MSD
MEGA SPEED DYNAMOMETER

FEATURES

▪ Test Bench with Mechanical Protection
▪ Contactless Eddy-Current Brake System
▪ Speed Sensor
▪ Infra Red Temperature Sensor
▪ Built-in Reaction Torque Sensor (RT 200 Series)
▪ Available in version 20 or 50 mN·m (other ranges available on request)
▪ Accuracy ±0.2 %
▪ Very Low Inertia ~8x10^{-9} Kg·m^2
▪ No Residual Torque (no bearing) or friction
▪ Torque / Speed Acquisition Software (MSD-TEST)

DESCRIPTION

The MSD - Mega Speed Dynamometer was developed for the testing of very high speed motors such as BLDC, dental turbine and surgical tools. The braking affect is based on Eddy-Current induced on an aluminum disc directly mounted on the MUT (Motor Under Test) shaft.

Torque is measured frictionless by a Reaction Torque Sensor mounted under the test bench surface. Due to the thermal effect on the disc, the Mega Speed Dynamometer is not suitable for endurance testing, but can be utilized to generate a fast curve or perform point to point testing. An infrared sensor monitors the temperature of the disc and stops the test in case of overheating. The disc can be designed and sized according to the motor parameters.

The system is contactless therefore alignment is not critical. Due to this, the system has very low inertia and therefore no residual or drag torque thus having less influence on testing parameters. The speed limitation is based on the Motor Under Test and its ability to drive the disc. Systems reaching speeds of 320,000 rpm have already been manufactured.

MSD-TEST Software is developed in a LabVIEW environment. It controls the system and captures the test data. It allows the programing set up of a dedicated test profile.

Every Mega Speed Dynamometer will be designed around motor characteristics and performances to match the best possible test results. Specific motor fixtures will be designed to suit each motor form and dimensions.

The Mega Speed Dynamometer (MSD Series) enhances Magtrol's expertise in high-speed applications and ideally complements WB 23 and WB 27 Dynamometers enabling motor testing up to 100,000 rpm

APPLICATIONS

This system was specially developed by Magtrol to test high speed motor for the dental and surgical tool industry.
DIMENSIONS

INCLUDED ACCESSORIES

MSD-TEST MOTOR TESTING SOFTWARE

Magtrol MSD-TEST is an advanced motor testing software (Windows® based) for data acquisition. Used with the Magtrol Mega Speed Dynamometer, the MSD-TEST works to help determine the performance characteristics of a motor under test. Mechanical properties (torque, speed, power), electrical properties (current, voltage) via power measurement system (optional). Temperature properties (optional) are calculated and displayed utilizing MSD-TEST’s feature-rich testing and graphing capabilities.

MSD-TEST generates a curve displaying the overall efficiency of the test rig. Written in LabVIEW™, MSD-TEST has the flexibility to test a variety of motors in a multitude of configurations. The data generated from this user-friendly program can be stored, displayed and printed in tabular or graphical formats, and is easily imported into a spreadsheet.

Magtrol can also make custom modifications to the software to meet additional motor testing requirements.

RT 200 SERIES REACTION TORQUE SENSOR

The RT 200 Series is a compact and maintenance-free Reaction Torque Sensor.

Based on strain gauge technology, this reaction torque sensor provides highly accurate torque measurement. It has been specifically designed to perform high-precision static torque measurements with low dynamic rotation (and limited angle) clockwise and counter-clockwise.

Major field applications include testing actuators, valves and fasteners as well as torque control on watch or medical devices, or any other application requiring torque measurement without full rotation.

In the Mega Speed Dyno, this sensor has been adapted to use with high-speed rotating systems.

ORDERING INFORMATION

Due to the specificity of this product, we advise you to contact our sales network.