

GLOSSARY

ACCURACY

Precision in the measurement of quantities and in the statement of physical characteristics. Accuracy is expressed in terms of error as a percentage of the specified value (e.g., 10 volts \pm 1%), as a percentage of a range (e.g., 2% of full scale), or as parts (e.g., 100 parts per million).

AVERAGE PIECE WEIGHT (APW)

On a counting scale, the amount of weight divided by the number of samples which comprised that weight. APW is used by the counting scale to count pieces during normal operation.

CALIBRATION

The comparison of load cell outputs against standard test loads.

CHECKWEIGHER

A scale used to verify predetermined weight within prescribed limits.

CLASS III

Classes of scales used in commercial weighing not otherwise specified; grain test scales, retail precious metals and semiprecious gem weighing, animal scales, postal scales, and scales used to determine laundry charges.

CREEP

The change in load cell output occurring with time, while under load, and with all environmental conditions and other variables remaining constant; usually measured with Rated Load applied and expressed as a percent of Rated Output over a specific period of time.

DEAD LOAD

The fixed force of the weigh bridge, platform, and other load-supporting structures of the scale, the value of which is to be permanently balanced or cancelled out in the weight or measuring system

ERROR

The algebraic difference between the indicated and true value of the load being measured.

EXPLOSION PROOF ENCLOSURE

An enclosure that is capable of withstanding an explosion of a specified gas or vapor which may occur within it and of preventing the ignition of the gas surrounding the enclosure. The enclosure also must operate at such an external temperature so that it is incapable of igniting its surrounding atmosphere.

FACTORY MUTUAL (FM) SYSTEM APPROVED

All products displaying this symbol have been approved for use in hazardous (classified) locations when following the proper installation procedures and drawings, and utilizing intrinsic safety barriers.

FLEXURES

Thin steel or plastic bands or plates which replace the pivots and bearings of a conventional scale, allowing less movement and reducing friction.

FULCRUM

A pivot point for a lever

HAZARDOUS (CLASSIFIED) LOCATION

A location where fire or explosion hazards may exist due to the presence of flammable gases or vapors, flammable liquids, combustible dust or easily-ignitable fibers or flyings.

HERMETICALLY SEALED

Refers to load cells which have a metallic protective cover welded or soldered in place to protect the strain gauge cavity. Some cells of this type have additional protection at the cable entry such as a glass-to-metal seal. These load cells provide the best possible protection in harsh chemical or washdown environments.

INTERFACE

A device or circuit that allows two units to communicate. Some of the standard interfaces used in the scale industry are 20 mA current loop, BCD, RS-232, RS-422 and RS-485

INTERNATIONAL PROTECTION (IP) RATING

A rating system that defines a product's or enclosure's protection against the ingress of solid objects and liquids.

LED (Light Emitting Diode)

A semiconductor light source that emits visible light or invisible infrared radiation

LOAD

The weight or force applied to the load cell.

LOAD CELL

A device which produces an output signal proportional to the applied weight or force. Types of load cells include beam, S-beam, platform, compression and tension.

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MASS

The quantity of matter in a body.

NEMA

National Electrical Manufacturers Association.

NIST (National Institute for Standards and Technology)

An agency of the federal government to which all precision measurements are traceable. Formerly the National Bureau of Standards (NBS)

NON-LINEARITY

The maximum deviation of the calibration curve from a straight line drawn between the no-load and rated load outputs, expressed as a percentage of the rated output and measured on increasing load only.

NTEP (National Type Evaluation Program)

A program of cooperation between the National Conference On Weights & Measures, NIST, state weights and measures officials and the private sector for determining conformance of weighing equipment with the provisions of H-44

OVERLOAD RATING, Safe

The maximum load, in percent of Rated Capacity, which can be applied without producing a permanent shift in performance characteristics beyond those specified

OVERLOAD RATING, Ultimate

The maximum load, in percent of Rated Capacity, which can be applied without producing a structural failure.

OIML (International Organization of Legal Metrology)

Treaty organization that recommends technical requirements for weighing and measuring equipment prior to the sale or distribution of a model or type within the state, nation, etc

REPEATABILITY

The maximum difference between load cell output readings for repeated loadings under identical loading and environmental conditions; the ability of an instrument, system, or method to give identical performance or results in successive instances.

RESOLUTION

The smallest change in mechanical input which produces a detectable change in the output signal

SAFETY FACTOR

A figure denoting the overload (and allowance thereof) a device can withstand before breaking down.

SCALE

A device for weighing, comparing and determining weight or mass.

SENSITIVITY

The ratio of the change in output to the change in mechanical input.

TARE

The weight of an empty container or vehicle, or the allowance or deduction from gross weight made on account thereof.

TOLERANCE

The amount of error that is allowed in a value. It is usually expressed as a percent of nominal value, plus or minus so many units of measurement.

TRACEABILITY

The step-by-step transfer process by which the load cell calibration can be related to primary standards

WEATHER PROOF

An enclosure so constructed or protected that exposure to the weather will not interfere with successful operation of its contained equipment.

WEIGHT

The force or amount of gravitational pull by which an object or body is attracted toward the center of the earth.

ZERO RETURN

The difference in Zero Balance measured immediately before Rated Load application of specified duration, measured after removal of the load, and when the output has stabilized.

ZERO STABILITY

The degree to which the load cell maintains its Zero Balance with all environmental conditions and other variables remaining constant