

REFERENCE GUIDE : PdMA MOTOR TESTING EQUIPMENT



What is PdM? stands for Predictive Maintenance

Who is PdMA? PdMA Corporation designs and manufactures portable motor testers: **MCE - Static (offline) tester**, **EMAX - Dynamic (online) tester** and **MCEMAX - combination (offline/online) tester**.

BRANDON & CLARK, CURRENTLY USES THE MCE TESTER.

Which Industries can benefit from PdM Testing?

- Manufacturing
- Utilities
- Field Servicing
- Automotive
- Petro/Chemical
- Pulp and Paper
- Steel
- Mining

PdMA/MCE Usage:

By adding the PdMA/MCE Test equipment to our quality assurance practices, Brandon & Clark, is able to provide an electrical footprint for the motors that we repair. The motor footprint created allows for a baseline to be set for each motor allowing the customer to be proactive and schedule repair and maintenance to their equipment on a **preventative, predictive schedule**. Since the MCE is equipped with the MCE GOLD motor management software, we are able to keep and monitor the entire test history of our customer's motor. The software also allows us to evaluate the data collected against the latest in acceptance criteria from IEEE and NEMA.

With this additional equipment, Brandon & Clark, will be able to assist our customers in predicting the maintenance required for their equipment. This in turn will help our customers maintain control over their processes versus waiting for or hoping against equipment failure. Repair cost will also be better controlled, by performing maintenance repairs versus catastrophic failure repairs.

MCE Product Information:

- Portable and battery powered
- Monitors power circuits, insulation, stator, rotor & air gap
- Variable test voltages from 250 to 5000 V
- Automatic IR, PI, DAR and Step Voltage Tests
- Measures insulation resistance to 3 TΩ
- Precision resistance from 10μΩ to 2000Ω using 4-wire bridge test measurements
- Measures capacitance (pF) and inductance (mH)

Data Includes:

- Phase-to-phase Resistance
- Phase-to-phase Inductance
- Balance of Resistance
- Balance of Inductance
- Ground Capacitance
- Polarization Index
- Dielectric Absorption Ratio
- Measured Ground Resistance
- Corrected Ground Resistance
- Rotor Influence Check
- Field Inductance
- Field Resistance
- Field Capacitance
- Field Ground Resistance
- DC Armature Tests
- Synchronous Motor Tests
- Wound Rotor Motor Tests
- More...



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EASILY EVALUATE ALL 6 FAULT ZONES

POWER CIRCUIT

All connections, components, and cables between the MCC and the motor must be resistively balanced. Potential problems occur when loose or corroded connections are introduced in a circuit. MCEGold compares each phase of resistance, current, and voltage to ensure a perfect balance.

POWER QUALITY

The power being fed to a motor is the fuel it uses to operate. MCEGold monitors three phases of voltage and current, and alerts users when an unhealthy condition exists.

ROTOR

Identify cracked/broken rotor bars, porosity and high resistance connections on the end rings through motor current signature analysis (MCSA) and the rotor influence check (RIC).

AIR GAP

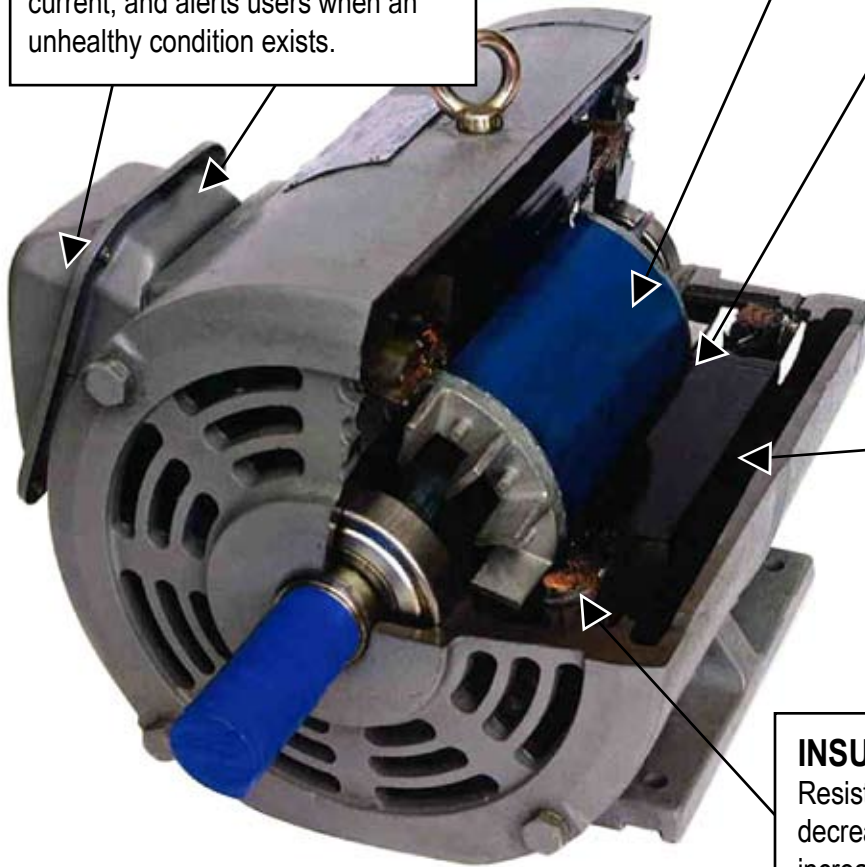
Bowed shafts, cracked end rings and degraded journal bearings create magnetic imbalances. These imbalances show up as 1st and 3rd sidebands around the eccentricity frequency or as a "bow tie" shape on the RIC.

STATOR

Phase-to-phase resistance, inductance, impedance and current imbalances are used to determine turn or phase shorts as well as faulty internal connections.

INSULATION

Resistance-to-ground values for motor windings decrease as moisture and contamination increases. MCEGold provides testing capabilities up to 5000VDC and offers continuous graphing polarization index (PI) and computer automated step voltage tests.



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