The background of the slide is a light gray gradient with several realistic water droplets of various sizes scattered across it. The droplets have highlights and shadows, giving them a three-dimensional appearance.

ME 223

ELEMENTS OF FLUID MECHANICS & MACHINERY

FLOW MEASURING DEVICES

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FLOW MEASURING DEVICES

FLUID FLOW MEASUREMENT

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graph TD; A[FLUID FLOW MEASUREMENT] --> B[Open Channel]; A --> C[Closed Channel];
```

Open Channel

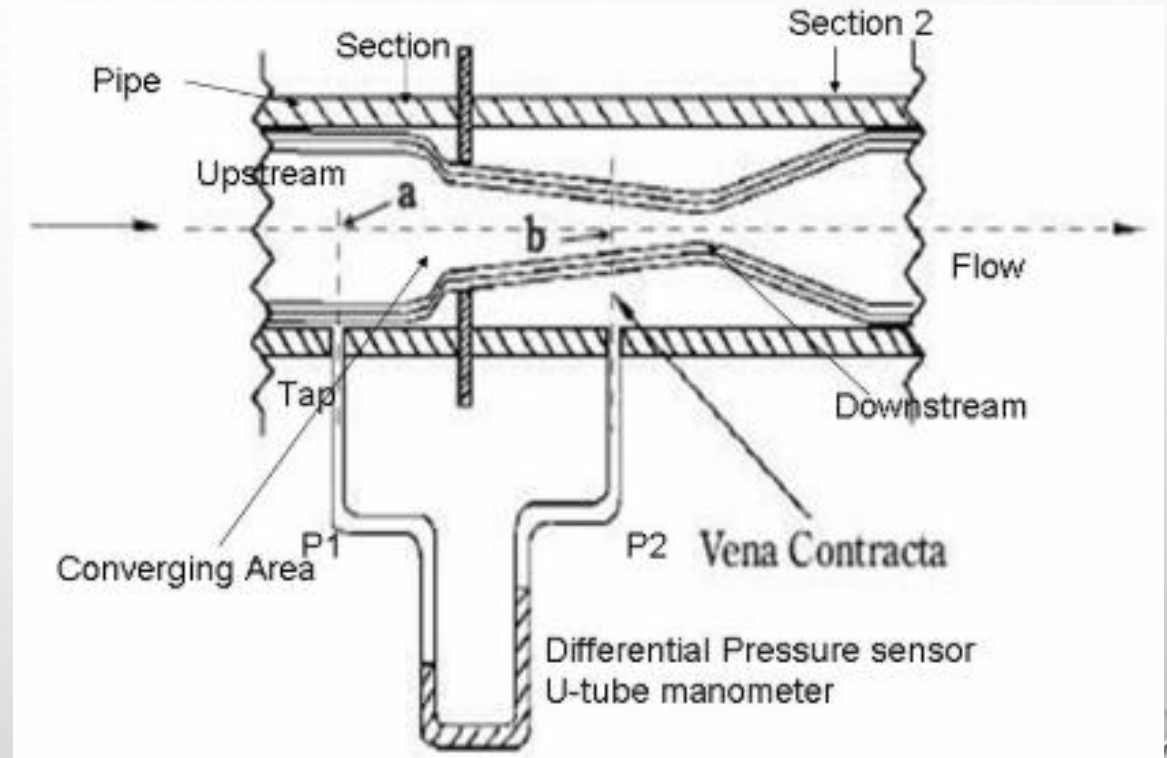
Example: V-notch, Rectangular notch, Circular notch etc.

Closed Channel

Example: Orifice meter, Venturi meter etc.

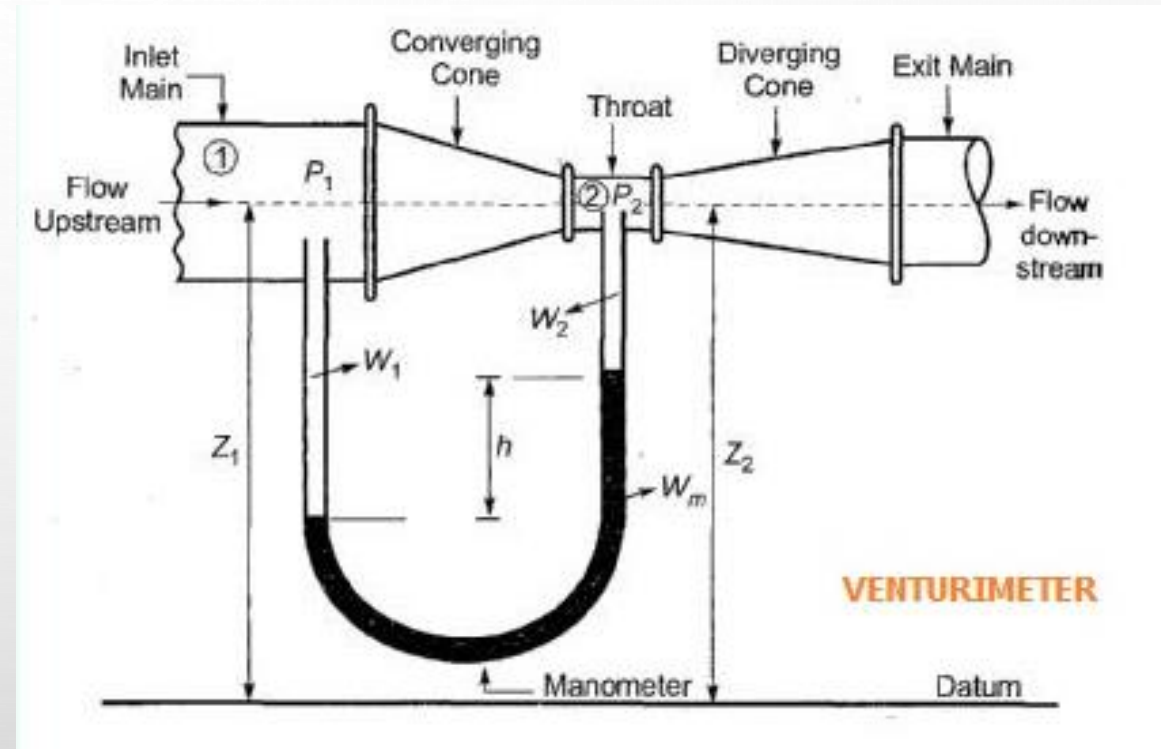
ORIFICE METER

Orifice meter is widely used for measuring the **flow rates** to the pipes. It works on the principle of **pressure difference** that is the flow velocity is greatly increased in a reduced section with which the corresponding pressure decreases causing difference in pressure between the two sections. This pressure difference can be measured by **manometer, pressure gauge** etc.



VENTURI METER

Working principle of venturi meter is as same as orifice meter.



DIFFERENCE

| Venturi Meter | Orifice Meter |
|--|---|
| Higher cost | Lower cost |
| Larger size | Smaller size |
| Low head loss | High head loss |
| High coefficient of discharge | Low coefficient of discharge |
| can be used to measure the flow rates of all incompressible fluids | generally used for measuring the flow rate of liquid. |

DIFFERENCE

| Venturi Meter | Orifice Meter |
|--|--|
| flow velocity is measured by noting the pressure differences between the inlet and the throat of the venturi meter | velocity is measured by using a pitot tube or a trajectory method. |

