

WIDE 2D FLUME - 25m x 3.75m x 1.0m



DESCRIPTION

The wide 2D flume is often used for breakwater head stability testing due to its width. It is favored by clients because it can be used for the quasi 3D models at a fraction of the cost of a full 3D model test. The width is also useful where a relatively long portion of a breakwater needs to be examined for the 2D case.

The model is serviced by two overhead gantry bridges for easy mobility around the test area during testing and for the wave measurement probes.

SPECIFICATIONS

Length:	25.0m
Existing Test Width:	3.75m
Maximum Flume Width:	4.50m
Max. Water Depth:	1.00m

The wave makers can generate waves of 20cm high at periods of between 1.0s to 2.0s. Both regular and irregular waves can be generated.

Peak factors for various energy spectrums can be selected in the wave software program, as can the frequency limits, length of the wave series, number of waves in a series and the phase limits.

The wave signal software has been developed in house. The angle of incidence can be varied between -15° to $+15^{\circ}$.

Wave height is controlled by means of a voltage regulator, which is regulated manually with a PC. Wave heights and periods are measured through twin wire resistance probes.

There is no mechanism of reflection compensation fitted on the wave makers. Reflection is separated from the incident wave field after testing using the method of Mansard and Funk (1980)

A 1:10 slope in front of the wave makers is required for correct transformation of the incoming wave spectrum. Bathymetry can be built to suit from a sand/cement mixture if required.

PREVIOUS STUDIES

Previous model studied in the wide 2D flume include:

- *Hermanus Harbour Breakwater Rehab*: Analysis of breakwater and toe stability and overtopping Analysis.
- *Cape Town Harbour Breakwater Head Stability*: Analysis of head and toe stability.
- *Cape Town Welded Steel Frame*: Hydraulic Stability of a Steel A-Frame for Breakwater Protection
- *Yzerfontein Breakwater Head Stability*: Analysis of head and toe stability and overtopping
- *East London Breakwater Stability*: Analysis of ability of a rock berm to protect recovery operations of a stranded container ship from wave action.
- *Dolos Shape Comparison*: Comparison of hydraulic stability of fillet and chamfer type dolos.

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