ASSOCIATED PRODUCTS

Temperature Sensors & Indicators

RPM Sensor & Indicator

Scanner & Data Logger

Load Cell & Indicator

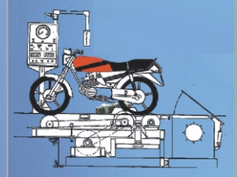
Universal Engine Test Bed

Universal Propeller Shaft

Fuel Measurement

OTHER PRODUCTS

Chassis Dynamometers



Water Brake Dynamometers

Eddy Current Dynamometers

Instrumentation Panels

Electrical Control Panels

ABOUT US

ETHOS State Of The Art Infrastructure

Technomech was started in 1985, as a partnership company. All the partners are highly experienced having 35+ years of experience in the same field. We have 850+ Dynamometers installations all over India till March 2013.

Commitment to quality, stringent inward procedures, strict quality inspection, and in-house manufacturing capability are the prime aspects of our success over the years.

So as to cater to the increasing demand and to give effective service to our customers, we have built our own new State-Of-Art infrastructure at Hadapsar Industrial Estate, Pune.

ETHOS, stands for value based culture with everyone involved, and this portrays our Mission and Vision.

We have very strong base of satisfied customers in Educational institutes like Engineering colleges, Polytechnics, IITs and Research organisations, OEMs, engine & prime mover manufacturers all over India.

Brochure: TM-ETS / Designed by: www.esd-india.com

TECHNOMECH
ENGINE TEST SYSTEMS

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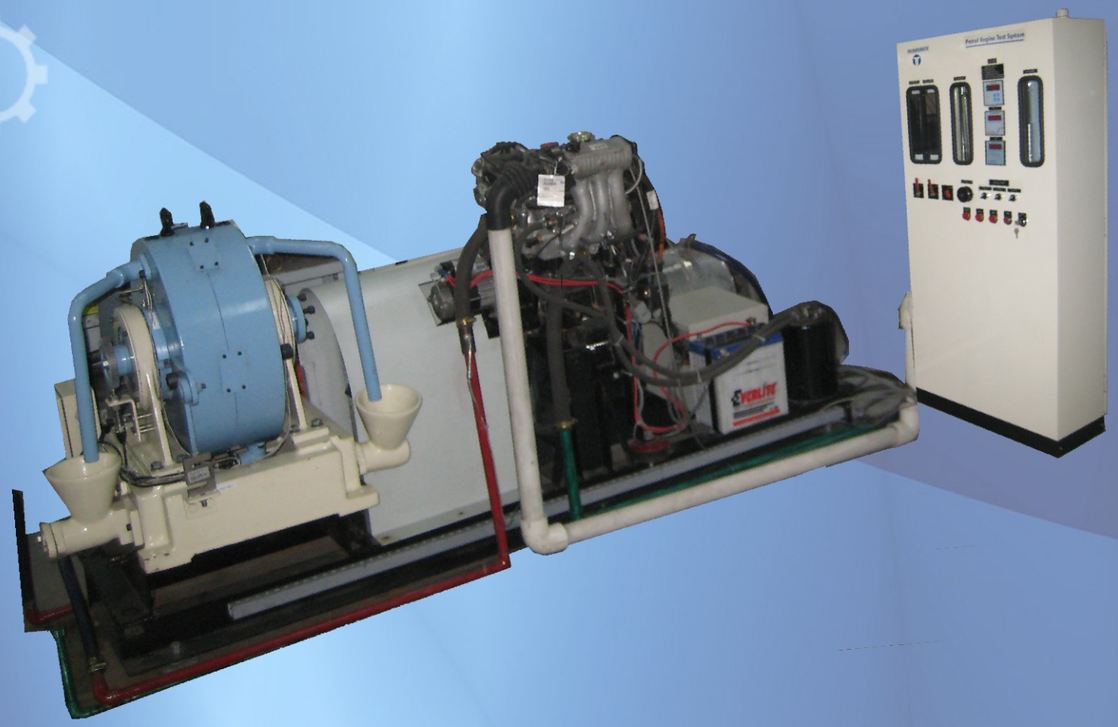
Photos not to the scale.
Due to continuous development product specifications are likely to change.

