A Leader in Electric Motor Testing

Tip Of The Week

May 20, 2019

Electric Motor Reliability Trifecta - Quality Control (Part 3)

(Continuing the Trifecta series, picking the top three finishers in a horse race can be worth a lot of money. Applying the Trifecta theme to motor reliability, the top three applications of test technology to ensure you win big in reliability are: Quality Control, Trending, and Troubleshooting.)

Keeping the focus on Quality Control, the last tip discussed the warehouse element. For this tip we focus on the Post-Installation effort of Quality Control. You have performed all the acceptance testing for a new or refurbished motor. You have properly monitored and maintained the motor in storage. Don't let your guard down by ignoring the important element of testing the motor and power supply after installation. Installing a perfectly healthy motor into a defective power system will reduce the life of your motor that you worked so hard to ensure was ready and reliable. Transferring a motor from the warehouse to the installation site doesn't always go as planned. Verification that the motor arriving is as good as the motor that left the warehouse is important. Once the motor has been connected to the power system, and before you push the start button, it is important to verify that the three phase power circuit is balanced and properly insulated from ground by performing MCE phase resistance and inductance and resistance and capacitance to ground on the motor and power cables. Once the power circuit is clear connect your EMAX to the starter to capture the In-Rush/Start-Up of the motor. This is critical to verify the power quality is balanced and clean. Additionally, the In-Rush/Start-Up test provides insight into the machine train health of the application including gears, fans, pumps and belts. Any change in the voltage and current amplitude/time relationship from previous starts will be an immediate flag to variations in the system that must be identified and defined as acceptable or needing further investigation. Now that you have verified the entire system from power to load, you're ready to turn the motor over to operations with confidence in the motor's health and reliability from a Quality Control perspective.

Visit our PdMA YouTube Channel at https://www.youtube.com/watch?v=iglYuqh7D2E to listen to Todd and Noah discuss details on Quality Control for electric motor reliability.

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.