Heat transfer performance of multiple holes impingement cooling technique

ABSTRCT

This research presents the possibility of the jet impingement cooling technique configuration for stator of turbine blade under the transient heat transfer condition. The main goal of this study is to investigate the impingement cooling plate holes configura tion and Reynolds number (Re) effect on the heat transfer which can be observed from the color play of the thermochromic liquid crystal (TLC). The fin dings proved that with the present of the small holes in between the main larger holes capable to enhance the heat transfer across the target surface. However, some criteria of the design need to be taken into count as it may produce different heat transfer performan ce of the impingement cooling technique. Therefore, in the range of predetermined design parameters, only several combinations that prevailed to achieve maximum heat transfer across the target plate.

Keyword: Liquid crystal; Impingement cooling; Heat transfer.