

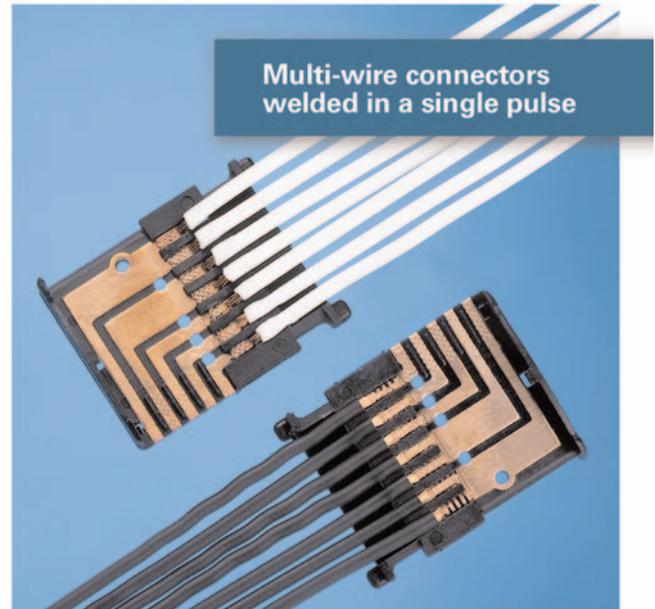
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Sonobond's Ultrasonic Metal Welders Provide Superior Weld Consistency for Electronics Assembly

WEST CHESTER, Pennsylvania, March 4, 2004 – Manufacturers of electronic components, looking for consistent and efficient weld performance, are utilizing powerful ultrasonic equipment from Sonobond Ultrasonics for wire welding applications. Sonobond's line of ultrasonic welders includes the most powerful ultrasonic spot welding system in the world, and the only ultrasonic welder that can join up to 10 stranded wires from a flat flexible circuit to multi-connection terminals in a single pulse.

When an electronics manufacturer was having difficulty getting consistent welds across a flat multi-connection terminal, they switched to Sonobond's MH2014D ultrasonic metal welder. "Our customer had been using equipment that wasn't delivering the weld consistency they needed," says Janet Devine, president of Sonobond. "Their application



requires flat wire gang welds of 5 and 7 wires to a copper or brass terminal for a steering wheel clock spring. But the system they were using did not weld all the wires at once. They needed to repeat the process several times to achieve a finished assembly.

"Efficiency was improved significantly with the introduction of Sonobond's metal welders. What was previously a two-step or three-step process is now completed in one pulse with the Sonobond equipment. According to Devine, the improved weld consistency can be directly attributed to the Wedge Reed bonding system, a patented

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process available only with Sonobond's ultrasonic metal welding equipment.

Wedge Reed system best suited for ultrasonic metal welding

The Wedge Reed system produces low amplitude vibrations combined with high clamp force which, according to Joe Walsh, Sonobond's Chief Engineer, is best suited for metal welding. "Of the two ultrasonic systems in use today -- Wedge Reed and Lateral Drive -- only the Wedge Reed system directs the ultrasonic energy in a shear mode, an essential requirement for metals being ultrasonically welded, while also putting the line of force directly over the parts to be welded, as opposed to the Lateral Drive system, which is cantilevered."

Lateral Drive technology requires the force be applied at a nodal flange some distance from the weld location, and is characterized by high amplitude and low clamp force. "As a result," adds Walsh, "manufacturers can experience bending stress and, in some cases, stalling of the system, if the application requires a high clamping force. Sonobond's system permits

high clamp forces with no bending stress or stalling."

Powerful weld capability without compromising conductivity

Sonobond's line of ultrasonic metal welders also includes the MH1545, the most powerful ultrasonic welder available. The 15kHz, 4500 watt model is being used by a manufacturer of computer bus bars to join a 15mm x 2.1mm nickel plated copper braid to a CDA 110 copper terminal. According to Walsh, the joint is exposed to as much as 300 amps of electrical current when in operation. Like all of Sonobond's metal welding equipment, the MH1545 uses the Wedge Reed system, which permits a high energy transfer that disperses the oxides and surface films between the workpieces to form a true metallurgical bond without melting the materials. Unlike high power resistance welding, which affects conductivity and requires fixturing, fillers, high temperatures and high level operating skills, Sonobond's ultrasonic equipment is relatively easy to operate, works without consumables and results in a joint excellent conductivity.

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Micro-processor controlled system joins up to 10 strands at once

As a leader in ultrasonic metal welding, Sonobond remains at the forefront in developing technology to meet changing industry needs. Sonobond's equipment includes a 1500 watt or 2500 watt power supply, and can also be equipped with an energy monitor/controller that allows the operator to pre-select and weld to an energy level within a selected maximum weld time. Sonobond has recently introduced a digital metal welding system, with a micro-processor controller built in to the power supply, which allows for distance measurement and pre-weld height verification to be incorporated into the weld requirements, in

addition to the energy control function. Known as the SonoWeld system, it is the only spot welder available today that is capable of joining as many as 10 stranded wires from a flat flexible circuit to multi-connection terminals in a single pulse.

Sonobond's Leadership

Sonobond Ultrasonics is a worldwide leader in the application of ultrasonic bonding technology. In 1960, Sonobond, known then as AeroProjects, received the first patent ever awarded for ultrasonic metal welding. Sonobond also provides ultrasonic bonding equipment for textile and plastic assemblies.

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