Abstract

In this paper effect of opening ratio and operating temperature on convective and radiative losses from cavity receiver of solar concentrators are presented. Convective and radiative
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losses for specified cavity receiver are estimated by MATLAB programming and effect of the various parameters such as cavity temperature, cavity orientation and opening ratio of cavity is studied. Radiation losses are analyzed for operating temperature in range of 150 oC to 350 oC and opening ratio of 0.2 to 0.5. Convective losses are investigated for operating temperature in range of 150 oC to 350 oC, inclination angle from 0 to 90o, and opening ratio of 0.2 to 0.5. Radiation losses and convective losses increase as operating temperature of cavity receiver increases and decreases with decrease in temperature. Radiation losses also increase with increase in opening ratio from 0.2 to 0.5. The convective losses are more for sidewise facing cavity (0o inclination angle) and less for downward facing cavity (90o inclination angle). As opening ratio increases, the convective loss also increases and decreases with decrease in opening ratio.

References


Index Terms

Computer Science

Applied Sciences
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Keywords
Opening Ratio  Convection Loss  Cavity Receiver  Radiation Loss.