HR Wallingford
Working with water

equipment

Instrument Traverse System

Features

- The Traverse accurately positions a number of instruments within a flume or basin.
- The instruments can be moved either by means of a joystick mounted at the end of the horizontal beam or from a computer program that can be integrated into LabView.
- The program has a routine to always move the instruments to a home position on start up. The home position can be determined by the end limit switches on the beam or by external switches detecting a reference datum in the basin or flume.
- The system can be programmed to move the instruments to a series of positions either referenced from the home datum of from the previous position.
- All the cables from the instruments and the carriage are fully supported in a propriatary flexible cable chain.
- The vertical beam remains in position even when the power to the motor is turned off.
- All systems are designed to suit the client's individual requirements for horizontal span and vertical movement.

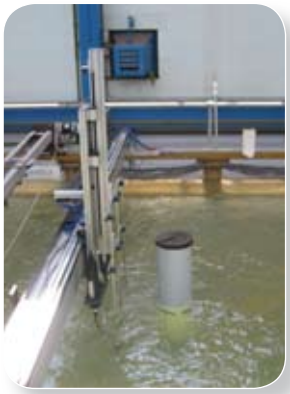
The HR Wallingford instrument traverse system is used to move Acoustic Doppler Velocimeters (ADVs) and other physical modelling instrumentation to a variety of different positions within a flume or basin.

The instruments are secured to the vertical axis of the system, using a variety of proprietary fixings. The vertical axis is attached to a carriage which moves along a fixed horizontal beam to allow positioning of the instruments anywhere within the flume or basin.

The traverse can be controlled by a computer to log the exact position of the instruments within an accuracy of ± 2mm in both vertical and also horizontal axis. A stepper motor with integral encoder is used to drive each axis into position along the carriage using a toothed belt arrangement.

The drive routine can be used to position the instruments for defined periods before the traverse moves them to the next position. This routine can then be repeated using a datum position either on the carriage or using a an independent external datum reference point in the basin.

The length of the horizontal beam can be adjusted dependent on the facility's requirements. The beam size would change due to the need to counteract the bending moment of the instruments on the carriage. A typical solution which provides a rigid support for the carriage would have a distance of 5.5m between supports.



Specification

HR Wallingford's Instrument Traverse Systems are individually designed for each application. A typical specification would be:

Horizontal beam

Overall length	5.5m
Travel	4.2m
Speed	0.15m/s
Positional accuracy	± 2mm

Vertical beam

Travel	0.6m
Speed	0.06m/s
Positional accuracy	± 2mm
Lifted weight of instruments	12kg
Supply voltage	240VAC

In addition to the standard system, two other systems are available

- A second independent carriage can be added to the horizontal beam
- The horizontal beam can be mounted on two other beams to provide a full three-axis system.

Equipment for physical modelling

HR Wallingford can provide equipment for all aspects of physical modelling. This includes:

Long crested wave generators
Short crested wave generators
Wave generation software
Data acquisition and analysis software
Bed profilers
Level measurement
Wave measurement
Velocity measurement
Ship movement
Force transducers
Pressure transducers
Instrument position control

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