

# Glossary of Gaging Terms from A to Z

Courtesy of Dyer Gage

Abbe's Law:	Principle that for maximum reliability the axis of the standard must lie along the line of measurement.
Abscissa:	The horizontal coordinate of a point in a plane Cartesian coordinate system, obtained by measuring parallel to the X axis.
Absolute Accuracy:	Accuracy relative to a specified reference measure.
Absolute Coordinates:	X, Y, and Z coordinate values relative to the coordinate system source.
Absolute Dimension:	A dimension expressed with respect to the initial zero point of a coordinate axis.
Absolute Reference Point:	Work piece coordinates relative to a fixed point on the machine table.
Absolute Vector:	Line with end points that are measured in absolute units from a set point of origin.
Absolute Zero Point:	Real zero for all axes from which point all counting begins.
Accuracy:	The relative amount by which desired results are compared with undesired results. Conformity to truth or to a standard or model; degree of conformity of a measure to a standard or a true value.
Accurate:	Conforming exactly to truth or to a standard exact.
Acute Angle:	An angle measuring less than 90 degrees.
Adaptive Control:	Control method whereby system parameters are automatically changed for the purpose of increased efficiency.
Adaptor:	A connecting devise used to mate parts that would not otherwise fit.
Adjustable Contact:	A contact, usually the reference contact, which is adjusted when setting the gage to measure a certain Work piece.
AGD Specifications:	Standardized designs developed by the gage design Committee of the American Standards Association.
Air Gaging:	Measurement by means of pneumatic metrology.
Algorithm:	Procedure for solving a mathematical problem in a finite number of steps that frequently involves repetition on an operation.
Align:	To bring objects into precise adjustment or correct relative position.
Allowance:	An intentional difference in the dimensions of mating parts. It is the minimum clearance or the maximum interference which is intended between mating parts.
Allowance:	The allowed dimensional difference between mating parts of a machine; the total tolerance.
Altitude:	Perpendicular distance from a vertex of a geometric figure to the opposite side, or from a side or face to a parallel side or face; vertical distance to the highest point from the base.
American Screw Gage:	Standard gage for diameter checking of machine or wood screws.

Amplifier:	The intermediate modifying stage of an electronic measurement system. May incorporate other functions such as filtering of the signal and comparison of signals.
Analog Instrument:	An instrument in which the sizes of physical quantities correspond to numerical values.
Analytical	
Geometry:	Study of geometric properties by means of algebraic operations on symbols defined in terms of a coordinate system.
Angle:	Figure formed by two lines extending from the same point, or by two surfaces diverging from the same line.
Angle Of	
Inclination:	Angle described by a screw thread, relative to its axis.
Angle Plate:	Two plates precision ground at right angles to each other, with facilities for fastening machine-tool work pieces.
Angular:	Having one or more angles, or forming an angle; sharp-cornered; measured by an angle.
Angular	
Measurement:	Expression of the relationship of two lines, based on the division of a circle into 360 sections, with each section equalling one degree of an angle.
Anvil:	Common name for comparator reference surface.
Apex:	The uppermost vertex or point of a cone, pyramid, etc.; the narrowed or pointed end of an object.
Approximate:	Nearly correct or exact; located close together, to come near to or be close to in position, value or characteristics.
Arc:	A continuous portion of a curved line, as of a circle or an ellipse.
Arc Second:	A term of clarification used to differentiate "degree" seconds.
Average:	A single value or mean that summarizes or represents the general significance of a set of unequal values; an estimation of or approximation to an arithmetic mean.
Axis:	Straight line, about which a line, curve, or plane figure is conceived to revolve; one of the reference lines of a coordinate system; imaginary line through a drawing for measurement or reference purposes.
Axis Inversion:	Reversal of plus/minus axial values, for the purpose of left-handed parts machining.
Axis Of	
Coordinates:	The intersection of a horizontal line (axis of abscissas), and vertical line (axis of ordinates) through which the location of a point in a plane can be determined.
Axis Of Symmetry:	Invisible line representing the center of gravity of a symmetrically balanced body or form.
Basic Size:	
Basic Size:	The exact theoretical size from which all limiting variations are made.
Baud:	A variable unit of data transmission speed, usually equal to one bit per second.
Benchmark:	Point of reference or standard from which other measurements may be made.
Bilateral Tolerance:	Tolerance partially on both sides of the basic dimension.
Bisect:	To divide into two usually equal parts.
Bit:	Unit of computer information equivalent to the result of a choice between two alternatives (yes/no, on/off).
Bit Density:	Measure of the quantity of bits per unit of length, area, or volume.

