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## DATASHEET

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# V-NOTCH WEIR

## MODEL ESM-10



### OVERVIEW

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The model ESM-10 V-notch weir is an integral part of seepage monitoring system. It is designed to measure seepage of water through, around or under a dam in earth as well as concrete dams. It is one of the oldest, simplest and the most reliable device used to measure the quantity of flow of water.

The weir is available in different size and angle, depending on application (rate of flow) and project requirement. It is made of high-quality stainless steel material.

### FEATURES

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- Sizes in 22.5°, 45°, 90° and rectangle
- Range from 10 to 70 liters/second
- Simple principle & very low maintenance
- Made from corrosion resistant materials
- Can be used with model ESM-11V seepage monitoring system for online data

### APPLICATION

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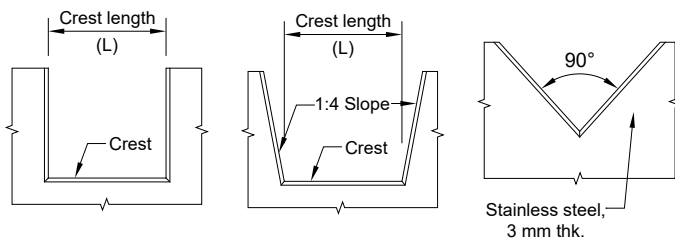
- Monitoring of water flow in weirs, tanks, reservoirs, open channels.
- Monitoring of seepage in dams.

## OPERATION

The weir comprising of stainless steel plate, is provided in a suitable size and angle, to suit expected flow rate. The most used size is rectangular or  $90^\circ$  V-notch type. Other sizes can also be provided, depending on site requirements. In case of a low flow rate, a V-notch weir with an angle of less than  $90^\circ$  may be used. These are normally manufactured as per Indian Standard IS: 9117-1979.

The shape of the opening determines the type of the weir. For a rectangular weir, the bottom edge of the opening is called the crest and the side edges are called sides or weir ends. The sheet of water leaving the weir crest is called the nappe.

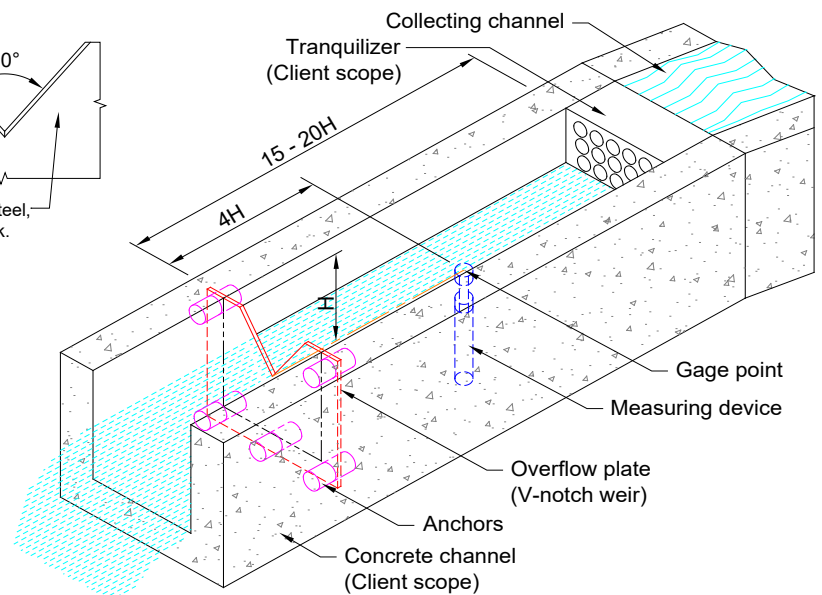
Weirs operate best when they discharge freely into the atmosphere. In general, a rectangular suppressed weir or a  $90^\circ$  V-notch weir provides the most accurate measurement



The weir uses the principle of the flow of water over the triangular (V-notch) or rectangular-notch weir plate. The discharge over weir is a function of the water head on the weir, the size and shape of the discharge area and an experimentally determined discharge coefficient which takes into account:

- the head of the water over the weir,
- the geometry of the approach channel and
- the weir and the physical properties of water and characteristics of flow.

Readings from the weir can be taken manually using a staff gauge or stainless steel scale which is fixed to the side wall (for reading head above the vortex of the notch). The readings can also be taken in near real time/online with model ESM-11V seepage monitoring system (datasheet # 1205-07)



Typical installation scheme for V-notch