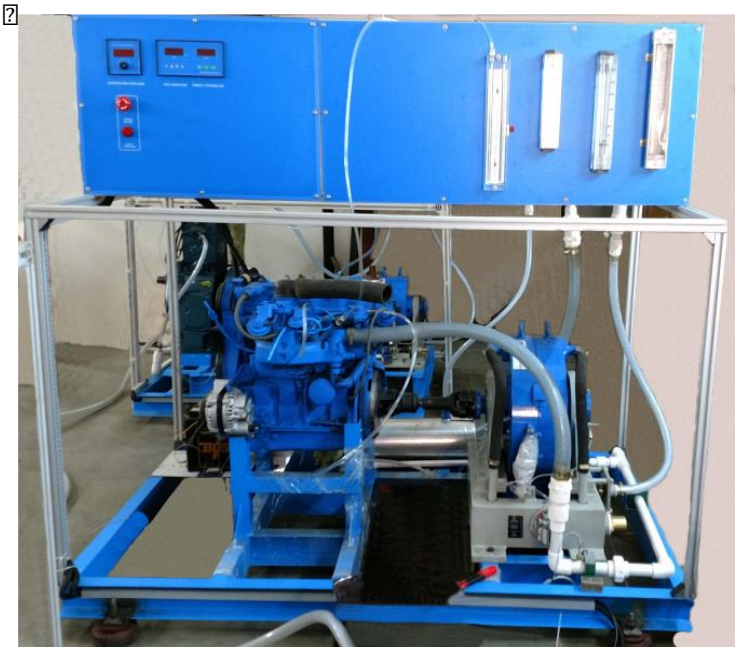
# Automotive Petrol Engine (4 Stroke 4 Cylinder) Test Bed



## Model AM 225

### 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 Petrol Engines at different throttle settings & Loads.
- Optional High Speed Data Acquisition system for performance monitoring.

**Sci-tech Automotive 4 Stroke 4 Cylinder Petrol Engine Test Bed Model AM 225** is designed to felicitate testing of different automobile petrol 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 petrol engines of passenger cars, rated up to 80 kW.

The test bed consists of a water cooled eddy current 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

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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: 35 - 80 KW, Water Cooled
  Optional:
  Rope brake dynamometer with loading unit
  Electrically Dynamometer with loading unit
- Dynamometer Controller
- Engine: a. 1000 - 1400 cc, Petrol Engine mounted on mobile frame
  (Note: Additional Engines can be supplied on request.)
- Air Box with Orifice plate for Air flow measurement.
- Fuel Tank: 1 Tank each for Petrol.
- Propeller shaft with protective covering.
- Measuring Instruments –
  - Engine RPM Sensor
  - Differential Pressure Transmitter for Air
  - Fuel Level Sensor
  - Thermocouples
  - Torque Sensor
- Accessories:

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- 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

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# Automotive Petrol Engine (4 Stroke 4 Cylinder) Test Bed

- Determining air / fuel ratios
- Heat Balance Test (With Optional Exhaust Gas Calorimeter)
- Study of P- θ & 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
- 5 combustion chamber inserts
- One set of tools
- 1 manual

*Specifications, Photos and design subject to changes without any notice*

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