PdMA® CORPORATION A Leader in Electric Motor Testing

Tip Of The Week

February 12, 2018

Special Application Motors - Part 1: Wound Rotor

Many industrial applications require three-phase motors to operate at variable speeds. The basic three-phase induction squirrel cage motor is a constant speed motor. However, using starting resistors connected to a three-phase wound rotor circuit can provide high starting torque without drawing excessive current and allow a means to control/adjust speed during operation. On a wound rotor motor the stator acts as any three-phase induction motor stator would, creating a rotating magnetic field. On the rotor, an external three-phase resistance is connected through slip rings to the three-phase rotor circuit. On startup the external resistance is high, controlling rotor current and torque. Throughout the startup the external resistance will be reduced, often in stages using contactors to short out portions of the external resistance. This is especially effective for high inertia loads that require a long acceleration time. Wound rotor motors are typically found in cranes, hoists, compressors, conveyors, mixers, fans, blowers, mills, and pumps.

To watch a case study on a wound rotor motor visit the PdMA YouTube channel at https://www.youtube.com/watch?v=YKSQBVL0bos

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.