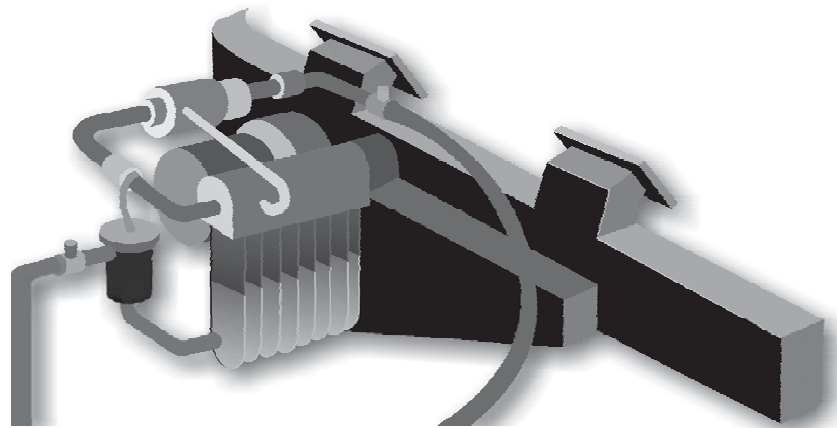


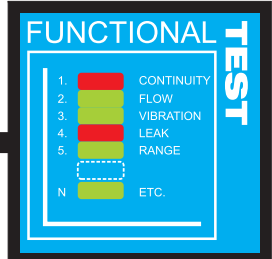
EXAMPLE PART DEFECTS DETECTED



- Damper problems (jammed, missed, reversed, twisted)
- Servo motors (shorted, bad wiring, jammed, high current wiring)
- Blower motor (imbalance, shorted, bad wiring, bearing damage)
- Airflow blockages
- Malfunctioning actuators
- Gaskets (missing, damaged plastic)
- Harness and cabling (shorted, reversed connections, bad wiring)

3600 HVAC TEST SYSTEM

3600 HVAC
Test System



COMPREHENSIVE HVAC SYSTEM TESTING

INCREASED QUALITY

IMPROVED CUSTOMER SATISFACTION

DRAMATICALLY REDUCED WARRANTY COSTS

FUNCTIONAL DESCRIPTION

Sciometric's revolutionary 3600 HVAC Test System dramatically improves automotive production quality. One of the most practical and cost-efficient HVAC testing tools on the market today, the 3600 System detects defects that are often overlooked by other testing techniques. Known for its rapid cycle time and consistent performance, the 3600 is a proven system that helps HVAC manufacturers:

- **Ensure that only quality automotive HVAC units get shipped**
- **Maximize customer satisfaction**
- **Reduce HVAC warranty claims and charge backs**

Traditional HVAC testing systems produce inconsistent results and often fail to detect a high percentage of component defects. HVAC units that do not meet specification are usually discovered later at automotive assembly plants or by the consumer. Repairing installed HVAC systems that are defective is typically an expensive and time consuming process, as it typically requires removal of the entire dashboard. Undetected defects can seriously undermine both productivity and profitability, forcing HVAC manufacturers to absorb massive warranty charge backs and re-test thousands of quarantined HVAC units.

Our unique 3600 system eliminates these quality deficiencies by using advanced algorithms to detect even the smallest flaws in production. Defects such as improper wiring, blower motor imbalance, airflow blockages and malfunctioning actuators are easily identified in real time, right on the factory floor. Our leading-edge technology also interfaces directly with the OEM Head Control Unit, simulating actual operating conditions. A comprehensive and complete testing solution, the 3600 consistently delivers objective, verifiable evaluations of HVAC system quality, ensuring that each and every unit is shipped according to customer specifications.

The 3600 comes pre-configured with Sciometric's unique signature analysis software and can be fully customized for specific HVAC units. Rugged, reliable and easy-to-use, the 3600 HVAC Test System integrates seamlessly into your existing infrastructure. Versatile enough to suit any manufacturing environment, this sophisticated testing system generates immediate improvements in HVAC production quality and a measurable return on investment.

