

April 2, 2012

Quality Control - Part 2: De-energized QA Testing

Recommended de-energized tests to perform on a new/refurbished motor for QA testing include a Polarization Index (PI), phase resistance, phase inductance, insulation capacitance, insulation resistance, and a rotor influence check (RIC). The PI and insulation resistance tests are designed to baseline and compare the insulation quality to accepted industry standards. The insulation capacitance is a baseline only test to be used for comparison while troubleshooting or trending insulation contamination. Phase resistance is a baseline and acceptance test used to verify that the conductivity through the phase lugs, solder connections and windings are balanced between the three phases. A generally accepted level when testing at the motor connection box is <1%, but can be much lower based on historical data. The phase inductance test is a baseline and acceptance test used to verify that the inductive reactance and impedance of the three phases of the motor are balanced. This value is affected by the reflected impedance of the rotor and that must be considered in determining the correct acceptance level. The RIC is a baseline and acceptance test that is the equivalent of the phase inductance test performed at multiple rotor positions. This test provides a visual indication and isolation of the reflected impedance of the rotor allowing analysis of the rotor iron, cage, and air gap.

You are invited to submit an Electric Motor Testing Tip of your own and receive a free PdMA mug or hat if we publish it! Contact Lou at 813-621-6463 ext. 126 or lou@pdma.com.