

# Motor Condition Diagnostics

## ABB Electrification Industrial Solutions



ABB's Motor Condition Diagnostics (MCD) is a comprehensive assessment of the current health of rotating machines utilizing the latest in predictive assessment and maintenance technologies. The final condition assessment report provides solutions and recommendations to help keep your rotating machine in optimal condition.

### MCD Process

MCD provides condition monitoring by establishing practical evaluation criteria and routine monitoring to confirm equipment condition, detect developing problems, and to determine their nature and severity. The program is also "solution based" and provides solutions and recommendations to equipment exceeding industry standard limits.

### Off-Line Testing

Off-Line testing provides you with consistent testing in a safe, simple and cost-effective manner. This testing includes the following:

- Current testing technology
- Winding Condition — lead-to-lead resistance
- Winding Insulation Condition — Resistance to Ground (Insulation Resistance), Insulation Integrity (Polarization Index & Depolarization Current Analysis), Insulation Strength (AC or DC High Potential Testing)
- Turn-to-Turn Condition — detects potential turn-to-turn short before it causes costly winding failure.
- Tan Delta and Capacitance Analysis
- Partial Discharge Analysis (PDA)

### On-Line Testing

ABB provides on-line monitoring testing services including:

- Power condition tests - voltage level, un-balance, total harmonic distortion
- Motor performance tests - service factor, power factor, motor current, motor speed
- Motor efficiency studies
- Load Condition test - Load torque ripple and profile
- Motor condition test - rotor bar test
- Trending - tracks all data over time
- Partial Discharge Analysis (PDA)

### Motor Circuit Testing

ABB performs on-line monitoring of power circuits to determine the health of a your rotating machine. Our motor circuit testing allows us to understand insulation health based on operating conditions and power quality. Instrument is low voltage, battery operated, highly portable and capable of full remote monitoring from the Motor Control Center. Data is collected, stored, trended and recalled to provide you with comprehensive reports.

### **Thermography Services**

ABB offers infrared services to detect thermally related issues on your rotating machines. This infrared scanning technology allows our service technicians to scan and store many images per visit. Our infrared surveys are conducted by skilled, certified technicians who detect direct and indirect temperature issues. Upon completion of an infrared survey, a pictorial report will be generated to indicate all the areas of concern with recommendations for repairs. Issues detected in our survey include:

- Localized heating
- Electrical overloads
- Corona tracking
- Defective electrical components
- Arcing
- Loose connections
- Dirty connections

### **Vibration Analysis**

ABB offers a comprehensive condition monitoring program and extensive vibration troubleshooting services for your rotating machines. Our vibration analysis detects the following:

- Mechanical Misalignment
- Excessive clearances
- Bearing defects
- Base and structural issues
- Belt issues
- Mechanical Looseness
- Bent shaft/ thermal bows
- Resonance issues
- Gear defects
- Rotor bar issues

### **Oil Analysis**

Another highly useful tool in determining the condition of bearings, provides oil analysis services with comprehensive reports to include detailed results and trending.

- Water Content
- Metals
- PCB fluids
- Dissolved gasses
- Silicone
- D1816 dielectric
- Furans
- DBCP contents
- Flash point
- Corrosive sulfur

### **Benefits**

- Solution-based program
- Increase plant uptime and productivity
- Reduce maintenance costs
- Minimize equipment-parts inventory
- Improve plant safety
- Increase equipment life
- Organize maintenance activity

### **ABB Advantage**

Trust ABB for top-quality reliable service, including:

- Experienced engineering and technical support
- Predictive Analysis Tools
- Advanced on-line monitoring and failure analysis
- Industry-specific application expertise
- Global service center network
- Emergency service available

### **Service Offerings**

- LEAP – Life Expectancy Analysis Program
- Vibration analysis
- Current signature analysis
- Thermography (infrared imaging)
- Oil analysis (mechanical and electrical)
- Ultrasonic analysis
- Visual inspection
- Borescope inspection
- Partial discharge testing
- Laser alignment
- Onsite balancing
- Motor circuit testing
- Motor efficiency testing

Contact us:

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