Channel Flow Measurement

Measuring Flow in Large Moving Bodies of Water

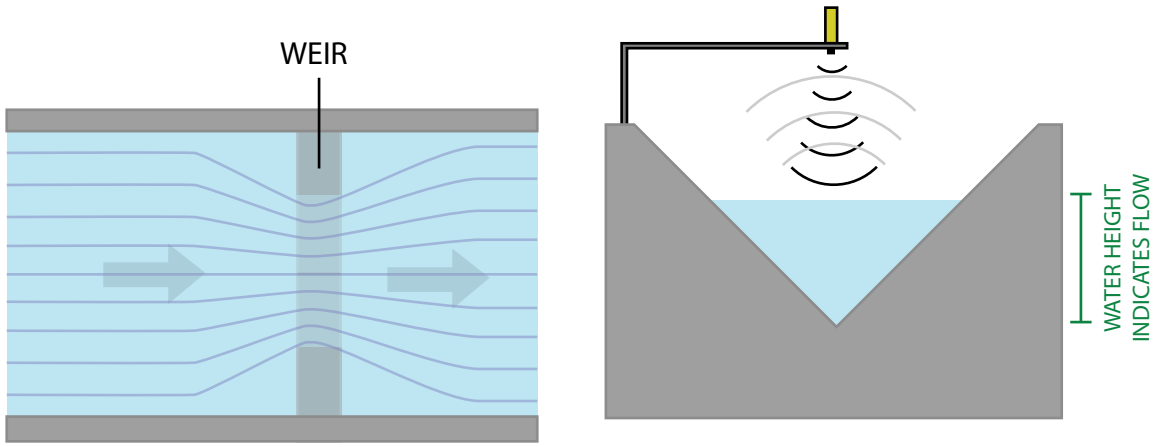
Method

It can be extremely challenging to measure the velocity of a liquid in a large, open channel. But by adding a flow restriction to your channel such as a V-notch weir, you can accurately measure the flow rates of your liquid even when you have extremely large flow rates.

The V-notch wier is simply a large wall in your flow path, with a precisely-cut 'V' through which your liquid flows.

The first time the liquid strikes the weir, it begins to back up until it reaches the start of the 'V' and allows flow through. When the angle of the V is known, you can precisely calculate the rate of flow based on just how tall the column of water passing through the V is.

You can measure the height using an ultrasonic or radar level sensor mounted above the weir looking down at the center of the restriction, or a submersible sensor installed at the base of the restriction.



Advantages

- Accurate
- Suitable for small to extremely large flow rates in open channels

Disadvantages

- Can be expensive and difficult to install into your channel

Considerations

This measurement principle doesn't just work for V-notch weirs - your restriction can have a flat top as well. A flat-topped or rectangular-notch weir allows for greater flow volumes, but are less accurate at low flow rates.

As the restriction works as a dam, you should ensure that the sides are high enough to allow measurement, but not so high that they would cause flooding in unusual flow situations.