For over 20 years, Sciometric has been an industry leader in the design and installation of innovative test systems. Combining decades of hands-on experience with state-of-the-art analysis technology, we have developed a rigorous, fully integrated testing system that consistently out-performs conventional HVAC assessment tools

DEFECTS DETECTED*

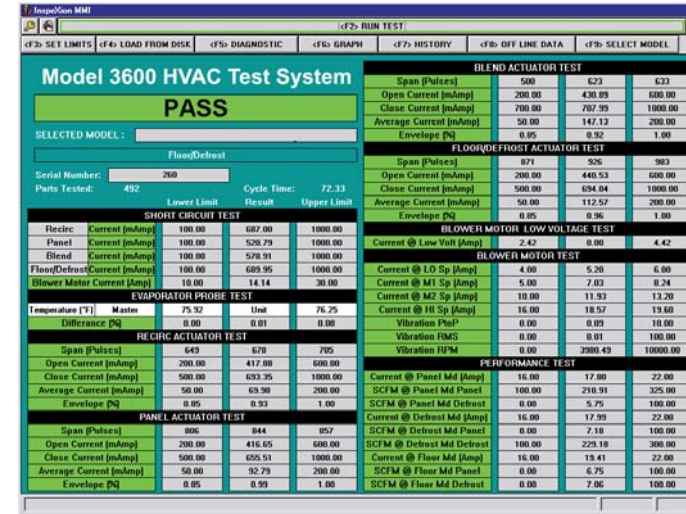
- **Damper problems** (*jammed, missed, reversed, twisted*)
- **Servo motors** (*shorted, bad wiring, jammed, high current wiring*)
- **Blower motor** (*imbalance, shorted, bad wiring, bearing damage*)
- **Gaskets** (*missing, damaged plastic*)
- **Harness and cabling** (*shorted, reversed connections, bad wiring*)
- **Airflow blockages**
- **Malfunctioning actuators**

**These are the major defects detected by the 3600 system. However, the list is not exhaustive. The system can be customized to detect other defects, depending on configuration options.*

EASY TO SETUP AND USE

Sciometric's 3600 HVAC Test System is designed for fast and easy installation. Our turnkey system goes directly from the box to the production line with minimum on-site configuration. Adaptable and responsive, Sciometric's HVAC technology integrates smoothly into most production environments, eliminating costly productivity disruptions and production line downtime.

Designed specifically for HVAC testing, the 3600 system is practical, powerful and very user-friendly. The technology is based on proven Intel Pentium™ processor architecture and utilizes a Windows™ operating system. This streamlines system maintenance and efficiency and gives the technology a very familiar look and feel.



Screen shot of 3600 System user interface with familiar Windows® look and feel. Comprehensive listing of completed HVAC tests is displayed.

DESIGNED FOR PRODUCTION ENVIRONMENTS

Built on proven technology, the 3600 system is ideally suited for continuous operation in production applications. To ensure maximum reliability, all test data is protected by a comprehensive redundancy system, featuring dual hard drives and power supplies.

INTEGRATES SEAMLESSLY WITH EXISTING PRODUCTION OPERATIONS

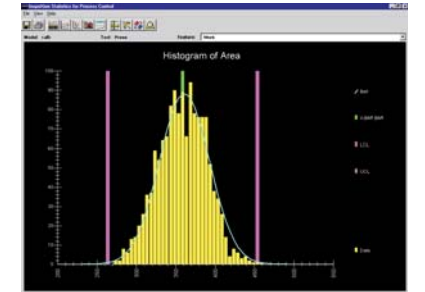
No need to disrupt production or adjust operational procedures to install the 3600 HVAC Test System. This highly versatile testing tool can be adapted to almost any production line with minimal tooling or modifications to existing machinery.