Bit Rate:	Velocity of bit transmission, usually in units per second.
Bitangent:	Straight line touching a curve at two points.
Blocks:	A quantity, number, or section of things dealt with as a unit.
Bore:	A cylindrical hole.
Brinell Hardness:	The hardness of a metal or alloy measured by hydraulically pressing a hard ball under a standard load into the specimen.
Briggs' Standard	
Pipe Thread:	The US standard for wrought pipe; angle thread of 60 degrees.
Brittleness:	Sensitivity of a material to cracking or breaking.
Brown And Sharpe	
Gauge:	Standard US gage for determination of wire size.
Byte:	Group of adjacent binary digits usually shorter than a word, that a computer processes as a unit.
Cad:	Computer-aided design.
Caliber:	Diameter of a round body; internal diameter of a hollow cylinder.
Calibrate:	To ascertain caliber; to determine, rectify, or mark the graduations of (as a thermometer tube); to standardize.
Calibration:	Act or process of calibrating; set of graduations to indicate values or positions.
Calibrations:	The marks on a measuring instrument, as the marks on a rule, which divides the instrument into fractional parts.
Calipers:	Measuring device with two legs or jaws that can be adjusted to determine thickness, diameter, and distance between surfaces.
Cam:	Computer-aided manufacturing.
Camber:	To curve upward in the middle; slightly arched.
Cartesian Coordinate:	Either of two coordinates that locate a point on a plane, and measure its distance from either of two intersecting straight line axes on a line parallel to the other axis; any of three coordinates that locate a point in space, and measure its distance from any of three intersecting coordinate planes measured parallel to that one of three straight-line axes that is the intersection of the other two planes.
Center:	Point around which a circle or sphere is described; point related to a geometrical figure in such a way that for any point on the figure there is another point on the figure such that a straight line joining the two points is bisected by the original point; place or fix at or around a center or central position.
Center Distance:	Measurable distance between the centralizes of holes or objects.
Center Gage:	Flat gage for threading tool set-up prior to chasing threads on a lathe.
Center Head:	Part of a combination square set that is used in determining centers of round work pieces.
Center Line:	Real or imaginary line that is equidistant from the surface of sides of something.
Central Angle:	Angle formed by two radiuses of a circle.

Centralization/ Centering:	Positioning of the gage so that its measuring contacts locate diametrically across the hole, as evidenced by a maximum reading. (Not to be confused with "squaring" the gage so that the contacts are perpendicular to the axis of the hole, as indicated by a minimum reading.) May also apply to outside diameter measurement.
Centric:	Located in or at a center.
Chamfer:	Flat surface formed when a corner is cut off, usually having an angle of 45 degrees.
Chord:	Straight line joining two points on a curve; segment of a secant between its intersections with a curve. A line cutting the circumference of a circle at two places.
Chordal Pitch:	Measured distance from a point on a gear tooth to the corresponding point on the next gear tooth.
Circle:	Closed plan curve, every point of which is equidistant from a fixed point within the curve; the plane surface bounded by such a curve.
Circular Interpolation:	Contouring control technique that uses the data contained in a single block to generate an arc of a circle. The speeds of the axes used to produce this arc are varied by the control.
Circular Pitch:	Measured distance from the center of a gear tooth to the center of the next gear tooth.
Circumference:	External boundary or surface of a circle, round object, or figure.
Circumscribe:	To draw a line around; to surround by a boundary; encircle.
Clearance:	Distance by which one object clears another or the clear space between them.
Coating Thickness:	Measured depth of some material such as metal, compound, etc. applied to or covering the surface of another material.
Combination Square:	Device incorporating calibrated blade, center head, bevel protractor, and square head with a level, for machine layout measurement.
Comparator:	Device for comparing something with a similar thing or with a standard measure.
Compare:	To examine the character or qualities of, in order to discover resemblances or differences.
Comparison Measurement:	Measurement by comparing the unknown length with a known length or standard.
Compass:	Instrument for describing circles or transferring measurements, that consists of two pointed branches joined at the top by a pivot.
Complimentary Angles:	Angles which when added together equal 90 degrees.
Computer:	A programmable electronic device that can store, retrieve, and process data.
Computerized Data Acquisition:	The gathering, recording, identification, and evaluation of raw data for centralized processing via computer into usable information.
Concentric:	Having a common center or common axis.
Conjugate Angle:	One of two angles whose sum is a perigon.
Connecting Extension Tubes:	That part of the gage's handle that connects the depth extension tubes together.
Concave:	Hollowed or rounded inward, arched in, or curved in; a concave line or surface.

