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中文摘要:

Flow resistance and heat transfer coefficients of typical double wall laminated film cooling configuration within a turbine vane were experimentally studied. The specimen was in large scale, and made of transparent organic glass. Laminated configuration consisted of double wall laminates, pin-fins, staggered arrays of impingement and film holes. The number ratio of impingement holes, pin-fins and film holes was 2:1:1. Five experiment vanes were installed in static cascade, and experiments were carried out under constant heat flux. *Re* of internal cooling air in the experiment was from 10^4 to 2×10^5, and *Re* of external fluid was from 10^5 to 3×10^5. The experiment results show that flow resistances of front channel and back channel of the vane are in the same level, and both of them decrease as *Re* of cooling air increases. *Nu* of front channel is slightly higher than that of back channel. Both of them increase as *Re* of cooling air increases. And experiment results were obtained from experiment vanes were compared with that obtained from laminated flat plates, and the tendency of the results agrees well.

英文摘要:

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