

Rotating machines testing and diagnostics



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When manufactured, during use or after repair, an electrical motor can be subject to various checks throughout its life to verify its condition and extend its life and reliability.

As a critical part of many manufacturing and process industries, the failure of a motor can result in high maintenance costs and have a significant financial impact on a company. For this reason, industrial companies are increasingly adopting a predictive maintenance strategy in order to anticipate failures and take corrective action when necessary. However, detecting the origin of a motor or a motor-driven system fault requires a number of tests to be carried out regularly so as not to overlook a possible cause of future failure.

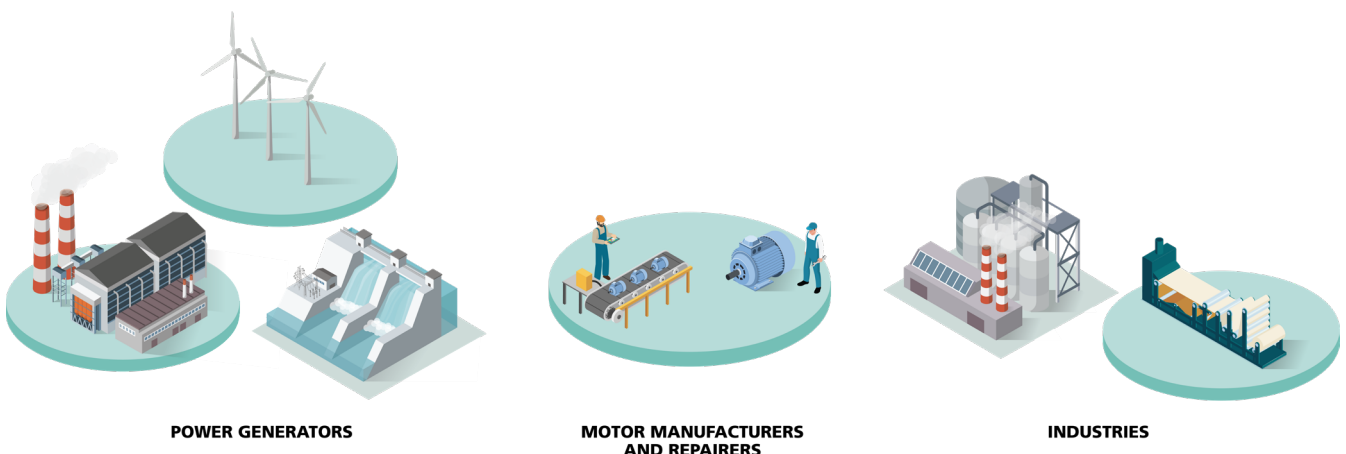
Motors and generators are subject to many stresses that can cause them to fail, such as mechanical damage, vibration, excessive heat or cold, contamination including oil, corrosive vapours, and moisture from processes or simply from the environment. Over time, these factors combined with electrical stresses, create a hostile environment in which the motor operates. As insulations degrade and cracks develop, moisture and foreign particules penetrate the surface of the insulation, providing a path for leakage current.

In condition monitoring, or predictive maintenance, vibration testing is a widely used method but only detects 50% of the faults that can occur in a motor. Indeed, this method is limited when the problem comes from the insulation system or when there are fluctuations within the power supply.

The remaining 50% of faults, which have an electrical origin, should not be overlooked. Therefore, in addition to vibration analysis, it is essential to add static and dynamic electrical analysis, which provides a more complete diagnosis, and combined, these two methods ensure the highest level of results reliability.

- **Static testing:** when the machine's power supply is isolated, electrical tests are carried out to verify the condition of the motor circuit and insulation systems. The test data is also used to trend values over time..
- **Dynamic testing:** provides an overview of the entire motor-driven system, including the power supply, the motor itself and the driven load. Both electrical and mechanical problems can be detected. Stresses that are being created through the way the motor is being driven/used are also highlighted, providing engineers with the information needed to help reduce these stresses and thus extend motor life and reliability.

Dedicated solutions for your applications

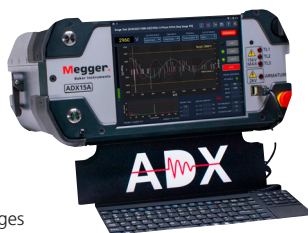


Motors diagnostic and monitoring

Baker ADX

Static analyzer

- Multifunction analyzer
- Automatic test sequences
- Designed to perform tests at voltages from 4kV up to 15kV
- Tests performed : Winding Resistance, Inductance, Capacitance, Insulation Resistance (IR), Dielectric Absorption (DA), Polarization Index (PI), DC HiPot (Standard, step-voltage and continuous ramped), Surge analysis with EAR+, Partial Discharge on Surge



[Download the datasheet](#)

Baker EXP4000

Dynamic analyzer

- Monitors and evaluates the conditions of a «drive system» that affect the health and performance of the motor.
- Tests performed: Power Quality, Machine Performance, Rotor Bar Condition, Spectral Analysis of Voltage and Current, Online Monitoring, and Frequency Drive Analysis.
- The EXP4000 is an analysis tool that clearly detects when a problem is electrical (problem in the motor or in the power quality) or mechanical (overload or wrong application of the motor).



[Download the datasheet](#)

ICMmonitor Portable

Partial discharge detection system

- Integrates a spectrum analyser, an acoustic detector and a conventional partial discharge monitoring tool.
- Simple push-button interface to navigate through the menus on the built-in LCD display.
- Primarily intended for on-line and continuous monitoring of rotating machinery, cable systems, power transformers and gas-insulated switchgear (GIS).



