



Electric Motor Testing Tip of the Week

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Six Methods of Rotor Evaluation Using MCEMAX

The six primary methods of rotor evaluation using the MCEMAX include pole-pass frequency (F_p) sideband, 5th harmonic, demodulated pole-pass frequency, rotor influence check (RIC), in-rush/start-up, and average inductance. Over the next six weeks we are going to detail each method and provide examples of each starting with the pole-pass frequency sideband.

Part One

Pole-pass frequency (F_p) sideband evaluation is one of the more established methods of rotor evaluation utilizing the current signature analysis test. The slip between the rotating rotor and stator magnetic fields creates a modulation of the stator current at F_p . F_p is calculated by multiplying the number of poles times the slip. Slip is equal to the difference in frequency of the stator and rotor rotating magnetic fields. Performing an fast-fourier transform (FFT) of the stator current produces a spectrum plot in the frequency domain, which allows isolation of the F_p as a sideband around the line frequency. Differential amplitudes between the F_p sideband and line frequency less than 36dB indicates possible advanced stages of rotor bar defects.

For more details go to: 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.