



#### • Features

- Designed for comprehensive analysis of performance of different automobile engines.
  - Digital Instruments for measurement of parameters like fuel consumption, air flow, temperature and RPM etc.
  - Demonstration of performance of Diesel Engines at different throttle settings & Loads.
  - Optional High Speed Data Acquisition system for performance monitoring.
- Tesca Automotive 4 Stroke 2 Cylinder Diesel Engine Test Bed 32747-32748 are designed to facilitate testing of different automobile diesel engines. The test bed is complete with eddy current dynamometer and measuring instruments for measuring key engine parameters required for performance analysis of an engine. The test bed can be used for testing of diesel engines rated up to 3 kW.
- The test bed consists of a water cooled eddy current dynamometer or Rope-Brake dynamometer, fixed on a heavy-duty steel frame. The test bed is designed in such a way that the engine to be tested can be quickly coupled to the dynamometer with minimum effort. The test bed is equipped with dynamometer control panel with necessary safety instruments. The Engines can be used for performance tests for different loads and speeds under various throttle-opening conditions. The eddy current dynamometer provides a variable load on the engine, allowing the characteristic power and torque curves to be reproduced in the laboratory. The system comes complete with extensive instrumentation, including rpm measurement, torque (from which power can be calculated), plus various temperatures, Fuel Consumption, Air Consumption.
  - Different optional accessories are available to integrate with the Engine Test Bed for comprehensive engine performance analysis. These include the exhaust gas calorimeter (For Heat Balance Sheet), advance Data Acquisition System & P-V Diagram module for computerized testing.

#### Specifications

- Eddy current Dynamometer: Capacity: 15 HP, Water Cooled; Cooling Flow rate 15LPM
- Dynamometer Controller
- Engine: Air cooled; 700cc; 16HP@3200RPM; Torque 38Nm@3200 RPM; Diesel Engine mounted on mobile frame (Note: Additional Engines can be supplied on request.)
- Asynchronous Motor Start
- Air-Cooled Compression Engine
- Air Box with Orifice plate for Air flow measurement.
- Fuel Tank: for Diesel.
- Propeller shaft with protective covering.
- Measuring Instruments –
  - ♦ Engine RPM Sensor
  - ♦ Differential Pressure Transmitter for Air

Note: Specifications are subject to change.

#### **Tesca Technologies Pvt. Ltd.**

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- ♦ Fuel Level Sensor
- ♦ Thermocouples
- ♦ Torque Sensor

**Accessories:**

- Battery for starting the engines
- Set of Anti Vibration Pads
- Auxiliary cooling unit for engine

**Exhaust Gas Calorimeter (Optional)**

- Cooling Water Flow Transmitter
- Pipe In pipe type heat exchanger
- Thermocouples for water & gas temperature.

**Data Acquisition System & Software (Optional)**

- Signal Converter
- Data Acquisition Card, 16 Channel High speed DAQ Card with USB Port
- Software: Labview based software for data acquisition, real time display, graphical representation, calculation & tabular results.

**P-V Diagram Module (Optional)**

- Engine cylinder pressure
- Crank angle Encoder

**Experiments**

- Investigate Engine Performance at different Throttle Settings & Load conditions.
- Calculation of Mechanical Efficiency & Plot brake power versus mechanical efficiency.
- Measurement & Calculation of Volumetric efficiency.
- Measurement & Calculation of specific fuel consumption
- Measurement & Calculation of brake thermal efficiency
- Determining air / fuel ratios
- Heat Balance Test (With Optional Exhaust Gas Calorimeter)
- Study of P-q & P – V Diagram for Engine (With optional P-V Module & Data Acquisition System).

**Scope of Delivery**

- 1 engine, complete with all connections and supply lines
- One set of tools
- 1 manual

**32747 :** 4 Stroke 2 Cylinder Diesel Engine Test Bed With DAQ

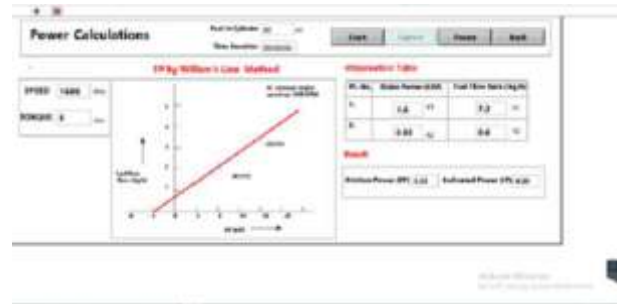
**32748 :** 4 Stroke 2 Cylinder Diesel Engine Test Bed Without DAQ



**DAQ Screen Shot**



**Power Calculations from William Line**



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