

THE EFFECT OF GEOMETRICAL PARAMETERS OF NOZZLE INTAKES ON THE OPERATIONAL CHARACTERISTICS OF VORTEX TUBE

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ABSTRACT

The phenomenon of temperature distribution in confined steady rotating gas flows is called Ranque-Hilsch effect. The simple counter-flow vortex tube consists of a long hollow cylinder with tangential nozzle at one end for injecting compressed air. The flow inside the vortex tube can be described as rotating air, which moves in a spring-shaped vortex track. The peripheral flow moves toward the hot end where a hot end plug is placed and the axial flow, which is forced back by the plug, moves in the opposite direction toward the cold end. This paper focuses on the effect of the size and shape of nozzle on the performance of the Ranque-Hilsch vortex tube.

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