

马小兵,陈钦锋,张苑馨.Birnbaum-Saunders分布的寿命分散系数[J].航空动力学报,2015,30(2):392~396

Birnbaum-Saunders分布的寿命分散系数

Life scatter factor of Birnbaum-Saunders distribution

投稿时间: 2013-09-26

DOI: 10.13224/j.cnki.jasp.2015.02.018

中文关键词: B-S分布 疲劳寿命分散性 顺序统计量 寿命分散系数 小子样

英文关键词: B-S distribution fatigue life scatter order statistic life scatter factor small sample

基金项目:国家自然科学基金(61104133,61473014)

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摘要点击次数: 628

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中文摘要:

研究了基于Birnbaum-Saunders(B-S)分布的可靠疲劳寿命分析及评估方法,建立了基于中位值和平均值的B-S分布寿命分散系数确定方法,并针对特殊试验数据情形,建立了基于最大和最小顺序统计量的B-S分布寿命分散系数确定方法.公式表明:随着B-S分布尺度参数的增大,其中位寿命分散系数与平均寿命分散系数递减,而最大与最小寿命分散系数不变.案例计算结果表明,B-S分布的寿命分散系数通常小于对数正态分布的寿命分散系数.

英文摘要:

A method for reliable fatigue life analysis and assessment based on Birnbaum-Saunders(B-S) distribution was studied, and life scatter factor formulas of B-S distribution based on median value and mean value was derived respectively. Then, for some special cases of test data, life scatter factor formulas of B-S distribution based on the maximum and minimum order statistics was established. Formulas show that, the median and mean life scatter factors are decreased with the increasing of the scale parameter of B-S distribution, and the maximum and the minimum life scatter factors are constant. Case calculation results show that life scatter factors of B-S distribution are usually less than that of the lognormal distribution's.

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