5900 Series - DC Permanent Magnet and Gear Tester, up to 5kW compatible with power analyzer 4600 series, WITHOUT any additional sensor on the Motor Shaft

5940 Series - DC Permanent Magnet and Gear Tester, up to 10kW compatible with power analyzer 4640 series, WITHOUT any additional sensor on the Motor Shaft

Features and Benefits

- Performs QA testing on 100% of production without compromising line throughput (up to 10 motors per minute), reducing costs of defective products.
- Determines acceptability to user predefined PASS/FAIL limits on production lines.
- Detects electrical and mechanical defects, according to:
  - Full load performance without coupling to external load and without addition any sensor on the motor shaft (torque, speed, current, voltage, input power, output power, and motor efficiency, from stall up to no-load).
- Real-time results.
- Friction torque, friction output power.
- Possibilities for: AC, DC Hipot & Insulation Resistance.
- Adjustable to test various motor types on single system.
- Flexible to production changes with minimum expenses.
- System can be customized to suit specific requirements.
DC Motor Testing in Production

DC motors have found widespread use in different types of applications, being powered vehicles one of many.

Conventional and M.E.A. MPI test procedures

Conventional motor tests require test sample conveying, brake machine, loading of the motor, and torque measurement shaft. The main disadvantages of this test procedure include: loading the motor with various loads to obtain just a few values of the motor characteristics; overheating of the motor due to the load, resulting in distorted results; time-consumption: each test requires much time to perform (between a few minutes to a few hours); requirement of a high level of costly technical training; among others. 100% testing with conventional test stands is rendered problematic by the test duration and the complicated construction.

M.E.A.’s MPI (Parameter Identification) test procedure is based on the motor voltage and the motor current. It is used in cases where motors are already installed in machinery or otherwise difficult to access. No external or internal sensor is required to measure DC permanent magnet motors. This test procedure measures all of the motor characteristics from stall up to maximum speed, in just a few seconds. The main advantages of this test procedure are: no loading of the motor is necessary; no sensor is required for DCPM motors; complete test performance in just a few seconds of running the motor; no overheating of the motor, since the testing is very quick; no special technical training is required. 100% testing with MPI test procedure is possible thanks to the quick testing procedure.

Overall, the M.E.A.’s MPI test procedure offers clear advantages over the conventional test procedure.

M.E.A. MPI

The M.E.A. MPI systems (internationally patented) are turnkey fully automatic systems with line rate of up to 10 motors per minute. M.E.A. MPI improves DEFECT DETECTION by measuring full static and dynamic motors characteristics, including unique tests not available with traditional testing systems. An evaluation of the M.E.A. MPI systems was made with motor manufacturing companies showing a rapid ROI.

Conclusions

The testing technology of M.E.A. Testing Systems can easily identify outstanding motors with excessive performances and can indicate to the motor manufacturer the reasons for the noise development. Tests conducted on gear motors check stability in transient and steady state operation. Gear defects such as bearings and brush problems can be recognized immediately.

Delivering motors of unsatisfactory quality incurs considerable cost for the electric motor manufacturer (returns of faulty motors, tests in motor manufacturer plants, delays in delivery and production, etc.). Electric motor manufacturers can suffer from loss of reputation possibly resulting in loss of future orders. Very often a comprehensive control is considered too expensive. However, by using better fault detection, implementations of M.E.A. test capabilities on electric motor plants, on QA entrance control, R&D and assembly lines, will avoid significant costs.