

New Technology Speeds Motor Tests

Last year, Friedrich Air Conditioning Company (San Antonio, TX, U.S.) instituted a new motor testing system that has reduced the average inspection time by a factor of ten. The system has also improved the reliability and repeatability of the motor torque testing process. This is especially true for low-torque motors, which are the predominant motor type tested. Tested are PSC (permanent split capacitor) motors used primarily in room air-conditioners, packaged terminal products, and electrostatic air cleaners. Each motor is tested in a receiving inspection area.

The new testing system is an integration of software and electronic control devices from M.E.A. Testing Systems Ltd. (Netanya, Israel). After users set the test parameters, the system automatically performs a motor test run, data collection, and displays the results (numerically and graphically). A small sensing device is attached to the motor shaft. The system does not apply any load to the motor shaft. The system tests motor full performance, within a few seconds, and at a steady temperature, since the motor doesn't heat due to the short testing process and due to the "no loading" concept. Minimal operator intervention is required and the results are automatically captured in an electronic file format.

Friedrich previously used an electromechanical-based dynamometer system where operators adjusted the dynamometer to obtain the motor speed at a specified torque. This system required significant skill and effort on the part of the operator to obtain consistent results. It required that all test results be manually recorded for later data entry into a computer. The process was time consuming; each test consisted of only a few testing points; the motor became heated through the process; and there were limitations in the testing at low speeds/high torques.

"We first saw the system at a trade show in 2000, and a demonstration system was delivered to us in January 2001 for formal evaluation," recalls Graeme McWilliams, Friedrich's quality manager. "We were concerned since this was new technology that nobody else was using. But we found that it delivered the promised benefits. In addition, the supplier was extremely responsive, even tailoring the system to our needs. We purchased the system in mid-2001."



Faster inspection time, better reliability and repeatability, and automatic data collection are among the advantages Friedrich Air Conditioning Company has realized with a new motor test system.