

Energy Engineering Set

coordinated by
Abdelhanine Benallou

Volume 3

Energy Transfers by Convection

Abdelhanine Benallou

Color section

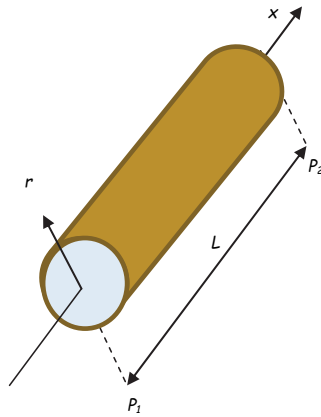


Figure 2.1. Cylindrical pipe of length L

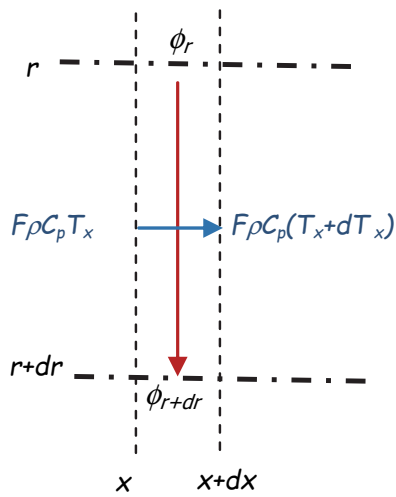


Figure 2.2. Volume element

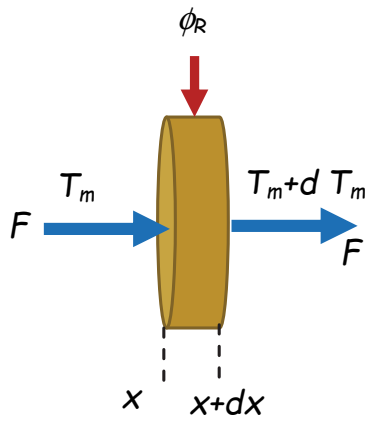


Figure 2.3. *Volume element of fluid between x and $x + dx$*

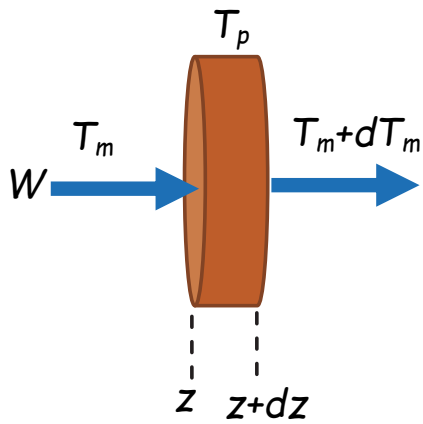


Figure 2.4. *Differential fluid element*

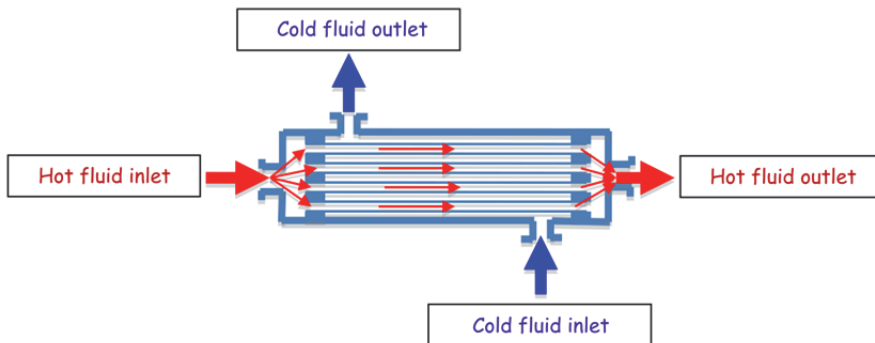


Figure 4.1. Multi-tube heat exchanger

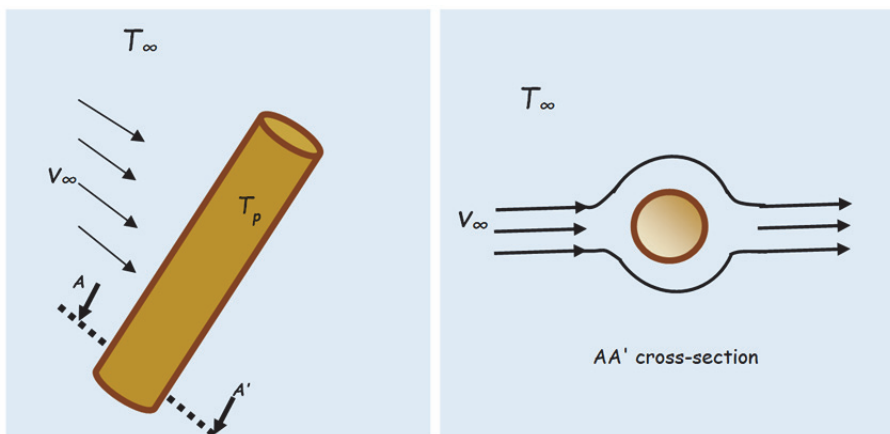


Figure 4.2. Flow outside a pipe: v_∞ is in fact the flow velocity far from the pipe

