

An universal dynamometer and its testing procedure set up

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ABSTRACT

We have built an universal dynamometer testing platform that is capable of measuring motor speed, torque, current, voltage, power and efficiency capabilities. It can provide complete motor characteristic reports and verify the actual motor performance. The testing platform consists of seven units, including hysteresis brake(HD-800), hysteresis controller(DSP-6000), power analyzer(WT210/WT230), distribution control box(Terminals and control switches), personal computer (control human-machine interface), interface card(GPIB IEEE 488.2) and cooling system (Air compressor). Hysteresis brake dynamometers (HD 800) are versatile and ideal for testing in the low to middle power range. Hysteresis brakes do not require speed to create torque, and therefore can provide a full motor ramp from free-run to locked rotor; Model DSP-6000 high-speed programmable dynamometer controller employs state-of-the-art digital signal processing technology to provide superior motor testing capabilities. The programmable dynamometer controller and human machine interface software work with dynamometer to help determine the performance characteristics of a motor under test. In the motor test system, data is collected on a PC using human machine interface software, DSP-6000 programmable dynamometer controller, and requisite interface cards and cables. The controller computes and displays mechanical power in addition to torque and speed. Finally, the testing platform had measured five different types of motors. Print out the characteristics data was compared with manufacturer providing specification. The Universal motor dynamometer testing platform has the merit of high accuracy and fast measurement.

Keywords : Dynamometer

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