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## Customized Test System for Forklift Steering Drive Motors

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### APPLICATION

Magtrol designed this Custom Motor Test System for the testing of forklift steering drive motors. The challenge in this particular application was that the motors needed to be tested vertically because of the oil they contain.

### COMPONENTS

- Dynamometer Table
- 2PB 115 Magnetic Powder Dynamometer
- DSP6001 High-Speed Programmable Dynamometer Controller
- TMB 212 In-Line Torque Transducer
- MT-TEST 4.0 Motor Testing Software
- 6510e Single-Phase Power Analyzer
- Custom Motor Fixture
- Right-angle 1:1 Gearbox
- Water Cooling System
- Power Supply
- Laptop Computer

### DESIGN

The test bench is designed with a 2PB 115 Powder Dynamometer mounted horizontally and a TMB 212 In-Line Torque Transducer mounted vertically. They are connected by a right-angle 1:1 gearbox that transmits the power while changing the angle of the load. The torque transducer is used to directly measure the torque and speed value at the motor output.

### MOTOR FIXTURING

The fixing of the motor in the test rig is designed to fit directly on the motor output gear for quick and easy use. The connection and motor fixture are flexible enough to allow easy adaptation to different sized motors to be produced in the future.



### CUSTOMIZED SOFTWARE

Magtrol's MT-TEST software is adapted to control the customer's power supply, monitor the temperature, acquire and save test data, and provide a test certificate for each tested motor.

### TESTING

The motor under test can be loaded from 0 to 200 N-m, in a speed range of 0 to 500 rpm. The acquired data includes input voltage, input current, torque, speed and temperature parameters. The input and output power is calculated, providing the user with motor efficiency values. Each test setup can be recorded and the measured data of each tested unit is saved with its serial number.



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