



A Leader in Electric Motor Testing

Tip Of The Week

September 4, 2017

Don't Forget the 5th

In an AC Induction motor the rotor turns slower than the rotating magnetic field in the stator. This differential rotation loosely referred to as slip can be easily seen in a current spectrum by an elevated pole pass frequency (Fp) peak equal to the number of poles times the slip. The basic analysis concept is to use the amplitude variations of this peak to identify and trend defects in the rotor condition. The higher the amplitude of the Fp, the higher the severity of a possible rotor defect. However, it is important to remember that rotor condition is not the only thing that can affect the Fp amplitude. Machine train load fluctuations can often match the Fp creating a false indication of a rotor anomaly through an elevated Fp. An easy way to isolate the elevated Fp to either a mechanical or electrical source is to evaluate the 5th harmonic frequency peak in the same current spectrum. The 5th harmonic is not fooled by a mechanical load fluctuation and can greatly increase the confidence of the analyst in making the right call on a possible rotor anomaly.

To see more details on the 5th harmonic and other rotor analysis techniques visit the PdMA YouTube channel at:
<https://www.youtube.com/watch?v=P4XIYg-695A&list=PLjgXwy4LaY3rMI2MNKer7SxDA50n9LMSa&index=6>

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. 166 or lou@pdma.com.

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