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Tip Of The Week

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Swirl Effect

A useful spectral tool for detecting broken rotor bars is the swirl effect, which occurs at the 5th harmonic of line frequency (300 Hz on a 60 Hz line frequency). Swirl peaks are a confirming tool for the pole-pass frequency sidebands around line frequency and occur at:

$$f_{swirl} = [1 – (2/5)ks]5f_{Line}$$

Where:

f_{swirl} = location of the peaks around the 5th harmonic of line frequency
k = harmonic index 1,2,3...
s = Slip
f_{Line} = line frequency

For more information read *Using a Six Fault Zone Approach for Predictive Maintenance on Motors* at http://www.pdma.com/pdfs/Articles/Using_a_Six_Fault_Zone_Approach_for_Predictive_Maintenance_on_Motors.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.