

P6225/26 WEIR EXPERIMENTS

INTRODUCTION

In open channels, weirs are commonly used to either regulate or to measure the volumetric flow rate. They are of particular use in large scale applications such as irrigation schemes, canals and rivers. For small scale applications, weirs are often referred to as notches and invariably are sharp edged and manufactured from thin plate material.

The flow pattern over a notch or weir is complex and there is no analytical solution to the relationship between discharge and head so that once again a semi-empirical approach has to be used.

Cussons P6100 Hydraulics Bench incorporates a weir channel which is 158mm wide tapering to 152mm wide at the bottom, x 150mm deep x 735mm long in the working surface. The weir channel is fitted with an acrylic 60° triangular notch weir with an integral scale which can be used to provide an approximate indication of the flow rate.

For a detailed study of the discharge over weirs, Cussons have provided two sets of weirs and a hook gauge. The P6107 Hook Gauge and Scale is an essential accessory for the accurate measurement of the upstream head.

P6225 ELEMENTARY WEIRS

Cussons P6225 Elementary Weirs comprises a set of three stainless steel weirs each 1.625 mm thick and 215 mm wide by 160 mm deep, the three weirs comprise: a rectangular weir with a 100mm wide by 90 mm deep notch, and two triangular or V notch weirs having included angles of 90° and 60° with a depth of 90 mm. Included with this set of weirs is a very effective flow smoothing basket.

The dimensional details of the weirs are shown in figure below.

EXPERIMENTAL CAPABILITIES

- ◆ Determination of the 'Coefficient of Discharge' for each type of weir.

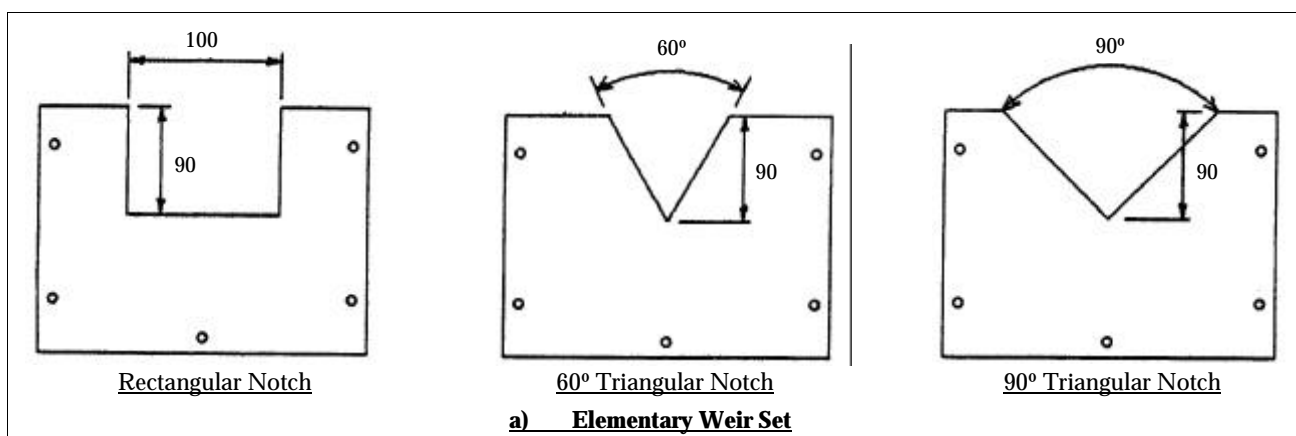
ACCESSORIES REQUIRED

- P6107 Hook Gauge and Scale
- P6102 Pump Speed Display (optional)

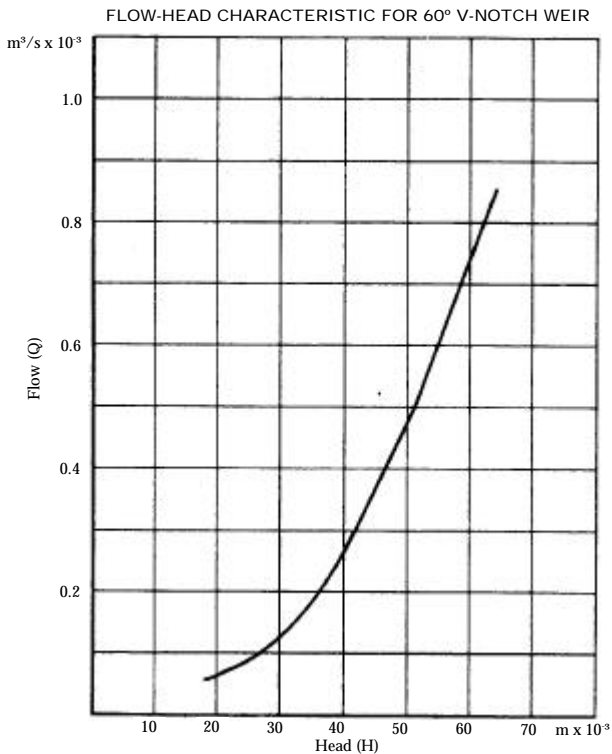
DIMENSIONS AND WEIGHTS

Nett:- 160 x 160 x 200 mm, 6.0 Kg.

