

Electric Blanket on a Tank of Outer Radius, r_w

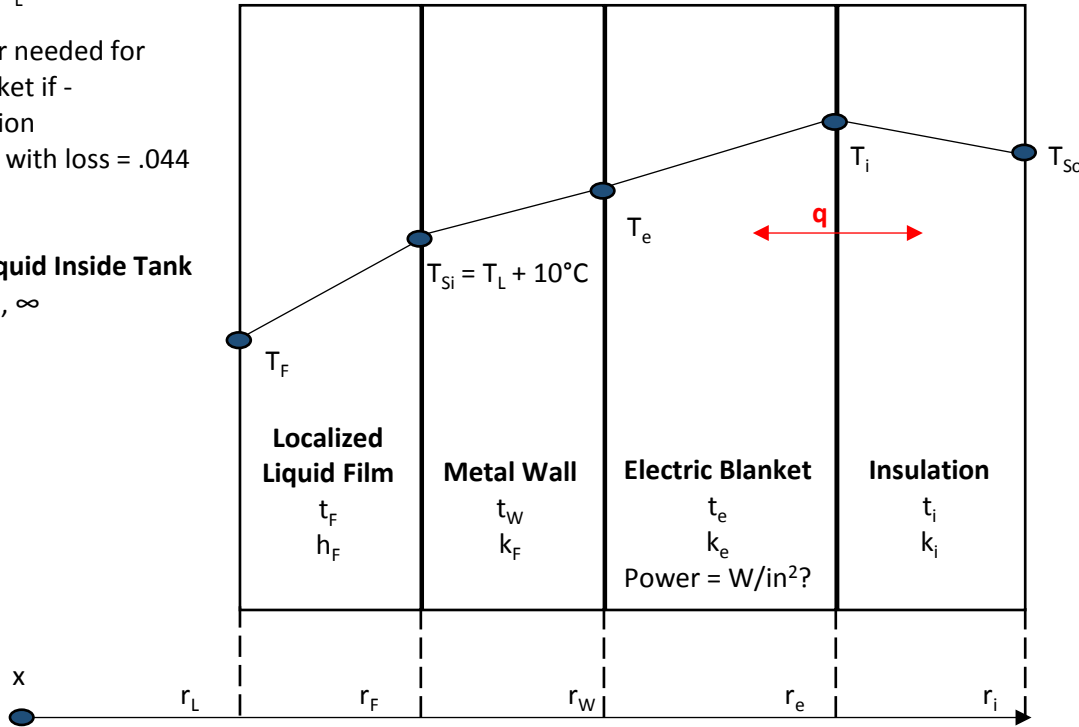
Knowns : Thermal Conductivities (k), Convective heat transfer coefficients (h), thicknesses (t), T_L , T_{si} , T_a

Assume: $T_F = T_L$

Solve: Power needed for Electric Blanket if -
 a) no insulation
 b) insulation with loss = .044 W/in²

Agitated Liquid Inside Tank

T_L, ∞
 h_L



Ambient Air
 T_a, ∞
 h_a