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A PROCESS CAPABILITY INDEX THAT IS BASED ON THE PROPORTION OF CONFORMANCE

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In this paper a new process capability index is proposed, which is based on the proportion of conformance of the process and has several appealing features. This index is simple in its assessment and interpretation and is applicable to normally or non-normally distributed processes. Likewise, its value can be assessed for continuous or discrete processes, it can be used under either unilateral or bilateral tolerances and the assessment of confidence limits for its true value is not very involved, under specific distributional assumptions. Point estimators and confidence limits for this index are investigated, assuming two very common continuous distributions (normal and exponential).

Keywords: Process capability indices; Proportion of conformance; Confidence limits; Normal distribution; Exponential distribution