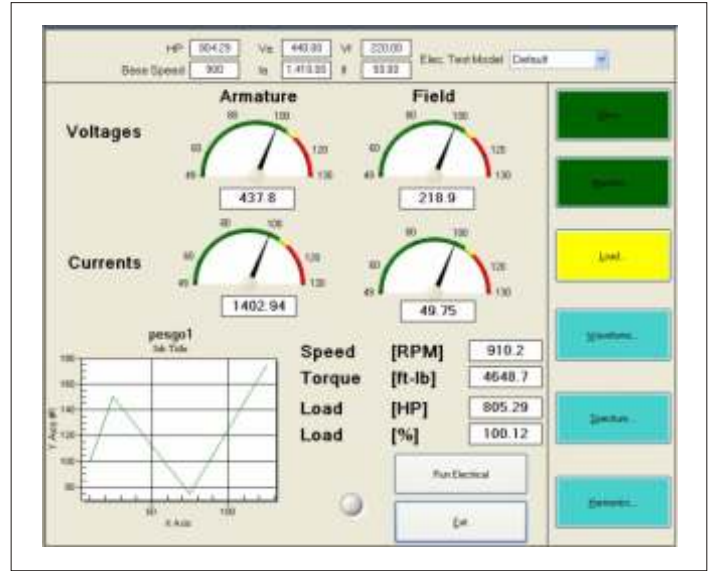


## DC Motor Challenges

DC (Direct Current) motors are advantageous to some industries that require high levels of torque to move very heavy loads. Also, the DC motor with its easy to understand design, easily controlled speed and torque and the use of simple drive designs offers a great deal of operational advantage to these industries. However, the DC motor is very expensive to produce, physically larger than the AC motor, requires a greater degree of knowledgeable maintenance and is highly susceptible to environmental contaminants such as dust.

The Baker Instrument Company's DC3000 software is being designed to assist the DC motor maintenance professional with a tool that will generate information on the DC motor system. This online software will offer a wide array of tests:



- Measuring all 4 Signals synchronously:
  - Field Voltage -  $V_f$
  - Field Current -  $I_f$
  - Armature Voltage -  $V_A$
  - Armature Current -  $I_A$
- RMS Calculations
  - Power: Field Power, Armature Power, Total Power
  - Currents: Armature, Field
  - Voltages: Armature, Field
  - Equivalent Impedance: Armature, Field
- Estimations:
  - Mechanical: Speed, Torque, Output Power, Average Efficiency
- Time-Waveforms
  - Field and Armature Currents and Voltages, Torque Ripple
- Spectra (including FFT and DFLL)
  - Field and Armature Currents and Voltages, Torque

## What are we trying to Find?

- Measure of Overheating
- Turn-to-Turn Faults in Field - Online
- Assess Drive Class A Compliance
- Warn about Overspeeding and Overloading
- Defects located within the Drive
- Torque Assessments
- Load Assessments