1. Record Nr. UNINA9910138858003321

Autore	Grous Ammar
Titolo	Analysis of reliability and quality control [[electronic resource] /] / Ammar Grous
Pubbl/distr/stampa	London, : ISTE Hoboken, N.J., : Wiley, 2013
ISBN	1-118-58000-1 1-118-58012-5 1-118-58013-3 1-299-18690-4
Descrizione fisica	1 online resource (273 p.)
Collana	Fracture mechanics ; ; 1 Mechanical engineering and solid mechanics series
Disciplina	620.0045
Soggetti	Production management - Quality control Reliability (Engineering)
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Title Page; Contents; Preface; Chapter 1. Elements of Analysis of Reliability and Quality Control; 1.1. Introduction; 1.1.1. The importance of true physical acceleration life models (accelerated tests = true acceleration or acceleration); 1.1.2. Expression for linear acceleration relationships; 1.2. Fundamental expression of the calculation of reliability; 1.3. Continuous uniform distribution; 1.3.1. Distribution function of probabilities (density of probability); 1.3.2. Distribution function; 1.4. Discrete uniform distribution (discrete U); 1.5. Triangular distribution 1.5.1. Discrete triangular distribution version1.5.2. Continuous triangular law version; 1.5.3. Links with uniform distribution; 1.6. Beta distribution; 1.6.1. Function of probability density; 1.6.2. Distribution function of cumulative probability; 1.6.3. Estimation of the parameters (p, q) of the beta distribution; 1.6.4. Distribution associated with beta distribution; 1.7. Normal distribution; 1.7.1. Arithmetic mean; 1.7.2. Reliability; 1.7.3. Stabilization and normalization of variance error; 1.8. Log-normal distribution (Galton); 1.9. The Gumbel distribution

1.9.1. Random variable according to the Gumbel distribution (CRV, E1 Maximum)1.9.2. Random variable according to the Gumbel distribution (CRV E1 Minimum); 1.10. The Frechet distribution (E2 Max); 1.11. The Weibull distribution (with three parameters); 1.12. The Weibull distribution (with two parameters); 1.12.1. Description and common formulae for the Weibull distribution and its derivatives; 1.12.2. Areas where the extreme value distribution model can be used; 1.12.3. Risk model; 1.12.4. Products of damage; 1.13. The Birnbaum-Saunders distribution
1.13.1. Derivation and use of the Birnbaum-Saunders model1.14. The Cauchy distribution; 1.14.1. Probability density function; 1.14.2. Risk function; 1.14.3. Cumulative risk function; 1.14.4. Survival function (reliability); 1.14.5. Inverse survival function; 1.15. Rayleigh distribution; 1.16. The Rice distribution (from the Rayleigh distribution); 1.17. The Tukey-lambda distribution; 1.18. Student's (t) distribution; 1.18.1. t-Student's inverse cumulative function law (T); 1.19. Chi-square distribution law (2); 1.19.1. Probability distribution function of chi-square law (2)
1.19.2. Probability distribution function of chi-square law (2)1.20. Exponential distribution; 1.20.1. Example of applying mechanics to component lifespan; 1.21. Double exponential distribution (Laplace); 1.21.1. Estimation of the parameters; 1.21.2. Probability density function; 1.21.3. Cumulated distribution probability function; 1.22. Bernoulli distribution; 1.23. Binomial distribution; 1.24. Polynomial distribution; 1.25. Geometrical distribution; 1.25.1. Hypergeometric distribution (the Pascal distribution) versus binomial distribution
1.26. Hypergeometric distribution (the Pascal distribution)

Sommario/riassunto

This first book of a 3-volume set on Fracture Mechanics is mainly centered on the vast range of the laws of statistical distributions encountered in various scientific and technical fields. These laws are indispensable in understanding the probability behavior of components and mechanical structures that are exploited in the other volumes of this series, which are dedicated to reliability and quality control.The author presents not only the laws of distribution of various models but also the tests of adequacy suited to confirm or counter the hypothesis of the law in question, namely t