

TECHNICAL DEFINITIONS OF TERMINOLOGY

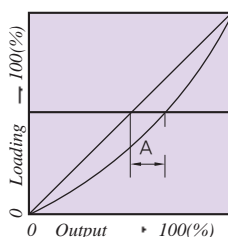
1 RATED CAPACITY (R.C.)

The maximum axial load that a load cell is designed to measure within its specification.

2 RATED OUTPUT (R.O.)

The algebraic difference between the outputs at no-load and at rated load. Usually load cell output is specified in milli-volts per volt at rated capacity.

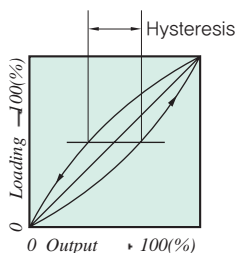
3 NON-LINEARITY



The maximum deviation of the calibration curve from a straight line between zero and rated load outputs, expressed as a percent of the rated output and measured on increasing load only.

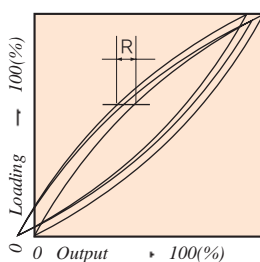
A: Linear line drawn to obtain terminal linearity

4 HYSTERESIS



The maximum difference between output readings for the same applied load one point obtained while increasing from zero and the other while decreasing from rated output. The points are taken on the same continuous cycle. The deviation is expressed as a percent of rated output.

5 REPEATABILITY



The ability of a load cell to reproduce output readings when the same load is applied to it consecutively, under the same conditions, and in the same direction. Repeatability is expressed as the maximum difference between output readings as a percent of rated output.

6 ZERO BALANCE

The output signal of the load cell with rated excitation and with no load applied, usually expressed in percent of rated output.

7 TEMPERATURE RANGE, COMPENSATED

The range of temperature over which the load cell is compensated to maintain rated output and zero balance with specific limits.

8 TEMPERATURE RANGE, SAFE

The range of temperature over which the load cell may be safely operated up to full scale without causing failure but specifications may not be met.

9 TEMPERATURE EFFECT ON RATED OUTPUT

The change in rated output due to a change in ambient temperature. Usually expressed as +/- a percentage

change in rated output per degree C change in ambient temperature, over the compensated temperature range.

10 TEMPERATURE EFFECT ON ZERO BALANCE

The change in zero balance due to a change in ambient temperature. Usually expressed as +/- a percentage change in rated output per degree C change in ambient temperature, over the compensated temperature range.

11 TERMINAL RESISTANCE, INPUT;

The resistance of the load cell circuit measured at the excitation terminal, at standard temperature, with no-load applied, and with the output terminals open-circuited.

12 TERMINAL RESISTANCE, OUTPUT

The resistance of the load cell circuit measured at the output signal terminals, at standard temperature, with no-load applied, and with the excitation terminals open-circuited.

13 INSULATION RESISTANCE

The DC resistance expressed in ohms measured between any electrical connector pin or lead wire and the load cell body or case. Normally measured at 50 V DC.

14 EXCITATION

The voltage or current applied to the input terminals of the load cell.

15 SAFE OVERLOAD

The maximum load in percent of rated capacity which can be applied without causing a permanent change in the performance specifications.

16 ULTIMATE OVERLOAD

The maximum load in percent of rated capacity which can be applied without producing a structural failure.

17 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.

18 ACCURACY

Stated as a limit tolerance which defines the average deviation between the actual output versus theoretical output.

In practical load cell applications, the potential errors of nonlinearity, hysteresis, repeatability and temperature effects do not normally occur simultaneously, nor are they necessarily additive.

Therefore, accuracy is calculated based upon the RMS value of potential errors, assuming a temperature band of $\pm 10^{\circ}\text{C}$, full rated load applied, and proper set up and calibration. Potential errors of the readout, cross talk, or creep effects are not included.