

COMMON ENGINEERING TERMS

REFERENCE CARD

As an engineer, there can be a lot that you need to remember. From machine functions, to complex equations, to specific terms, it's important to keep informed. Whether you're a new engineer working on a project, or just need to be refreshed, we took some common engineering terms and broke them down for you.

CIRCULARITY

(Roundness) Used to describe how close an object is to a true circle.



STRAIGHTNESS

Described as a condition where part of a surface (or edge) is in a straight line.



CYLINDRICITY

Used to describe how close an object is to a true cylinder. As a 3 dimensional tolerance, this controls the overall form of a cylindrical feature to ensure the object is round enough and straight enough along its axis.



PARALLELISM:

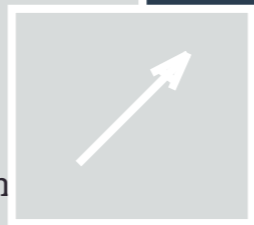
This is an orientation control that outlines how much surface on a physical part could vary from being parallel to a specific datum.



RUNOUT

Used to describe the inaccuracy of rotating mechanical systems. There are two main forms:

- Radial Runout:** Caused by the tool or component being rotated off center.
- Axial Runout:** Caused by the tool or component being at an angle to the axis.



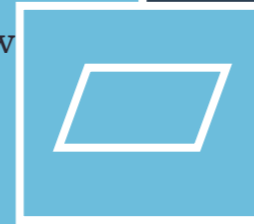
SURFACE FINISH

This is the nature of a particular surface which is defined by three characteristics of texture, roughness, and waviness. When controlling friction and transfer layer formation during sliding, surface texture is one of the most important factors.



FLATNESS

A form control which defines how much a surface on a physical part may vary from the ideal flat plane. This is a crucial geometric condition of work pieces and tools.



CONCENTRICITY

Describes a condition in which two or more features (cylinders, cones, spheres, etc.) have a common axis. Measurements requirements for concentricity involve the complex task of mapping the referenced feature by way of opposed point measurements.



PERPENDICULARITY

Depending which reference is specified, perpendicularity can have two definitions:

- Surface Perpendicularity:** A tolerance that controls perpendicularity between two 90 degree surfaces. It is controlled with two parallels that act as its tolerance zone.
- Axis Perpendicularity:** A tolerance that controls how perpendicular specific axes need to be to a datum. It is controlled by a cylinder around a theoretical axis that is perfectly parallel.



SIZE TOLERANCE

The allowed limit or limits of variant in either a physical dimension, a measured value or physical property of a material manufactured object, system or service.

ACCURACY

- In the machining world, accuracy = precision + repeatability
- Accuracy:** The degree of closeness a measured value is to the true quantity of what is being measured.
- Precision:** Indicated the closeness of two or more measurements to each other
- Repeatability:** Describes how well a system can reproduce an outcome of the same item under the same conditions.

As technology continually changes and new products emerge, these terms are here to stay. With engineering, it is important to never stop learning as this can only benefit you more in the industry - being knowledgeable in your field is the key to being a successful engineer.

We'd love to hear from you and offer our engineering expertise for your applications.

[CONTACT US](#)

Koyo

koyomachinery.com