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Product Name :

Turbojet Engine Test Bench

Product Code :

SLE/MCE/56



Science Lab
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Description :

The Turbojet Engine Test Bench runs a small gas turbine jet engine on an instrumented stand, so students can study thrust and engine behaviour at first hand. The engine gives up to 82 N of thrust at 117,000 rpm, starts electrically and burns kerosene or petroleum with turbine oil, while the bench measures pressures, temperatures, speed, fuel consumption and force.

Turbojet test bench specifications

Parameter	Detail
Maximum thrust	82 N at 117,000 rpm; speed range 35,000–117,000 rpm
Exhaust gas temperature	610 °C
Starting and fuel	Electric starter; kerosene or petroleum with turbine oil; 1 tank, 5 L; max. 22 L/h at full load
Sound level	Max. 130 dB(A) at 1 m
Pressure measurement	Differential pressure 0–150 mbar; combustion chamber pressure 0–2.5 bar
Temperature measurement	2 × 0–1200 °C and 1 × 0–400 °C
Speed, fuel and force measurement	Speed 0–120,000 rpm; fuel consumption 0–25 L/h; force 0to ±200 N
Power supply versions	230 V, 50 Hz; 230 V, 60 Hz; 120 V, 60 Hz; all single phase
Size and weight	1200 × 900 × 330 mm; approx. 120 kg
Product code	SLE/MCE/56
Minimum order	10 units
Dispatch	Usually within 7 to 10 working days
Manufacturer	ScienceLab (Jain Scientific Equipments Pvt Ltd), Ambala, India

Jet propulsion experiments on the test bench

Thrust and fuel map. After an electric start, hold the engine at several steady speeds across its range. At each point, record thrust, fuel consumption, combustion chamber pressure and exhaust gas temperature once the readings settle. Students plot thrust and thrust-specific fuel consumption against speed and explain why both change as the engine speeds up.

The cycle on paper. Using the pressure and temperature readings, students sketch the Brayton cycle on temperature-entropy axes for one operating point. They then comp r turbi

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