

MODEL SEDIMENTATION TANK – W7MKII

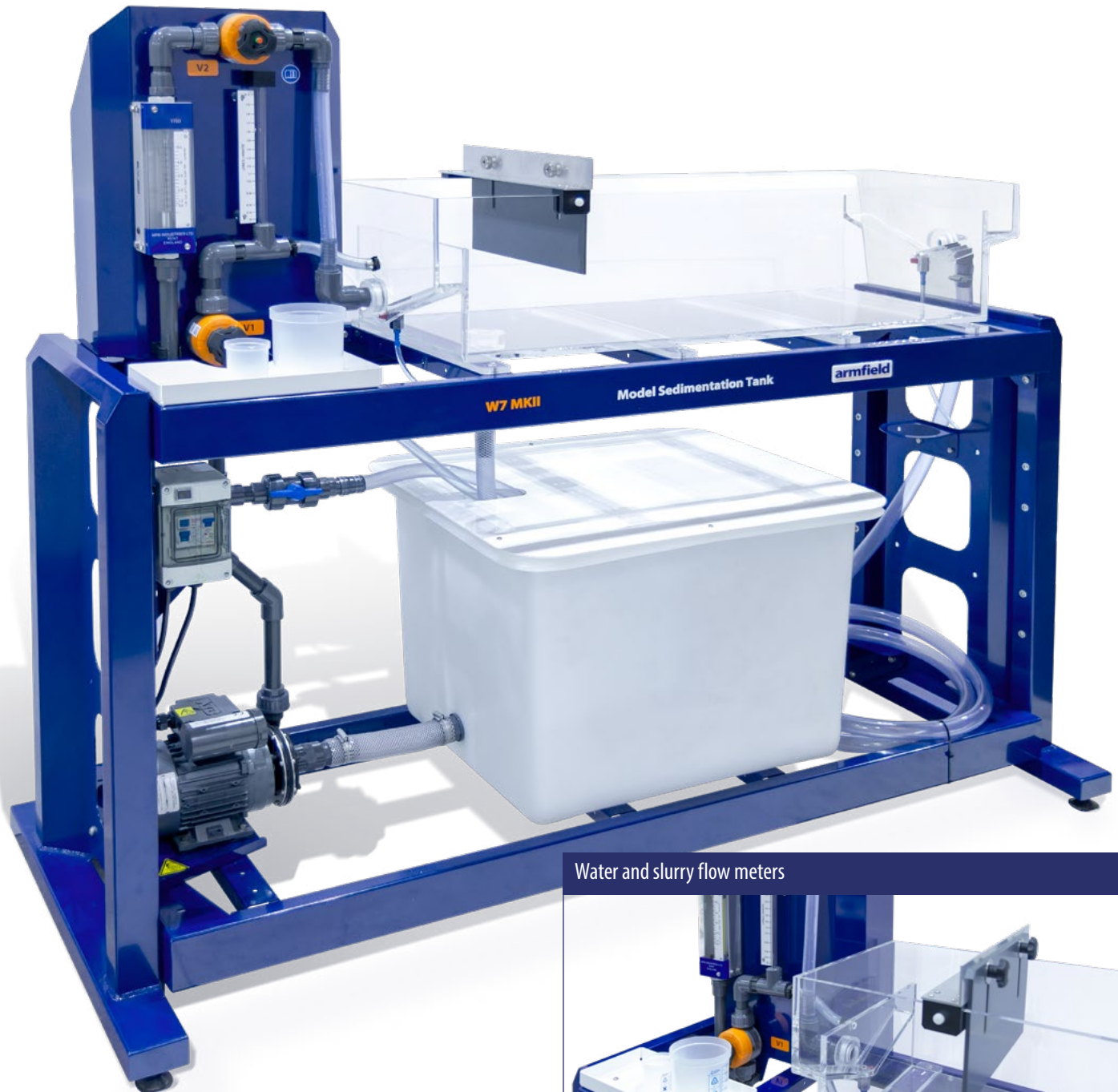
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SERIES**

Sedimentation is the separation of a suspension into a clarified fluid and a more concentrated suspension (sludge).

The Armfield W7MKII is designed to demonstrate the hydraulic characteristics and settling efficiencies of a model settling basin.

