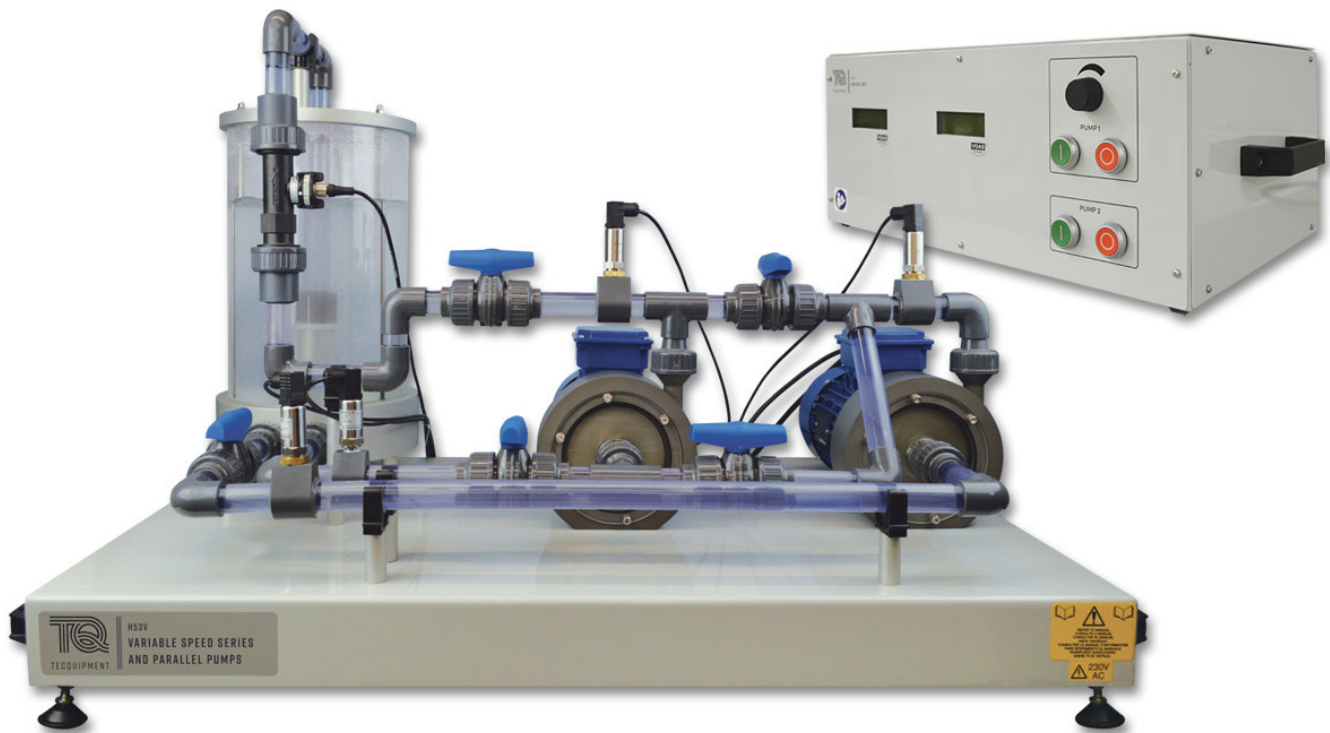


## VARIABLE-SPEED SERIES AND PARALLEL PUMPS

**VDAS<sup>®</sup> ONBOARD** H53V

Benchtop test set that allows students to investigate the operation and performance of a single centrifugal pump and two centrifugal pumps configured in series or parallel. Has VDAS<sup>®</sup> Onboard for automatic data acquisition.



### KEY FEATURES

- Self-contained, compact, benchtop, easy-to-use test set for a range of experiments and demonstrations
- Includes TecQuipment's Versatile Data Acquisition System VDAS<sup>®</sup> Onboard, featuring data acquisition via USB
- VDAS<sup>®</sup> software allows students to visualise experiential parameters via pressure transducers around the apparatus
- Easily configurable system to enable pumps to be tested individually, in series and in parallel, with a manually adjustable water flow rate
- Long-life, robust valves with large handles allow students to change the water circuit in seconds, ready for the next experiment
- Includes four precise pressure transducers to measure intake and delivery pressures
- Discharge flow measurement
- Temperature measurement

### LEARNING OUTCOMES

Comprehensive demonstrations and investigations into a centrifugal pump including:

- Centrifugal pump performance and characteristics, typically: head versus flow rate and efficiency versus flow rate
- Operation of centrifugal pumps in series
- Operation of centrifugal pumps in parallel
- Suction tests of a single pump
- Demonstration of cavitation
- Determination of water horsepower (WHP)
- Determination of pump shaft power from measured parameters
- Development of pump characteristic curves such as efficiency, shaft and hydraulic power over the range of pump speeds
- Understanding energy balance in centrifugal pumps

# ≡ VARIABLE-SPEED SERIES AND PARALLEL PUMPS



## DESCRIPTION

A compact, benchtop 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.

The apparatus comprises one inverter driven variable speed centrifugal pump and one fixed speed centrifugal pump, together with two bearing-mounted motors driving each pump independently. The pumps draw water from the clear acrylic reservoir. The water travels through a series of valves to be delivered to a flow and temperature measurement device. The water then returns to the reservoir for re-use, keeping water use to a minimum.

There are pressure transducers fitted in the intake and delivery pipes for the direct measurement and visible display of the inlet and outlet pressures of the pumps on the control box. The adjustable inlet and delivery valves allow students to create different operating conditions.

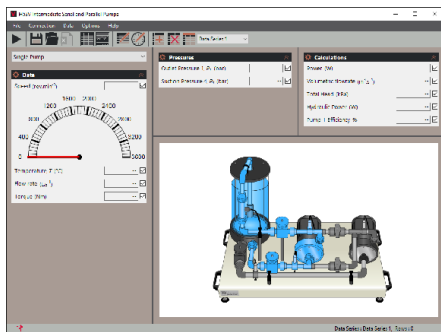
H53V features VDAS® Onboard for data acquisition via USB cable (supplied) to a computer (not supplied).

## STANDARD FEATURES

- Supplied with a comprehensive user guide
- Five-year warranty
- Manufactured in accordance with the latest European Union directives
- ISO9001 certified manufacturer

## RECOMMENDED ANCILLARIES

- Stroboscope (ST1)
- VDAS® software



## SPECIFICATIONS

TecEquipment is committed to a programme of continuous improvement; hence we reserve the right to alter the design and product specification without prior notice.

### APPARATUS APPROXIMATE NETT DIMENSIONS AND WEIGHT:

- 1040 mm (width); 572 mm (depth); 680 mm (height)
- Approximately 50 kg (weight – tank empty)

### CONTROL BOX NETT DIMENSIONS AND WEIGHT

- 620 mm (width); 380 mm (depth); 220 mm (height)
- Approximately 14 kg (weight)

## ESSENTIAL SERVICES

### ELECTRICAL SUPPLY: (SPECIFY ON ORDER)

- Single phase, 220 – 240 VAC, 50 Hz, 6 Amp

### OR

- Two phase, 220 – 240 VAC, 60 Hz, 6 Amp

## OPERATING CONDITIONS

### OPERATING ENVIRONMENT:

Laboratory environment

### STORAGE TEMPERATURE RANGE:

-25°C to +55°C (when packed for transport)

### OPERATING TEMPERATURE RANGE:

+5°C to +40°C

### OPERATING RELATIVE HUMIDITY RANGE:

30% to 95% (non-condensing)