Constant:	Number having a fixed value in a given situation, or that is characteristic of some of a substance or instrument; number that is assumed not to change value in a given mathematical context; a term in logic with a fixed designation.
Contact Instrument:	An instrument that depends upon physical contact with the part. Hence, distortion is introduced.
Contact Points:	The part of a gage at which measurements are taken.
Contour:	The outline of a curving or irregular figure; the line representing this outline.
Coordinate:	One line in a system of lines by which position is located.
Coordinated Dimensioning:	Method of dimensioning wherein a point is defined as being a particular dimension and space relative to a reference point, measured with respect to defined axes.
Cutting Angle:	Angle described between the cutting tool and the surface of the material being cut.
Data:	Factual information used as a basis for reasoning, discussion, or calculating.
Data Acquisition:	Method of gathering masses of raw data through recording equipment for the purpose of further processing as in a computer.
Data Base:	Collection of data organized especially for rapid search and retrieval as by a computer.
Data File:	Collection of related data records organized in a particular configuration.
Data Logging:	Recording of data relative to events occurring in time sequence.
Data Processing:	Converting of raw data to machine readable form and its subsequent processing as in a computer.
Datum:	Something given or admitted as a basis for reasoning or inference. A point of reference.
Datum Line:	Any fundamental line from which graphic calculations are made.
Datum Plane:	Plane in which the reference points lie. Perpendicular to line of measurement.
Decimal:	Numbered or proceeding by tens; based on the number ten; proper fraction in which the denominator is a power of 10, usually not expressed but signified by a point placed at the left of the numerator.
Decimal Equivalent:	Value of a fraction expressed as a decimal.
Degree:	In angle measurement, the 360th part of the circumference of a circle.
Depth Extension Tube:	That part of the gage's handle which is connected to accommodate longer than normal measuring depths.
Depth Gage:	Instrument consisting of a rule and cross beam that is used for measuring depth of holes and recesses.
Depth Micrometer:	Depth gage capable of very precise measurements.
Deviation:	Departure or deviation from an established standard or measure.
Diagonal:	Joining two nonadjacent vertices of a rectilinear or polyhedral figure; passing through two nonadjacent edges of a polyhedron; inclined obliquely from a reference line.
Dial:	A face upon which some measurement is registered usually by means of graduations and a pointer; to measure with a dial.
Dial Indicator:	Metalworking measurement device usually found on gages.
Diameter:	A chord passing through the center of a circle.

Diameter Tape:	Steel measuring tape that provides a reading of diameter measurement when placed around the circumference of a cylinder or round body.
Diametral Pitch:	Ratio between number of teeth on a gear and the gear's pitch diameter.
Die Clearance: Difference Measurement:	Measured space between punch and die that allows for the thickness of the Work piece.
Differential Measurement:	Differential measurement in which one input signal is subtracted from another one.
	The algebraic combination of input signals within the measurement instrument. Used to obtain concentricity, roundness, and other measurements directly.
Digit:	Any of the Arabic numerals 1 to 9, and usually the symbol 0.
Digital:	Of or relating to calculation by numerical methods or by discrete units; relating to data in the form of numerical digits.
Digital Instrument:	An instrument that uses counting methods.
Digitize:	To arrange or put (as data) into digital notation.
Dihedral Angle:	Figure formed by two intersecting planes.
Dimension:	A measure in one direction; one of three or four coordinates determining a position in space or in space and time; quality of spatial extension.
Direct Measurement:	Measurement with an instrument that incorporates its own standard of length.
Discrimination:	Line value of graduations on a dial indicator.
Display:	A visual presentation of data on some form of output device.
Divide:	To separate into two or more parts, areas, or groups; to subject a number or quantity to the operation of finding out how many times it contains another number or quantity.
Drill Gage:	Steel plate containing holes of standard drill sizes that facilitates determination of proper drill bit size.
Drill Grinding Gage:	Device that checks depth and lip angle of a drill.
Dynamics:	Branch of mechanics that deals with forces and their relation primarily to the motion, and sometimes to the equilibrium of bodies; variation and contrast in force or intensity.
Dynamometer:	Instrument for measuring mechanical force; apparatus for measuring mechanical power, as of an engine.
Eccentric:	Deviation from the center or from the line of a circle.
Eccentricity:	Deviation of the centers of two circles from each other.
Electronic Meas. Inst.:	An instrument in which the amplification is obtained by electronic means. (In most instruments the initial pickup is mechanical.)
Error:	The difference between an observed or calculated value and a true value; variation in measurements, calculations, or observations of a quantity due to mistakes or uncontrollable factors.
Feel:	The perception of metal-to-metal contact in measurement.

Feeler Gage:	Instrument made up of a series of thin steel plates, used for measuring the distance between parts.
Finish:	The character of the surface.
FIR:	Full indicator reading. Difference between maximum and minimum indicator readings obtained.
Fit:	The relation between two mating parts with reference to ease of assembly. The quality of fit is dependent upon both the relative size and the quality of finish of the mating parts.
Fixed Contacts:	That part of a gage measuring system that does not move.
Flatness:	Referred to as per foot or overall, the deviation from above or below a reference plane.
Flats:	Small surface plates, usually of high accuracy.
Flaws:	Irregularities in surface finish that do not appear in a consistent pattern.
Floating Contact Points:	Measuring contacts that are able to move in or out of measurement taking.
Floating Zero:	A feature of a machine-tool numerical control device that allows for setting the zero reference point on an axis at any point in the travel.
Gage:	A device for determining whether or not one or more of the dimensions of a manufactured part are within specified limits. A standard of comparison between like items.
Gaging:	A process of measuring manufactured materials to assure the specified uniformity of size and contour.
Gaging Capacity:	Also referred to as TOTAL RANGE OF ADJUSTMENT, embraces the maximum and minimum dimensions to which the gage can be adjusted for measurement with acceptable accuracy.
Gaging Length:	The maximum distance which gage contacts can enter a hole to check diameter or other condition, often referred to a GAGING DEPTH when the entrance is vertical.
Gauge:	See GAGE.
Gear Tooth Caliper:	Instrument that uses the vernier technique to measure thickness and depth of gear teeth on the pitch line.
Go Gage:	Attribute gage that passes all parts within size limits.
Go/No-Go Gage:	Precision gage with opposing ends sized a few thousandths of an inch apart, with one end greater than a specified hole size, and the other end equal to hole size.
Graduate:	To mark with degrees of measurement; to divide into grades or intervals; to change gradually; graduated cup, cylinder, or flask for measuring.
Graduation:	Smallest division on a scale.
Grating:	System of closed equidistant and parallel lines or bars ruled on a polished surface to produce spectra by diffraction.
"H" Dimension (Blind Hole Dist."H"):	That part of the bore which is not being measured the distance from the center of the measuring contact to the bottom of the gage.
Hardness Tester:	Device or system used in determining the hardness of heat-treated steel.
Helix:	Something spiral in form; a curve traced on a cylinder by the rotation of a point crossing its right sections at a constant oblique angle.

