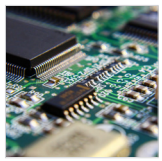
INSTRON®

The difference is measurable®

MICROELECTRONICS

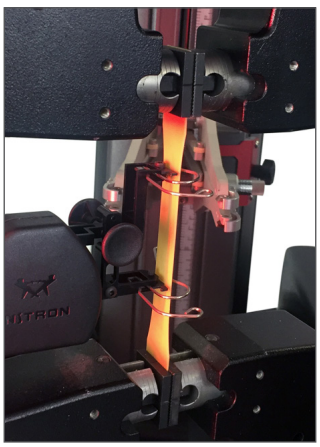
Instron® - A Total Solution Provider



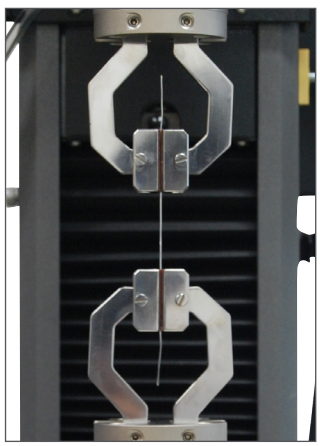
As consumer demand for smaller, thinner, and more flexible electronic devices continues to grow, OEMs must constantly push the boundaries of innovation. Compact and increasingly complex electronic devices have forced manufacturers and their supply chains to use high density packaging and to miniaturize sub-level components, which increases the risk of mechanical failure and can impact the quality of products reaching the consumer.

As the leading global supplier of mechanical testing systems, Instron offers a wide variety of solutions to comply with industry standards, such as IPC TM-650, AEC-Q100, and AEC-Q200, in addition to other standards from JEDEC, MIL, and SEMI. Solutions range from micro-bend testing of electronic packages, to shear testing of integrated circuits (ICs), to flex testing of finished printed circuit boards (PCBs).

Compression Testing of ICs



Tensile Testing of Copper Clad Laminates (CCLs)



Wire Bond Pull Test

Die Shear Testing of Electronic Packages

COMMON APPLICATIONS

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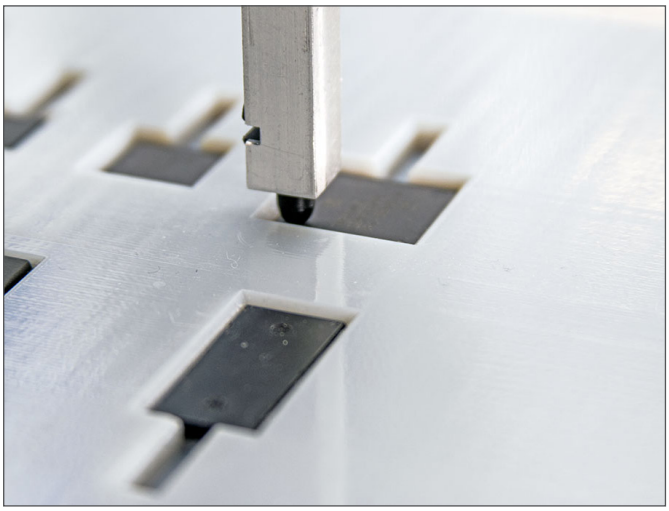
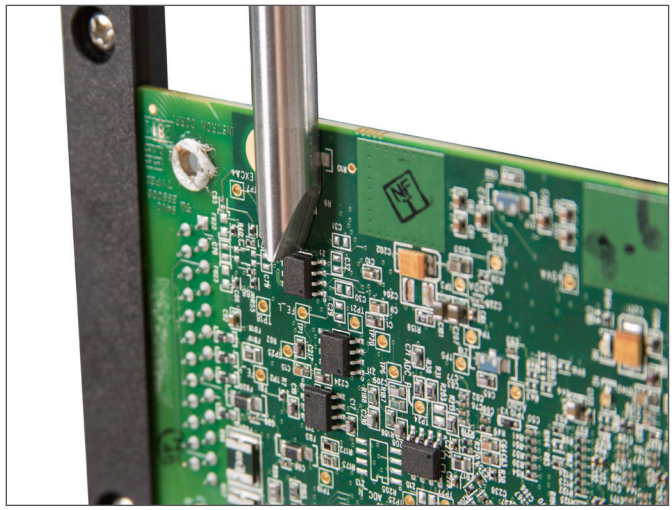


