Abstract

This paper considers the application of finite element method for the analysis of thermoelastic characteristics of a thin circular disk which is further subjected to a thermal load and an inertia.
force arising due to rotation of the disk. On the basis of the two dimensional thermoelastic theories, the axisymmetric problem is formulated in terms of second order ordinary differential equation which is solved by FEM. Further, it is assumed that the disk is vibrating. The effect of Kibel number on different components of stress, strain and displacement has also been discussed. The numerical results reveal that these quantities are significantly influenced by temperature distribution and angular speed of the disk.

References


Index Terms

Computer Science Applied Mathematics
Keywords

FEM  Circular disk  Axisymmetric
Conduction  Heat
Kibel number