

Product Name :
Computerized Single Cylinder Diesel Engine Test Setup

Product Code :
NEGEMG142



Description :

Computerized Single Cylinder Diesel Engine Test Setup

The test setup consists of Four stroke Diesel Engine coupled to a suitable dynamometer. The engine is single cylinder, water cooled diesel engine running at constant speed. The dynamometer provides variable load on engine to study engine performance under variable load conditions. A wide range of dynamometers is available as option for the engine test set up. Exhaust gas calorimeter is used for estimation of heat carried away by exhaust gases for determination of heat balance of the engine. Air is supplied to the engine through an air box, fitted with orifice plate. The instrumentation console includes measuring instruments for Engine Speed, Torque, Air consumption, Fuel Consumption, temperature & cooling water flow rates. The parameters are recorded by the sensors & transmitted to Data Acquisition Device. The Data Acquisition Device sends the data to computer & which is displayed in the Data Acquisition Software.

DATA ACQUISITION SOFTWARE

Windows based software developed in LabView Platform is capable of displaying

real time acquired data in graphical & numerical format. The acquired data is processed by software & results are displayed in tabular & graphical format. The test results can be saved on computer hard drive in form of Excel files. Detailed Operation & Maintenance Manual is provided along with the trainer.

Experimental Capabilities:

- Determination of brake power & mechanical efficiency at different load conditions.
- Determination of fuel consumption & brake specific fuel consumption, brake thermal efficiency.
- Determination of air consumption & volumetric efficiency, Air/Fuel Ratios.
- Calculation of Heat balance of the engine.
- To study P-V Diagram & P-Theta diagram for diesel engine

Technical Specifications:

- Engine: Single Cylinder Four Stroke Diesel Engine, Constant speed, hand start. Capacity 660 cc, Output Power 5 kW @ 1500 RPM
- Dynamometer Options: Water Cooled Eddy current dynamometer, Capacity 7 kW with electronic controller
- Exhaust Gas Calorimeter: Pipe in Pipe type
- Air Box: Made in M.S. with damper & Orifice Plate
- Instrument Console:

Load Cell: Range 0-50 Kg for Torque Measurement.

Differential Pressure Transmitter: Range 0-500 mm WC for Air flow measurement.

Thermocouples: Type 'K' Thermocouple for Temperature Measurement, Range 0-600 Deg C, 6 Nos.

Ambient Temperature Sensor: RTD PT-100 with Transmitter

Fuel Transmitter: Level type Flow transmitter

Rotameter: Range 0 – 600 LPH for water flow measurement, 2 Nos.

Pressure Sensor: Piezo Electric Pressure Sensor for Cylinder Pressure Measurement, Range 0-500 psi with signal conditioner

Optical Encoder: Range 360 PPR for crank angle measurement.

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Data Acquisition System: 16 Channel, 16-Bit, 250 kS/s, Multifunction DAQ Device, USB Compatible, Make - National Instruments USA

- Data Acquisition Software:

Windows based software developed in LABView for Data Logging

Real-Time Display

Tabulated & Graphical Results

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