

P6345

Wave Absorber

Surge Channel

and P6346

INTRODUCTION

For many years the Tapered Channel (TAPCHAN) surge wave absorber in Norway produced the most power amongst all of the operating wave powered generators. The TAPCHAN configuration creates a shelving channel cut out between narrowing walls, focusing the energy of the waves up a ramp. The water is retained in a reservoir and used to drive a low head turbine. Cussons P6345 Surge Channel Wave Absorber allows experiments to be carried out on a variety of channel configurations.

EXPERIMENTAL CAPABILITY

The P6345 Surge Channel Wave Absorber studies the energy in breaking waves, and allows the way the waves break to alter. This is an interesting exercise for students to conduct, particularly those that do not have experience of the sea. The theory is complex and probably not necessary for students who are not intending to specialise in a wave related field. The experiment allows a number of adjustments, such as the angle of the ramp and shape of the contraction. The amount of water passing into the reservoir can be measured. Factors that can be studied include

- ◆ The energy available from a wave
- ◆ Potential Energy in a fluid

- ◆ Effect of wave shape on its breaking characteristics
- ◆ Effect of slope on wave shape and breaking
- ◆ Effect of width contraction on wave shape

DESCRIPTION

The P6345 Surge Channel Wave Absorber is used within a 300mm width wave channel (or wider), and comprises of a plastic ramp approximately 1.6m long. The angle of the ramp can be adjusted from approximately 4° to 8° from the horizontal by the use of two adjustable frames supporting the ramp. (The adjustment can be made with the ramp in situ). The support frames are part of the flat mounting plate, which is weighted to hold the surge channel in place.

The upper surface of the ramp supports two clear Perspex walls, which can be adjusted in situ to provide a contraction on the wave as it moves up the ramp. The shape of the wave as it passes up the ramp can be clearly seen through the walls. The contraction can be adjusted, at the ramp entrance from 300mm to approximately 100mm, and at the upper end of the ramp from approximately 200mm to a minimum of 30mm. The shape of the walls can be adjusted to some extent, to provide a straight, curved or "S" shaped profile.



The water with sufficient energy to make it to the top of the ramp, spills over into a reservoir, where it can be measured. All materials used in the surge channel are either plastic or stainless steel.

TENDER SPECIFICATION

The P6345 Surge Channel Wave Absorber is to provide experiments on the use of a tapered wave channel to absorb and capture the energy of waves. The Surge Channel is to be used in wave channels of a minimum of 300mm wide, or open waves and is to provide a ramp that is to be adjustable in angle between 4° to 8° in situ. The Channel is to be tapered and the shape of the taper shall be adjustable without removing the surge device from the wave channel. The water that passes over the ramp is to be collected in a reservoir. All materials used shall be suitable for constant immersion.

PACKING DIMENSIONS

Length 2.0m Width 0.5m Height 0.6m

REQUIRED ACCESSORIES

A 300mm wave channel with wave generator is required such as Cussons P6275 Water Flow Channel and Cussons P6285 Regular Wave Maker, or access to suitable open water.

P6346 SURGE ACCESSORIES KIT

The P6345 surge channel allows a tapered channel of varying slope and varying width to capture wave energy. However the construction of the walls that form the tapered channel means that the slope of the channel has to be constant over its length.

The P6346 Surge Channel Accessories kit provides two pairs of additional walls, one pair with a convex lower edge, and one pair with a concave lower edge, so as to allow the ramp to change its angle to the horizontal over the length of the ramp. The facility to change the overall angle of the ramp is situ remains; these accessories allow a fixed curve to be formed in the ramp floor.

P6346 Surge Channel Accessories – Technical Specification

The P6346 Surge Channel Accessories kit provides two pairs of additional walls suitable for use with Cussons P6345 Surge Channel Wave Absorber. One pair of walls are to have a convex lower edge, and one pair are to have a concave lower edge, so as to allow the ramp to change its angle to the horizontal over the length of the ramp.



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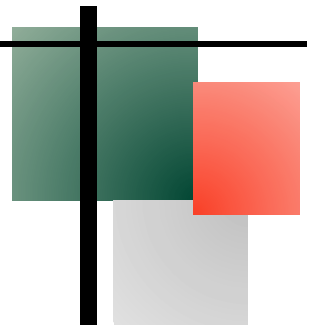
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The upper surface of the ramp supports two clear Perspex walls, which can be adjusted in situ to provide a contraction on the wave as it moves up the ramp. The shape of the wave as it passes up the ramp can be clearly seen through the walls. The contraction can be adjusted, at the ramp entrance from 300mm to approximately 100mm, and at the upper end of the ramp from approximately 200mm to a minimum of 30mm. The shape of the walls can be adjusted to some extent, to provide a straight, curved or "S" shaped profile.



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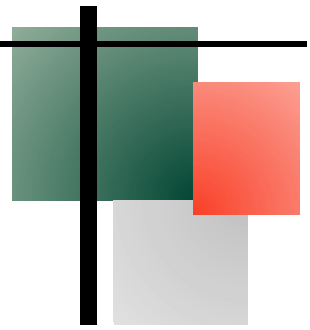
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