Order Code : 26279660.7
PELTON WHEEL TURBINE TEST RIG

DESCRIPTION: Pelton Wheel Turbine is only impulse water turbine now in common use named in honour of Sir L. A. Pelton (1829-1908) of California, USA. It is a tangential flow impulse turbine. The water strikes the buckets along the tangent of the runner. The energy available at the inlet of the turbine is only kinetic energy. The pressure at the inlet and outlet of the turbine is atmospheric. This turbine is used for high heads. The present set-up consists of a runner. The buckets are mounted on the runner. The water is fed to the turbine, through SS nozzle with a SS spear, by means of Centrifugal Pump, tangentially to the runner. Flow of water into turbine is regulated by adjusting the spear position by the help of a given hand wheel. The runner is directly mounted on one end of a central SS shaft and other end is connected to a brake arrangement. The circular window of the turbine casing is provided with a transparent acrylic sheet for observation of flow on to the buckets. This runner assembly is supported by rigid MS structure. Load is applied to the turbine with the help of this brake dynamometer so that the efficiency of the turbine can be calculated. Pressure gauge is fitted at the inlet of the turbine to measure the total supply head to the turbine.Sensors are provided for RPM, Discharge and pressure measurement, RPM sensor for speed measurement. Data acquisition system for real time data and graphical representations are provided. Apparatus can be connected to PC with the help of USB connection WITH SOFTWARE PROVIDED.

Technical Details:

- Output Power: 1 HP.
- Discharge: 450 LPM (Approx.)
- Supply Head: 25 m
- Speed: 1000 RPM (Approx.)
- Nozzle: Material Stainless Steel.
- Spear: Material Stainless Steel.
- Dynamometer: Rope Brake type with spring balance (salter make)
- Sump Tank: Capacity 300 Ltrs.
- Water Circulation: Centrifugal Pump, Standard make, Capacity 5HP,
- Three Phase, 3000 RPM (Appx.)
- Discharge Measurement: orifice 32mm dia with differential pressure transmitter

Note: Specifications are subject to change, Photos shown above are Indicative, Actual Product can Vary.

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- Pressure gauge: 4 kg/cm^2
- Control Panel Comprises of: L&T make Starter, Mains Indicator, and MCB for Over load protection.
- Instruction Manual: An ENGLISH instruction manual will be provided along With the Apparatus.
- Tanks will be made of Stainless Steel.
- The whole set-up is well designed and arranged in a good quality painted structure.

Experiment:

- To study the operation of a Pelton Wheel Turbine.
- To determine the Output Power of Pelton Wheel Turbine.
- To determine the Turbine Efficiency.
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Utilities Required:

- Water Supply and Drain.
- Electricity 5 kW, 440V AC, Three Phases.
- Floor Area 1.5 x 0.75 m

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