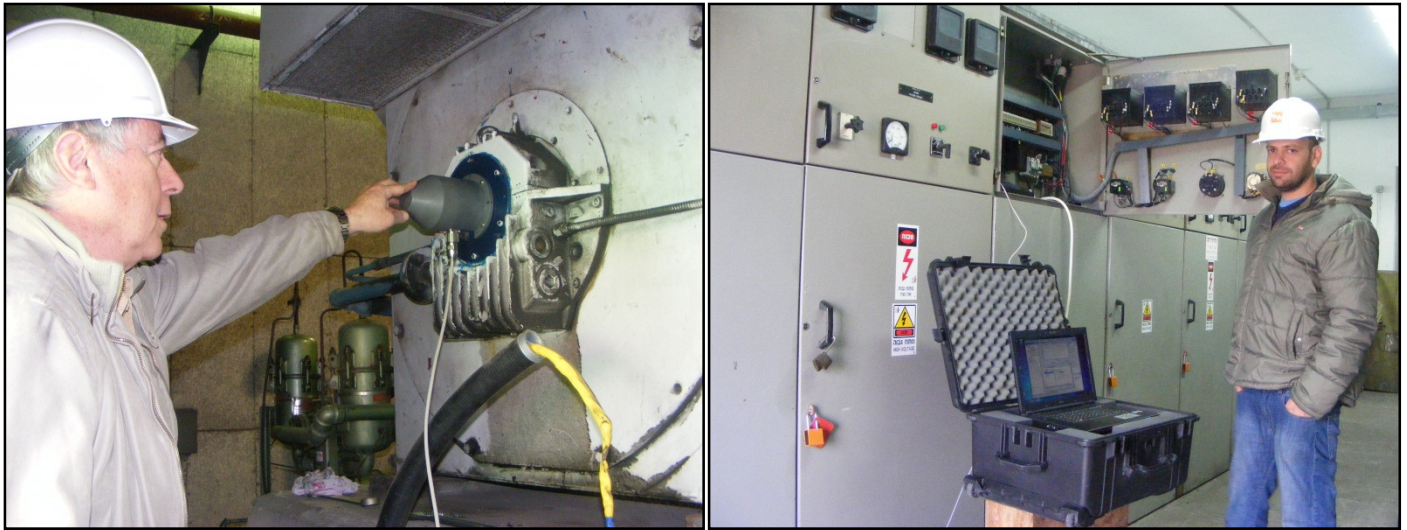


MEA PDMA

Predictive Maintenance Systems



MEA is a globally known supplier of innovative predictive maintenance systems for all types of electrical rotating machines. MEA PDMA systems are the only systems in the world that consist of Dynamic and Static testing with direct mechanical torque testing capabilities using only the input lines of the machine.

During the motor start up, run, and shut-down, our systems measure the motor static load performances (including motor efficiency at working point, motor output power, and load vs. speed data), and the machine dynamic data (such as torque ripple spectrum, friction/mechanical torque spectrum). In addition to the unique data mentioned, the system provides information on voltage level, power circuit problem, voltage and current imbalance/harmonics, over-current, power input and output, mechanical testing for detecting bearing and vibration problems, start-up current/voltage and speed, etc.

Data Collection with Real-Time Monitoring

MEA PDMA helps in reduction of unexpected motor failures and, therefore, helps us to keep lower inventory.

The PDMA collects the data and saves it, for each individual motor/machine under working condition. During the machine run, a re-test is performed and the system recalls all previous data from the PDMA multiple database. The PDMA checks whether any degradation in performances appears by analyzing whether any one of the dynamic and/or static data varies with respect to time. The PDMA also compares the dynamic and/or static data to user predefined upper and lower limits. PDMA gives easy communication options, including wireless options via a controlling room.

