PdMA® CORPORATION A Leader in Electric Motor Testing

Tip Of The Week

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Inductive Imbalance in a Wound Rotor Motor

Wound rotor motors are used for a variety of applications where high torque is needed at low speeds such as conveyors, cranes, shredders, and more. Standing next to a 7000hp wound rotor motor driving a shredder at a steel recycling plant when an old car with a 454 big block engine gets shredded is something we should all experience.

Testing wound rotor motors can be tricky depending on what and where you are testing. Different from a squirrel cage motor, a wound rotor motor has windings on the stator and rotor. This makes it similar to a transformer in that changes in the secondary (rotor) circuit can cause large influences to measurements taken on the primary (stator) windings. For baseline or troubleshooting a wound rotor motor we recommend testing the rotor circuit, resistor bank, and stator windings separately. If a large inductive imbalance is seen on the stator remember that it could be caused by something changing in the rotor or resistor bank circuits. Contamination between slip rings connected to the rotor circuit may create a false symptom on the stator winding. When the brushes are lifted they are more likely to touch each other possibly shorting out a phase of the resistor bank which will also have a large influence on the stator winding, leading an analyst to suspect stator winding defects. Normally a wound rotor motor in the warehouse will have the brushes lifted, so look before you test.

Go to https://www.youtube.com/watch?v=YKSQBVL0bos to view a case study on our YouTube channel about a wound rotor motor fault.

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.