



The Armfield S17 is a professionally built simulation tank to demonstrate and simulate the formation of river features, including flow and bed load motion. It makes an excellent introduction to the study of fluvial geomorphology and can also demonstrate sophisticated and advanced concepts for research purposes.

FEATURES

- Robust stainless steel tank
- Uses sand for realistic and highly detailed feature formation
- Sturdy frame with dual jacks to vary slope
- Stilled water inlet vessel, featuring variable positioning
- Variable height exit
- Self-contained, includes pump and water reservoir
- Variable flow, with flow meter

EXPERIMENTAL CAPABILITIES

- Experimental investigation on erosion and deposition
- Characteristics of meandering water courses
- Formation of river features and development over time:
 - erosion
 - deposition
 - thalweg
 - cutbanks
 - sand point bars
 - riffles
 - straight, braided and meandering channels
- Sediment transport and bedload motion capabilities
- Determination of hydrographs from model behaviour
- Channel morphology studies



Manual preparation of simulation channel



Meandering channel set up

DESCRIPTION

The unit comprises a rectangular tank, made of stainless steel, measuring 215cm by 90cm. The tank is positioned and secured on a metal supporting frame. A manual jacking system enables the slope of the tank to be easily and safely adjusted, even when the tank is full of material and water.

The sturdy construction enables real sand to be used in the tank. This gives fine detailed and realistic feature simulation not obtainable on systems, which use plastic pellets. In this way all principles of river formation and bed load motion can be studied. For best results the use of washed and graded sand is recommended.

The water reservoir is located at the tank discharge, and water is pumped from the reservoir to the water inlet vessel using a low voltage submersible pump.

The inlet vessel is a 1.8l vessel, which can be positioned anywhere in the main tank. It is kept in its desired position by the sand within the tank. The vessel incorporates a stilling mechanism and an outlet weir designed to produce a smooth output water flow into the main tank.

The system provides complete adjustment of water flow using a variable area flow meter and manual ball valve, which are mounted to the tank.

The water then flows through the sand where the formation of meandering channels, point bars, cut banks, riffles, thalwegs, etc can be observed and analysed.

At the end of the tank there is an outlet standpipe to return the water to the reservoir. The height of the standpipe is adjustable to enable different outlet conditions to be explored.

The system is also supplied with a sand scoop, scraper and surface profiling system, comprising a crossbeam and depth gauge.

The tank can easily be removed from the frame, and the frame can be dismantled for storage using simple tools.



Initial straight channel developing meandering behaviour after a time period



Formation of braided channel

TECHNICAL SPECIFICATION

Working area:	2150mm x 900mm
Flow range:	1.5-15l/min
Accuracy of flow metering:	±2% full-scale
Slope adjustment - working slope:	0 - 6°, 10° max

REQUIREMENTS

Electrical supply: 24V dc at 2.5A max

A universal adaptor is supplied for operation from ac mains.

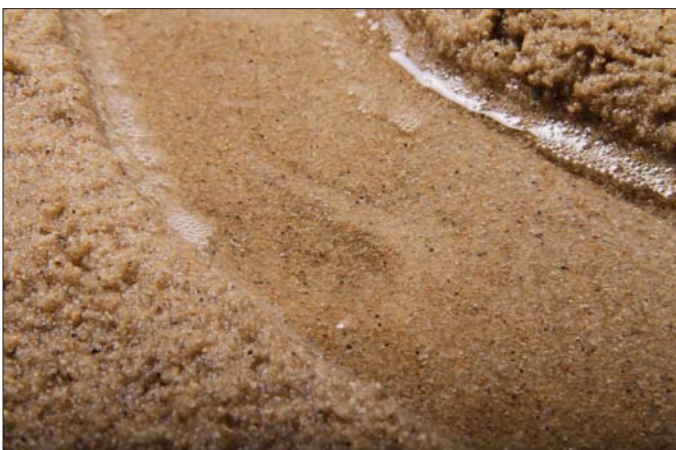
Ordering codes: S17-UK
S17-EU
S17-B

OVERALL DIMENSIONS

Height:	1.02m
Width:	1.06m
Length:	2.60m

SHIPPING SPECIFICATION

Volume:	1.4m ³
Gross weight:	120kg



Example of bedform



Adjustable flow valve and flow meter



Table jacking system

ORDERING SPECIFICATION



Erosion and deposition

- A self-contained river flow simulator for the study and visualisation of river formations, bedload studies and fluvial geomorphology
- Stainless steel tank with a 2150mm x 900mm working area
- Tank mounted on a steel frame with jacking system to easily and safely adjust the tank slope while fully loaded
- Uses sand as the media for detailed feature development and bedload motion studies
- Water inlet vessel with stilling can be positioned anywhere in the tank
- Water reservoir, submersible pump, variable area flow meter and control valve giving flows from 1.5 to 15l/min
- Supplied with comprehensive instruction manual



Riffles and thalweg



Inlet vessel can be easily repositioned



Cut banks and sand point bars



Quick and easy draindown of system



Head Office:
 Armfield Limited
 Bridge House, West Street,
 Ringwood, Hampshire.
 BH24 1DY England

Telephone: +44 1425 478781
 Fax: +44 1425 470916
 E-mail: sales@armfield.co.uk

U.S. Office:
 Armfield Inc.
 9 Trenton - Lakewood Road
 Clarksburg NJ 08510
 Tel/Fax: (609) 208-2800
 E-mail: info@armfieldinc.com

© 2013 Armfield Ltd. All Rights Reserved
 We reserve the right to amend these specifications without prior notice. E&OE 0713/3k
 Correct at time of going to press.

Scan QR code* to visit our website
 * Scan with smartphone with QR code scanning software installed.



An ISO 9001 Company

Innovators in Engineering Teaching Equipment

learn more! www.armfield.co.uk



Find us on YouTube!
www.youtube.com/user/armfieldUK
 Follow us on Twitter, Facebook,
 LinkedIn and
 WordPress

