عنوان مقاله:

Detection the Rotor Bars Fault in Induction Motors using Thermography and MCSA Techniques

محل انتشار:

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خلاصه مقاله:

Induction motors are inherently reliable and require minimum maintenance. However, like other motors, they eventually deteriorate and fail. This gives rise to the need for cost effective preventive maintenance based on condition monitoring, which can be addressed by monitoring and analyzing the real -time signals of the motors. In this paper, detection rotor bars fault in induction motors using thermography and motor current signature analysis (MCSA) techniques are introduced. Thermal stress of the rotor in a squirrel cage induction motor is generated due to the temperature rising, it is also one of the factors causing the rotor bars fault because the structure of the rotor would be destroyed if the stress of the rotor bars exceed the strength limit. By monitoring the electrical current and thermal condition of motors, we can significantly reduce the costs of maintenance by allowing the early detection of faults, which could be expensive to repair. In this context, infrared thermography has recently shown potential for the detection of motor faults including misalignments, cooling problems, bearing damages or connection defects. Also, The MCSA is considered the most popular fault detection method now a day because it can easily detect the common machine faults such as cracked or broken rotor bars, turn to turn short, abnormal levels of air gap eccentricity, bearing deterioration etc. In addition, this paper presents examines two completely identical induction motors (in terms of power, load, test time, etc.), one of which has a rotor bar fault. The results shows that, this two techniques can effectively detect rotor bars faults in induction motors.

کلمات کلیدی:

Induction Motors, MCSA, Rotor Fault, Thermography