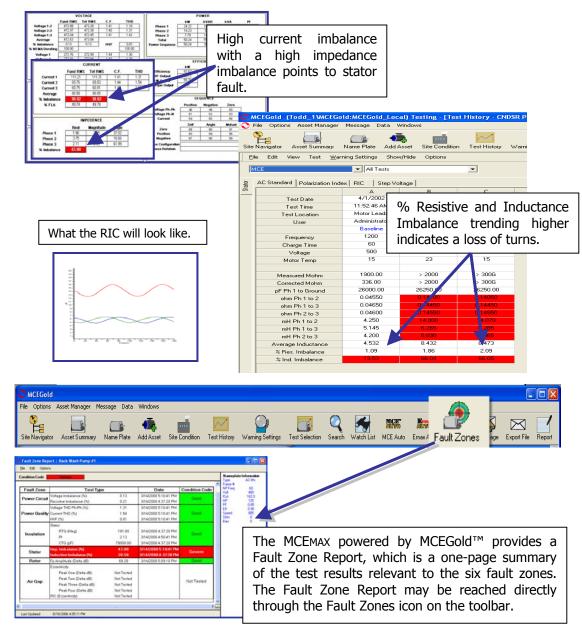
Fault Zone – Stator

The stator fault zone is often considered one of the most controversial fault zones due to the significant challenge of early fault detection and the prevention of motor failure surrounding the stator windings. Stator windings are the heart of the motor, producing the rotating magnetic field, induction current, and torque to turn the rotor and shaft. This challenge is further intensified in higher voltage machines, where the fault-to-failure time frame becomes much shorter. The stator fault zone is identified as the health and quality of the insulation between the turns, coils, and phases within the slots and end turns of the electric motor.

Turn-to-turn or phase-to-phase shorts can be catastrophic to the motor and not necessarily be detected by the standard megohmeter. Excessive inductive imbalance, resistive imbalance, vibration, partial discharge, or poor insulation quality can lead to stator failure and should be monitored regularly to prevent a shortened life of the electric motor stator. Stator analysis using EMAX technology is performed by evaluating the phase relationship of voltage and current for each of the three phases of an AC induction motor.



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