

Chapter 6

Conclusions



The details of plate-fin surface geometries have been presented in this monograph. Different designs of plate-fins used for compact heat exchangers have also been reported. The applications of plate-fin extended surfaces for heat transfer enhancement in both single-phase and two-phase flows, as studied by researchers across the globe, have been discussed. The works carried out on the fouling of compact heat exchangers have also been dealt with.

The following chapter intensively deals with offset-strip fins for plate-fin heat exchangers and plate-fin and tube heat exchangers. The performance of offset-strip fins and offset-strip fin arrays has been discussed. Various numerical studies and correlations for j factor and f factor have been presented.

The concepts of louvered fins and convex louvered fins have been briefed in the next chapter. The effect of fin parameters on heat transfer and pressure drop characteristics has been discussed. The performance comparison of louvered fins with that of offset-strip fins has also been presented. The correlations developed for louvered fins by different researchers have been considered.

Chapter 4 has been dedicated to understanding the basic concepts of vortex generators for heat transfer enhancement in plate-fin heat exchangers. The performance of transverse, longitudinal, and wing-type vortex generators has been discussed.

The performance of different plate-fins such as wavy fins, corrugated fins, perforated fins, pin fins, pin-fin arrays, wire meshes, metal foam fins, and packing has been presented in Chap. 5. The use of plate-fins for cooling heat sinks has also been discussed. The numerical studies on heat transfer enhancement performance of plate-fins have been mentioned.

Chapter 6 concludes the research monograph.