

## HT 303 COMPACT FRANCIS TURBINE TEST SET

### GENERAL DESCRIPTION

This is a self contained bench top set for studying the Francis turbine characteristics under various flow rates and heads.

The unit consists of a storage tank, a pump, a turbine, a dynamometer, and measuring instruments.

The adjustable guide vanes direct water spirally to the runner.

Instruction manual is also included.



### EXPERIMENT CAPABILITIES

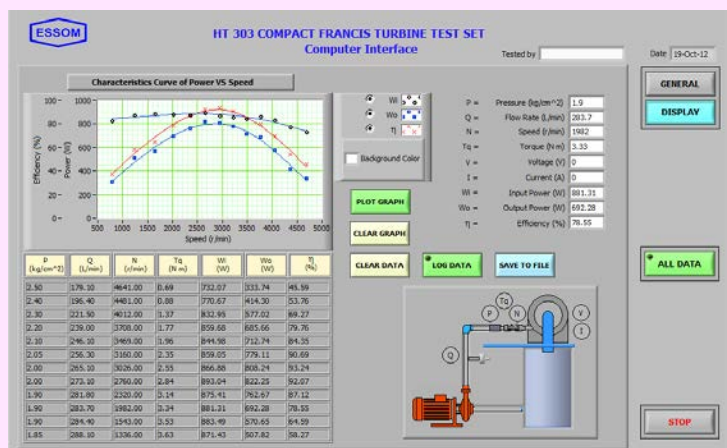
- Torque vs speed at various heads and flow rates.
- Power output vs speed for various heads and flow rates.
- Efficiency vs speed for a given head and flow rate.
- Racing characteristics.

### TECHNICAL DATA

- Turbine:
  - Construction : Bronze runner, with adjustable guide vanes
  - Ratings : Non corrosion metal casing with transparent window to observe guide vane position
  - Over 400 W of brake power
- Pump ratings
  - Motor : 2.2 kW
- Dynamometer : Water cooled mechanical brake absorber with anti splashing system
- Measuring instruments
  - Torque : Spring balance
  - Pressure : Pressure gauge
  - Sensors with digital display : Flow rate and speed
- Software for data display and analysis by computer (separately supplied).
- Power supply : 220 V, 1 Ph, 50 Hz. Other power supply is available on request.

### OPTIONAL EQUIPMENT

- HD160SA Water brake absorber instead of mechanical brake absorber.
- HP 003 Advanced inverter for controlling and indicating motor speed as well as for calculating motor input power. Hence pump efficiency at various speeds can be determined.
- HP 011A Pressure digital display instead of pressure gauge.
- HP 012A Torque digital display instead of spring balance.
- HT 011 Electric generator with voltage and current digital display, and lamp loads.
- HT 303-050 Computer Interface
  - Sensors with computer interface unit for key data acquisition instead of analog data measuring instruments.
  - This includes computer interface unit with torque and pressure sensors instead of spring balance and pressure gauge.
- Other optional equipment, please contact manufacturer (essom@essom.com)



**Net (unpacked) shipping dimensions WxLxH**  
**Net weight**

: 76 x 140 x 90 cm  
 : Approx. 125 kg