Helix Angle:	The angle which results from a thread helix at the pitch diameter with a plane perpendicular to the axis.
Hoke Blocks:	Precision blocks, designed by Major Hoke, for checking gages, dimensions, and other measurements.
Holder:	That part of a gage which connects the measuring surface to the indicator.
Home Position:	Fixed location in a machine tool's coordinate-axis system.
Hooke's Law:	An engineering law stating that within elastic limit, deformation produced is proportional to stress.
Horizontal:	Of, relating to, or situated near the horizon; parallel to, in the plane of, or operating in a plane parallel to the horizon or to a base line.
Hyperbola:	Plane curve generated by a point so moving that the difference of the distances from two fixed points is a constant; curve formed by the intersection of a double right circular cone with a plane that cuts both halves of the cone.
Impact Test:	Method of testing a material for shock resistance.
Inch:	Unit of length equal to 1/36 of a yard.
Included Angle:	The complete angle on both sides of the center line.
Increment:	An increase especially in quantity or value; one in a series of regular consecutive additions; a minute increase in quantity; positive or negative change in the value of one or more of a set of variables.
Incremental Dimension:	Dimension expressed in relation to the point before it in a series of points.
Indexing:	Division of a circle into a specified number of increments through the use of an indexing or dividing head.
Indicating Gage:	Instrument that visually displays uniformity of measurements or contour; variation indicated by a level or graduated dial.
Indicator:	An instrument that visually displays the amount of variation between dimensions being measured. May be either mechanical or electronic.
Indicator Range:	Useful portion of total travel.
Indicator Stand:	Self-supporting contrivance providing a reference point for the indicator.
Initial Line:	The reference line when two intersecting lines form an angle.
Inspect:	To view closely in critical appraisal; to look over or examine officially.
Inspection:	Examination by measurement, gaging, or other means to verify an object's compliance with predetermined standards.
Inspection Bench:	Metal or granite surface of precise flatness and smoothness for checking the accuracy of finished parts.
Inspection Gages:	Standard or custom-made instruments used in checking accuracy of finished products.
Inspector:	A person employed to inspect something, usually finished products, or products in process.
Interior Angle:	Any one of four angles formed between two straight lines cut by another straight line.
Interpolation:	The selection of the nearest graduation when a measurement lies between them. The observational equivalent to the rounding off process in computation.
Johansson Block:	Rectangular block, produced in a variety of degrees of accuracy, for use as a standard gage.
Keep's Hardness Test:	Metal-hardness testing method in which a steel drill revolves at a specified rate and is applied with standard force against the surface being tested.

**Knoop Hardness Test:** Hardness testing method for use on thin metals, plated surfaces, particularly hard and brittle materials, and shallow carburized and nitrated surfaces.

