

Chapter 8

Conclusions



We have discussed in detail externally finned tubes, internally finned tubes and annuli in this book. Following conclusions may be drawn:

- Wavy fins or some form of interrupted strip fins are used for gases.
- Analytical or numerical models are available to predict the heat transfer performance of high finned tube banks.
- Power law empirical correlations for plain fins have been developed.
- No general widely applicable correlation is available, although some correlations do predict data.
- Row effect of in-line and staggered tube arrangements makes the performance more complicated.
- In-line layouts have lower heat transfer performance than that by staggered tube layout.
- Both individually finned tube and plate fin-and-tube geometries are used for enhancement. Cost consideration plays a key role in decision-making.
- Higher performance can be obtained from oval or flat tubes.
- Hydrophilic coatings are used.
- Gas-side fouling limits the permissible enhanced fin geometry.
- Internally finned tubes and annuli are used to enhance tube-side heat transfer; many numerical analysis and empirically developed correlations are available.