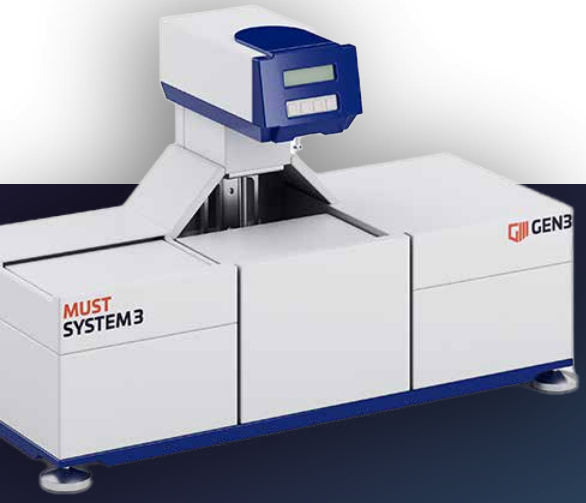


GEN3
PRECISION AS STANDARD

Automotive Manufacturer's
Adoption of MUST3 Wetting Balance Tester

GEN3 MUST3 Case Study

CHALLENGE

A globally renowned manufacturer faced critical challenges in maintaining consistent solderability standards for their electronic components across their product line, particularly with the introduction of smaller components like 0201 devices. Any inconsistency during the production process could led to quality control issues, potentially compromising the reliability and safety of their products. If an automotive manufacturer does not test the wetting balance of their solderability, several potential complications could arise, affecting both the quality and reliability of their electronic components. Just some of the complications include:

Insufficient or Excessive Wetting: Without proper testing, solder joints may suffer from weak connections or short circuits This can result in intermittent electrical connections or complete failure.

Mechanical Failures: Poor solder joints are more susceptible to mechanical stress, which can cause them to crack or detach, especially in the automotive environment where vibrations and temperature fluctuations are common.

Intermittent Connections: Poor wetting can cause intermittent electrical connections, leading to unreliable operation of electronic systems. This is particularly critical for safety-related systems like advanced driver-assistance systems (ADAS).

Increased Rework and Scrap Rates: Defective solder joints often require rework or scrapping of components, increasing production costs and time.

Critical System Failures: In automotive applications, electronic failures can lead to critical system malfunctions. For example, failures in braking systems, airbag controls, or engine management systems can pose significant safety risks.

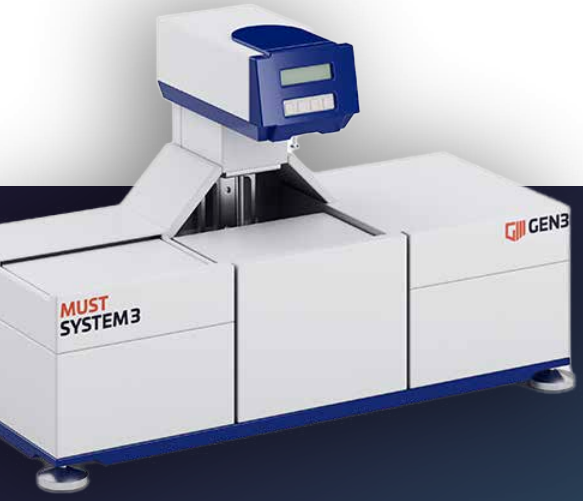
Difficult Diagnostics: Without proper wetting balance testing, diagnosing the root cause of electronic failures becomes more challenging, complicating failure analysis and corrective actions.

CUSTOMER REVIEW

'The GEN3 MUST3 is an optimal precision instrument for conducting a standardized solderability assessment. Its numerous configuration options facilitate the execution of the test in a timely and effective manner. The pre-set parameters enable the execution of complex tests with precision. The annual calibrations ensure that the reports adhere to the IPC standard in all test cases. A manufacturer with extensive professional experience provides prompt and comprehensive assistance in addressing any queries that may arise.'

- Quality Diagnostic Engineer - Automotive Manufacturer

GEN3
PRECISION AS STANDARD



Automotive Manufacturer's Adoption of MUST3 Wetting Balance Tester

GEN3 MUST3 Case Study

IMPLEMENTATION

After careful consideration, the company invested in the GEN3 MUST 3 Solderability Tester. The decision was based on several key factors:

Precision: The MUST 3 is capable of measuring forces down to 0.001mN, making it the most accurate system of its type in the world.

Versatility: The system can perform both Wetting Balance and Micro-Wetting Globule Testing, accommodating a wide range of component sizes and types.

Standardisation: The MUST 3 performs solderability testing in accordance with all major international standards, including IEC, IPC, MIL STD, and ISO.

Automation: Features like automatic component alignment, step-and-repeat function for multi-leaded devices, and software-controlled motorized XYZ axes significantly improved testing efficiency.

Comprehensive training sessions were provided by the manufacturer's experienced professionals, ensuring the quality control team was proficient in using the tester and analysing the results.

MUST3 KEY FEATURES

- Immediate pass/fail information on completion of each test
- 4 Individual globule blocks for wetting balance testing
- Automatic component alignment and testing
- Testing ability down to 0201 devices
- Step and repeat function for multi-leaded devices
- Superior Gauge R&R

RESULTS

The implementation of the MUST 3 Solderability Tester yielded several significant benefits:

Improved accuracy: The superior Gauge R&R and high-precision measurements allowed the company to detect subtle variations in solderability that were previously overlooked.

Increased efficiency: The automatic features and pre-set parameters for complex tests reduced testing time and increased throughput. The system's ability to test components as small as 0201 devices allowed the company to keep pace with the trend towards smaller electronic components.

Enhanced quality control and compliance: The immediate pass/fail information and comprehensive data recording capabilities enabled better tracking and analysis of solderability trends and ensured that the manufacturer operates within IPC standards.