<b>Lay:</b>	The predominant direction of surface pattern.
<b>Lead:</b>	To direct on a course or in a direction; position at the front; distance a nut advances on a thread in a single revolution.
<b>Limit Gage:</b>	Instrument designed for checking a specified dimensional tolerance.
<b>Limits:</b>	The extreme permissible dimensions of a part.
<b>Linear:</b>	Of, relating to, or resembling a straight line; involving a single dimension; of the first degree with respect to one or more variables; of, relating to, or based on linear equations or linear functions.
<b>Lineal Foot:</b>	Unit of measurement representing 12 in length.
<b>Linear Measurement:</b>	Straight line, involving a single dimension. A measure of length; a system of measures of length.
<b>Liquid Measure:</b>	Unit or series of units for measuring liquid capacity.
<b>Longitudinal:</b>	Of or relating to length or the lengthwise dimension; placed or running lengthwise.
<b>Lot Size:</b>	Quantity of materials or products to be produced at a specified point in time.
<b>Major Axis:</b>	The long diameter of an ellipse.
<b>Major Diameter:</b>	Largest thread diameter measured perpendicular to the axis.
<b>Master Gage:</b>	Any instrument used to check the accuracy of other measuring instruments.
<b>Master Ring:</b>	A standard against which to check measuring instruments to ensure that they remain dimensionally stable and maintain their nominal level of accuracy.
<b>Master Taper:</b>	Gage used to check other tapers for accuracy.
<b>Maximum:</b>	The greatest quantity or value attainable or attained; the upper limit allowed or allowable; the largest value assumed by a real-valued continuous function defined on a closed interval.
<b>Maximum Reading:</b>	The farthest point to which the indicator hand travels in the plus direction (usually clockwise).
<b>Mean:</b>	Middle point between extremes; value that lies within a range of values and is computed according to a prescribed law; the arithmetic mean of the two extremes of a range of values.
<b>Measure:</b>	A fixed or suitable limit; dimensions, capacity, or amount of something ascertained by measuring; an instrument for measuring; a system of standard units of measure.
<b>Measurement:</b>	The act or process of measuring; a figure, extent, or amount obtained by measuring.
<b>Measuring Depth (Reach):</b>	The distance the gage will enter into a bore. See also GAGING LENGTH.
<b>Measuring Head:</b>	The area of the gage where the measurement takes place.
<b>Measuring Movable Contact:</b>	See SENSITIVE CONTACT.
<b>Measuring Movable Contact Travel:</b>	The distance of movement of the measuring contact.
<b>Measuring Sleeves:</b>	Self centering and the measuring part of an indicating plug gage.

Measuring Tape:	A metal or cloth tape graduated for linear measurements.
Mensuration:	The act of measuring; geometry applied to the computation lengths, areas, or volumes from given dimensions or angles.
Metric:	System of measurement that is based on the meter as the standard of measurement; of or relating to the metric system.
Metric Gear:	A gear designed and produced using the metric system of measurement.
Metric System:	A decimal system of weights and measures based on the meter and on the kilogram.
Metric Thread:	Thread based on the metric system of measurement.
Metrology Laboratory:	A laboratory for the calibration of standards. May be a department within a company or an outside service.
Micrometer:	Instrument used with a telescope or microscope for measuring minute distances; unit of length equal to one millionth of a meter, also called a micron.
Micrometer Caliper:	Caliper having a spindle moved by a finely threaded screw for making precise measurements.
Micron:	One millionth of a meter, 0.001mm or 0.0000 50". Abbreviated $\mu\text{m}$ .
Microsecond:	One millionth of a second.
Mil:	0.001 INCH. (1,000 MILS = 1 INCH = 2.54 CM) Unit of length equal to 1/1000, used especially for the diameter of wire; unit of angular measurement equal to 1/6400 of 360 degrees.
Millisecond:	One thousandth of a second.
Minimum:	The least quantity assignable, admissible, or possible; the least of a set of numbers, specifically the smallest value assumed by a continuous function defined on a closed interval; the lowest of degrees or speed.
Minimum Reading:	The farthest point to which the indicator hand travels in the minus direction (usually counter-clockwise).
Minor Axis:	The chord of an ellipse passing through the center and perpendicular to the major axis.
Minor Diameter:	Smallest screw-thread diameter, measured across the roots and perpendicular to the axis.
Minute:	One 60th part of a degree. One 21,600th part of a circle.
Mohs' Scale:	A scale of hardness for minerals developed in 1839 by Friedrich Mohs.
Monomial:	Mathematical expression consisting of a single term.
Nanosecond:	One billionth of a second.
No Go:	Attribute gage that rejects all parts out of size limits.
Nominal (Blueprint):	The specified size (the named size), not the size plus or minus some tolerance.
Nominal Size:	A designation given to the subdivision of the unit of length having no specified limits of accuracy, but indicating a close approximation to a standard size.
Out-Of-Round:	Variations of the distance from the true center of an object to the circumference.
Oblong:	Deviating from a square or circular form through elongation; rectangle with adjacent sides unequal; rectangular, with the normally horizontal dimension the greater.
Obtuse Angle:	An angle greater than a right angle.
Octagon:	Polygon of eight angles and eight sides.
Odd Leg Caliper:	Caliper device with legs curved the same way, used for measuring shoulder distances.
Odontograph:	Instrument that facilitates the correct layout of gear teeth.

