
QUALITY DICTIONARY

Compiled with significant input from the Quality Dictionary Editorial Board.

Dictionaries are like watches; the worst is better than none, and the best cannot be expected to go quite true.

SAMUEL JOHNSON (1786)

3rd Edition

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α	The Greek symbol alpha.
A₂	1) A multiplier of R used to calculate the control limits for averages. 2) A multiplier of R used to calculate the control limits for medians.
A₃	A multiplier of S used to calculate the control limits for averages.
ACSI	American customer satisfaction index
AIAG	Automotive Industry Action Group ; responsible for publishing and distributing joint documents and specifications.
ANOVA	Analysis of variance
ANSI	American National Standards Institute
ANSI standard	Any of the several thousand standards on many topics which are maintained by and marketed through the American National Standards Institute (ANSI).
ANSI/ASQ Z1.4	Sampling Procedures and Tables for Inspection by Attributes.
ANSI/ASQ Z1.9	Sampling Procedures and Tables for Inspection by Variables for Percent Nonconforming.
AOQ	Average outgoing quality
AOQ curve	Average outgoing quality curve
AOQL	Average outgoing quality limit
AQL	Acceptable quality level
AQP	Association for Quality and Participation
ASN	Average sample number
ASQ	American Society for Quality
ASQC	American Society for Quality Control . Renamed American Society for Quality in 1997 due to an increasing focus into new fields in addition to statistical quality control.
ASTD	American Society for Training and Development
ASTM	American Society for Testing and Materials
ATI	Average total inspection
AV	Appraiser variation
A2LA	American Association for Laboratory Accreditation
Absolute error	See Error, absolute .
Abstract standard	A Standard which requires subjective judgment in order to determine whether or not an item complies with it. Contrast with Physical standard .
Abuse	The use of a product or service which is either inconsistent with, exceeding, or an unintended variation of, the original performance expectations. Includes usage, environment, or application of products or services resulting in an unintended outcome. The result may or may not be catastrophic in nature. Compare with Foreseeable abuse .
Accept	To decide that a batch, lot, or quantity of product, material or service satisfies the requirement criteria based on the information obtained from the sample(s). Contrast with Reject .

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Accept stamp	An Inspector stamp used to apply a Mark of conformance . Contrast with Reject stamp .
Acceptability constant (k)	A constant that is a function of the specified Acceptable quality level (AQL) and the sample size. Used in variables sampling schemes which use an AQL index.
Acceptable	A product meeting or exceeding minimum design standards. Contrast with Unacceptable .
Acceptable quality level (AQL)	1) The maximum percent defective that is a satisfactory process average for sampling inspection, corresponding to a given sampling plan and a specified Producer risk . 2) The maximum percentage or proportion of variant units, nonconforming units, or defective units, in a lot or batch that can be considered a satisfactory process average in an acceptance sample. Applies to sampling inspection of a continuous series of lots.
Acceptance	1) A decision that the process is operating in a satisfactory manner as shown by the values and randomness of statistical measures being plotted on an acceptance control chart. 2) Validation .
Acceptance control chart	1) A Control chart used to accept a process without Tampering when it is In control and reject it for corrective action when it is out of control. 2) A graph to evaluate a process in terms of whether or not it: <ul style="list-style-type: none">• can satisfy product or service tolerance for measured characteristic(s)• is in statistical control within the acceptance control limits for a sample
Acceptance criteria	The criteria that a lot or process must meet to successfully complete a test phase or meet delivery requirements. Compare with Acceptance specification .
Acceptance inspection	A buyer's legal right to examine goods when they are delivered before accepting them. This is undertaken to determine whether the goods are the same as those the buyer agreed to buy in the sales contract. By taking title before delivery, the buyer has a reasonable time after delivery to inspect the goods. If not inspected within such time, the buyer is deemed to have consented to the delivery without examining the goods. However, if the buyer does inspect the goods and they are not the same as those agreed to, the buyer can return the goods to the seller.
Acceptance number (c)	The maximum number of Variant units allowed in a sample being inspected by attributes for the inspected lot or batch to be accepted. Contrast with Rejection number .
Acceptance proof test	To apply a proof load as a prerequisite for customer acceptance.
Acceptance rate	The percentage of items accepted. Calculated by the formula: $\frac{\text{number accepted} \times 100}{\text{number accepted} + \text{number rejected}}$
Acceptance region	In a test of hypothesis the region of values for which the Null hypothesis is accepted.
Acceptance sampling	Methods of Sampling inspection in which decisions to accept or reject the lot(s) or process(es) are based on the results of the inspection of samples taken at random from them.

