



IS 9281 PART 3: 1981- Electronic Weighing Systems - Part 3 Requirements

A good electronic weighing system is defined by its accuracy, reliability, durability and ease of use. The weighing balances should provide precise measurements, crucial for applications in laboratories, domestic and commercial use.

Key factors contributing to the balance's quality include a stable and robust load cell (*A load cell is a sensor used in weighing balance, it converts the force applied to it into an electrical signal, which can then be displayed as a weight reading*), which ensures consistent readings. To provide clarity and convenience, the requirements are specified for electrical load cells and the total weighing systems separately in IS 9281 part 3.

The standard has the following key performance requirements:

1. **Accuracy:** Specifies how closely the scale's measurement matches the true weight of an object.
2. **Resolution:** Specifies the smallest increment or change in weight that the balance can detect and display.
3. **Rated Load:** Specifies maximum weight a balance can accurately measure and safely handle without getting damaged.
4. **Non-linearity:** Specifies the variation of the scale's output from a perfectly linear response across its measurement range.
5. **Internal Calibration:** It is the built-in feature where the scale automatically adjusts its accuracy using an internal reference weight or mechanism.
6. **Overload:** When the scale senses an overload, it may display an error message and prevent further weighing to avoid mechanical or electronic strain.
7. **Tare provision:** It allows users to reset the displayed weight to zero after placing any additional weight on the scale.

This standard provides the methods of sampling, testing, and inspection to ensure consistent performance and reliability in various environmental conditions. Additionally, emphasis is given to construction, operating voltage, and frequency of the electronic weighing system. The marking clause of the standard prescribes the requirements which help to identify weighing balance for its intended use.