

KAPLAN TURBINE TEST RIG

The present set-up consists of a scroll casing housing a runner. Water enters the turbine through the Stationary guide vanes and passes through the runner axially. The runner has a hub and airfoil vanes, which are mounted on it. The water is fed to the turbine by means of Centrifugal Pump. The runner is directly mounted on one end of a central SS shaft and other end is connected to a brake arrangement. A transparent hollow cylinder made of acrylic is fitted in between the draft tube and the Casing for observation of flow. Load is applied to the turbine with the help of rope brake arrangement. So that the efficiency of the turbine can be calculated. The set-up is supplied with control panel. A draft tube is fitted on the outlet of the turbine. The set-up is complete with guide mechanism. Pressure and Vacuum gauges are fitted at the inlet and outlet of the turbine to measure the total supply head on the turbine.

EXPERIMENTS:

- To study the operation of Kaplan turbine.
- To determine the Output Power of Kaplan Turbine.
- To determine the turbine efficiency.

UTILITIES:

- Water Supply & Drain.
- Electricity 20 kw, 440V AC, Three Phase.
- Floor Area 1.5x0.75 m.
- Tachometer(to be arranged)



TECHNICAL DETAILS:

- Output Power : 1kW/ 0.75 HP
- Discharge : 3500 LPM(Approx)
- Supply head : 5m
- Runner : with adjustable Curved Vanes.
- Dynamometer : Rope Brake type, Dia 200mm.
- Sump Tank : Capacity 150 Liters.
- Water Circulation : Centrifugal Pump, Capacity 7.5 HP, Three Phase
- Discharge Measurement : Pitot tube with Manometer.
- Speed 1500 RPM (Approx.)
- Control panel Comprises of :
Standard make star/delta Starter, Mains Indicator, MCB for overload protection.
Tanks will be made of Stainless Steel.
The whole set-up is well designed and arranged in a good quality painted structure.