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Analytical and Numerical Study of Mechanical Behaviour of Bolted Joints –A Review

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Abstract: *Any component that is subjected to excessive heat or cold experiences behavioural changes. The nut bolt assembly at the flange joint may not function as planned or may fail under such circumstances. Temperature fluctuations tend to cause the inner and outer threads to react differently, resulting in the pair becoming looser. Flange materials have a propensity to flex, applying unneeded additional stress on the bolt head and nut. Notably, liquid propellant rocket engines display this type of temperature variation. To assess mechanical performance while accounting for different nut factors and flange materials, analytical and numerical approaches are applied.*

Keywords: Engine driven by liquid, static force modelling, and nut-bolt-flange assembly

Nomenclatures
Kg/s –kilogram/second
FEA – Finite element analysis
P – Load
St – Tensile Strength
As – Tensile Stress Area

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BIOGRAPHICAL NOTES

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