



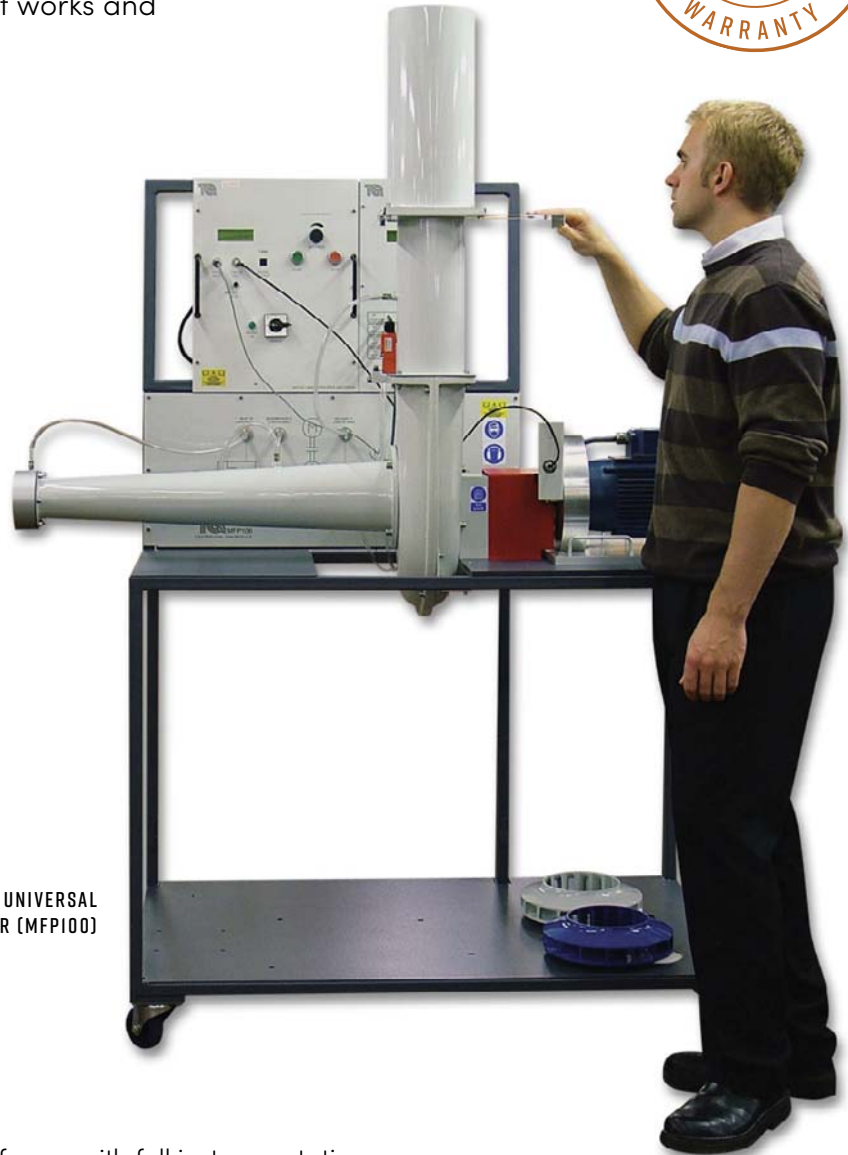
**VDAS® MFP106**

## CENTRIFUGAL FAN MODULE

Allows students to study and perform tests on a centrifugal fan: to understand how it works and calculate its performance



SCREENSHOT OF THE OPTIONAL VDAS® SOFTWARE



SHOWN FITTED WITH THE UNIVERSAL DYNAMOMETER (MFP100)

- Centrifugal fan, mounted in a mobile frame with full instrumentation
- Part of TecQuipment's Modular Fluid Power range that connects with the Universal Dynamometer (MFP100) as a common motive power source for a cost-effective solution
- Allows students to study and test a popular rotodynamic machine, safely and at a realistic scale
- Three interchangeable impellers provided as standard
- Includes digital pressure display and pressure measurements at key points in the system
- Connection plate with clear schematic diagram shows the arrangement of the module
- Fully variable speed, for a range of test results
- Optional Pipe Flow and Nozzle Kit (MFP106a) for more experiments
- Works with TecQuipment's Versatile Data Acquisition System (VDAS®)



# CENTRIFUGAL FAN MODULE

## DESCRIPTION

For use with the Universal Dynamometer (MFP100), the Centrifugal Fan Module is part of TecQuipment's Modular Fluid Power range. This range examines and explains fluid power machines. The Centrifugal Fan Module is ideal for student experiments, demonstrations and projects.

