
LOAD DISTRIBUTION BETWEEN THREADS OF A BOLTED JOINT DEPENDING ON THE NUT TYPE AND THREAD LEAD

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Abstract

The study deals with load distribution between engaged threads in bolted joints. We consider various types of nuts (compression nuts, tension nuts and combined tension and compression nuts) and investigate effects that nut type and thread lead have on the load distribution between threads. We describe the mechanism behind elastic strain in the bolt and nut for each of the three loading types. We present and analyse results of investigations conducted by the leading specialists in the field and the solutions to this problem that they suggest. We constructed and solved the system of equations that determines the share of the load affecting each thread when nuts of various shapes are used. We plotted the curves required to visually represent load distribution between engaged threads as affected by the nut shape and thread lead. We analysed the results of our study and compared them to the results of another investigation, which implies good convergence and reliability of the data obtained.

Keywords

Bolt, nut, threaded surface, convergence, contact compliance

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