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RELIABILITY DISTRIBUTION APPLIED TO FLEXIBLE COMPONENTS

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Abstract: The paper deals with the mathematical modelling of the reliability of mechanical parts having combined loads, especially fatigue. The stress and strength are independent variables of the same kind. The reliability theories consider life span as dependent on failure probability whose value relates to interference of stress distribution to component strength. Nowadays Wöhler design method is generally accepted as determinist, which in theory leads to infinite life span. During component design, it appears to be more appropriate a probabilistic approach which is more relevant from the point of view of phenomenon. In preliminary stage are used only approximate values of the function showing the decrease of initially adopted mechanical strength. This decrease is a major phenomenon leading to the increase of area of interference and thus of failure probability, finding in a probabilistic way the moment of failure.The paper models function decrease of initial strength for elastic components dynamically loaded.
Key words: reliability, stress-strength, fatigue, helical springs.