PdMA® CORPORATION A Leader in Electric Motor Testing

Tip Of The Week

March 30, 2015

For the month of March PdMA has decided to go retro and re-visit some of the most popular tips from the past years. Our many thanks to you, our customers and followers, who have provided us with the endless ideas and topics for writing these tips. Keep the ideas coming.

November 29, 2011

The Right Range (revised)

You have heard the phrase, “Use the right tool for the job.” We propose a similar phrase, “Use the right range for the reading.” It is not unusual to see a large three-phase induction motor with phase resistance perfectly or closely balanced in the mili-ohm to micro-ohm range with an imbalance calculating well below 0.1%. With this kind of manufacturing precision, the balance of resistance measurement can be a very sensitive indicator of a changing condition in the motor windings or circuit. Although we direct your attention more to inductance and impedance for identifying winding degradation, strong consideration should be given to establishing a change from baseline caution and alarm set point for balance of resistance. The recommended change from baseline alarm set points are caution at a 50% increase and alarm at a 100% increase.

Here is an example of the importance of establishing these alarm levels. A motor tests at baseline with a 0.1% balance of resistance. Two years later the balance of resistance test in the field was 1.5%. A balance of resistance of 1.5% may not seem extreme, and decade old alarm set points may not alert you to the dangers. However, when compared to the baseline it is over a 1000% increase and immediately needs to be investigated further. This type of precision analysis requires more than your standard multi-meter. To view the precision resistance measurement capability of the MCE go to http://www.pdma.com/PdMA-MCE.php and click on Specifications.

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.