TECHNOMECH
ENGINE TEST SYSTEMS

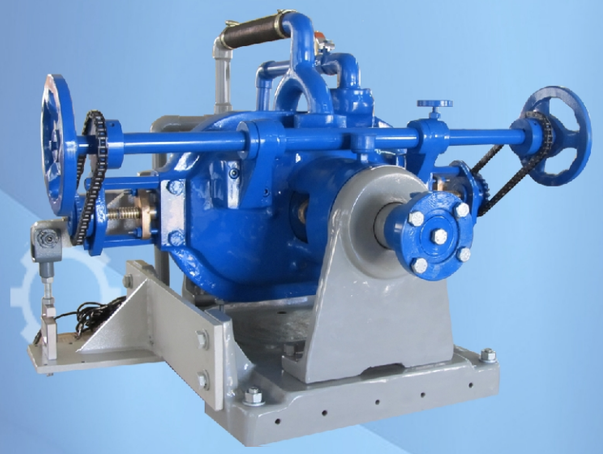


ENGINE TEST SYSTEMS

With Water Brake / Eddy Current Dynamometers For Single / Multi Cylinder, Petrol and Diesel Engines

A Reliable Source Of Engine Test Systems

WATER BRAKE DYNAMOMETER



Technomech Water Brake Dynamometers (WBD) are suitable for measuring Brake Horse Power of different types of Prime Movers like Diesel Engines, Petrol Engines, Electrical Motors, Vehicles, Gear Boxes in their Production, Quality Assurance and R&D centers.

These are sluice gate operated Dynamometer. The rotor & stator rings are cast from Phosphor Bronze material while the power absorption unit is mounted on sturdy Cast Iron base plate with the help of trunnions. The load indication is in digital form with a load cell. A calibration setup is provided for periodic check-up in order to ensure accuracy.

Principle Of Operation: Water acts as the cooling and loading medium. The running rotor causes the water to whirl in the chamber. The braking energy thus absorbed converts to heat which is dissipated with the circulating water. At a given constant speed of the Dynamometer its reaction torque is a function of water volume in the whirl chamber which is in turn controlled by a sluice gate. The regulated water flow absorbs the generated heat and keeps the unit in prescribed temperature limit.

Advantages:

- ✓ Sturdy and Robust design
- ✓ Fast Response and Accurate Calibration
- ✓ Dynamically Balanced Rotor
- ✓ Highly Economical & Simple Mechanical Construction

In order to cater to a wide range of applications, we have models TM15, TM50, TM150 and TM300, suitable for 15, 50, 150, 300 BHP capacities respectively at 1500 RPM.

EDDY CURRENT DYNAMOMETER

Technomech Eddy Current Dynamometers (ECD) cater to a wide range of requirements of Prime Movers from 10 to 100 BHP with RPM varying from 1500 to 5000. These are widely used for testing of engines in Production, R&D, and Quality Assurance.

Rugged construction and effective power absorption ensure long working life. ECD comprise the following:

- ✓ Rotor & Shaft Assembly
- ✓ Base Plate & Trunnion support
- ✓ Cooling Water Flow lines
- ✓ Calibration Lever
- ✓ Sensors
- ✓ Stator Casing Assembly
- ✓ Excitation Coil
- ✓ Load Cell
- ✓ Hot Air Passages
- ✓ Electronic Control Unit

Principle Of Operation: When the Electronic Control Unit is connected to the excitation coils, the current flowing generates magnetic field. When the toothed rotor is rotated in this field, the magnetic flux changes and Eddy Current is produced in the end wall of cooling chambers. This Eddy Current builds an opposing magnetic field and decelerates the rotor. Thus the braking torque is transferred to the load cell through the main body. The regulated water flow absorbs the heat generated and keeps the unit in required temperature limit.

