

**W
SERIES**

The purpose of the Armfield Aeration Unit is to permit study of the oxygen transfer characteristics of diffused air systems and the physical and chemical parameters that influence their oxygenation capacity.

These studies are a necessary prelude to the understanding of the biological treatment of waste waters.

AERATION UNIT – W10MKII

ELECTRONIC TORQUE FEEDBACK

Digital speed / torque display



Variable-speed stirrer



armBUS desktop main screen



Description

The Armfield Aeration Unit comprises an open tank equipped with a propeller stirrer. Air is supplied via a compressed air line through a pressure regulator valve, and through a flow meter to a diffuser positioned within the tank.

A variety of diffusers are included. The dissolved oxygen content of the water in the tank is measured by means of a dissolved oxygen probe, which includes direct reading of water temperature.

Mounted on the base is the clear 27-litre acrylic water tank. On the front of the tank is a depth scale and at the base a drainage tap. The digital stirrer control includes speed and torque measurements. This is supported by a metal bar. Sparger tube, treble airstone and single airstone may be separately attached to the aerator tube. Variable-speed adjustment of the stirrer paddle provides different levels of turbulence in the tank.

Requirements

Scale



- ▶ **Electrical supply:** supplied with a universal mains adaptor suitable for 100-240V / 1ph / 50-60Hz

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

- ▶ **Chemicals:** 10% solution Sodium Sulphite and 1% solution Cobalt chloride (not supplied)
- ▶ **Air:** Compressed airline (not supplied)
- ▶ **Water supply:** distilled water and mains water supply for initial fill only

Features / benefits

- ▶ Electronic flow sensor
- ▶ Dissolved oxygen (DO) meter with water temperature measurement

Software

The ArmBUS software enables the operator to select the appropriate stage of the process and a mimic diagram with measured variables is displayed. The speed of the pump can be varied to meet the required flow rate.

Results are saved in a log, which can be viewed and manipulated with the ArmBUS results viewer. Results can be printed or exported in a spreadsheet format, which can be opened in a wide range of packages for further analysis.

Learning objectives

- ▶ Effects of oxygen transfer under non-steady state conditions
- ▶ Measurement of the absorption coefficient K_s and the oxygenation capacity R
- ▶ The effect on K_s and R of:
 - degree of fluid mixing
 - water temperature
 - gas flow rate
 - depth of water
 - diffuser arrangement
 - water composition

Optional accessories

- ▶ Air compressor (AC1)
- ▶ Triple beam balance with 0.1g sensitivity (ordering code:INST 059)

Technical details

Open tank	27 litre
Diffusers	3 (sparger, treble stone and single stone)
Flowmeter range	0 -10L/min
Oxygen /temperature meter ranges:	
	-5 to 199% DO
	-5 to 25.0% DO
	-5 to 19.99mg/L
	-10 to 105oC
Length of oxygen probe	300mm

Overall dimensions

Length	0.51m
Width	0.47m
Height	1.01m
Packed and created shipping specifications	
Volume	0.70m ³
Gross weight	80Kg

Ordering specification

- ▶ An aeration unit to permit the study of oxygen transfer characteristics of diffuse air systems
- ▶ 27 litre open tank with a variable-speed motor-driven stirrer paddle and compressed air supply line via a pressure regulator valve and flow meter, to a diffuser
- ▶ Sparge device
- ▶ Single and treble airstone diffusers
- ▶ Electronic dissolved oxygen probe with water temperature reading
- ▶ Stop clock
- ▶ Measuring cylinder
- ▶ Operational manual with teaching exercises

Ordering codes

- ▶ W10-MkII
- ▶ AC1 (optional)
- ▶ INST 059 (optional)

Warranty

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



armfield.co.uk

Aftercare

Installation
Commissioning
Training
Service and maintenance
Support: armfieldassist.com