

Predictions for the Effects of Free Stream Turbulence on Turbine Blade Heat Transfer

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## Predictions for the Effects of Free Stream Turbulence on Turbine Blade Heat Transfer (Paperback)

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Bibliogov, United States, 2013. Paperback. Condition: New. Language: English. Brand New Book
\*\*\*\*\* Print on Demand \*\*\*\*\*. An approach to predicting the effects of free stream turbulence on
turbine vane and blade heat transfer is described. Four models for predicting the effects of free
stream turbulence were in incorporated into a Navier-Stokes CFD analysis. Predictions were
compared with experimental data in order to identify an appropriate model for use across a wide
range of flow conditions. The analyses were compared with data from five vane geometries and
from four rotor geometries. Each of these nine geometries had data for different Reynolds numbers.
Comparisons were made for twenty four cases. Steady state calculations were done because all
experimental data were obtained in steady state tests. High turbulence levels often result in
suction surface transition upstream of the throat, while at low to moderate Reynolds numbers the
pressure surface remains laminar. A two-dimensional analysis was used because the flow is
predominately two-dimensional in the regions where free stream turbulence significantly
augments surface heat transfer. Because the evaluation of models for predicting turbulence effects
can be affected by other factors, the paper discusses modeling for transition, relaminarization, and
near wall damping. Quantitative comparisons...



## Reviews

I actually started looking over this publication. It really is rally interesting throgh studying period. Once you begin to read the book, it is extremely difficult to leave it before concluding.

-- Dana Hintz

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