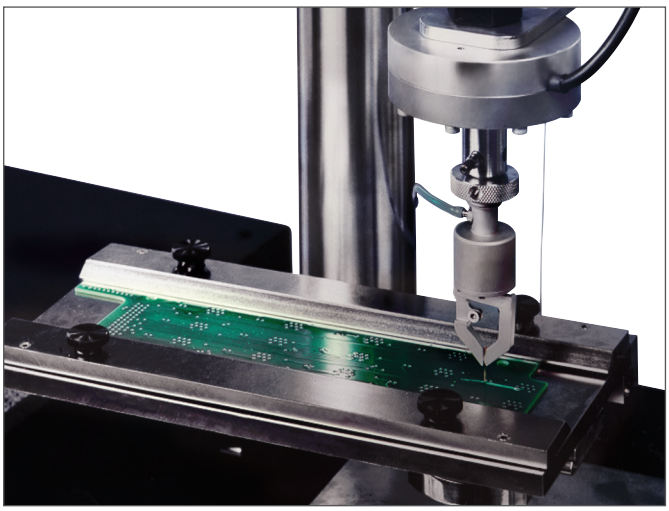
Compression Testing of IC Packages

Using high-density component packaging on both sides of a PCB creates an increased probability of mechanical failures, such as cracks or fractures, during the assembly process. Multi-point micro-compression testing is critical to understanding mechanical stress, and how the application of force changes voltage generated from the chips.



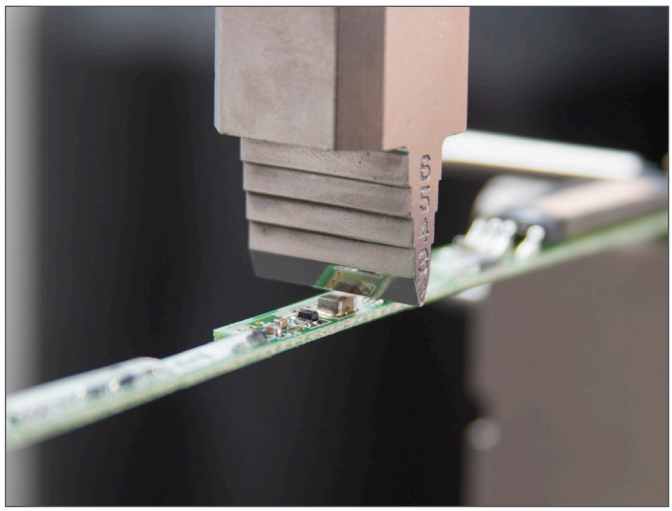
Die Shear Testing of Electronic Packages

When designing modern surface mount assemblies, manufacturers are constantly formulating novel isotropic conductive adhesives that can improve the shear strength over traditional adhesives. Die shear testing is an important step when investigating the mechanical reliability of conductive adhesives used between the die and substrate.



Peel Testing of Copper Runners

A peel test is performed to characterize the adhesive properties of materials used in the fabrication of circuit boards and other microelectronic components. 90 degree and variable angle peel fixtures are designed for testing copper runners, laminated films, tapes, and other materials used in a PCB. Before testing, the substrate is secured using top-down clamps.



Micro-Bend Testing of PCBs

Complex layouts and high-density component packaging introduce mechanical and thermal stresses during the assembly process, increasing the risk of failures, such as warping, cracking, and failure in the joints between the die and substrate. Bend testing is critical to understanding terminal failure of surface mounted components, and the mechanical reliability of a finished PCB.

