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S. Barbarelli, G. Florio, N.M. Scornaienchi

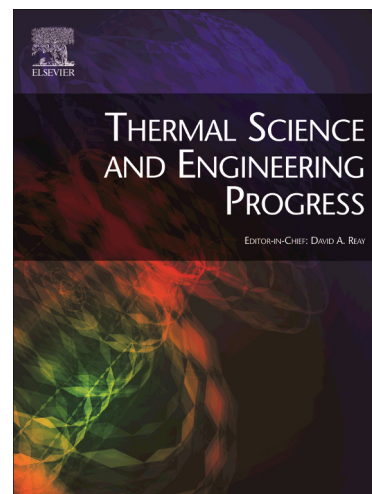
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Developing of a Small Power Turbine Recovering Energy from low Enthalpy Steams or Waste Gases: Design, Building and Experimental Measurements

S. Barbarelli, G. Florio, N. M. Scornaienchi

Department of Mechanical, Energy and Management Engineering (DIMEG) - University of Calabria, Rende, Italy;

ABSTRACT

For several years the authors have been involved in the design and building of tangential flow small turbines with rotating channel and tangential feeding nozzle. Their non-typical configuration allows better recovery of energy from gases or steams otherwise discarded, characterized by low temperature and low enthalpy. In this paper the authors introduce a new 5 deflector prototype, improved with respect to a previous version and fed by air. The prototype was measured to a 70 kW test rig, equipped with an electronic data acquisition system for automated measurement management. The experimental approach has been useful to analyse the working. First results show that the overall efficiency of the new turbine prototype is higher with respect to the first one. Moreover, the performances are comparable with the other small-power configurations, but the rotational speed is significantly reduced.

Keywords: Compressible Flow; Test Rig Measurements, Turbine Prototypes; Rotary Channel.

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