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Product Name :
Rankine Cycle Steam Turbine

Product Code :
LBNY-0005-1630006



Description :

Rankine Cycle Steam Turbine Includes instrumentation to record all relevant temperatures, pressures, cooling water and gas flows, turbine speed and turbine brake load. A bench top Rankine Cycle Steam Turbine with electric fired boiler, throttle valve, impulse turbine, sub-atmospheric water cooled condenser and boiler feed pump.

Experimental Capabilities:

Investigation of turbine torque/speed and power/speed characteristics.
Investigation of steam quality by throttling.
Investigation of a true Rankine Cycle Steam Plant.
Determination of friction losses at various exhaust pressures.
With the optional power generation module demonstration of electrical power generation.
Determine of cycle thermal efficiency based on shaft power.

Technical Specification :

Boiler: Independently certified electric boiler with automatic control, pressure switches, fail safe pressure cut out and large capacity relief valve
Water cooled Condenser: Condenses turbine exhaust steam allowing heat rejection from the system to be measured.
Feed Water Reservoir:- Collects condensate from the condenser for return via the feed pump to the boiler.
Feed Pump: Low volume flow pump.
Flow Meters :- For condenser cooling water. Allows measurement of heat rejection from the condenser.
Digital Thermometer: 0.1°C resolution, with multi-way selector switch for all relevant temperatures

Turbine: Single stage , axial flow impulse turbine on a vertical shaft mounted in corrosion resistant sealed ball bearings. Convergent-divergent nozzle discharges at 20° to plane of turbine rotation and rotor has blades with 45° inlet and discharge angles. Rotor diameter 50mm. Maximum turbine speed 40,000 rpm.
Turbine Tachometer:- Digital display and over speed cut out.
Turbine brake load: Digital indicator.
Pressure gauges: For all relevant system pressures.



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