Centrifugal fans are common machines, used for ventilation or any application that needs a good volume of air at a reasonable pressure.

The module consists of a fan and instrumentation, all mounted on a robust, mobile trolley for ease of use. The module is for use with and driven by TecQuipment's Universal Dynamometer (refer to MFP100 datasheet). The Universal Dynamometer measures the speed, torque and power absorbed by the fan. Speed is fully variable up to the maximum allowable for the fan. Air enters the fan through a shaped nozzle, used to measure the airflow rate. The air then moves past a slide-valve and out to atmosphere. The slide-valve controls the airflow rate (and therefore delivery pressure).

The fan impeller (moving part) is interchangeable. Supplied with the fan are three different impellers for more tests on fan performance. The fan housing has an interlock so the MFP100 motor cannot run unless the user assembles the fan correctly. This allows the user to safely change fan impellers.

Electronic transducers measure the inlet pressure, delivery pressure, nozzle differential pressure (flow rate) and the atmospheric (barometric) pressure. Digital displays show all the readings.

An optional Pipe Flow and Nozzle Kit (MFP106a) connects to the inlet of the fan for additional experiments in losses in pipes and fittings.

For quick and reliable tests, TecQuipment can supply the optional VDAS (Versatile Data Acquisition System). VDAS gives accurate real-time data capture, monitoring and display, calculation and charting of all the important readings on a computer. The computer is not supplied.

## STANDARD FEATURES

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

## LEARNING OUTCOMES

- Performance of a centrifugal fan
- Variation of fan performance with speed
- Variation of fan performance with type of impeller
- Non-dimensional performance curves
- Determination of the specific speed of the fan

## ESSENTIAL BASE UNIT

- Universal Dynamometer (MFP100)

## RECOMMENDED ANCILLARIES

- VDAS-F (frame mounted version of the Versatile Data Acquisition System)
- Pipe Flow and Nozzle Kit (MFP106a)

## ESSENTIAL SERVICES

### ELECTRICAL SUPPLY (FOR THE UNIVERSAL DYNAMOMETER):

Phase to neutral supply – 230 VAC, 50 Hz at 20 A

Phase to phase supply – 220 VAC, 60 Hz at 20 A

### FLOOR SPACE:

See Specifications

## OPERATING CONDITIONS

### OPERATING ENVIRONMENT:

Laboratory

### STORAGE TEMPERATURE RANGE:

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

### OPERATING TEMPERATURE RANGE:

+5°C to +40°C

### OPERATING RELATIVE HUMIDITY RANGE:

80% at temperatures < 31°C decreasing linearly to 50% at 40°C

# CENTRIFUGAL FAN MODULE

## SPECIFICATIONS

### ASSEMBLED DIMENSIONS:

1430 mm (Length) x 2000 mm (Height) x 750 mm (front to back)

### NETT WEIGHT:

134 kg (including the weight of the instruments)

### POWER:

1.5 kW (from Universal Dynamometer)

### IMPELLERS:

Forward swept, backward swept and radial

### INSTRUMENTS AND MEASUREMENTS

- Pressures: Piezoelectric transducers and digital display

**NOTE:** The Control and Instrumentation Unit of the Universal Dynamometer provides electrical power for the digital display unit and other optional instruments

- Flow rate: Nozzle and differential pressure transducer
- Torque, speed and power: Measured and displayed digitally by the Universal Dynamometer (MFP100)

## SOUND LEVELS

The centrifugal fan generates localised noise levels greater than 85 dB(A). You must wear ear defenders when you use it.