FM SERIES

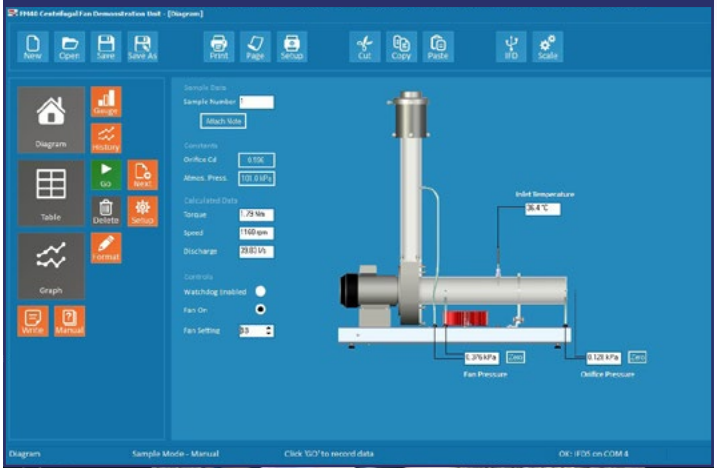
Centrifugal Fan Demonstration Unit – FM40

STAINLESS STEEL CONSTRUCTION WITH TRANSPARENT TEST SECTION
CONTROL AND DATA LOGGING VIA PC
INTERCHANGEABLE BACKWARD AND FORWARD CURVED BLADES PROVIDED

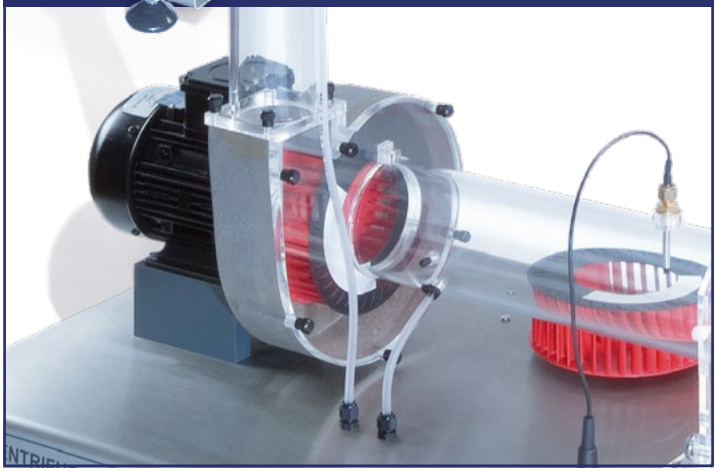
The Armfield centrifugal fan is a radial flow machine which produces the necessary pressure to move gas by the centrifugal force built up inside the fan casing. The design of the fan blade has a primary influence on performance.

These types of fans are usually employed for ventilating duties requiring a somewhat higher delivery pressure than that available from axial fans.

Software screen shot



Centrifugal fan fully visible



UK office - email: sales@armfield.co.uk tel: +44 (0) 1425 478781 (for ROW)
USA office - email: info@armfield.inc tel: +1 (609) 208-2800 (USA only)

Issue: 2
URL: http://www.armfield.co.uk/fm
Applications
ME ChE CE IP

Description

A motor driven centrifugal fan mounted on a stainless steel plinth. Transparent air inlet and air outlet ducts enable the fan volute and the impellor to be clearly observed. A manually operated adjustable aperture allows the air flow rate to be varied at constant fan speed. A calibrated orifice plate is used on the discharge to measure the air flow rate.

Interchangeable backward and forward-curved blade impellers are provided to facilitate direct comparison between their respective operating characteristics and to demonstrate to which duties each is best suited.

Electronic sensors measure the pressure head developed across the fan, the pressure across the orifice plate (and hence the flow rate) and the air temperature.

Requirements

1Ph | PC | USB

- Armfield IFD7
- Software requires a computer running Windows XP or above with a USB port (computer not supplied by Armfield)

Scale

Armfield IFD7
Interface Unit

Technical specifications

Max flow rate:	70 l/s typical
Max head:	0.7kPa
Max fan speed:	3,000rpm
Motor power rating:	550W
2 x Pressure Sensors:	-5in wg to +5in wg
Inlet Duct Dia:	90mm
Discharge Duct Dia:	70mm

Overall dimensions

Length	0.88m
Width	0.51m
Height	0.97m
Packed and crated shipping specifications	
Volume	0.75m^3
Gross weight	90kg

Demonstration capabilities

- Measurement of constant-speed machine performance in terms of static and total pressures, rotor speed and motor shaft power as a function of inlet flow
- Measurement of fan efficiency and estimation of impeller power efficiency
- Measurement of performance at constant speeds
- Introduction to similarity laws for scale-up
- Comparison of student calculations with computer results

Software

The ArmSOFT software enables the operator to control the fan speed 0 to 100%. Feedback from the sensors is then displayed in real time for the end user with simultaneous data logging.

The data trend is also displayed graphically in real time and can be exported to another platform such as Excel for further analysis.

Essential accessories / equipment

- Armfield IFD7

Ordering specification

- A small-scale centrifugal fan demonstration unit comprising of an inlet duct, the fan, an outlet duct and an adjustable aperture, all mounted on a stainless steel base
- Equipped with electronic measurement sensors for fan head pressure, flow rate (via orifice plate) and air temperature
- Transparent cover plate on fan volute for visibility
- Supplied with two different easily interchangeable impellers
- Capable of being linked to a PC (not supplied) via a USB interface console (an essential accessory), which does not require internal access to the computer. Also enables interfacing to other software packages
- Supplied with software providing full instructions for setting up, operating, calibrating and performing the teaching exercises. Facilities for logging, processing and displaying data graphically
- Offers a complete teaching package of coursework and laboratory investigation

Ordering codes

- FM40
- IFD7-A: 220-240V / 1Ph / 50Hz
- IFD7-G: 220-240V / 1Ph / 60Hz

Armfield standard warranty applies with this product