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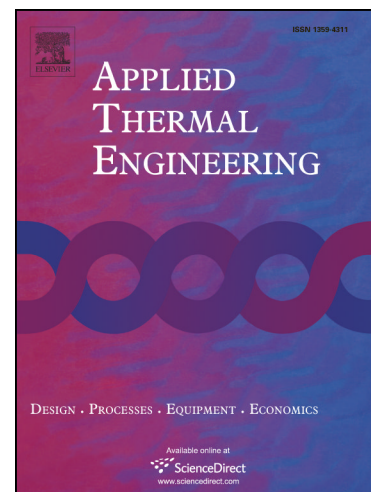
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Performance of a 5 kW hot water driven diffusion absorption Chiller

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Abstract:

This paper presents experimental results of a 5 kW Diffusion-Absorption Chiller (DAC). The chiller has been tested at varying inlet generator temperatures, inlet cooling water temperatures and inlet chilled water temperatures. The lowest driving temperature to keep the bubble pump running was about 90°C with 3.6 kW cooling capacity and chilled water inlet temperature being set at 18°C. The maximum cooling capacity and COP reached for the DAC was about 4.52 kW and 0.45, respectively. The prototype has demonstrated a good potential for air-conditioning applications, while not requiring electricity internally for its operation and allowing coupling with waste heat or solar thermal collector systems.

Keywords: absorption diffusion process, Energy conversion, refrigeration system, hot water driven chiller, parametric study.

Nomenclature

COP	coefficient of performance
T	Temperature (°C)
$\dot{Q}$	Heat transfer rate (kW)
$\dot{V}$	Volumetric flow rate (m ³ /s)

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