

Exhaust Gas Heat-Driven Steam Ejector Refrigeration for an Automobile

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Abstract

Steam ejector refrigeration systems are a promising tool for energy efficiency. The aim of this paper is to design exhaust gas heat-driven ejector cooling system in an automobile. The system uses water as the working fluid. The water will be boiled in waste heat boiler by exhaust gas heat and sent to steam ejector utilized instead of compressor in conventional refrigeration systems. At various speed of an automobile, COP (Coefficient of Performance) and cooling capacity is investigated. Therefore, cooling is provided in evaporator, although COP is quite low in ejector refrigeration cooling system, the fuel consumption and green house gas emissions is reduced in the ejector refrigeration system. In addition to energy efficiency, since this refrigeration system has a compressor, it operates under low sound levels and provides less maintenance.