



Three cylinder, Four stroke, MPFI Petrol

Description

The setup consists of three cylinder, four stroke, SI petrol engine connected to eddy current dynamometer. It is provided with necessary instruments for combustion pressure, crank-angle, airflow, fuel flow, temperature and load measurements. These signals are interfaced to computer through high speed data acquisition device. The set up has stand-alone panel box consisting of air box, twin fuel tank, manometer, fuel measuring unit, transmitters for air and fuel flow measurements, process indicator and piezo powering unit. Rotameters are provided for cooling water and calorimeter water flow measurement.

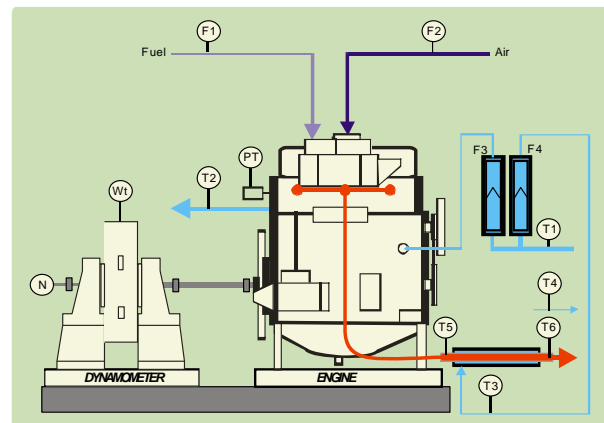
Engine performance study includes brake power, indicated power, frictional power, BMEP, IMEP, brake thermal efficiency, indicated thermal efficiency, Mechanical efficiency, volumetric

efficiency, specific fuel consumption, air fuel ratio, heat balance and combustion analysis. LabVIEW based engine performance analysis software package "ICEnginesoft" is provided for online performance evaluation.



Features

- Morse test
- Online measurements and performance analysis
- P θ -PV plots, performance plots and tabulated results
- Data logging, editing, printing and export
- Configurable graphs
- IP, IMEP, FP indication
- Combustion analysis



Range of Experiments

- Study of engine performance (Manual mode)
- Study of engine performance (Computerised mode)
- Study of engine combustion
- Study of Morse test

Instrumentation

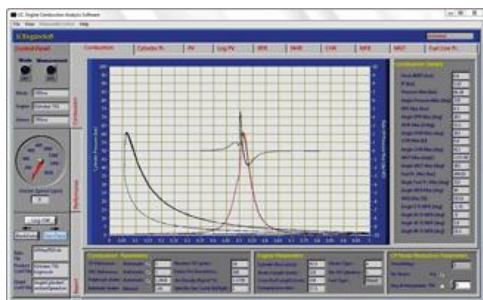
Product is supplied with best quality instruments. The components like Combustion pressure sensor, Crank angle sensor, Fuel flow transmitter and High speed data acquisition device are of MNC grades.

Engine Test Setup (Computerised)



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Software



EngineSoft is Labview based software package developed by Apex Innovations Pvt. Ltd. for engine performance and combustion monitoring system. EngineSoft can serve most of the engine testing application needs including monitoring, reporting, data entry, data logging. The software evaluates power, efficiencies, fuel consumption and heat release. Various graphs are obtained at different operating condition. While on line testing of the engine in RUN mode necessary signals are scanned, stored and presented in graph. Stored data file is

accessed to view the data graphical and tabular formats. The data in excel format can be used for further analysis.

Specifications

Product	Engine test setup 1 cylinder, 4 stroke, Petrol, Computerised Product code 230
Engine P48	Make: Mahindra/Maruti/Tata, Type 3 Cyl., 4 St., MPFI Petrol, water cooled, Power upto 48 HP@5000 rpm, Torque up to 55 NM at 2500rpm, Capacity @800cc, CR 9.2
Engine P65	Make: Mahindra/Maruti/Tata 3 Cylinder, 4 Stroke, MPFI Petrol, Power 65Hp @3500 RPM, 85Nm @ 3500 RPM, 998cc, CR 9.2
Dynamometer	Type eddy current, water cooled.
Propeller shaft	Type universal joints
Air box	M S fabricated with orifice meter and manometer
Fuel tank	Capacity 15 lit, Type: Duel compartment, with fuel metering pipe of glass
Piezo sensor	Combustion: Range 350Bar with low noise cable
Crank angle sensor	Resolution 1 Deg, Speed 5500 RPM with TDC pulse. 360ppr
Data acquisition device	Analog inputs: 16 SE/8 DIFF; Digital I/O: 8; Analog outputs: up to 2; counters 2 x 32 bit; Sample rate: 250 to 500 kS/s; Resolution: 16- bit; Analog input Vmax $\pm 10V$ of AI GND; Pull down resistance 47k Ω ; High speed multifunction USB DAQ card
Temperature sensor	Type RTD, Type PT100, Range 0-100dec C
Temperature sensor	Type Thermocouple, Type K, Range 0-1200dec C
Temperature transmitter	Type 2 wire, Input RTD, Range 0–100 Deg C, Output 4–20 mA, Type 2 wire, Input Thermocouple, Range 0–1200 Deg C, Output 4–20 mA
Load sensor	Load cell, type strain gauge, range 0-50 Kg
Load indicator	Digital, Range 0-50 Kg, Supply 230VAC
Fuel flow transmitter	DP transmitter, Range 0-500 mm WC
Air flow transmitter	Pressure transmitter, Range (-) 250 mm WC
Software	“Enginesoft” Engine performance analysis software
Rotameter	Engine cooling 40-400 LPH; Calorimeter 25-250 LPH
Pump	Type Monoblock
Overall dimensions	W 2000 x D 2500 x H 1500 mm



Specifications subject to change without notice

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