HT 990 LOW HEAD HYDRAULIC TURBINE TEST RIG

GENERAL DESCRIPTION

This test facility was design and developed jointly with The Joint Graduate School of Energy and Environment (five institutions). It is intended to simulate large hydro power plant discharge for end user in designing small low head turbines.

The test rig provides water flow as well as measuring instruments. Flow is generated by a centrifugal pump. A head tank in front of the test section is provided to simulate a static head and another tank is provided after the test section. Flow rate and head can be varied by an inverter. A flow control valve at the pump discharge and a flow control valve of the return line between pump discharge and pump suction are provided. A dynamometer at the test section measures the designed turbine output.

The equipment is supplied unassembled and to be erected and commissioned at site.

TEST CAPABILITY

This is an ideal facility to simulate flow conditions of the actual site. The turbine input (flow rate and head) and output (speed and torque) can be accurately monitored. Thus the most efficient prototype turbine can be designed, developed and tested.

TECHNICAL DATA

- Pump ratings : Maximum flow rate over 1300 m^3/hr.
  Maximum head over 15 m H_2O.
- Circulating pipe : 300 mm diameter.
- Test section : 300 mm diameter x 750 mm long.
- Dynamometer : Water brake absorber, 30 kW rating.
- Head tank at upstream of test section : 950 mm diameter x 3 m long.
- Tail tank after test section : 1430 mm diameter x 2.2 m long.
- Measuring instruments:
  - Sensors with digital display : Pressures
    : Flow rate and speed
- Steel base frame with supports for tanks and pipings, test section platform with ladder.
- Power supply : 380V, 3Ph, 50Hz. Other power supply is available on request.

OPTIONAL EQUIPMENT

- HT 910-050 Computer Interface
  This includes computer interface unit, and software for data display and analysis by computer (separately supplied).

Working dimensions WxLxH	: 4.4 x 7.8 x 3.0 m.
Net (unpacked) shipping dimensions WxLxH	: Approx. One 40 ft. container.
Net weight	: Approx. 3500 kg.