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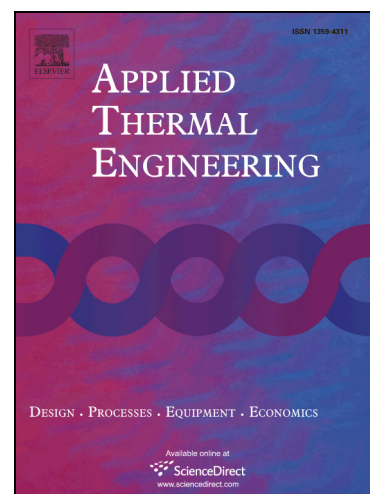
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Drying performance analysis of a condensing tumbler clothes dryer with a unique water cooled heat exchanger

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Abstract:

The experiments are carried out to study the drying performance of a condensing tumbler clothes dryer with a unique water cooled plate-fin heat exchanger under different working conditions. Performance parameters such as Nu, heat transfer coefficient, relative humidity, moisture content and MER are used to indicate the hygrothermal performance of the heat exchanger and drying performance of a condensing clothes dryer. The results show that as the airflow velocity increases, the relative humidity at the air side outlet of the heat exchanger and the final moisture content have a significant decline. The effects of cooling water flow rate on the final moisture content and the relative humidity at the air side outlet of the heat exchanger are not obvious, but as increase the cooling water flow rate, the MER decreases from 1.283 to 1.246, decreased by 3%, so the drying performance of the dryer is improved.

Key word: Drying performance; Condensing tumbler clothes dryer; Plate-fin heat exchanger; Hygrothermal performance

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