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Induction Motor Stator Fault Analysis Using Phase-Angle and Magnitude of the Line Currents Spectra

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Abstract : This paper describes a new diagnosis approach for identification of the progressive stator winding inter-turn short-circuit fault in induction motor. This approach is based on a simple monitoring of the combined information related to both magnitude and phase-angle obtained from the fundamental by the three line currents frequency analysis. In addition, to simplify the interpretation and analysis of the data; a new graphical tool based on a triangular representation is suggested. This representation, depending on its size, enables to visualize in a simple and clear manner, the existence of the stator inter-turn short-circuit fault and its discrimination with respect to a healthy stator. Experimental results show well the benefit and effectiveness of the proposed approach.

Keywords : induction motor, magnitude, phase-angle, spectral analysis, stator fault
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