Testing Domain / Software

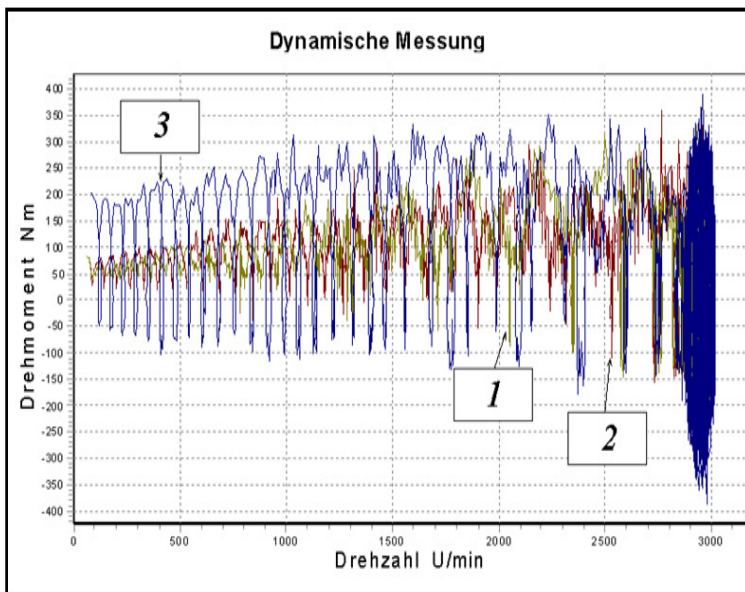
The PDMA software provides the user a wide approach to predictive maintenance and QA, allowing the user to dramatically lower the overall maintenance costs.

The system includes options to understand the condition of the rotating machine, as it gives:

- Data on the motor (Stator, Rotor, Air gap, Efficiency, Dynamic & Static Torque)
- Data on machine load (Bearing, Friction, T-S Load performance curve, Unbalance, Noisy gear, Misalignment, Overload, Torque/Speed/Current spectrum)
- Data on Power Quality and on Power Circuit (Voltage and Current Imbalance/Spectrum/ Amplitude).

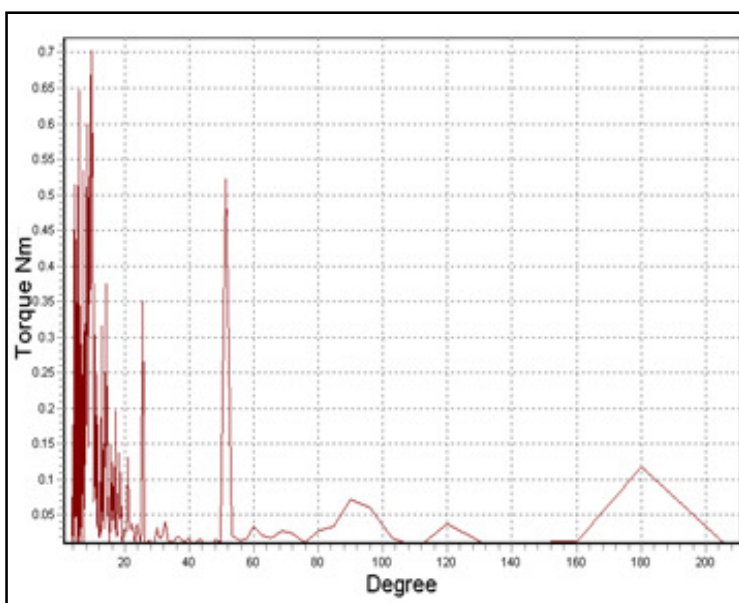
Test examples:

DFT – AC Torque during Acceleration



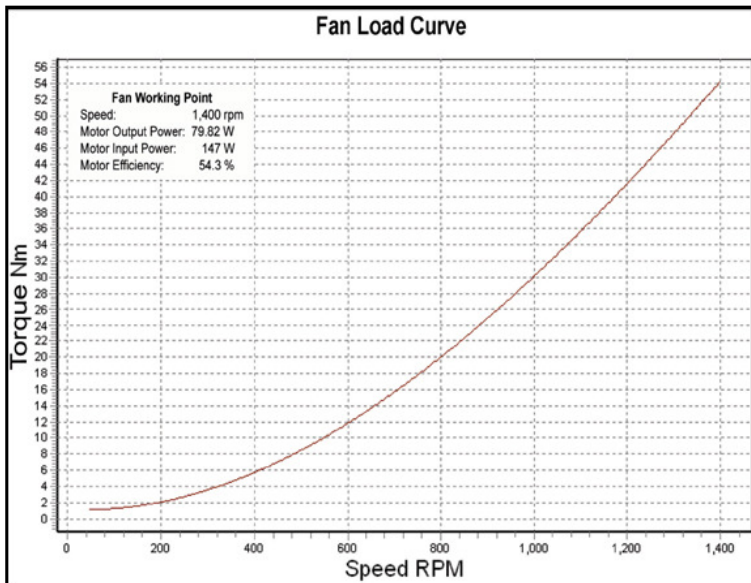
PDMA perform start up analysis. With the transient analysis tool using a noncontact speed sensor Together with powerful analysis capability, PDMA gives dynamic and static Torque/Power Output versus Speed data. Together with current and voltage measurements the PDMA gives also the voltage/current/ Power input/Vs speed data. By monitoring the mentioned data the maintenance professional can separate between a motor, load, or power issue.

