



A Leader in Electric Motor Testing

# Tip Of The Week

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## Rotor Analysis Techniques (Part 1 of 2)

Following up on last week's tip about actions to take after a rotor anomaly has been identified, we thought it would be a good idea to revisit the techniques used to identify a rotor anomaly in the first place. There are six independent methods that can be utilized to identify a rotor anomaly between energized or de-energized motor testing. We will discuss three this week and three next week starting with those tests performed with the motor de-energized.

- Technique #1 is a qualitative analysis of the reflected impedance or residual magnetic flux on the rotor. PdMA calls this a Rotor Influence Check (RIC). An emerging non sinusoidal appearance that repeats itself from pole to pole as the rotor is turned is indicative of a potential rotor defect. Test signals are applied to the stator windings which are used as a transducer to show the reflected impedance or residual magnetic flux on the rotor.
- Technique #2 is the trending of the average inductance of all three phases of the rotor. Developing rotor cage defects will result in the increase in average inductance as measured on the stator windings.
- Technique #3 is monitoring the In-Rush/Start-Up current of the motor. Reduced start-up current, elevated start-up times, and increases in steady state modulation are all solid indications of potential rotor anomalies.

To read more information about rotor analysis techniques visit our website at:

[http://www.pdma.com/pdfs/Articles/Fault\\_Zone\\_Analysis\\_-\\_Identifying\\_Motor\\_Defects\\_Using\\_the\\_Rotor\\_Fault\\_Zone.pdf](http://www.pdma.com/pdfs/Articles/Fault_Zone_Analysis_-_Identifying_Motor_Defects_Using_the_Rotor_Fault_Zone.pdf)

To view a video on rotor analysis techniques go to: [http://www.pdma.com/webinars/Rotor\\_Fault\\_Zone/Rotor.html](http://www.pdma.com/webinars/Rotor_Fault_Zone/Rotor.html)

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