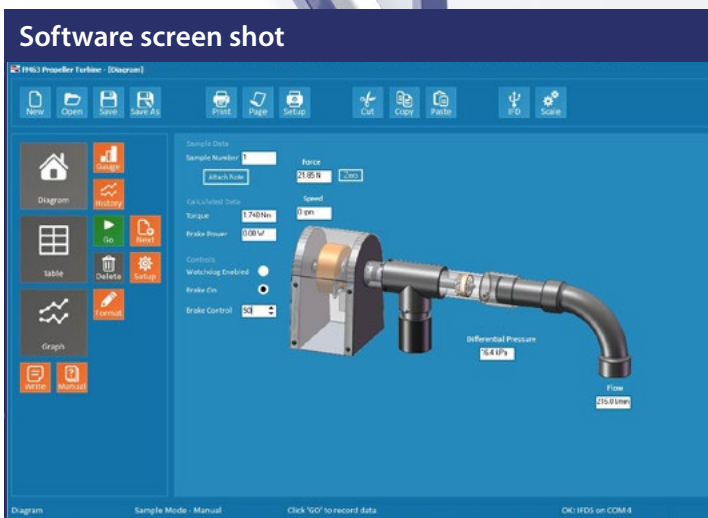


A self contained, small-scale propeller turbine unit. This fixed blade, axial flow turbine may be considered as the prototype form of a propeller turbine, itself a forerunner of the Kaplan turbine.

**METAL FRAMEWORK WITH TRANSPARENT TEST SECTION FOR OBSERVATION
CONTROL AND DATA LOGGING VIA PC
SIMPLE USB CONNECTIVITY**



Description

The FM63 consists of a framework base which houses a large water reservoir and a circulating pump.

A stainless steel top supports the turbine itself and a dynamometer assembly. The propeller itself is housed in a clear acrylic pipe to enable maximum visibility of the workings.

The unit incorporates a paddle wheel type flow meter and a pressure sensor to measure the inlet condition of the water.

The dynamometer module incorporates a magnetic type brake which applies load to the turbine. The level of braking is controlled directly from the software.

A load cell measures the braking force, hence the power and an optical sensor measures the rotational speed of the turbine.

Demonstration capabilities

- ▶ Determining the characteristics of the propeller turbine, including the relationships of:
 - volume flow rate
 - head
 - torque produced
 - power output
 - efficiency to rotational speed

Armfield IFD7
Interface Unit



Requirements

Scale



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

Technical specifications

Maximum power:	55W
Maximum speed:	8,500rpm
Maximum torque:	0.60Nm
Head:	14m
Flow rate:	4.4l/s distributor
8 guide vanes, @ 45°:	External diameter 50mm
9 guide vanes, @ 40°:	External diameter 50mm
Submersible pump with motor nominal power:	55W
Tank:	Approx. 75l
Measuring ranges	
- temperature:	0 to 100°C
- pressure (at turbine inlet):	-100 to 100 kPa
- pressure (at turbine outlet):	-100 to 100 kPa

Overall dimensions

Length	0.91m
Width	0.66m
Height	1.12m
Packed and crated shipping specifications	
Volume	1.40m ³
Gross weight	160kg

Software

The ArmSOFT software enables the operator to control the pump 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

- ▶ Self-contained, small-scale hydropower unit designed to demonstrate the operating principles of a propeller turbine
- ▶ 75l water reservoir
- ▶ Circulating pump which produces 14m head at 4.4 l/s
- ▶ Loaded by a magnetic brake unit which is controlled direct from the PC
- ▶ Links to a PC via a USB interface
- ▶ Electronic sensors monitor process variables

Ordering codes

- ▶ FM63-A: 220-240V / 1Ph / 50Hz
- ▶ FM63-B: 120V / 1Ph / 60Hz
- ▶ FM63-G: 220-240V / 1Ph / 60Hz
- ▶ IFD7-A: 220-240V / 1Ph / 50Hz
- ▶ IFD7-G: 220-240V / 1Ph / 60Hz

Armfield standard warranty applies with this product

Knowledge base

- > 28 years' expertise in research & development technology
- > 50 years' providing engaging engineering teaching equipment

Benefit from our experience, just call or email to discuss your laboratory needs, latest project or application.

An ISO 9001:2015 Company



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