



A compact, mobile and fully self-contained centrifugal pump test set, that allows students to find the characteristics of centrifugal pumps working alone or in series or parallel. It also allows students to see (and hear) cavitation and understand the use of a Venturi meter and differential pressure measurement to find flow rate. Two bearing-mounted motors drive each pump independently. The pumps draw water from the integral reservoir. The water travels through strainers and a series of valves to be delivered to a Venturi meter. The water then returns to the reservoir for re-use, keeping water use to a minimum. The pumps each have a transparent 'window' so students can see the impeller turning and how the water vapour bubbles form in the pump at cavitation. The optional stroboscope makes the effect easier to see. Instrument and control modules fit into a frame above and behind the pumps. Each pump has an electronic Motor Drive to control its speed, a load cell to measure torque and a sensor to measure pump speed. A display on each Motor Drive shows speed and torque and automatically calculates and displays true 'shaft' power. The differential pressure across the Venturi gives flow rate. Each pump has its own inlet valve. A two-way valve in the system allows the pumps to work alone, in parallel or in Series. The equipment can use both analogue and digital instrumentation at the same time, allowing students to compare the different pressure measurement methods.

### FEATURES:

- Self-contained, Portable two-stage centrifugal pump test set for a range of experiments and demonstrations
- Pumps have a transparent window to see clearly their impellers, the water flow and cavitation
- Pumps can be tested individually, in series and in parallel, with independent speed control
- Shows how to use a Venturi meter and differential pressure measurement to find flow rate
- Optional stroboscope allows students to see clearly the effects of cavitation around a pump impeller
- Motor Drives have digital displays of pump speed, torque and calculated true shaft power
- Optional easy-to-read analog instrumentation

Note: Specifications are subject to change, Photos shown above are Indicative, Actual Product can Vary.



Export Sales: +91-9829132777  
 India Sales: +91-9588842361



IT-2013, Ramchandrapura Industrial Area,  
 Sitapura Extension, Jaipur-302022, India.



info@tesca.in  
 www.tescaglobal.com

**RANGE OF EXPERIMENTS:**

- Centrifugal pump performance and characteristics (head versus flow and efficiency versus flow)
- Study of performance of centrifugal pump in series and parallel combinations.
- Flow measurement using a Venturitube
- Demonstration of cavitation.

**SPECIFICATION:**

- Monoblock Pumps - 1/2 HP, 2100 LPH discharge at 20m. Head, 2 nos.
- Pressure and vacuum gauges - one each for each pump.
  - 0 to 760 mm Hg -1 No
  - 1 to 2 bar - 1no.
  - 0 to 2.1 bar-1no.
- Sump Tank - 60 ltrs (Stainless Steel).
- 1" ball valve for series and parallel combination.
- proximity sensor for speed measurement
- Pressure gauge with three way cock for water flow measurement
- Speed indicator for pump1/2
- Spring balance for motor torque measurement.

**INSTRUCTION MANUAL:**

- A manual is supplied which gives details of the apparatus and procedure of experiments along with sample calculations.

**SERVICES REQUIRED:**

- 230 V., 1Phase, 50 Hz, 6 Amp Electricity.
- Space Required: 1m X 1.5m approx. Is required.

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