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PELTON WHEEL TURBINE TEST RIG

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.

SCOPE OF EXPERIMENTATIONS:

- To study the operation of Pelton Wheel Turbine.
- To determine the Output Power of Pelton Wheel Turbine.
- To determine the Turbine Efficiency.

UTILITIES REQUIRED:

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

TECHNICAL DETAILS

- Output Power : 1kW/ 0.75 HP
- Discharge : 500, LPM(Approx)
- Impeller : Bucket type.
- Nozzle : Material Brass.
- Spear : Material Stainless Steel.
- Dynamometer : Rope Brake type, Dia 200mm.
- Sump Tank : Capacity 200 Ltrs.
- Water Circulation : Centrifugal Pump, Capacity 5 HP, Three Phase.
- Discharge Measurement : Pitot tube with Manometer.
- Control panel Comprises of : Standard make star/delta Starter, Mains Indicator, etc.
- Tanks will be made of Stainless Steel.
- The whole set-up is well designed and arranged in a good quality painted structure.