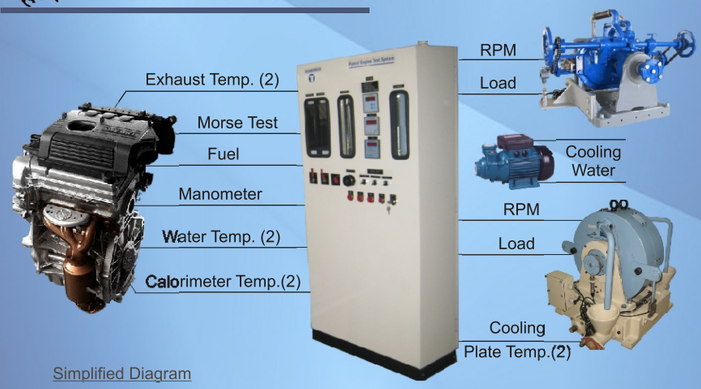
In order to cater to a wide range of applications, we have models TME10, TME20, TME50 and TME100, suitable for 10, 20, 50, 100 BHP capacities respectively for 1500 to 5000 RPM.

ENGINE TEST PANEL

The Engine Test Panel is floor mounting type made in 2mm CRCA sheet with powder coating. Panel is useful to measure, monitor & analyse the engine's parameters. This is achieved by using various instruments as given below:

MEASURING PARAMETERS	INSTRUMENTS ON THE PANEL
Brake Horse Power (BHP)	Load Cell, RPM Sensor & Indicators
Fuel Consumption (FC)	Glass Pipette Assembly
Specific Fuel Consumption (SFC)	FC & BHP ratio calculation
Air Consumption (AC)	U tube manometer and orifice plate
Air Fuel Ratio (AFR)	AC & FC ratio calculation
Mechanical Efficiency	This can be calculated by using various formulas and available parameter readings.
Volumetric Efficiency	
Brake Thermal Efficiency	
Frictional Horse Power (FHP)	Morse Test Setup
Heat Balance (HB)	Temperature Sensor, Scanner, U tube manometer, Rotameter, Calorimeter

ENGINE TEST SYSTEMS



Simplified Diagram

The Engine Test Systems (ETS) comprise of

- ✓ Single / Multi Cylinder Petrol / Diesel Engine
- ✓ Eddy Current / Hydraulic Dynamometer
- ✓ Engine Test Panel

Engines and Dynamometers can be of various capacities and RPM as per requirement. Both are mounted on a common fabricated base frame and are coupled by an Universal Propeller Shaft. The Dynamometer can be either Eddy Current or Hydraulic as per the customer requirement. The moving parts are covered with a sturdy guard for safety. All the sensors are mounted at appropriate locations and their cables are terminated to Engine Test Panel through PVC channels.

Data generated during the testing can be recorded manually or stored to PC in case of PC based ETS. Morse Test can be only done in case of Multi-cylinder engines. ETS is useful for Educational institutes like Engineering colleges, Polytechnics, IITs and Research organisations to study and evaluate the performance of the Engine or any Prime Mover.

SELECTION GUIDE

ETS:	ENGINE E1	ENGINE E2	ENGINE E3	ENGINE E4	DYNAMOMETER D1	INSTRUMENTATION PANEL P1	PC BASED SYSTEM C1
	BHP	RPM	Cylinder	Fuel	Type - Capacity (BHP)	Instruments	Data Recording
	1 : 5 2 : 7.5 3 : 10 4 : 15 5 : 40 6 : Other	1 : 1500 2 : 2000 3 : 3000 4 : 4000 5 : 5000 6 : Other	1 : Single 2 : Two 3 : Three 4 : Multi	P : Petrol D : Diesel	1 : Water Brake - TM15 2 : Water Brake - TM50 3 : Water Brake - TM150 4 : Water Brake - TM300 5 : Eddy Current - TME10 6 : Eddy Current - TME20 7 : Eddy Current - TME50 8 : Eddy Current - TME100	1 : Load Cell & Load Indicator 2 : Temperature Sensor & Scanner 3 : RPM Sensor & Indicator 4 : Glass Pipette Assembly 5 : U tube manometer 6 : Rotameter 7 : Calorimeter 8 : Morse Test Setup	1 : Temperature 2 : Speed (RPM) 3 : Brake Horse Power (BHP) 4 : Air Consumption 5 : Air Fuel Ratio 6 : Mechanical Efficiency 7 : Brake Thermal Efficiency 8 : Frictional Horse Power

FEATURES

- Easy to operate
- Smooth running
- Highly accurate & reliable
- Easy for maintenance
- Sturdy design
- Proven field performance
- Vibration free operation
- High MTBF & Low MTTR