



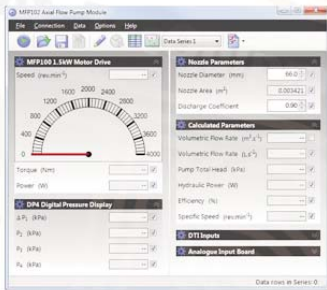
## Fluid Mechanics

# MFP102

# Axial Flow Pump Module

**Allows students to study and perform tests on an axial flow pump: to understand how it works and calculate its performance**

Works with **VDAS®**



Typical screenshot of the optional VDAS® software

Shown fitted with the Universal Dynamometer (MFP100)



- Axial flow pump, mounted in a mobile frame with full instrumentation, including a digital pressure display
- Self-contained, has its own water reservoir and needs no external water supply
- Part of TecEquipment’s Modular Fluid Power range which connects with the Universal Dynamometer (MFP100) as a common motive-power source for a cost-effective solution
- Allows students to study and test a common type of rotodynamic pump, safely and at a realistic scale
- Connection plate with schematic diagram shows the water flow circuit and how parts of the module connect to each other
- Fully variable speed and flow, for range of tests
- 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



# MFP102

# Axial Flow Pump Module

## Description

For use with the Universal Dynamometer (MFP100), the Axial Flow Pump Module is part of TecEquipment's Modular Fluid Power range. The Axial Flow Pump Module is ideal for student experiments, demonstrations and projects.

Axial flow pumps are common machines, used to pump water and other liquids. They can be as small as a few centimetres in domestic use, or up to a metre when used in large irrigation systems. They give high flow rates at a reasonable pressure. The pump fitted to this module has two sections - one fixed and one moving, each with a set of blades.

The module has an axial flow pump and instrumentation, all mounted on a robust, mobile trolley for ease of use. The module is for use with and driven by TecEquipment's Universal Dynamometer (refer to MFP100 datasheet). The Universal Dynamometer measures the speed, torque and power absorbed by the pump. Speed is fully variable up to the maximum allowable for the pump.

Water moves from a water tank through a calibrated nozzle. It then passes through the pump and down to a fully adjustable delivery valve. It then returns to the water tank. The delivery valve allows the user to gradually shut the downstream water flow for a range of pump performance tests.

Electronic transducers measure the pump inlet and outlet pressures, and the pressure difference across the nozzle. A digital display shows all the readings.

For quick and reliable tests, TecEquipment 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 a comprehensive User Guide
- Five-year warranty
- Made in accordance with the latest European Union directives

## Experiments

- Variation of pump performance with speed
- Variation of pump performance with different outlet pressures and flow rate
- Non-dimensional performance curves
- Determination of the specific speed of the pump

## Essential Base Unit

- Universal Dynamometer (MFP100)

## Recommended Ancillaries

- VDAS-F (frame-mounted version of the Versatile Data Acquisition System)

## Essential Services

*Electrical supply (for the Universal Dynamometer):*

Single-phase 230 VAC, 50 Hz at 20 A

Two-phase 220 VAC, 60 Hz at 20 A

*Clean water:*

Approximately 250 Litres

*Floor spaced needed:*

1.75 m x 0.9 m

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# MFP102

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## Sound Levels

This pump generates localised noise levels greater than 80 dB(A). **TecEquipment recommend that you wear ear defenders when you work near to this product.**

## 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

## Specifications

*Nett Dimensions:*

1750 mm (length) x 1700 mm (height) x 900 mm (front to back)

*Nett Weight:*

165 kg (without water)

*Approximate Packed Dimensions and Weight:*

2.59 m<sup>3</sup> and 200 kg

*Nominal Maximum Pump Flow:*

12 L.s<sup>-1</sup>

*Nominal Maximum Pump Head:*

3.5 m H<sub>2</sub>O (35 kPa)

*Instruments and Measurements*

- Digital Pressure Display to show pressures at the pump and across the nozzle. You use the pressures across the nozzle to calculate the flow.

Note - the Universal Dynamometer (MFP100) provides electrical power for the Digital Pressure Display

- Torque, speed and power: Measured and displayed digitally by the Universal Dynamometer (MFP100)

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*tradition.*

*innovation.*

*integration.*

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**infoWERK Medien & Technik GmbH**

**Martinsbühel 6 / A-6170 Zirl / Austria**

Phone: +43 (0) 5238 52099-0 / Fax: +43 (0) 5238 52099-40

E-Mail: [info@infowerk.at](mailto:info@infowerk.at) / Website: [infowerk.at](http://infowerk.at)

**Otto-Dürr-Straße 25**

**D-70435 Stuttgart, Zuffenhausen/ Germany**

Phone: +49 (0) 711 342471-0 / Fax: +49 (0) 711 342471-11

E-Mail: [info@de.infowerk.at](mailto:info@de.infowerk.at) / Website: [infowerk.at](http://infowerk.at)