## ELECTROMAGNETIC FLOW METER

**Electromagnetic flow measurement** is based on Faraday's Law of Induction. The law states that voltage is induced across a conductor moving through a magnetic field. The functional principle of electromagnetic measuring devices is also based on this law of nature. An emf is generated across a conductor moving in a magnetic field. This emf is directly proportional to the flux density, velocity of conductor and length of the conductor. This principle is used for flow measurement through electromagnetic flow meter. The flowing liquid itself is a conductor and its average velocity is the velocity of conductor.

**E** = B.V.D.

Where

**E** = Induced emf proportional to velocity.
**B** = Magnetic flux Density
**V** = Average velocity of the media
**D** = Distance between two electrodes or Practically the diameter of the flow sensor

Since the Flux Density and diameter of the flow sensor are fixed for given combination Theemf becomes proportional to average velocity only and in turn the volumetric flow rate.

Electromagnetic flow meters are based on the laws of electromagnetic induction, conductive liquids are the only liquids for which flow can be detected. Whether it is a conductive liquid or not is determined by the presence of electrical conductivity. Minimum conductivity of fluid should be 0.5 µS/cm

**Types:**

| |
|---|
| **Electromagnetic Flow Meter** - Full Bore - Flanged Type |
| **Electromagnetic Flow Meter** - Full Bore - Wafer Type |

### Specifications:

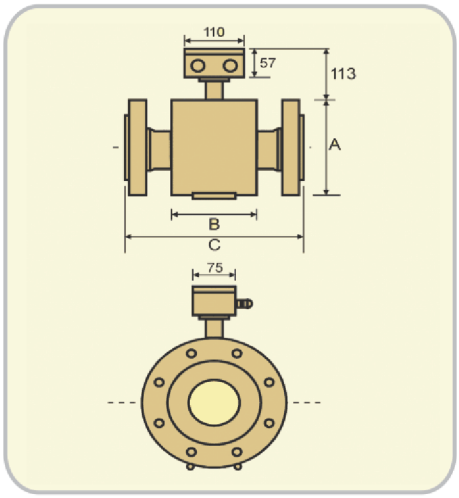
- **Line Size :** 15 NB to 350 NB (For higher size contact factory)
- **Lining :** PTFE / Hard Rubber / PFA
- **Electrode :** SS316 / SS 316L / HAST-C / Tantalum / Titanium
- **Flange :** CS / SS 304 / SS 316 / SS 316L
- **Body :** MS / SS 304 / SS 316 / SS 316L
- **Flow Transmitter :** Integral / Remote
- **Supply :** 230VAC / 24VDC

**Advantage:**

- Unaffected by the temperature, pressure, density, or viscosity of the liquid.
- Able to detect liquids that include contaminants (solids, air bubbles)
- There is no pressure loss
- No moving parts (improves reliability)

**Disadvantage:**

- Cannot detect gases and liquids without electrical conductivity
- A short section of straight pipe is required




## Electromagnetic Flow Meter - Full Bore

### Meter Dimensions (mm)

| Table for Meter dimensions SROAT 1000 Plus (mm) | | | |
|---|---|---|---|
| **DN (mm)** | **A** | **B** | **C** |
| 25 | 108 | 100 | 200 |
| 32 | 117 | 100 | 200 |
| 40 | 127 | 105 | 200 |
| 50 | 152 | 99 | 200 |
| 65 | 177 | 92 | 200 |
| 80 | 190 | 89 | 200 |
| 100 | 228 | 135 | 250 |
| 125 | 254 | 135 | 250 |
| 150 | 279 | 170 | 300 |
| 200 | 343 | 205 | 350 |
| 250 | 406 | 240 | 400 |
| 300 | 482 | 290 | 500 |
| 350 | 533 | 290 | 550 |

**Note :**

All dimensions are in mm
Dimensions are with ANSI B 16.5, Class 150 Flags with terminal box.
Dimensions 'C' is without earth rings.
Standard Flanges :

- ANSI B 16.5, Class 150 up to DN 150
- BS 10, Table F - From DN 200 and onwards