

COOLING TOWERS

QUESTION

Calculate the cooling tower (CT) capacity in tons of refrigeration (TR) using the following data:

Water flow rate through CT:	120 m ³ /h
Specific heat of water:	1 kCal/kg °C
Inlet water temperature:	37 °C
Outlet water temperature:	32 °C
Ambient wet bulb temperature (WBT):	29 °C

SOLUTION

Cooling tower capacity (TR)

$$= (\text{flow rate} \times \text{density} \times \text{specific heat} \times \text{temperature difference}) / 3024$$

$$= [120 \times 1000 \times 1 \times (37-32)] / 3024$$

$$= 198.4 \text{ TR}$$