Off Center:	Two or more circumferences not having the same center or axis.
Offset:	An abrupt change in the dimension or profile of an object or the part set off by such change; to serve as a counterbalance.
On Center:	The placement of center lines in line.
Optical Instruments:	Device for inspection and measurement that utilizes lenses, prisms, mirrors, and other optic related components.
Ordinate:	Line applied in an orderly manner; the Cartesian coordinate obtained by measuring parallel to the Y axis.
Orthographic:	Characterized by perpendicular lines or right angles.
Out-Of-Round:	Variation of the distance from true center to the circumference.
Output:	Something produced; information fed out by a computer or accounting machine.
Outside Caliper:	Caliper device for measuring outside diameters or dimensions.
Oval:	Having the shape of an egg; broadly elliptical; an oval figure or object.
Pantometer:	Instrument for measuring angles, elevation, etc.
Parabola:	A plane curve generated by a point moving so that its distance from a fixed point is equal to its distance from a fixed line; the intersection of a right circular cone with a plane parallel to an element of the cone; something bowl shaped.
Parallax:	The apparent displacement or the difference in apparent direction of an object as seen from two different points not on a straight line with the object.
Parallel:	Extending in the same direction, everywhere equidistant, and not meeting; having parallel sides.
Parallel Rulers:	Drafting tool made up of two straight edges connected so that they remain parallel regardless of the distance between them.
Parallels:	Blocks used in matched pairs for machine alignment.
Parameter:	An arbitrary constant whose value characterized a member of a system; a quantity that describes statistical population; any of a set of physical properties whose values determine the characteristics of something.
Perpendicular:	Standing at right angles to the plane of the horizon; being at right angles to a given line or plane; an extremely steep face.
Pitch Diameter:	Relative to a gear, the pitch circle diameter of the gear wheel; relative to a thread, the major thread diameter minus the depth of one thread.
Plane:	A surface of such a nature that a straight line joining two of its points lies wholly in the surface; a flat or level surface.
Plane Angle:	Angle formed by two intersecting lines each of which lies on the face of a dihedral angle and is perpendicular to the edge of the face.
Planometer:	A surface plate.
Plate Work:	General term for measurements made from a surface plate.
Platen:	A flat, wide reference surface, sometimes referred to as a reference table. Term frequently used for anvil.
Plug Gage:	A precision metal plug used for hole-size gaging.
Pneumatic Gaging:	Measurement by means of pneumatic metrology.
Pneumatic Metrology:	Measurement in which amplification is achieved by a system using air or other gases.
Precision:	The quality or state of being precise or exact; degree of refinement with which an operation is performed or a measurement stated; the accuracy with which a number can be represented; held to low tolerance in manufacture. The

quality of being sharply or clearly determined; strictly accurate; exact. Closeness of agreement among repeated measurements of the same characteristic by the same method under the same conditions.

Precision Instrument:	The proficient amplification of the natural senses of sight and touch.
Preset Tool:	Cutting tool clamped in position so that a specified geometrical relationship will exist with a gage point.
Probe:	The mechanical measuring part of a gage that is inserted into a bore, having a round disc contact that is split in two halves.
Profilometer:	Instrument for measuring surface roughness.
Protractor:	Instrument used for laying down and measuring angles in drawing and plotting.
Pyrometer:	Instrument for measuring temperatures especially when beyond the range of mercurial thermometers, usually by the increase of electric resistance in a metal, by the generation of electric current by a thermocouple or by the increase in intensity of radiated light.
Pythagorean Theorem:	Theorem in geometry which states the square of the length of the hypotenuse of a right triangle equals the sum of the squares of the lengths of the other two sides.
Radius:	A line segment extending from the center of a circle to the curve or surface; the circular area defined by a stated radius.
Radius Gage:	Instrument used to check the size of radiuses and fillets.
Range:	A sequence, series, or scale between limits; the limits of a series; distance or extent between possible extremes; to set in a row or in the proper order. Total area/distance of measurement.
Reach:	The maximum distance a gage will enter or extend into a bore for measuring.
Read-Out:	The data that the measurement system presents to the observer.
Readability:	The relative ease with which the measurement can be distinguished.
Rectangle:	A parallelogram all of whose angles are right angles.
Rectangular Coordinate:	A Cartesian coordinate of a Cartesian coordinate system whose straight-line axes or coordinate planes are perpendicular.
Reference:	Constituting a standard for measuring or constructing; to put in a form as in a table adapted to easy reference; source of information.
Reference Contact:	The point or surface from which a dimension is measured or a comparison of dimensions is made.
Reference Dimension:	A Dimension without tolerance that is used for information purposes only.
Reference Gages:	Instruments used for testing the accuracy of inspection gages.
Reference Plane:	Plane in which reference points lie. Perpendicular to line of measurement.
Reference Point:	Point defined within the limits of travel to locate the spindle relative to the Work piece.
Reflex Angle:	Angle greater than a straight angle.
Relief Angle:	Angle between the front of a cutting tool and the face of the Work piece.
Repeatability:	Closeness of agreement of repeated position movements to the same indicated location and under the same conditions, dispersion of repeated readings. (Over 99% of all readings will fall into the zone.)

