

Diagnosis of Static Eccentricity in 400 kW Induction Machine Based on the Analysis of Stator Currents

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Abstract : Current spectrums of a four pole-pair, 400 kW induction machine were calculated for the cases of full symmetry and static eccentricity. The calculations involve integration of 93 electrical plus four mechanical ordinary differential equations. Electrical equations account for variable inductances affected by slotting and eccentricities. The calculations were followed by Fourier analysis of the stator currents in steady state operation. Zooms of the current spectrums, around the 50 Hz fundamental harmonic as well as of the main slot harmonic zone, were included. The spectrums included refer to both calculated and measured currents.

Keywords : diagnostic, harmonic, induction machine, spectrum

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