

New Problems Chapter 23

23.1-11 Reading Humidification charts. Measurement of an air stream reveals its dry bulb temperature to be 41°C and its wet bulb temperature (T_w) to be 19°C. What is the stream's

- H (absolute humidity)
- H_R (relative humidity)
- Specific Enthalpy (\hat{H})
- Humid volume (\hat{V})

23.2-1 Essay on different types of CWT. There are three common types of cooling water towers, Forced Draft, Induced Draft and finally Natural Convection. Write a paragraph explaining each type and include a schematic/drawing showing the direction of the air and water flowing inside the equipment.

23.3-5 Height of CWT. TIMET the world's largest integrated titanium producer is considering a new forced-draft countercurrent water-cooling tower at their plant in Reno Nevada ($T_{wb} = 62^\circ F, T_{db} = 96^\circ F$). They need to cool 777 gpm of water from 110 to 80°F, with a $K_{ya} = 7.77 \frac{\text{lbmole}}{\text{hr} \cdot \text{ft}^3 \cdot \text{atm}}$. What is the height of the cooling water tower (ft) if its Area = 283ft².