Resistance:	An opposing or retarding force; the opposition offered by a body or substance to the passage through it of steady electrical current.
Resolution:	Process of reducing to simpler form; the process or capability of making distinguishable the individual parts of an object, closely adjacent optical images, or sources of light. OR The ratio of the width of one scale division (one output unit) to the width of the hand (the read-out element).
Reversal Process/ Technique:	Method for detecting or canceling of small changes by comparing a variable with itself but with reversed algebraic sign.
Rhomboid:	Parallelogram in which the angles are oblique and adjacent sides unequal; shaped somewhat like a rhombus or rhomboid.
Rhombus:	Equilateral parallelogram usually having oblique angles.
Right Angle:	Angle bounded by two lines perpendicular to each other.
Ring Gage:	Ring-shaped gage used for checking outside diameters.
Ring Segment:	Part of the gage's measurement transfer mechanism.
Ring Thread Gage:	Ring-shaped gage used for checking outside screw threads.
Rockwell Hardness Tester:	Machine that measures hardness by determining depth of penetration into a specimen under fixed testing conditions.
"Rocking":	Movement imparted to a gage to determine the point at which its measuring contacts are correctly aligned with the dimension being checked, as evidenced by a minimum reading.
Root Diameter:	Same as minor diameter.
Roughness:	Finely-spaced surface irregularities, in a consistent pattern produced by machining or processing.
Roundness:	The characteristic that all parts of a circle are identical.
Rule:	Instrument made with a straight edge for measurement applications or for scribing a line.
Scale:	Something graduated, especially when used as a measure or rule, as a series of spaces marked by lines and used to measure distances or to register something; an instrument consisting of a strip with one or more sets of spaces graduated to and numbered on its surface for measuring or laying off distances or dimensions; to pattern, make, regulate, set, or estimate according to some rate or standard.
"Scaled" (Markings):	See CALIBRATIONS
Scalene Triangle:	Triangle in which no two sides are equal.
Sclerometer:	Instrument for determining the relative hardness of materials.
Scleroscope:	Instrument which measures Work piece hardness in terms of elasticity.
Screw Pitch Gage:	Gage for determining the amount of threads per inch on screw, nut, bolts, etc.
Second:	One 60th part of a minute. One 3600th part of a degree. One 1,296,000th part of a circle.
Sector:	Geometrical figure bounded by two radiuses and the included arc of a circle.
Segment:	A portion cut off from a geometrical figure by one or more points, lines, or planes; the finite part of a line between two points in the line; to separate into segments.
Self-Centering Base:	That part of the gage that aligns it to the center of the bore.

Sensitive Contact:	That contact point of a gage which is free to respond to the size of the Work piece being measured and from the response is transferred to the indicator dial. Also known as MOVABLE CONTACT.
Sensitivity:	Minimum input that produces a discernible output.
Serrated Anvil:	Anvil having large number of closely spaced grooves to reduce surface area. Used to minimize effect of air film.
Sheet Metal Gage:	Instrument used in determining the thickness of sheet metal.
Shrink Rule:	Rule used for representative measurement rather than actual measurement.
Single-Dimension Gage:	A gage designed to check on particular dimension. Some are adjustable, but only over a narrow range to compensate for wear.
Single-Purpose Gage:	A gage designed for one type of measurement, e.g. inside diameter. Gage may be either adjustable or made to check a single dimension.
Sleeve:	See MEASURING SLEEVE.
Slide Caliper:	Caliper device made up of a calibrated slide held in a rule type beam for rapid inside and outside diameter reading.
Slide Rule:	Instrument consisting in its simple form of a ruler and a medial slide that are graduated with similar logarithmic scales, labeled with the corresponding logarithms and used for rapid calculation.
Snap Gage:	Nonadjustable inspection gage.
Solid Angle:	The three-dimensional angular spread at the vertex of a cone measured by the area intercepted by the cone on a unit sphere whose center is the vertex of the cone.
SPC:	An abbreviation for Statistical Process Control. A method of ensuring the quality of the output of any process by means of statistical sampling to determine whether the process itself is functioning within its established range of parameters.
Sphere:	A solid that is bounded by a surface consisting of all points at a given distance from a point constituting its center; natural, normal, or proper place; field or range of influence.
Spherical Angle:	Angle between two intersecting arcs of great circles of a sphere measured by the plane angle formed by the tangents to the arcs at the point of intersection.
<b>SPREAD PROBE</b>	
(Split Ball):	Part of the gage's measurement transfer mechanism.
Square:	Instrument having at least one right angle and two straight edges used to layout or test right angles; a rectangle with all four sides equal; the product of a number multiplied by itself; to make square to rectangular.
Square Measure:	Unit or system of units for measuring area.
Standard:	Something setup and established by authority, custom or general consensus as a model or example, something setup and established as a rule for the measure of quantity, weight, extent, value, or quality; constituting or conforming to a standard.
"A" Standard:	A copy traceable to THE STANDARD.
"The" Standard:	The ultimate physical embodiment of the unit of length.
Steel Rule:	Rule made of steel.
Steradian:	Unit of measurement for solid angles which encompasses a surface equivalent to the square of the radius.
Straight Angle:	Angle whose sides lie in opposite directions from the vertex in the same straight line and which equals two right angles.

