

# Yashwantrao Chavan College of Science Karad

## Fortin Barometer



### About

A barometer is a scientific instrument used in meteorology to measure atmospheric pressure. The Fortin barometer is a precise and reliable instrument used for measuring atmospheric pressure. It is commonly employed in meteorological stations, laboratories, and educational institutions for various scientific purposes.

# Historical Significance

The Fortin barometer represents a significant historical advancement in the design of barometers, attributed to the necessity for accurate pressure measurements in scientific discovery. Its design evolved from earlier barometric instruments, enhancing precision and functionality in meteorology and physics.



## Specifications

- Type: Fortin Barometer
- Measurement Range: Typically, from 800 to 1100 millibars (hPa)
- Accuracy:  $\pm 0.1$  millibar (hPa)
- **Materials:**
  - Reservoir: Leather or flexible bag for mercury
  - Tube: High-quality glass tube with a vacuum at the top
  - Scale: Engraved brass or steel scale for precise readings
- **Dimensions:**
  - Height: Usually around 100 cm
  - Diameter: Approximately 1-2 cm for the tube

**The Fortin barometer consists of the following main components:**

1. **Glass Tube:** A long, vertical glass tube filled with mercury, sealed at one end with a vacuum at the top.
2. **Mercury Reservoir:** At the bottom, the reservoir is flexible, allowing the level of mercury to be adjusted for zero calibration.
3. **Vernier Scale:** A precise scale for measuring the height of the mercury column with a vernier for accurate readings.
4. **Adjustable Screw:** Located at the bottom of the reservoir, this screw is used to set the mercury level to the zero mark before taking a measurement.

## Uses

- **Atmospheric Pressure Measurement:** The primary function of the Fortin barometer is to measure atmospheric pressure with high precision.
- **Weather Forecasting:** By monitoring changes in atmospheric pressure, it aids in predicting weather patterns.
- **Calibration Standard:** Due to its accuracy, it serves as a calibration standard for other pressure-measuring devices.
- **Educational Tool:** It is widely used in academic settings to teach principles of atmospheric pressure and fluid dynamics.

## Standard Operating Procedure (SOP)

1. **Setup:** Place the Fortin barometer on a stable, level surface away from direct sunlight and drafts.
2. **Zero Calibration:** Adjust the screw at the bottom to set the mercury level to the zero mark on the scale.
3. **Reading the Measurement:** Observe the mercury level in the glass tube and read the corresponding value on the vernier scale.
4. **Recording Data:** Note the atmospheric pressure reading for records or further analysis.