

Warwick University Commission New Fast Rate ESPEC Test Chamber



Power Electronics Applications and Technology in Energy Research at Warwick university have installed and commissioned a new ESPEC ARS060680 fast rate environmental test chamber from Unitemp Ltd.

The Power electronics team ([PEATER](#)) in the School of Engineering at Warwick is led by [Professor Phil Mawby](#). The new chamber is part of a suite of equipment funded through Driving the Electric

Revolution ([DER](#)) as part of its main centres of expertise initiative. The chamber will support state of the art research and development in Wide-Bandgap semiconductor technologies under the area of Power Electronics Machines and Drives (PEMD). This tranche of equipment augments a well-established cleanroom for dice processing as well as an epitaxy capability for Silicon Carbide.

The new ARS 060680 ultra-fast rate environmental stress chamber has a temperature and humidity range of +10 to +95°C/10 to 98 %rh with a refresh rate of 15K/min. It will be used to stress the semiconductors and Invertors specifically for automotive applications.

Professor Mawby commented “We wanted a chamber that provided us with maximum flexibility, allowing us to undertake a multitude of tests including high and low temperature storage, thermal cycling and temperature and humidity stress testing.”

The emphasis at PEATER is to develop a facility for reliability and testing of assemble power devices, modules and assemblies. Industry already has access to these facilities and PEATER are providing both the expertise and facilities to evaluate new ideas, assemblies, and integrations for use in the fast-growing automotive sector.

Power Electronics Applications and Technology in Energy Research at Warwick carry out work in electrical energy conversion, from the very small power (mW) levels to very high-power levels (MW). This technology centres on the developments in semiconductor switching devices. The developments in MOSFET (Metal Oxide Semiconductor Field Effect Transistor) and IGBT (insulated-gate bipolar transistor) technologies have paved the way for new applications such as hybrid vehicles, electric aircraft, electric ship propulsion, wind turbines as well as the revolution in mobile phone and computing devices, where energy management is critical to all these applications.

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Editor's Note:

Unitemp Ltd is a specialist environmental engineering company that offers testing equipment for tough environmental conditions, whether they be temperature, humidity, vibration, highly accelerated stress screening, or highly accelerated life test. It is the UK distributor for the world-renowned range of ESPEC environmental test chambers and has a proven track record of integrating modern electronics and control technology with mechanical refurbishment to improve performance and investment. Unitemp also specialises in the design, installation and commissioning of modular custom environmental rooms.

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