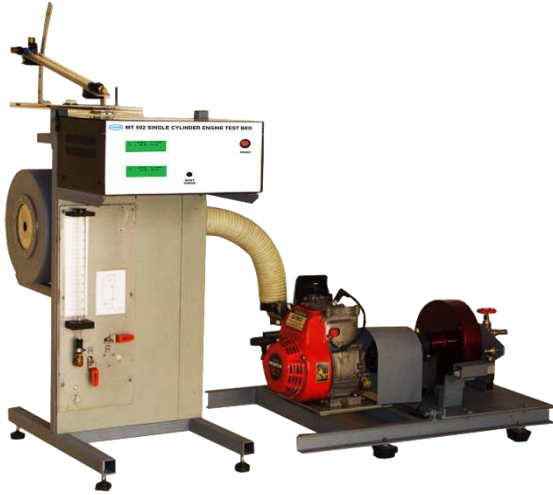


MT 502 SINGLE CYLINDER ENGINE TEST BED



MT 502 with water brake absorber



MT 502 with eddy current absorber (optional)

GENERAL DESCRIPTION:

This is a standard test bed for a single cylinder gasoline or diesel engine.

The engine is connected to a dynamometer on the test bed by a direct coupling with a safety guard. Instruments are provided for measurement of dynamometer torque and speed, fuel flow rate, air flow rate, and temperatures. Dynamometer load and engine throttle are manually controlled. The fuel tank and the air box are on a stand next to the engine. The test bed requires outside water supply for cooling. Instruction manual is also included.

EXPERIMENT CAPABILITIES:

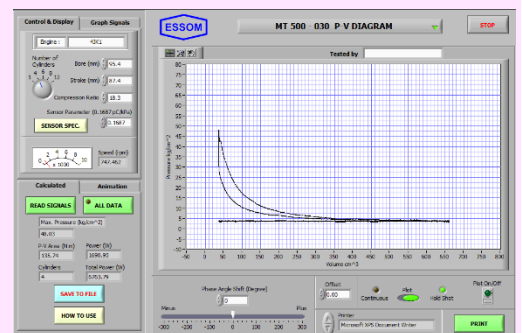
- Torque vs engine speed at various throttle setting.
- Engine brake horsepower and efficiency vs speed
- Specific fuel consumption
- Air/fuel ratio
- Volumetric efficiency

TECHNICAL DATA:

- Dynamometer
 - Type : Water brake absorber.
 - Maximum torque : At 2500 rpm. over 110 Nm.
 - Maximum speed : 8000 rpm.
- Engine : Single cylinder gasoline engine 3.7 kW or as required.
- Measuring instruments
 - Fuel flow rate : Graduated cylinder and stopwatch.
 - Air flow rate : Air box with pulse reducer, orifice plate, and inclined water manometer.
 - Sensors with digital display : Engine speed.
 - : Dynamometer torque.
 - : Temperature for absorber water outlet, ambient air and exhaust gas.
- Accessories : Fuel tank and coupling guard.
- Software for data display and analysis by computer (separately supplied).
- Power supply : 220 V, 1 Ph, 50 Hz. Other power supply is available on request.

OPTIONAL EQUIPMENT:

- MT502-ECA An air-cooled eddy current absorber instead of water brake absorber.
- MT 502-001 Additional interchangeable diesel engine.
 In this case, additional fuel tank, fuel filter and carburetor adapter are also supplied.
- MP 100-011 Differential pressure digital display.
- MT 500-030 P-V diagram set.
- MT500-030D Sensor adapter for selected diesel engine.
- MT500-030G Sensor adapter for selected gasoline engine.



OPTIONAL EQUIPMENT

- MT 501-010 Fuel flow digital display.
- MT502-014 Dynamometer water cooling unit with pump instead of outside water supply.
 - Capacity : 2 RT
- MT 501-015 Air flow digital display.
- MT 502-041 Torque arm with standard weights for torque calibration.
- PH 100-030 Water manometer for differential pressure calibration.
- MT 502-050 Computer interface
 - Sensors with computer interface unit for key data acquisition instead of analog data measuring instruments.
- Other optional equipment, please contact manufacturer (essom@essom.com)

The software interface for the MT 502HD SINGLE CYLINDER DIESEL ENGINE TEST BED displays various parameters and a data table. The left screenshot shows a schematic diagram of the engine test bed with components like the Inclined Manometer, Fuel tank, Airbox, Fuel Flow Sensor, Engine, and Dynamometer. The right screenshot shows a data table with the following columns: Speed (r/min), Torque (N.m), Fuel consumption (Q_{mf} l/100 l, Q_{mf} l/h, Q_{mf} kg/h, Q_{mf} mm³/s), Air flow rate (Q_{ma} l/s, Q_{ma} l/h, Q_{ma} kg/h, Q_{ma} m³/s), A/F ratio (Ambient Air, Exhaust gas), Temperature (C) (Ambient, Exhaust, Water over), Power (kW), Bstc (g/kWh), and Volumetric efficiency (η_v %). The table contains several rows of numerical data.

Net (unpacked) shipping dimensions WxLxH : 75x 150 x 100 cm
 Net weight : Approx. 180 kg