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Film cooling is a cooling method used to protect the hot components of a gas turbine from high temperature conditions. To protect the vanes/blades from excessive thermal stress, backward injection film cooling holes are proposed as one of the methods for the improvement and uniformity of film cooling effectiveness. Request PDF on ResearchGate | Enhancement of film cooling effectiveness using backward injection holes | Film cooling is a cooling method used to protect the hot components of a gas turbine from ...Secondary holes to a main film cooling hole are used to improve film cooling performance by creating anti-kidney vortices. The effects of injection angle of the secondary holes on both film cooling effectiveness and surrounding thermal and flow fields are investigated in this numerical study. Generally, it was found that using different sizes and shapes of ribs as well as the presence of secondary air-flow injection cylinders and film-cooling-like injection holes tends to increase the Nusselt number by as much as 50, 46 and 43% for the rectangular, triangular, and cylindrical ribs, respectively. The film-cooling-like technique tends to give heat transfer enhancement of as much as ..., Film Cooling Enhancement By Secondary Flow Injection Film Cooling Over.

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