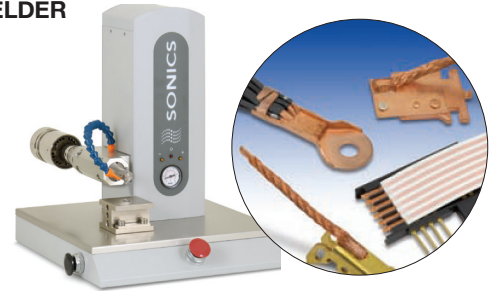


ultrasonic metal welding

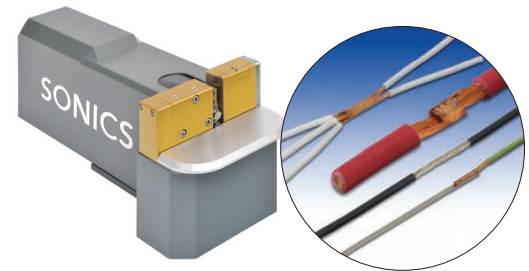
FEATURES & BENEFITS

- Ultrasonic Metal Welding is the ideal process for bonding conductive materials such as copper, aluminum, brass, gold and silver.
- Excellent welds are achieved with otherwise difficult applications, such as welding materials that are dissimilar in thickness and composition.
- The process is environmentally green as no solders, flux or braze material are required.
- Ultrasonic metal welding is a very efficient process with short weld times and low energy consumption.
- The process is a solid state weld so that components are not annealed and no harmful intermetallics are formed during welding.
- The ultrasonic weld is extremely reliable with built-in process monitoring to help assure zero rejects.
- Weld tooling typically lasts for several hundred-thousand cycles with no maintenance.
- Large weld areas of up to 150 mm² can be produced with our 6000 watt power supply.
- Key equipment features include automatic frequency tuning, digital amplitude control, soft-start overload protection, upper and lower weld limit settings, smart-logic navigation.

SPOT WELDER



SPLICER



POWER SUPPLIES



ultrasonic metal welding equipment

Sonics and Materials, Inc. manufactures ultrasonic metal welding systems in frequencies of 40 kHz, 20 kHz and 15 kHz with available power supplies ranging from 800 to 6000 watts. Sonics has been a world leader and innovator in ultrasonic welding for over five decades.

A typical metal welding bench-top system consists of an ultrasonic power supply, converter, booster, horn, pneumatic press/actuator and holding fixture.

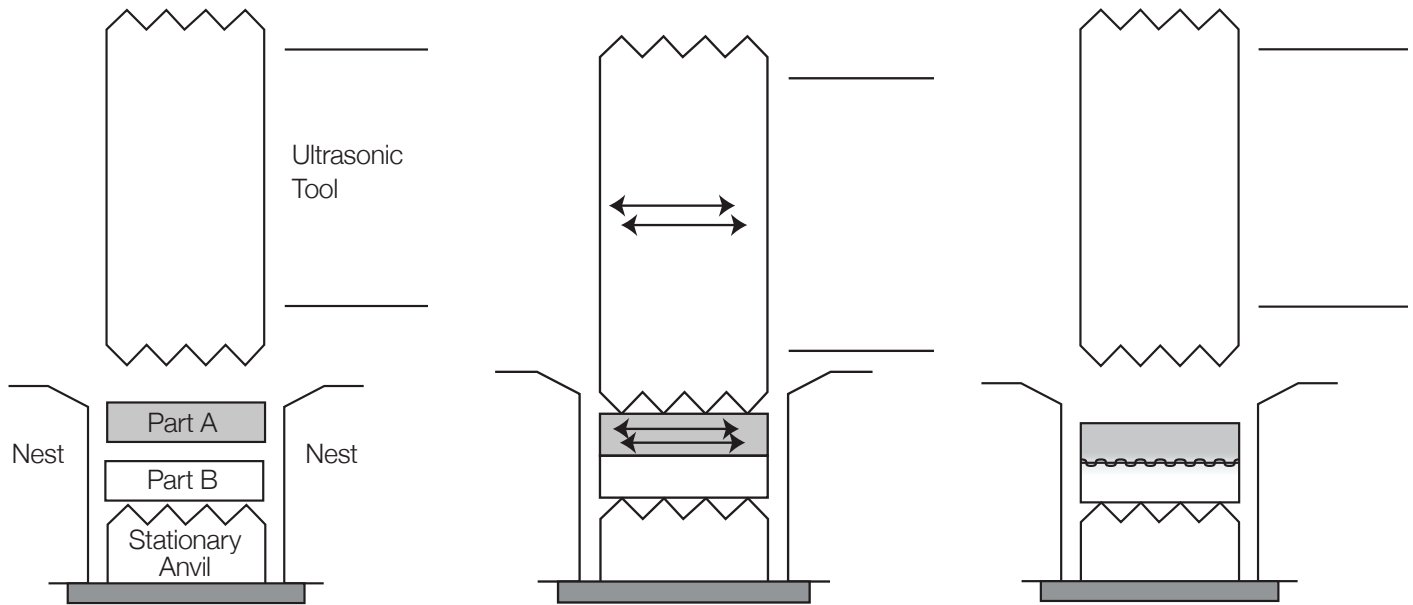
Sonics also offers component packages for integration into automated systems for customer production requirements.

In addition to complete ultrasonic metal welding systems, Sonics manufactures a full range of custom tooling in a variety of materials, as well as holding fixtures and components. Sonics also offers free application evaluation and analysis in our fully equipped applications laboratory.

typical applications

- Wire Splicing
- Wire Termination
- Flex Cable Termination
- Batteries
- Heat Sinks
- Solar Panels
- Coils
- Contacts
- Switches

How Ultrasonic Metal Welding Works



The parts to be welded are placed into a locating nest.

One component rests on a stationary anvil that is serrated to grip the component and hold it still.

The ultrasonic tool descends to apply a clamping pressure between the parts being welded.

The tool then vibrates at a frequency of 20kHz, 40kHz or 15 kHz.

The materials to be welded are thus scrubbed together under pressure causing surface oils and oxides to be dispersed.

The base metals are then mechanically mixed causing a metallurgical bond between the parts.

The parts are immediately welded; there is typically no hold time or curing time.