RELIABILITY AND OPTIMIZATION OF THE MANUFACTURING OF STEEL FLANGES, BY USING MECHANICAL METHOD, STATISTICAL METHOD, FIREFLY ALGORITHM

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ABSTRACT

This paper presents the reliability calculation and the optimization of the manufacturing process of steel flanges, by using three methods: the first is the mechanical method based on feedback and the analysis of failure modes. The second one is the statistical method for determining the mathematical model of the reliability factors. The last one is the optimization method by the Firefly algorithm.

On the mechanical method we used the feedback experience to define all the elements related to reliability, and the identification of failure modes, the target of the statistical analysis method is to value the results of the mechanical, we used the optimization method through the Firefly algorithm to calculate the values of the reliability factors for the two steel flanges, by concluding on the most reliable and optimal manufacturing process.

KEYWORDS: Reliability, Regression, Algorithm, Optimization & Firefly

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