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Acceptance sampling plan	A specific plan stating risk, sample size(s) to be used, and the associated acceptance and nonacceptance criteria (ASQ). It is used in an Acceptance sampling scheme . Examples include the Dodge Romig sampling plan , ANSI/ASQ Z1.4 , ANSI/ASQ Z1.9 , and Unknown standard deviation plan .
Acceptance sampling scheme	A specific set of procedures usually consisting of acceptance sampling plans that relate lot sizes, sample sizes and acceptance criteria, or the amount of 100 percent inspection and sampling. Typically includes rules for switching from one plan to another. Acceptance sampling schemes are used in Acceptance sampling systems and may be calculated to fit specific requirements as specified in ANSI/ASQ Z1.4 , ANSI/ASQ Z1.9 and others.
Acceptance sampling systems	A collection of sampling schemes and criteria for selecting those schemes.
Acceptance specification	Criterion or criteria which must be met by a sampled item in order for the sampled item to be judged acceptable. This guiding rule is used to classify individual samples as Defective or Acceptable . Compare with Acceptance criteria .
Accreditation	Certification by a duly recognized body of the facilities, capability, objectivity, competence, and integrity of an agency, service, operational group or individual to provide the specific service(s) or operation(s) which are being accredited.
Accrediting body	A governmental or non governmental body which administers an accreditation system and grants accreditation.
Accuracy	1) A quality of being error free. 2) A qualitative assessment of the degree of freedom from error. 3) The closeness of a measurement result to a true or "correct" value, rule, or standard. 4) A maximum specified amount of error permitted or proven to be present in an arrangement that will perform a physical or performance measurement. 5) A quantitative measure of the magnitude of error, preferably expressed as a function of the relative error. 6) Average deviation of readings from a measurement system from actual known values. 7) The deviation of observed value from true value. Given by: $\text{Accuracy} = \frac{\text{true value} - \text{maximum measured value}}{\text{full scale of measurement}} \times 100$
Accuracy/error dichotomy	High Accuracy implies small error.
Accuracy/precision confusion	Accuracy is often confused with, and contrasted with, Precision as "on target" may be contrasted with "tightly grouped."
Action limit	An Upper control limit or Lower control limit . This peculiar wording is often used when Warning limits are in use.
Activity network diagram (AND)	A management and planning tool. Used to display a process flow and to determine the times required to complete a process.

