Thermal Analysis of Horizontal and Vertical Falling Film Evaporators in MED Desalination System

By

Mohamed Mahmoud Mohamed Ibrahim Abo-Aish

A Thesis Submitted to the

Faculty of Engineering at Cairo University

In Partial Fulfillment of the

Requirements for the Degree of

MASTER OF SCIENCE

In

Mechanical Power Engineering

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Under Supervision of

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Key Words:

Falling film Evaporator, Horizontal Tubes Evaporator, Vertical Tubes Evaporator, Desalination, Thermo-Economic.

Summary:

The object of this study to Perform thermal analysis for horizontal and vertical falling film evaporators which used in Multiple Effect Distillation system under different operating conditions with variation of input parameters to investigate heat transfer area of each evaporator also focused on comparison between horizontal and vertical falling film evaporator to investigate the performance of each configuration under different operating conditions. Estimating the size required to fulfill the input heat load and comparing the capital costs of each evaporator configuration with using different profiles of tubes.

بسم الله الرحمن الرحيم

"وَمَا أُوتِيتُمْ مِنَ الْعِلْمِ إِلا قَلِيلا" (٨٥) الإسراء

صدق الله العظيم

"And of knowledge, you (mankind) have been given only a little",

Al-Isra', verse 85.

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