

### FRANCIS TURBINE TEST RIG (EE-1548 A)

The present set up consists of a runner. The water is fed to the turbine by means of Centrifugal pump, radially to the runner. The runner is directly mounted on one end of a central S.S. shaft and the other end 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 runner. The runner assembly is supported by thick cast iron pedestal. Load is applied to the turbine with the help of brake arrangement so that the efficiency of the turbine can be calculated. A draught tube is fitted on the outlet of the turbine. The test set up is complete with guide mechanism.

#### EXPERIMENTATION:

- To study the operation of a Francis Turbine
- To determine the output power of the Francis Turbine
- To determine the Turbine efficiency

#### UTILITIES REQUIRED:

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

#### TECHNICAL DETAILS

- Output power : 1 KW or above
- Discharge : 1000 LPM
- Supply head : 15 m
- Speed : 1800 RPM
- Runner : Curved vanes type.
- Dynamometer : Rope brake drum type, drum diameter 200 mm.
- Sump tank : Capacity 200 litres
- Water circulation : Centrifugal pump, Kirloskar make, 5HP, three phases,
- Pressure gauge : Bourdon type, range 0-7 kg/cm<sup>2</sup> or above
- Vacuum gauge : Bourdon type, range 0-760 mm of Hg
- Discharges measurement : Orificemeter meter with differential pressure gauge.
- Tank material : stainless steel material
- Control panel Comprises of:
  - L&T make, Star & delta starter
  - An ENGLISH instruction manual will be provided along with the apparatus
  - The whole set-up is well designed and arranged in a good quality painted structure.

