

Product Name :
Computerized Francis Turbine Trainer

Product Code :
SCHOOL-TUB820002



Description :

Computerized Francis Turbine Trainer

Technical Specification :

The closed water circuit consists of a tank with optional cooling, a centrifugal pump and a flow control valve for adjusting the inlet pressure. The transparent operating area of the turbine enables an optimal view of water flow, rotor and guide vanes during operation. By adjusting the guide vanes the angle of attack, the cross-section and thus the output of the turbine are changed. An asynchronous machine is used as a generator for loading the turbine. A pump with variable speed via frequency converter provides for an energy efficient operation. The speed of the turbine is recorded by means of an inductive, non-contact position sensor at the generator shaft. The generator is equipped with a pendulum bearing and with a force sensor to determine the torque. The pressures at the inlet and outlet of the turbine, the temperature and the flow rate are recorded by sensors. The measured values are displayed digitally and can be processed further on a PC. FEATURES: Determination of the mechanical power and hydraulic power of the turbine Determination of efficiency Recording of characteristic curves Investigation of the conversion of hydraulic into mechanical energy Investigation of the influence of the guide vane position Velocity triangles SPECIFICATIONS: Hydraulic power: 2,1kW at 1500min⁻¹ Mechanical power: approx. 1,4kW at 1500min⁻¹ Rotor, D: 165mm, 8 blades 8 guide vanes, angle of attack adjustable: 0...23° Centrifugal pump, multistage : Variable speed Power consumption: 5,5kW Max. Flow rate: 900L/min Pump head: 42m Asynchronous machine as generator : Output: 2,2kW at 1440min⁻¹ Tank: 550L Measuring ranges : Temperature: 0...100°C Flow rate: 0...1000L/min Torque: 0...20Nm Speed: 0...3000min⁻¹ Pressure (inlet): ±1bar (turbine) Pressure (outlet): 0...6bar (turbine) Power: 0...2200W (generator) 400V, 50Hz, 3 phases 400V, 60Hz, 3 phases, 230V, 60Hz, 3 phases



School Educational Instruments

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