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DESIGN AND ANALYSIS OF TURBINE BLADE BY USING FEM

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ABSTRACT

The first stage rotor blade of a gas turbine has been analyzed for structural, thermal analysis using ANSYS (Finite Element Analysis Software). The material of the blade was specified as INCONEL 718. The thermal boundary conditions on the rotor blade are taken from the reference. The temperature distribution across the blade is obtained. The maximum stress up to which the blade can withstand is known and the stress distributions across the blade are obtained accordingly. The obtained results are compared with N-155, Mild Steel and the most suitable material is discussed. In final the actual fir tree model blade root compared with I-section model blade root, results are tabulated and it is observed that stress distribution less in fir tree model that the I-section model.

KEYWORDS: ANSYS, INCONEL 718, N 155