The 3600 also supports numerous communication and network options, including direct Ethernet connectivity and most fieldbus interfaces.

- OPC
- GE GENIUS
- ETHERNET
- RS232
- PROFIBUS-DP
- RS LINX
- INTERBUS
- DEVICENET
- CAN
- MODBUS PLUS
- ALLEN BRADLEY® DATA HIGHWAY PLUS

INTEGRATED SPC

The 3600 HVAC Test System also comes equipped with an integrated SPC (Statistical Process Control) module. The SPC module automatically calculates process control limits, graphically presents test data and provides trending on process variables. All data is reported in clear, easy-to-understand formats. By generating timely and critical information, the 3600 exposes, analyses and resolves production problems, consistently keeping production processes in control and ensuring improved product quality



Screen shot of SPC graph showing normal distribution of defects.

MANUFACTURING BIRTH HISTORY AND TRACEABILITY

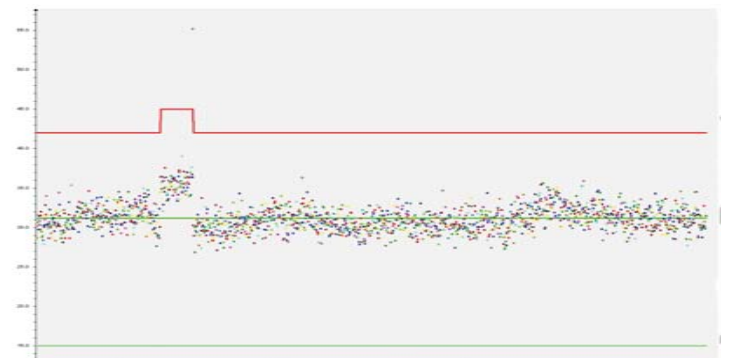
For the ultimate in manufacturing traceability, permanent storage of test data is available through the optional QualityWorX® Product Quality Management System. Sciometric's QualityWorX can be used to archive test results by serial number and to store the actual waveforms measured during testing.

Some of the benefits of storing the test waveforms include:

- Specific HVAC systems can be identified for recall without having to issue a costly and damaging general recall.
- QualityWorX generates birth history data that consistently tracks compliance with customer's manufacturing specifications.
- The system features an advanced "What-If Analyst" feature that uses stored waveforms to assist engineers in designing test approaches or refining tests. Basing test designs on real historical test data helps increase confidence in a specific approach before it is implemented in production

Traceability and Analysis - QualityWorX can trace defects and deficiencies to the level of individual stations, operators, shifts, and components. This allows you to quickly identify and remedy process and product problems before you incur significant costs for repair and rework. QualityWorX is the global leader in manufacturing intelligence and quality management.

Trend Analysis of HVAC System Defects



Test data is collected during production and trended across a range of part serial numbers. The red line represents the specified limits. The scattered points represent the actual results per serial number.

FEATURES	BENEFITS
Proven, "off the shelf" solution	<ul style="list-style-type: none"> • Low start up costs • Immediate quality improvement • Rapid return on investment
Designed specifically for production environments <ul style="list-style-type: none"> • Rugged enclosures • Dual power supply units • Dual hard drives (RAID technology) 	<ul style="list-style-type: none"> • High reliability • Low risk
Advanced signature analysis software	<ul style="list-style-type: none"> • Finds defects undetected by conventional testing methods
Flexible, highly versatile system	<ul style="list-style-type: none"> • Suitable for the most demanding manufacturing environments • Easy to setup and use
On-line SPC Proprietary limit setting "assistant"	<ul style="list-style-type: none"> • All process control limits calculated automatically • Pass/fail test limits based on statistically relevant calculations • Eliminates subjective assessments and arbitrary limit-setting • Reduces false failures/rejects • All data presented in clear, easy-to-understand formats
Optional test data management system (QualityworX)	<ul style="list-style-type: none"> • Warranty management tool • Facilitates root cause identification of defects • Provides full traceability (birth history)