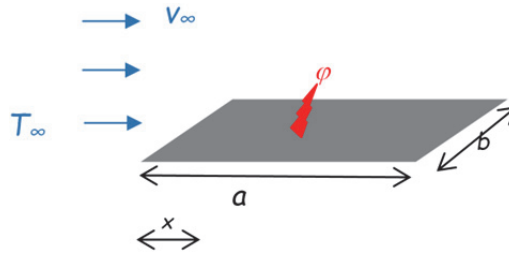


Figure 4.9. Plate with constant flow density

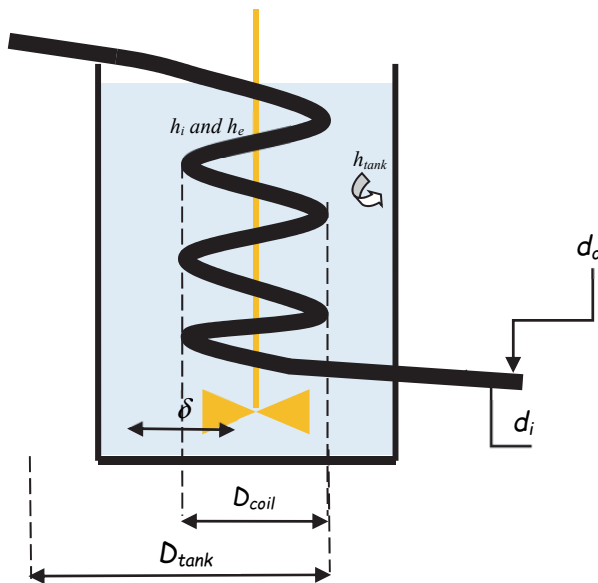


Figure 4.12. Coil tank

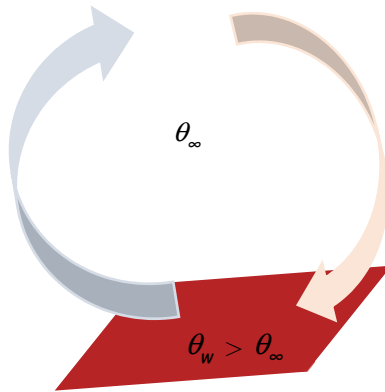


Figure 5.1. *Natural convection*

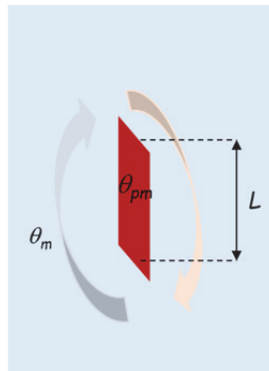


Figure 5.2. *Vertical plate*

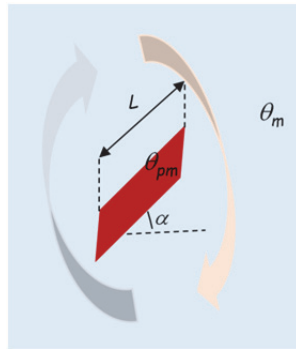


Figure 5.3. *Inclined plate*

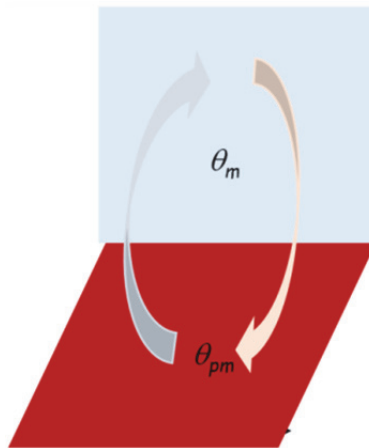


Figure 5.4. *Underfloor heating*

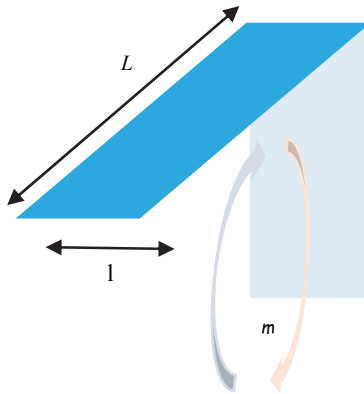


Figure 5.5. *Cooling from the top*

