

عنوان مقاله:

A Parametric Study on Exergy and Exergoeconomic Assessment of a Diesel Engine Based CHP System

محل انتشار:

بیست و یکمین همایش سالانه بین المللی مهندسی مکانیک (سال: 1392)

تعداد صفحات اصل مقاله: 5

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خلاصه مقاله:

This paper presents exergy and exergoeconomic analysis and parametric study of a Diesel engine based Combined Heat and Power (CHP) system that produces ۲۷۷ kW of electricity and ۲۸۲ kW of heat. For this purpose, the CHP system is first thermodynamically analyzed through energy and exergy. Then cost balances and auxiliary equations are applied to subsystems. Finally a parametric study is used to show effects of change in compressor pressure ratio and turbine inlet temperature on important exergy and exergoeconomic parameters of the CHP system in different environment temperatures. The results show that increasing compressor pressure ratio leads to increase in the workoutput, heating power, exergetic efficiency, exergy destruction cost and exergoeconomic factor of the CHP system in all environment temperatures. Also increasing turbine inlet temperature decreases the work output, exergetic efficiency and exergoeconomic factor and increases the heating power and exergy destruction cost in all environment temperatures.

کلمات کلیدی:

Energy, exergy, exergoeconomics, Diesel engine, CHP

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<https://civilica.com/doc/1549926>