Relevant deductions can be made as to how non-uniform flows occur, and how these interact with the settling characteristics of suspensions.

**METAL FRAMEWORK WITH CLEAR SEDIMENTATION TANK
FLOW SPARGE DEVICE IN THE TANK TO KEEP SLURRY IN SUSPENSION
OPERATIONAL MANUAL WITH TEACHING EXERCISES**



Water and slurry flow meters



Description

Water is taken from the laboratory mains supply and is fed to the settling tank via a flow meter. For studies of sedimentation, slurry is prepared in a sump tank and pumped via a specially designed flow meter to join the fresh water stream just before entry to the settling tank.

Well-mixed slurry of known concentration and flow enters the tank uniformly under the inlet weir. This may be comparatively analysed by using Armfield sedimentation studies apparatus (W2-MKII) or the Imhoff cone technique.

The sump tank is continually agitated by a flow sparging device to prevent settling of solids during an experiment.

For hydraulic tracer and visualisation studies, an accurate dye injection system is provided. A known volume of dye solution is injected just before the entry to the settling tank.

Learning objectives

- ▶ Measuring flow short circuiting and dead space using a tracer
- ▶ Comparison of real flow regimes with idealised flow models
- ▶ Effect of flowrate and baffle position on dispersion
- ▶ Measuring sediment removal efficiencies and relating these to hydraulic characteristics
- ▶ Effect of solid concentration on separation efficiency
- ▶ Use of the Imhoff cones for analysis

Requirements

Scale



Electrical supply:

W7MKII A: 220-240V / 1 ph / 50Hz

W7MKII G: 220V / 1ph / 60Hz

- ▶ Calorimeter covering Wavelengths 450nm to 700nm (not supplied) or handheld turbidity meter

- ▶ Water supply: 5L/min @ 1 bar

Technical details

Sedimentation tank	97L
Acrylic settling tank	1.05m x 0.35m x 0.2m
Feed tank capacity	120L
Sediment flowmeter range	0 – 2 L/min
Water flowmeter range	0.5 – 5 L/min
Pump flow rate	60 L/min @ 15m head

Overall dimensions

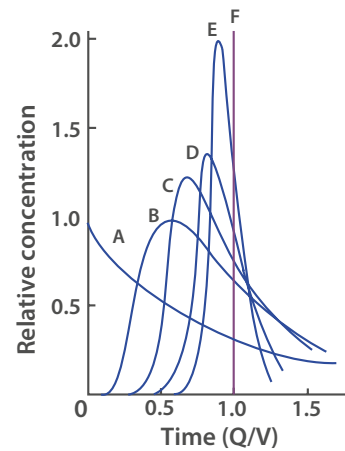
Length	2.13m
Width	0.76m
Height	1.63m

Packed and created shipping specifications

Volume	2.9m ³
Gross weight	120Kg

Features / benefits

- ▶ Metal framework with clear sedimentation tank
- ▶ Flow sparge device in the tank to keep slurry in suspension
- ▶ Operational manual with teaching exercises



Total headloss variation with time

Optional accessories

- ▶ Handheld turbidity meter (ordering code: INST 060)
- ▶ Triple beam balance with 0.1g sensitivity (ordering code: INST 059)

Ordering specification

- ▶ Sedimentation tank of 97L capacity
- ▶ 120L sump tank via a centrifugal pump.
- ▶ A flow sparge device in the sump tank keeps the slurry in suspension
- ▶ Both supplies are fitted with a flow meters. Mains water flow meter range is 0.5-5.0 L/min; slurry flow meter range is 0-2 L/min
- ▶ 1 X Burette mount
- ▶ 3 X 1L Imhoff cones
- ▶ 1 X Imhoff cones rack
- ▶ 1 X 600ml sample vessel
- ▶ 1 X 100ml sample vessel
- ▶ 2 X stiffener bar
- ▶ 1 X adjustable inlet weir
- ▶ 1 X 1L bottle, Armfield blue dye with COSHH sheet
- ▶ 25Kg precipitated Calcium Carbonate & safety data sheet
- ▶ Operational manual with teaching exercises

Ordering codes

- ▶ W7-MKII-A
- ▶ W7-MKII-G
- ▶ INST 059 (optional)
- ▶ INST 060 (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