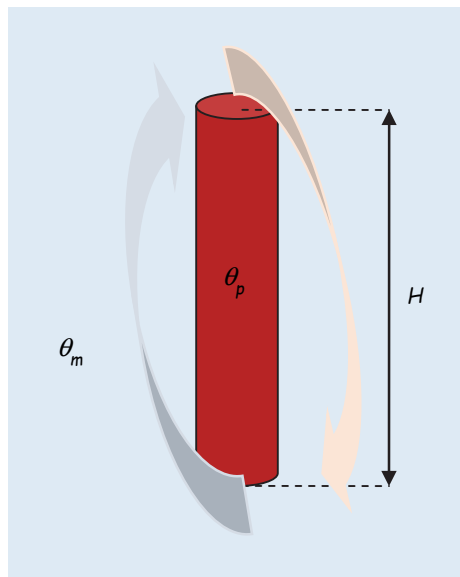


Figure 5.6. *Vertical cylinder*

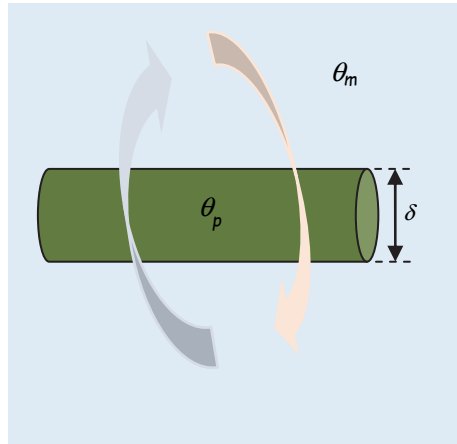


Figure 5.7. *Horizontal cylinder*

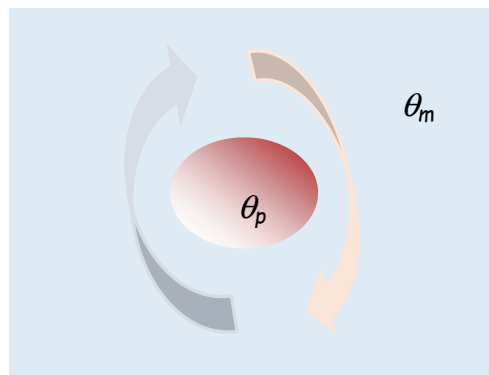


Figure 5.8. *Immersed sphere*

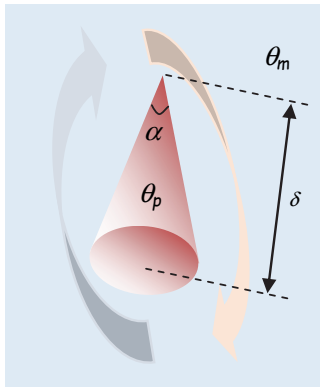


Figure 5.9. *Immersed cone*

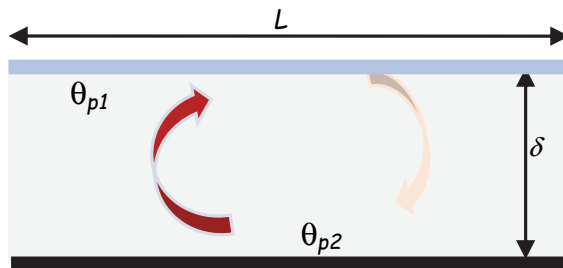


Figure 5.10. *Fluid between two horizontal plates*

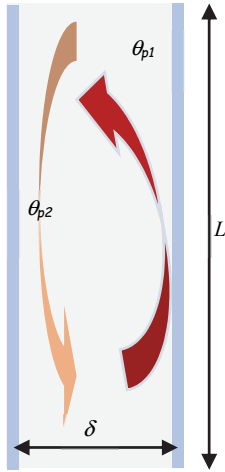


Figure 5.11. *Fluid between two vertical plates*

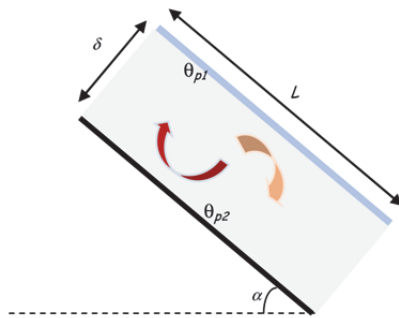


Figure 5.12. *Inclined chamber*

