Abstract

Often fins are required to operate under the hostile environments i.e., high temperatures and corrosion environment. Due to this the life of the fin is questionable. To protect it, an anti-hostile coating material is used like Zinc, Zink alloys, Silver, Cu, Mg etc, there by the life of the fin can be increased and efficiency also. In this paper the Gardener’s expression for one material fin is deduced for a bi-material fin, by changing only the value of one parameter (temperature distribution). The efficiency of the fin is calculated for various thickness of coating material Zinc and Zinc Alloy. The efficiencies are compared with the normal fin. The study also includes the effect of the temperature variation, which exists along the fin, from base to tip and convective heat transfer coefficient variation on efficiency of the fin. Numerical simulations have been done using ANSYS software by varying thickness of Zinc and its alloy for a normal fin. The simulation results have been compared with the analytical solutions.

References


Index Terms

Computer Science

Keywords

Annular Fin  Composite Fin  Efficiency Of Composite Fin  Ansys Simulation Of Annular Fin