



Electric Motor Testing Tip of the Week

revolutionizing *electrical* reliability

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Using the MCEMAX to Correct Rod Mill Clutch Engagement

Rod mills are used to crush the coal used in a gasification process. The pinion gear transmits motor torque through the gear reducer to the rod mill's gear reducer. The motor is connected to the gearbox through a clutch, which uses an inert gas to engage the clutch disk. The clutch in turn is coupled to the gearbox, which in turn is coupled to the rod mill. The pinion's design life is five years minimum.

Between 1997 and 1998, five pinions failed between the two rod mills in one facility's gasification process. During the root cause investigation, one of the verification steps was to determine the clutch engagement time. The Motor Analysis Team (MAT) proposed the idea of monitoring the current on the motor to attempt to determine the clutch engagement time. The MAT used the MCEMAX current analysis in-rush test to capture the motor current data. From this data, they were able to calculate the engagement time for the clutch. The initial test indicated a very rapid clutch engagement time, approximately 2.25 seconds, similar to an across the line start for the motor and clutch. Using the MCEMAX to determine the clutch engagement time, while working with operations, maintenance, and plant support engineering; the clutch engagement time was adjusted back to manufacturer's specification of between 5 to 7 seconds. Following this adjustment no shaft breakage was experienced for many years.

For more details and graphics relating to this tip go to <http://www.pdma.com/Eastman.html>

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.