

H47

Centrifugal Pump Test Set

For a comprehensive range of investigations into the performance and characteristics of a centrifugal pump

Works with
VDAS®



Screenshot of the optional VDAS® software

Test Set with analogue pressure measurement, digital pressure measurement and Versatile Data Acquisition Unit

- Self-contained, mobile centrifugal pump test set for a range of experiments and demonstrations
- Pump has a transparent ‘window’ to allow students to see clearly its impeller, the water flow and cavitation
- 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 the pump impeller
- Motor Drive has a digital display of pump speed, torque and calculated true ‘shaft’ power
- Choice of easy-to-read analogue instrumentation and optional digital instrumentation (or both) for pressure measurement
- Works with TecEquipment’s Versatile Data Acquisition System (VDAS®)

- TecEquipment Ltd, Bonsall Street, Long Eaton, Nottingham NG10 2AN, UK
- **T** +44 115 972 2611 • **F** +44 115 973 1520 • **E** info@tecquipment.com • **W** www.tecquipment.com
- An ISO 9001 certified company
- VDAS is a registered trademark of TecEquipment Ltd



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Centrifugal Pump Test Set

Description

A compact, mobile and fully self-contained centrifugal pump test set that allows students to find the characteristics of a centrifugal pump. It also allows them to see (and hear) cavitation and understand the use of a Venturi meter and differential pressure measurement to find flow rate.

A motor mounted in bearings drives the pump. The pump draws water from the integral reservoir. The water travels up through a valve and filter, through an inlet valve to the pump body, then out through a delivery valve. It then passes through a Venturi meter and returns to the reservoir for re-use. This self-contained water supply keeps water consumption to a minimum. The pump has 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 pump. An electronic Motor Drive controls the pump speed. A strain gauge load cell measures the driving torque of the pump and a sensor measures pump speed. A display on the Motor Drive shows speed and torque and automatically calculates and displays true 'shaft' power.

The differential pressure across the Venturi gives flow rate. The adjustable inlet and delivery valves allow students to create different operating conditions.

TecQuipment offer a choice of analogue and digital instruments to display the inlet pressure, delivery pressure and differential pressure across the Venturi. The Analogue Pressure Display (AP1) is the most cost-effective method, but the Digital Pressure Display (DP1) increases ease of measurement, and allows connection to TecQuipment's frame-mounted Versatile Data Acquisition System (VDAS-F, available separately).

Alternatively, the equipment can also use both analogue and digital instrumentation at the same time, enabling students to compare the different pressure measurement methods.

Experiments

Comprehensive demonstrations and investigations into a centrifugal pump including:

- Centrifugal pump performance and characteristics, typically head versus flow and efficiency versus flow
- Non-dimensional performance characteristics
- Flow measurement using a Venturi tube
- Demonstration of cavitation

Standard Features

- Supplied with comprehensive user guide
- Two-year warranty
- Made in accordance with the latest European Union directives

Essential Ancillaries

Either:

- Analogue Pressure Display (AP1) **or**
- Digital Pressure Display (DP1) **or**
- Analogue Pressure Display (AP1) **and** Digital Pressure Display (DP1)

Recommended Ancillaries

- Versatile Data Acquisition System – frame-mounting version (VDAS-F)
- Stroboscope (ST1)

Essential Services

- 230 V, 50 Hz, 13 A single-phase electrical supply **or**
- 220 V, 60 Hz, 13 A phase-phase electrical supply
- Solid, level floor at least 3 m x 2 m

Operating Conditions

Operating environment: Laboratory environment

Storage temperature range: -25°C to $+55^{\circ}\text{C}$ (when packed for transport)

Operating temperature range: $+5^{\circ}\text{C}$ to $+40^{\circ}\text{C}$

Operating relative humidity range: 30% to 95% (non-condensing)

Specification

Dimensions: Nett: Length 1200 mm x depth 600 mm x height 1600 mm, packed: 1.5 m³

Weight: Nett: 110 kg; packed: 200 kg

Pump:

Centrifugal, approximately 2 L.s⁻¹ maximum flow rate and 120 kPa maximum head. Maximum speed 3000 rev.min⁻¹

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