

University of Southampton Hydroscience Tank

LS9

Location: University of Southampton, Boldrewood campus

Designation: Hydroscience Research Facility

Owner(s):
University of Southampton, Faculty of Engineering and the Environment, Southampton SO17 1BJ

Performance:
Maximum Carriage Speed: 12 m/s
Reynolds No: 7×10^7 (max)
Total Temperature: Ambient (~288k)
Run Time: From 12 seconds to 3 minutes
Typical Waiting Time between Runs: ~10 minutes

Test Section Size: 138m long x 6m wide x 3.5m deep with 0.5m free board.

Operational Status: Active

Testing Capabilities:
Model Support: Bespoke dynamometer with different tow force and side force ranges, from 0 to 1500 N.
Data Acquisition: Motion capture system for towed and free running models, both above and under water.
 Propeller dynamometers for thrust and torque measurements.
 Open water rig.
 Ultrasonic wave probes.
Flow visualisation: Underwater PIV and LDV systems.
Environmental log: Permanent acquisition of environmental data in the tank at various locations.

Number and Type of Staff:

Management: 1
 Technical Support: 1

Test support:

Workshop for model preparation and modification. Capacity to manufacture and assemble metal brackets and structures.

Specialist Rigs:

- (i) Passive beach at end of tank with Active wave makers (12 paddles) across other end that can generate regular and irregular sea states with max. amplitude of 0.5 m for wide range of model scale wave frequencies.
- (ii) Deployable side beach to damp waves rapidly between runs
- (iii) Modular instrumentation stations and fixings to walls/floor of tank
- (iv) Innovative design of high speed carriage capable of both manned and unmanned operations
- (v) Automated and repeatable test process
- (vi) Live video feeds and live data streaming