RECOMMENDED SYSTEMS

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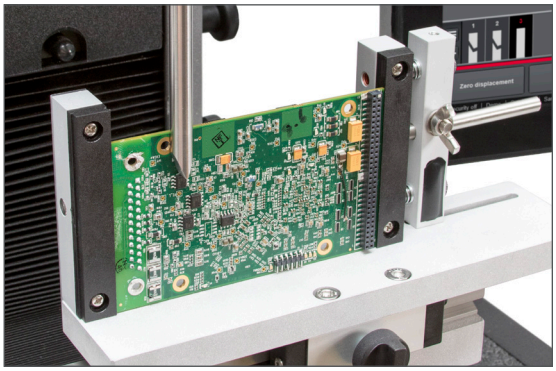
Single Column

The 5900 Series single column systems can perform a wide range of test on microelectronics, including bend, compression, die shear, torsion, and others. Various fixtures and grips are available, including:

- Micro 3-point and 4-point bend fixtures
- 90 degree and variable angle peel fixtures
- Micro pneumatic grips for wire bond applications

XY Stage

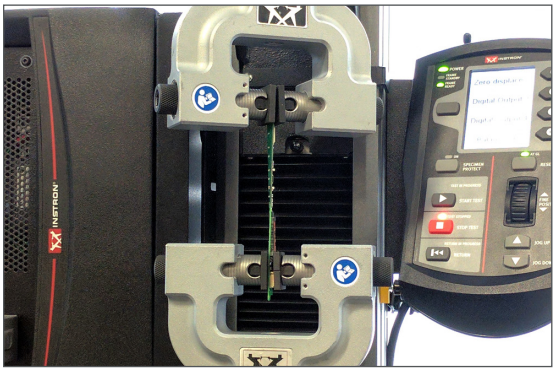
When testing IC packages and other components, the XY stage allows you to perform micro-compression tests across multiple points in a single run. Given that micro-compression tests involve measuring displacement or deflection in microns, routines can be performed to eliminate any system compliance or variance from the machine, load cell, and fixture.



Die Shear Testing Fixture

IPC TM-650 | MIL-STD-883E | AEC-Q200-006A | ASTM F1269-13

The Terminal Strength Shear Fixture (CP122690) allows OEMs to ensure that PCB components fail at acceptable loads, reducing the risk of failure during package assembly. This fixture consists of an adjustable PCB holder that can accommodate a variety of board sizes, and a linear rail that helps the operator center the shear tool on the component of interest. An advanced shear fixture is available with a built-in sensor for automatic shear height adjustments, along with a precise rotational stage and visual inspection capabilities.



Torsion Add-On

Because the industry has trended towards the miniaturization of mobile electronic devices, flexible printed circuits (FPC) have become increasingly attractive to OEMs. The Torsion Add-On is capable of twisting FPC panels at various degrees of rotation, allowing you to evaluate component patterns under various load conditions to understand mechanical reliability.

SOFTWARE & SUPPORT

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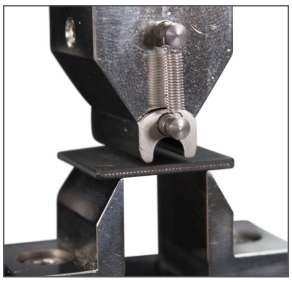
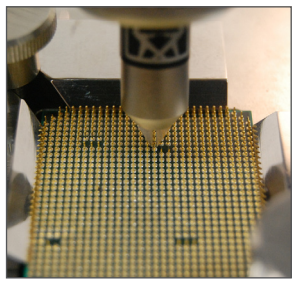
Bluehill® Universal and Instron Connect

Designed from the ground up for touch, Instron's static testing software, Bluehill Universal, is easy-to-use, increases testing efficiency, and contains modular features that enable users to run the most complex of tests.

With ISO 9001 accreditation, our goal is to provide the best ownership experience by delivering the highest quality products, expert support, and world-class service. Instron Connect provides users with a powerful communication platform via a secure connection between the Instron system at your facility and Instron's global technical support engineers. With Instron Connect, users receive faster remote technical support, reduce risk with schedule verification and preventive maintenance reminders, and are effortlessly able to keep up to date with the latest software features.

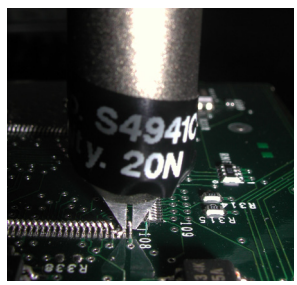


4-Point Bend Test of Electronic Packages



Pin Pull Test of Connectors

Bend Testing Using a Ring-on-Ring Fixture



Lead Frame Pull Test

Visit our website to learn more about the different electronics sectors we support: go.instron.com/electronics

www.instron.com

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