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Additive law (probability)	<p>This is a probability law centering around the word “or”. For example, will car A or car B start? If the two events are not mutually exclusive the law becomes:</p> $P(A \cup B) = P(A) + P(B) - P(A \cap B)$ <p>If the two events are mutually exclusive, the law reduces to:</p> $P(A \cup B) = P(A) + P(B) \text{ also } P(A + B) = P(A) + P(B)$
Ad hoc teams	<p>These teams are assembled to address a specific problem or issue. Members are selected based on their expertise. Ad hoc teams disband upon completion of their assignment.</p>
Adherence to standards	<p>See Control.</p>
Adjustable gage	<p>A go/no go gage shaped like a horseshoe used for measuring thickness, width, diameter, or length. The open end is adjusted within a range and then locked at a predetermined size.</p>
Administrative expenses	<p>Costs and expenses charged to the quality management function and not specifically covered elsewhere in a cost quality system. Includes heat, light, telephone, and others. Considered a prevention cost.</p>
Administrative salaries	<p>Compensation costs for 100% of administrative quality function personnel including managers and directors, supervisors, and clerical staff. Considered a prevention cost.</p>
Advanced statistical methods	<p>More sophisticated and less widely applicable techniques of statistical process analysis and control than included in Basic statistical methods. Examples include:</p> <ul style="list-style-type: none">• analysis of variance• advanced problem solving techniques• correlation analysis• design of experiments• more advanced control chart techniques• regression analysis
Adversarial assurance	<p>The undesirable relationship, that often evolves or is intentionally created, between the assurance disciplines and the design/production disciplines. Occurs when the assurance function:</p> <ul style="list-style-type: none">• communicates directly to superiors, not with design/production• distances itself from the design and production disciplines• does not credibly practice disciplines it judges• has a charter to certify, validate, check the design, stop shipments, etc.• is routinely used to contain and screen out defects• participates after design, not during design
Affinity diagram	<p>A management and planning tool. Used to arrange large amounts of ideas and issues from multiple sources into logical categories based on the natural relationships of the items.</p>
Aggressive breakthrough	<p>To create or anticipate a changing environment. Compare with Defensive breakthrough. A form of Managerial breakthrough.</p>
Aliases	<p>See Confounded effects.</p>

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Allowance	1) Minimum dimensional clearance allowable between mating parts required for different Fits . Contrast with Interference fit . Compare with Clearance fit . 2) Intentional difference between mating part dimensions made in order to avoid interference. 3) Condition of largest internal member mated with the smallest external member. This is the tightest permissible fit. 4) Maximum interference or minimum clearance intended between mating or adjacent parts. 5) Twice the Clearance .
Alpha	The Greek symbol α .
Alpha error	1) Erroneously rejecting a good lot. 2) The error of accepting the Alternate hypothesis when, in reality, the null hypothesis is true. Producer risk is the probability of committing an Alpha error . Contrast with Beta error . Also known as Type one error .
Alpha risk	1) The probability of committing an Alpha error . Also called Producer risk . 2) In a test of hypothesis the probability of accepting the Alternate hypothesis when, in reality, the Null hypothesis is true.
Alternate Hypothesis	As part of a statistical Hypothesis test , an assumption that there is a relationship between two or more factors. Contrast with Null hypothesis . Related concepts include Producer risk and Buyer risk .
American Customer Satisfaction Index (ACSI)	Released for the first time in October 1994, a new cross-industry economic indicator measuring the satisfaction of U.S. household customers with quality of goods and services available to them. Includes both goods and services produced within the United States and imports from foreign firms with substantial market shares or dollar sales. The ACSI is cosponsored by the University of Michigan Business School and ASQ .
American National Standards Institute (ANSI)	A recognized organization that maintains custody of the American National Standards and is headquartered in New York City.
American Society for Quality (ASQ)	A recognized professional and standards development organization founded in 1946 and headquartered in Milwaukee, Wisconsin. Renamed ASQ from ASQC in 1997. This society is dedicated to developing, advancing, and promoting quality concepts, principles, and technologies. The Society serves more than 80,000 individuals and 1000 corporate members in more than 100 countries including the United States.
American Society for Quality Control (ASQC)	Renamed American Society for Quality in 1997.
American Society for Testing and Materials (ASTM)	A recognized standards development organization headquartered in Philadelphia, Pennsylvania.
Analysis of means (ANOM)	A statistical procedure for troubleshooting industrial processes and analyzing the results of experimental designs with factors at fixed levels. It provides a graphical display of data. Ellis R. Ott developed the procedure in 1967 because he observed that nonstatisticians had difficulty understanding analysis of variance. Analysis of means is easier for quality practitioners to use because it is an extension of the control chart. In 1973, Edward G. Schilling further extended the concept, enabling analysis of means to be used with nonnormal distributions and attributes data where the normal approximation to the binomial distribution does not apply. This is called "analysis of means for treatment effects."