

Telsonic Collaborate with Warwick Manufacturing Group on Ultrasonic Metal Welding

Since its inception in the early 1980's, the University of Warwick's Manufacturing Group (WMG) has continued on its mission to improve the competitiveness of organisations through the application of value adding innovation and new technologies. WMG has built strong links with both manufacturing companies and technology suppliers to develop world-class production processes that bring significant benefits to manufacturers across a wide range of industry sectors.

Telsonic UK is currently working in collaboration with WMG, and one of their research partners, to explore the benefits of ultrasonic metal welding as a clean, fast, controllable process which delivers joints that exhibit excellent electrical performance.

Telsonic's ultrasonic metal welding technology already has an established and proven track record in the field, and this played a major part in the decision by WMG to select Telsonic for this project. A series of extensive trials were carried out at Telsonic's UK facility in Poole and the company's headquarters in Switzerland, to determine the power requirements and tool face designs which would be needed to cover the full scope of the project. The results of these trials allowed Telsonic to determine the optimum specification and configuration for the system to be used by WMG. Now on site at Warwick, the system includes a Telsonic MPX50-1 linear ultrasonic metal welder, powered by the company's SG22 series generator, which operates at 20kHz and has an output of up to 6.5kW.

The MPX50-1 metal welder has the capacity to apply a force of up to 5000N, with an adjustable stroke between 1mm and 50mm. An integral load cell and linear encoder system are used to provide force and positional feedback, which are displayed together with process parameters on a TSC5 Controller with touchscreen graphical user interface. The TSC5 offers a choice of weld modes, with quality windows, statistical process control, intuitive graphical user interface, data export using Telsonic's own "TelsoTools" software application and also network communication.



(The Telsonic system at WMG includes an MPX50-1 ultrasonic metal welder with an SG22 Series generator, plus TSC5 Touchscreen unit)

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Warwick Manufacturing Group (WMG) will use the system, as part of an ongoing research project, to ultrasonically weld single and multi layer non ferrous laminates, used in a range of different automotive power storage and connectivity component types. Telsonic's scope of supply includes interchangeable sonotrodes and anvils to suit the different materials and applications.

Two different tool face configurations (single and triple) were also designed, to allow comparison and evaluation of material response, strength analysis and electrical testing following welding.



(Different tool face configurations, single and triple will allow weld comparison and evaluation during the course of the project)

Telsonic's expertise in the application of the ultrasonic process within a metal welding environment, plus their design knowledge of multi-point welding heads will also prove to be a valuable contribution to the WMG project.

Telsonic ultrasonic modules and systems offer unprecedented levels of choice for end users, machine builders and system integrators. The company's range of ultrasonic modules are also designed to be "automation friendly" allowing easy integration within stand alone systems and sophisticated production lines.

Telsonic offers a comprehensive range of ultrasonic modules and systems for a variety of plastic welding, sealing, food cutting, textile cutting, metal welding and cleaning applications.

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