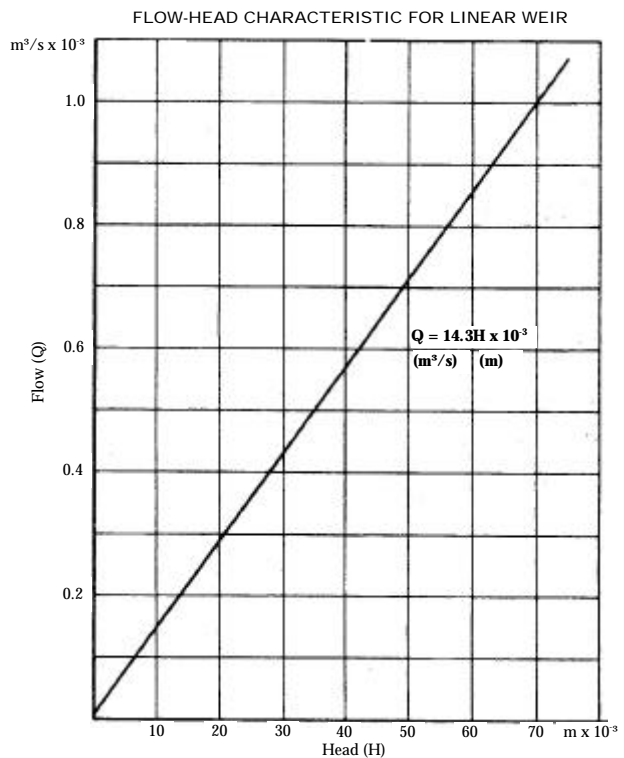
Gross:- 0.007m³, 8.0 Kg.



P6225 ELEMENTARY WEIR EXPERIMENTS



P6225 ELEMENTARY WEIR EXPERIMENTS



P6226 ADVANCED WEIRS

Cussons P6226 Advanced Weirs comprises two stainless steel weirs: first a trapezoidal or Cippoletti weir, and secondly a weir with a special profile notch which produces a linear head-flow characteristic.

A 9mm thick full width or suppressed weir, manufactured from upvc, is also supplied, which enables both conditions of clinging and free nappes to be studied. Details of these weirs are also shown in figure below.

EXPERIMENTAL CAPABILITIES

- ◆ Determination of discharge coefficient for each type of weir.
- ◆ Verification of linear relationship between head and flow for the 'linear' weir.

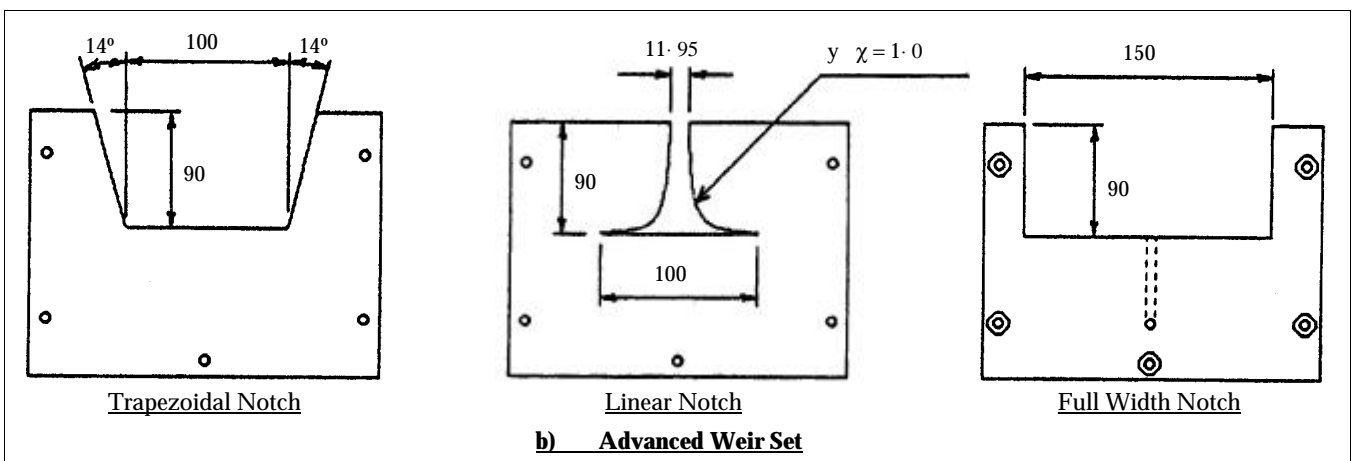
- ◆ Verification of the relationship between head and flow for the Cippoletti weir.
- ◆ Visual and empirical investigation of the variation of the head/flow relationships for a broad crested weir as condition of nappe varies.

ACCESSORIES REQUIRED

P6107 Hook Gauge and Scale
P6102 Pump Speed Display (optional)

DIMENSIONS AND WEIGHTS

Nett:- 160 x 220 x 25mm, 1.0Kg.
Gross:- 0.002m³, 2.0Kg.



Cussons Technology Ltd.

102 Great Clowes Street, Manchester M7 1RH, England

Tel. +(44)161 833 0036

Fax. +(44)161 834 4688

E-mail: sales@cussons.co.uk Web: www.cussons.co.uk