

The Study on Life of Valves Evaluation Based on Tests Data

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Abstract : Astronautical valves are key units in engine systems of astronautical products; their reliability will influence results of rocket or missile launching, even lead to damage to staff and devices on the ground. Besides failure in engine system may influence the hitting accuracy and flight shot of missiles. Therefore high reliability is quite essential to astronautical products. There are quite a few literature doing research based on few failure test data to estimate valves' reliability, thus this paper proposed a new method to estimate valves' reliability, according to the corresponding tests of different failure modes, this paper takes advantage of tests data which acquired from temperature, vibration, and action tests to estimate reliability in every failure modes, then this paper has regarded these three kinds of tests as three stages in products' process to integrate these results to acquire valves' reliability. Through the comparison of results achieving from tests data and simulated data, the results have illustrated how to obtain valves' reliability based on the few failure data with failure modes and prove that the results are effective and rational.

Keywords : censored data, temperature tests, valves, vibration tests

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