



Electric Motor Testing Tip of the Week

revolutionizing *electrical* reliability

July 2, 2007

Six Methods of Rotor Evaluation Using MCEMAX

The six primary methods of rotor evaluation using the MCEMAX include pole-pass frequency (Fp) sideband, 5th harmonic, demodulated pole-pass frequency, rotor influence check (RIC), in-rush/start-up, and average inductance. We are going to detail each method and provide examples of each over this six part series of tips.

Part Five: In-Rush/start-Up

The In-Rush/Start-Up test is a great test for identifying rotor related anomalies. Similar to a person's personality being exposed during a stressful situation, the health of a motor is often exposed during the stressful start-up. High resistance connections or broken rotor bars result in higher reflected impedance onto the stator windings. This higher impedance on the stator windings causes a drop in the start-up current and start-up torque, resulting in longer acceleration times for the motor. The initial in-rush or magnetization current should not change because the current is based only on the stator winding resistance until the rotor begins turning, but the start-up current directly following the peak in-rush will be affected.

For more details on using the In-Rush/Start-Up test for rotor analysis, go on page 7 of http://www.pdma.com/PDF/Articles/Fault_Zone_Rotor.pdf

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.