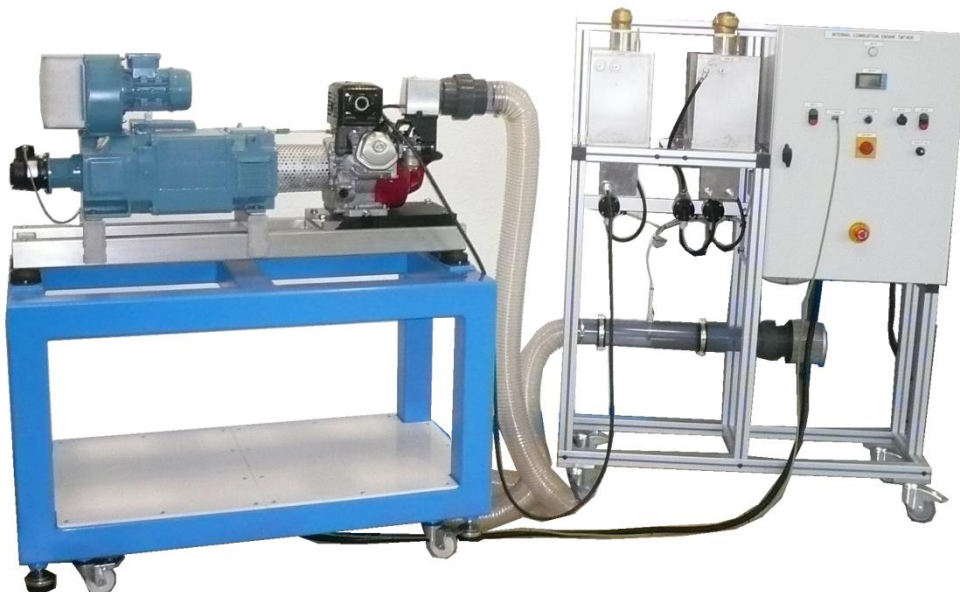


TMT400



DIESEL AND GASOLINE ENGINE TRAINER AND ANALYSIS SET



Experimental capabilities

- Identification of the components of a diesel and a gasoline engine
- Determination of the torque and of the power according of the speed of rotation
- Comparison of the practical results and the theoretical results
- Determining the overall efficiency of a diesel or gasoline engine (fuel and air consumption, output power ...)
- Study of a four-stroke gasoline engine single cylinder
- Study of a diesel single cylinder engine

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TMT400



Operating principle

TMT400 the bench allows the study of a gasoline and a diesel engine.

The engine are removable and the electrical dyno is fixed. The student have to set up the engine on the frame, tighten it and then connect the sensor, the power supply and the fuel supply.

Once everything is connected, they should start the engine and throttle. After 5-10min, when the engine is hot they can start to collect the data such as torque, rotational speed, exhaust temperature...

When all the data are collected they can analyse it and draw the curve like torque vs rotational speed. The goal is to show the shape of the curve and calculate the global efficiency of the engines at various speed.

The robust design of this device makes it suitable for use in schools.

The equipment is set up on an steel coated frame on casters wheels. The frame is also equipped with adjustable feet with rubber to avoid vibrations while the engine is running. This gives it great strength and a flexibility of integration into your laboratory.

The manufacture of this equipment complies with the European standard for machinery manufacturing.

Illustrations



4 stroke gasoline engine HONDA GX270



Diesel engine –15LD350 LOMBARDINI

-Gasoline engine with the following specifications:

- Type: single cylinder, cooling air
- Cylinder: 270 cm³
- Power: 6.3Kw (8.5HP) @ 3600rev / min
- Maximum speed: 3700rpm
- Compression rate: 8.5: 1
- Bore x stroke: 77x58mm

-Diesel engine with the following specifications:

- Type: single cylinder, cooling air
- Cylinder: Minimum 349cm³
- Power: 5.5Kw (7.5hp) @ 3600rev / min
- Speed maximum: 3700rev /min
- Torque: 16.6Nm@2400rev/min
- Bore x stroke: 82x66mm

-An electric brake (brushless motor) with the following specifications:

- DC-motor with variator
- Fan of cooling
- Maximum speed: 4000rev/min
- Maximum power: 10.5kW
- Adjustment of the rotational speed by potentiometer

-Two tanks (one for each fuel) compatible with diesel and gasoline. The connection towards the engine is done via quick connectors. The tanks also included a filler cap, a blowhole, and a return connection for the diesel

-An electric box comprising the switching on buttons, LEDs, the circuit breakers necessary for safe operation of the equipment.

-The engine part is equipped with a safety position detector

-All the instrumentation below:

- Measure of engine torque
- Measure of the speed of rotation
- Measure of the exhaust temperature
- Measure of the air flow rate
- Measure of a fuel consumption

Services required

- Electrical supply : 400 Vac – 50 Hz – 40 A
- Electrical network : 3 phase(s) + Neutral + Earth.
- Smoke exhaust: diameter 60 mm
- Fuel supply : diesel fuel, gasoline
- Fuel tank volume: 10 L
- Utilities frame : 1100x800x1900
- Dimensions: (LxWxH mm): 1500 x 800 x 1300
- weight (Kg): 350

Documentation

- User's manual
- Pedagogical manual
- Technical documentation of the components
- Lab exercises
- Certificate of conformity CE

Note : if the equipment installation is operated by our staff, all supplies and exhaust connections required must stand at less than 2m from the machine

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