Sum Measurement:	Differential measurement in which one input signal is added to another one.
Supplement Of	
An Angle:	Difference between a given angle and 180 degrees.
Supplementary Angle:	One of two angles or arcs whose sum is 180 degrees.
Surface Gage:	A Non-calibrated instrument used primarily for layout work.
Surface Plate:	Granite or iron inspection plate whose surface is ground to a precise degree of smoothness.
Supplementary Angle:	One of two angles or arcs whose sum is 180 degrees.
Surface Gage:	A Non-calibrated instrument used primarily for layout work.
Surface Plate:	Granite or iron inspection plate whose surface is ground to a precise degree of smoothness. A horizontal reference plane of sufficient strength and rigidity that measurement operations may be supported on it.
Swimming Contact	
Point:	See FLOATING CONTACT POINTS.
T Square:	Ruler with a crosspiece or head at one end, used in making parallel lines.
Tape:	Narrow flexible strip or band sometimes used for measuring.
Taper Gage:	Instrument for taper degree and accuracy testing.
Ten-To-One Rule	
("Rule Of Ten"):	General rule that instrument should be capable of dividing part tolerance into ten parts.
Tensimeter:	Instrument for measuring differences of vapor pressure.
Tensiometer:	Device for measuring tension.
Tenth:	Engineering term meaning 1/10 of 1/1000 or 0.0001.
Terminal Line:	The measured line when two intersecting lines form an angle.
Thickness Gage:	Fixed leaf-type gages for clearance checking between mated parts.
Thread Gage:	Plug or ring-type device for checking thread fit.
Threads Per Inch:	Number of screw threads in an inch of length.
Three Dimensional:	Of or relating to three dimensions; giving the illusion of depth or varying distances.
Three-Point	
Measuring System:	The gage has three measuring contacts.
Three-Wire Method:	Screw thread pitch-diameter measurement technique.
Tir:	Total indicator reading. Difference between maximum and minimum indicator readings obtained.
Tolerance:	Allowable deviation from a standard; range of variation permitted in maintaining a specified dimension in machining a Work piece.
Total Range	
Of Adjustment:	See GAGING CAPACITY.
Traceability:	Documentation to establish that standards are known in relation to successively higher standards until the National Bureau of Standards is reached.
Trammel:	Instrument for drawing ellipses.

Transfer Caliper:	Caliper device that allows return to measured Work piece setting after that setting has been changed as a result of removal from the Work piece.
Transfer Of Measurement:	Operation between taking a measurement and reading the value of the measurement.
Transversal:	Line that intersects a system of lines.
Triangular Scale:	Three-edged drafting tool, with each edge having two sets of calibrations - one for actual measurement and the other for representative measurement.
True:	Conformable to a standard or pattern; on center; the quality or state of being accurate.
True Diameter (Bore):	See DIAMETER
Try Square:	Instrument used for laying off right angles and testing whether work is square.
Two-Point Measuring System:	The gage has two measuring contacts.
Unified Threads:	Screw thread standard adopted by the United States, Great Britain, and Canada.
Unilateral Tolerance:	Allowable deviation, in only one direction, from a basic dimension.
United States Form Thread:	Screw thread having the same shape as the USS National Coarse, but with different pitch.
Vanishing Point:	Point at which receding parallel lines seem to meet when represented in linear perspective; point at which something disappears or ceases to exist.
Variable:	Able or apt to vary; subject to variation or changes; having the characteristics of a variable; something that is variable; a quantity that may assume any one of a set of values.
Variance:	The fact, quality, or state of being variable or variant; state of being in disagreement; the square of the standard deviation.
Vector:	A quantity that has magnitude and direction and that is commonly represented by a directed line segment whose length represents the magnitude, and whose orientation in space represents the direction; course or compass direction.
Vernier:	A short scale made to slide along the divisions of a graduated instrument for indicating parts of divisions; small auxiliary device used to obtain fine adjustment.
Vernier Caliper:	Caliper device that consists of a main scale with a fixed jaw and a sliding jaw with an attached vernier.
Vertex:	The point opposite to and farthest from the base of a figure; the termination or intersection of lines or curves; a point where an axis of an ellipse, parabola, or hyperbola intersects the curve itself; highest point.
Vertical:	Situated at the highest point directly overhead or in the zenith; perpendicular to the plane of the horizon or to a primary axis; located at right angles to the plane of a supporting surface; lengthwise.
Vertical Angle:	Either of two angles lying on opposite sides of two intersecting lines.
Vickers Hardness Test:	Similar to the Brinell hardness test.

Waviness:	An irregular surface condition of greater spacing than roughness. Usually caused by deflections or vibrations, not by the cutting edge. WAVINESS HEIGHT: Surface irregularities spaced too far apart to be considered characteristics of roughness.
Whitworth Thread:	Standard English thread with included angle of 55 degrees.
Wire Gage:	Notches plate, with each notch representing a standard sheet metal and wire size.
Working Depth:	Gear tooth depth from addendum line to clearance line.
Working Gage:	Gage used exclusively by a worker as opposed to inspection gages, master gages, etc.
Zero:	The point from which all coordinate dimensions are programmed in an absolute system. The arithmetical symbol 0 denoting the absence of all magnitude or quantity; the number between the set of all negative numbers and the set of all positive numbers; the lowest point.
Zero Offset:	Numerical machine-tool control feature that allows the shifting of the zero point over a specified range on an axis.
Zero Offset Position:	Point to which zero on the machine is shifted to absolute zero.
Zero Setting:	Bringing the zero position of the instrument into correspondence with a reference of the measurement.
Zygo:	Fluorescent-penetrant inspection method for detection of flaws in nonmagnetic metals.