Automated Battery Burst Pressure Tester

Description

The APP Automated Battery Burst Pressure Test System (ABBPTS) determines the exact pressure at which battery casings fail within a pressure range of atmospheric to 5000 psi (pneumatic system) and atmospheric to 60,000 psi (hydraulic system). Using either the vent release test orcrimp release test, the ABBPTS is able to pinpoint the precise pressure when the vent leaks or the battery crimp bursts.

Application

The ABBPTS is ideal for quality control. Defective battery casings, which cannot withstand a designated pressure, can be identified and discarded. With simultaneous loading capability of up to 64 casings (AAA, AA, C, or D), the ABBPTS is practical and efficient. The ABBPTS also can be modified to test multiple battery casings in sheet form.

Principle of Instrument Operation

The ABBPTS is completely microprocessor controlled and fully automated. Easy to use ABBPTS software is compatible with Windows 98 and higher. Throughout the pressure control process, this software provides useful reports and data, including real-time graphical display of pressure vs. time. The ABBPTS main system screen displays and allows the user to control parameters, including the initial burst target pressure, pressurization rate, and holding time. If the expected burst target pressure is reached without bursting the battery casing, the user can either continue pressurizing to find the exact burst pressure, or discontinue the test. If the battery casing bursts or leaks prior to reaching the expected burst target pressure, pressurization ceases. Upon completion of the burst pressure test, data can be downloaded to Excel for further analysis. APP also has the capability to customize the software to produce reports and data required for a specific application.

APP

Features

- Highly accurate pressure transducer monitors system pressure and provides feedback
- User-defined target pressure, holding time, and pressuriation rate
- Test can be performed under elevated temperature to simulate actual operating conditions (optional)
- Multi-level, fail-safe system providers over-pressurization protection
- Windows-based software handles all control, measurement, data collection, and report generation; complete manual control also possible
- Compatible with Windows '98 and higher with results throughout operation
- Real-time graphical desplay depicts testing status and results throughout operation
- Multiple pressure outlet ports available
- Automatic pressure generator refill for high volume situations
- Multiple pressure generator systems for continuous and multi-axis pressurization (optional)
- Customized report formats available
- Minimal maintenance required

Hardware: Pneumatic System (Applications up to 5,000 PSI)

The Automated Battery Burst Pressure Test System - Pneumatic System comprises a gas booster, motorized pressure regulator, pressure transducer, motorized valves, and a pressure controller. A highly accurate pressure transducer monitors system pressure and provides feedback.

The ABBPTS - Pneumatic System has two control modes: multi-target pressure control and pressurization rate control. (Control algorithms are based on PID control.) Multi-target pressure control allows the operator to reach the targeted pressure quickly and smoothly, while minimizing overshoot. Additionally, multi-target control holds the designated pressure for a specified length of time. The pressurization rate control provides operator control of the pressurization rate at which the target is approached.

Hardware: Hydraulic System (Application up to 60,000 psi)

The Automated Battery Burst Pressure Test System - Hydraulic System comprises a motorized pressure generator, pressure gauges, high-pressure motorized valves, and a pressure controller. The DC motor driven piston pressure generator produces up to 60,000 PSI output. A highly accurate pressure transducer monitors system pressure and provides feedback.

The ABBPTS - Hydraulic System has two control modes: multi-target pressure control and pressurization rate control. (Control algorithms are based on PID control.) Multi-target pressure control allows the operator to reach the targeted pressure quickly and smoothly, while minimizing overshoot. Additionally, multi-target control holds the designated pressure for a specified length of time. The pressurization rate control provides operator control of the pressurization rate at which the target is approached.