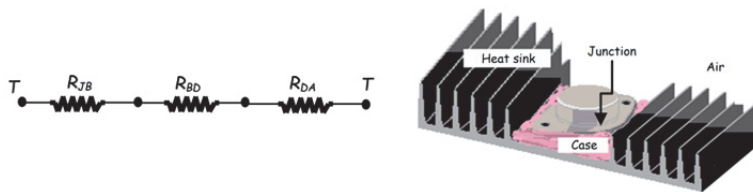


Figure 5.18. Detailed electrical representation of heat transfer between an electronic component and the surroundings

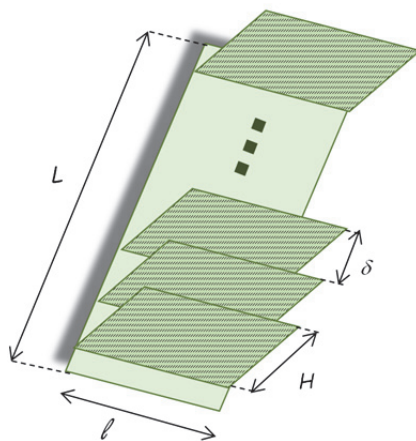


Figure 5.21. Positioning of circuit boards on a rack

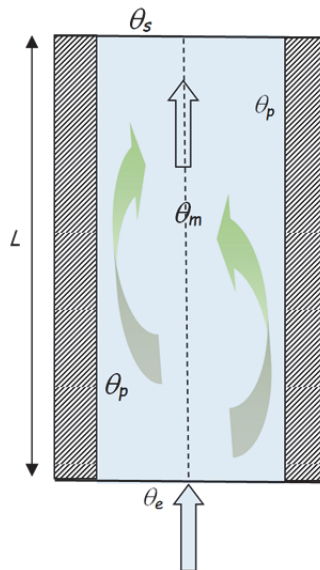


Figure 5.23. *Natural and forced convections in a vertical tube*

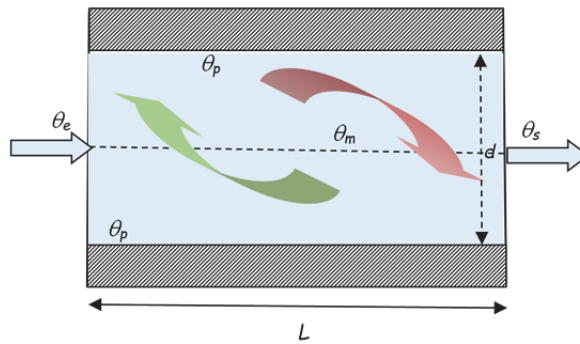


Figure 5.24. *Natural and forced convections in a horizontal tube*

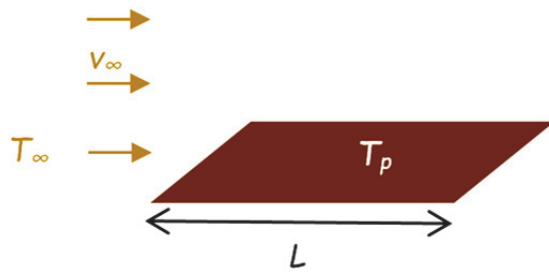


Figure 6.1. *Flow on a plate*

Chapter 7