[Download the datasheet](#)

MTR105

Motor tester

- Multifunction rotating machine tester.
- Features: Insulation resistance test with temperature correction to 40 deg C, DLRO (digital low resistance ohmmeter, voltmeter AC, DC and TRMS, supply phase sequence, LCR meter (inductance and capacitance), winding rotation direction test, temperature probe, storage for up to 256 motors with data export to USB.



[Download the datasheet](#)

Complementary solutions for motor testing

MIT Series

Insulation tester
Models up to 15kV



DPM1000

Clampmeter



DLRO2 and DLRO10

Micro-ohmmeter
2A and 10A models



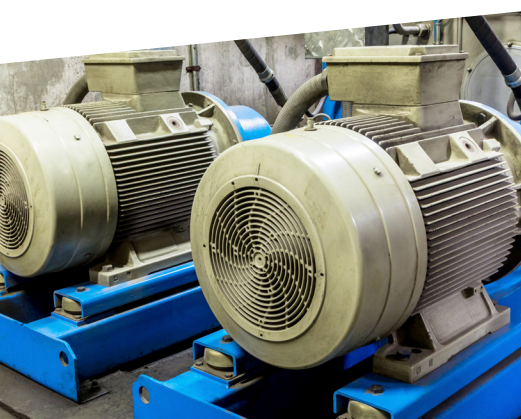
TPT320

Voltage tester



DELTA4000

12 KV Insulation diagnostic system

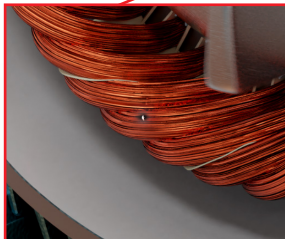
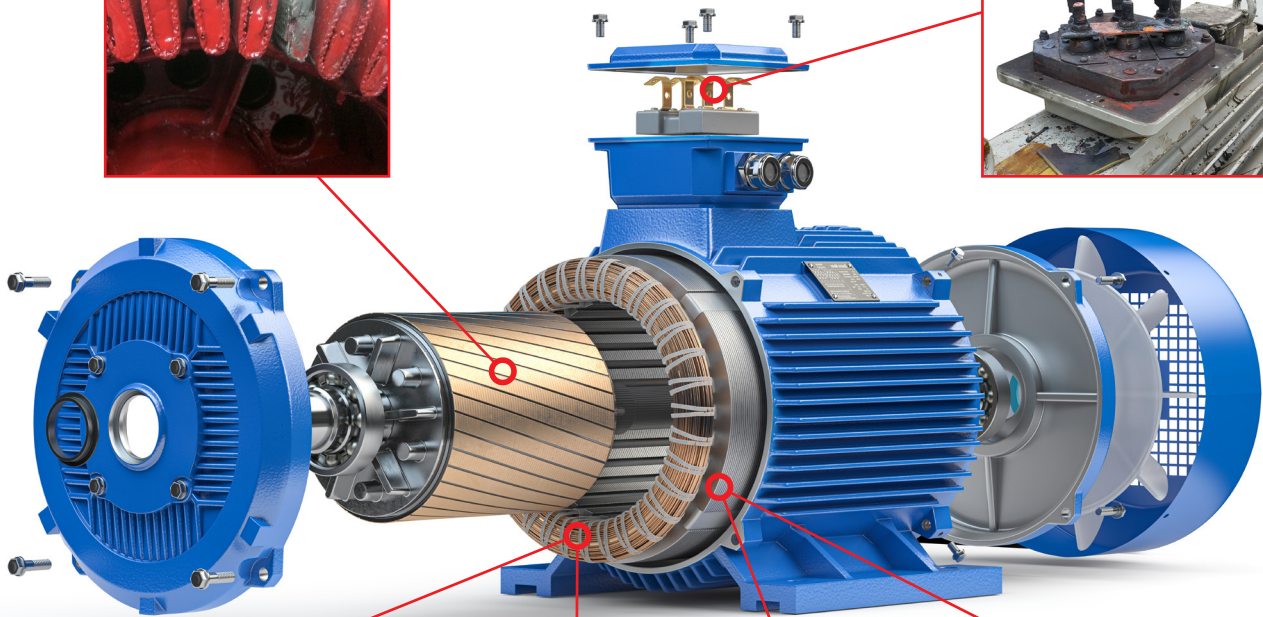


Prevent motor failures with electrical condition **monitoring**

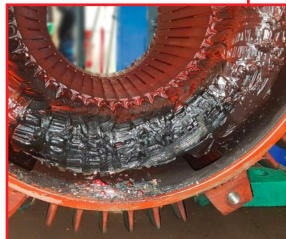
Rotor fault



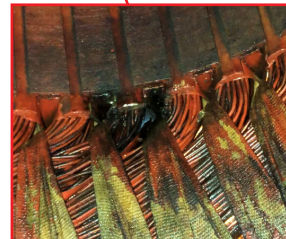
Contact resistance fault



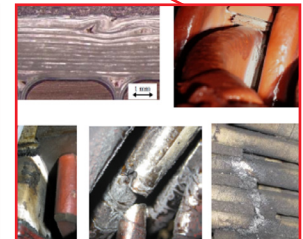
Weak insulation
between windings



Short circuit
between windings



Short circuit to frame



Partial Discharge

Megger Limited
Yaşamkent, 3061. Cd. No:64/1 D:2, 06810
Çankaya/Ankara
T: +9 0312 440 90 90
E: info@megger.com.tr
tr.megger.com

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