

عنوان مقاله:

NUMERICAL ANALYSIS OF OPPOSED ROWS OF COOLANT JETS INJECTED INTO A HEATED CROSSFLOW

محل انتشار:

فصلنامه بین المللی مهندسی صنایع و تحقیقات تولید، دوره 19، شماره 5 (سال: 1387)

تعداد صفحات اصل مقاله: 8

نویسندگان:

F. Bazdidi Tehrani - *is with the Department of Mechanical Engineering, Iran University of Science and Technology, Tehran, Iran*

,H. Feizollahi - *is Msc. graduate at the same Department*

خلاصه مقاله:

The mixing characteristics of coolant air jets with the hot gas exiting the gas turbine combustors primary zone is of major importance to the combustor exit temperature profile. In the present work, a three dimensional numerical simulation on the basis of the finite volume method was developed. The aim was to investigate the penetration and mixing characteristics of directly opposed rows of coolant jets injected normally into a heated confined cross stream. The ability of the standard and the realizable ϵ - k turbulence models in the prediction of formation of dimensionless temperature profiles, downstream of jets, was evaluated. The effect of jet-to-mainstream momentum flux ratio, in the lower and upper limits of 25.0 and 60.0, at a fixed channel height-to-hole diameter ratio of 12.5 and a periodic distance of adjacent jets of 2 cm, was investigated. Also the effect of periodic distance in the range of 1-3 cm on the temperature profile was studied. Comparisons between the present numerical results on the temperature profiles and the experimental data of Wittig et al. [13] demonstrated reasonable agreement.

کلمات کلیدی:

Numerical Simulation, Opposed Coolant Jets, Momentum Flux Ratio

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/281285>