FS - Friction Torque Spectrum Angle



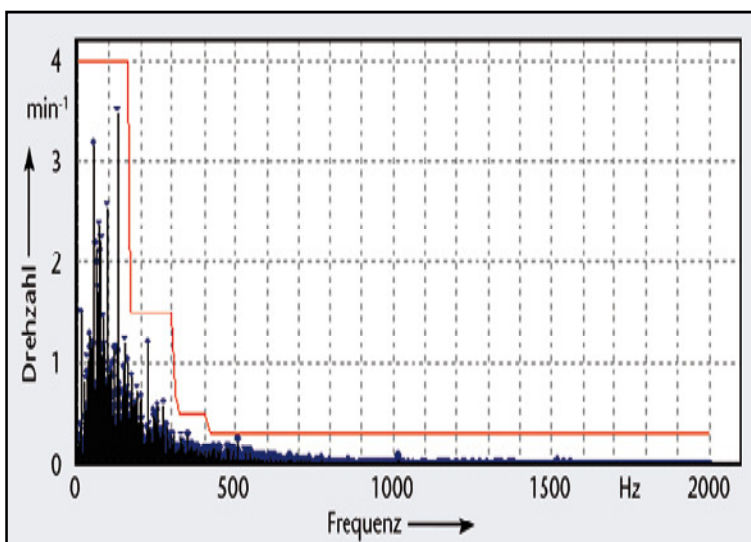
While loading a motor with gear, we may find that most of the defects are mainly due to mechanical problems with the gear. MEA has the technology to identify where the defects comes from. By using the Friction Torque Spectrum Angle, the system concentrates on analyzing only the machine mechanical breakdown.

Fan Load Curve with Motor Efficiency



The PDMA gives the motor efficiency on the application, helping the user to have Energy Cost Analysis. With the MEA PDMA, you will be able to ensure that the motor in operation is working at the maximum efficiency possible; assuring that the motor is at appropriate efficiency on the correct load range. If there is an opportunity to change to a better efficiency motor, the MEA software gives you the option to calculate the benefits of using such a replicable motor.

Torque Spectrum with high limits



The MEA PDMA uses the Torque Ripple and Torque Spectrum to help the user to find numerous dynamic problems quickly and accurately. It specializes in diagnosing mechanical issues, shows transient overloading, finds mechanical imbalances along with bearing problems, among other mechanical and magnetic problems.

Technical Specifications

- Voltage During Acceleration
- Current During Acceleration
- Power input During Acceleration
- Dynamic and static Torque
- Voltage Unbalance
- Current Level
- Power details
- % Load
- % Efficiency
- Speed
- Torque
- Torque Spectrum
- Speed Spectrum
- Efficiency Estimation
- Spectrum Voltage
- Spectrum Current
- Auto testing of Voltage and Current Imbalance
- Sequential Auto testing
- Testing on demand
- Bearing check
- Negative Sequence Impedance
- Continuous acquisition
- Fan Load curve
- Load's working point
 - Speed
 - Motor Output Power
 - Motor Input Power
 - Motor Efficiency

Benefits

- Power Quality
- Rotor
 - Eccentricity
 - Broken bars
 - Cracked bars
 - Poor welds
- Mechanical
 - Bearing faults
 - Fan unbalances
 - Misalignment
 - Belt frequencies
 - Worn Impellers
 - Gear noises
 - Gear mechanical defects
- Soft Start
 - Tuning/Setup
 - Troubleshooting
- Load Issues
 - Overload
 - Process
- Data on Power Quality and on Power Circuit
 - Power quality
 - Shorted IGBT's
 - Feedback loop
 - Process information
 - Corrosion on the connecting cables
 - Excess heat
 - Tuning/Setup
- Connection issues
- Energy Assessment
- Transformers performance problems

Specifications

Input Power	110-250 VAC, 50/60 Hz
Maximum Rated/Testing Voltage	1,000 V AC, 500 V DC
Current Transformers (for all portable units)	0-10 A, 0-150 A, 1-1,000 A, 0-3,000 A
Connections – Amphenol military spec twist type	Power entry module Portable voltage connection Portable current connection Option for Vibration sensor connection
Weight	25 lbs / 11.5 kg
Industrial Standards	EN61010, EN61000, IEC61000, IEEE 519

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