

# Capital **investment** for world-class **laboratory** services

**As a customer of Universal Instruments Laboratory Services, you are supported by our extensive investment in automated SMT assembly and professional, specialist analysis equipment. The globally-respected SMT Laboratory is equipped to accurately reproduce processes from prototype, high-mix, and high-volume production lines world-wide, and to support detailed analysis of the characteristics and results.**

**The SMT Laboratory makes a unique contribution to the world's electronic industries: its capabilities extend far beyond the scope of any commercial organization, comprising equipment, skills, and competencies that simply cannot be achieved within the OEM or EMS sectors. We are uniquely equipped to find the answers you need to improve and advance your processes, materials and component technologies.**

## **Production simulation and manufacturing test**

Our inline assembly and production test facility is capable of accurately replicating your own highly automated production routines and processes. This way, we can recreate the conditions you face every day, and gain data that is directly relevant to your application.

- Screen printing including high-end DEK Infinity platform
- Universal GSM-series linear motor component placement platforms
- Vitronics-Soltec forced convection reflow ovens, with nitrogen
- Underfill dispensing
- Laser measurement
- Rework stations including BGA and CSP capability



## Analytical Laboratory

Benefiting from continuous expansion of our analytical capabilities to support cutting-edge research with leading consortia and institutions, the Laboratory Services portfolio offers incredible scope to locate the root causes of any failure or process issue encountered in series production:

- Environmental scanning electron microscopy
- Non-destructive imaging including high resolution x-ray and scanning acoustic microscope
- Thermal analysis, including Perkin Elmer dynamic mechanical analyzer, thermogravimetric analyzer, Fourier transform infra red, and differential scanning calorimeter
- Dimensional characterization, including wafer bump measurement, and precision linear displacement measurement
- Cross-sectioning, including cross-section polishing and microhardness testing optical inspection, including high resolution hot stage stereo microscopy and 3D Dynascope
- Image capture, including professional digital microscope cameras and high-speed photography
- Extensive materials characterization equipment, including viscometry, electromigration, and wettability testing
- Accurate, digital mass measurement
- Temperature profiling and oxygen analysis for accurate process characterization
- Reliability monitoring, including electrical event detection, and programmable DMM

## Environmental test equipment

We are fully equipped to carry out accelerated lifetime testing, and to simulate operating conditions that will allow you to penetrate demanding markets such as automotive and aerospace with complete confidence:

- Environmental/test chambers including thermal shock and liquid-to-liquid shock
- Air-to-air thermal cycling chamber
- Temperature and humidity chamber
- HAST/sealed temperature/humidity chamber
- Forced and natural convection ovens
- Ultra-low temperature freezer
- Nitrogen-capable vacuum oven

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