

ASIGURAREA CALITĂȚII – QUALITY ASSURANCE

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Walter A. Shewhart - părintele controlului calității

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Abstract

The author presents the main contributions of Walter A. Shewhart, considered as the „father of modern quality“ to the development of this field. The first control chart, elaborated by Shewhart – who launched statistical process control – is analysed. Finally, some of the contributions of Western Electric Company to the field of quality are presented.

Keywords: Quality, Walter Shewhart, Quality-control, Control chart, Statistical Process Control, Western Electric Company, Research.

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90 Years of Modern Quality Walter A. Shewhart - A Life Devoted to Quality

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Abstract

Walter Shewhart was the pioneer and visionary of modern quality control. 90 years ago, Shewhart introduced the first control chart, which launched statistical process control and quality improvement. This moment is considered as the birthday of the modern quality. This paper analyses some important moments of the scientific activity of this great quality guru, during an exemplary life devoted to quality

Keywords: Quality, Modern quality, Quality control, Quality improvement, Walter Shewhart, SPC.

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An Improved Control Chart for Non-Normal Processes

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Abstract

An improved control chart for non-normal processes is presented in this paper . This control chart is built with a least-squares L-estimator, which can replace the arithmetic mean and standard deviation usually calculated for Shewhart charts. This estimator has the property to provide a minimum variance estimation of the process position and scattering. This, disregarding data distribution. We focused our attention on "multi-generators" processes, like screw-machines or multi-die holder for injection molding, these processes have the property to be non-normally distributed.

Keywords: Control chart, non-normal process, L Statistics, Statistical Process Control, Injection Press

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An Algorithm for Implementing the EWMA Control Chart Using Dynamic Bayesian Networks

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Abstract

This paper presents a modeling method of the EWMA control chart by a Dynamic Bayesian Network (DBN). The construction method of the network is proposed, and the algorithm for calculating the conditional probability table (CPT) is detailed. A simulation example illustrates the method and show the equivalence between these different tools.

Keywords: Control chart, Detection, Dynamic Bayesian Network, EWMA control chart.

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Reliability Issues of Electrolytic Capacitors

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Abstract

There are few electronic components which – carrying out the same function – can differ so much from the constitutive materials point of view as the capacitor. However, there are some families that are representative for this electronic component. In the following, the reliability of two families of electrolytic capacitors (aluminum and tantalum capacitors, respectively) is analyzed. First, for each family of electrolytic capacitors, after a short description of the design and characteristics, the main applications are described. Then, the typical failure mechanisms are detailed, the main factors that influence the reliability are identified, and some methods for diminishing their action are proposed.

Keywords: Reliability, Electronic components, Electrolytic capacitors, Failure mechanisms.

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