

## {Section 3b - CP22K8ME-PFV}

T\_evap1=converttemp(C,F,7)

T\_cond1=converttemp(C,F,54)

$$\text{capacity1} = (C[0] + (C[1]*T_{\text{evap1}}) + (C[2]*T_{\text{cond1}}) + (C[3]*T_{\text{evap1}}^2) + (C[4]*T_{\text{evap1}}*T_{\text{cond1}}) + (C[5]*T_{\text{cond1}}^2) + (C[6]*T_{\text{evap1}}^3) + (C[7]*T_{\text{cond1}}*T_{\text{evap1}}^2) + (C[8]*T_{\text{evap1}}*T_{\text{cond1}}^2) + (C[9]*T_{\text{cond1}}^3)) * \text{convert}(\text{Btu/hr}, w)$$

$$\text{power1} = W[0] + (W[1]*T_{\text{evap1}}) + (W[2]*T_{\text{cond1}}) + (W[3]*T_{\text{evap1}}^2) + (W[4]*T_{\text{evap1}}*T_{\text{cond1}}) + (W[5]*T_{\text{cond1}}^2) + (W[6]*T_{\text{evap1}}^3) + (W[7]*T_{\text{cond1}}*T_{\text{evap1}}^2) + (W[8]*T_{\text{evap1}}*T_{\text{cond1}}^2) + (W[9]*T_{\text{cond1}}^3)$$

$$\text{mdot1} = (M[0] + (M[1]*T_{\text{evap1}}) + (M[2]*T_{\text{cond1}}) + (M[3]*T_{\text{evap1}}^2) + (M[4]*T_{\text{evap1}}*T_{\text{cond1}}) + (M[5]*T_{\text{cond1}}^2) + (M[6]*T_{\text{evap1}}^3) + (M[7]*T_{\text{cond1}}*T_{\text{evap1}}^2) + (M[8]*T_{\text{evap1}}*T_{\text{cond1}}^2) + (M[9]*T_{\text{cond1}}^3)) * \text{convert}(\text{lb}_m/\text{hr}, g/s)$$

capacityError1=abs(6213-capacity1)/6213\*100

powerError1=abs(2100-power1)/2100\*100

mdotError1=abs(40.82-mdot1)/40.82\*100

T\_evap2=converttemp(C,F,7)

T\_cond2=converttemp(C,F,38)

$$\text{capacity2} = (C[0] + (C[1]*T_{\text{evap2}}) + (C[2]*T_{\text{cond2}}) + (C[3]*T_{\text{evap2}}^2) + (C[4]*T_{\text{evap2}}*T_{\text{cond2}}) + (C[5]*T_{\text{cond2}}^2) + (C[6]*T_{\text{evap2}}^3) + (C[7]*T_{\text{cond2}}*T_{\text{evap2}}^2) + (C[8]*T_{\text{evap2}}*T_{\text{cond2}}^2) + (C[9]*T_{\text{cond2}}^3)) * \text{convert}(\text{Btu/hr}, w)$$

$$\text{power2} = W[0] + (W[1]*T_{\text{evap2}}) + (W[2]*T_{\text{cond2}}) + (W[3]*T_{\text{evap2}}^2) + (W[4]*T_{\text{evap2}}*T_{\text{cond2}}) + (W[5]*T_{\text{cond2}}^2) + (W[6]*T_{\text{evap2}}^3) + (W[7]*T_{\text{cond2}}*T_{\text{evap2}}^2) + (W[8]*T_{\text{evap2}}*T_{\text{cond2}}^2) + (W[9]*T_{\text{cond2}}^3)$$

$$\text{mdot2} = (M[0] + (M[1]*T_{\text{evap2}}) + (M[2]*T_{\text{cond2}}) + (M[3]*T_{\text{evap2}}^2) + (M[4]*T_{\text{evap2}}*T_{\text{cond2}}) + (M[5]*T_{\text{cond2}}^2) + (M[6]*T_{\text{evap2}}^3) + (M[7]*T_{\text{cond2}}*T_{\text{evap2}}^2) + (M[8]*T_{\text{evap2}}*T_{\text{cond2}}^2) + (M[9]*T_{\text{cond2}}^3)) * \text{convert}(\text{lb}_m/\text{hr}, g/s)$$

capacityError2=abs(8909-capacity2)/8909\*100

powerError2=abs(1690-power2)/1690\*100

mdotError2=abs(47.38-mdot2)/47.38\*100

C[0]=-3957.961381

C[1]=1213.724604

C[2]=256.6592867

C[3]=5.913531234

C[4]=-13.25473112

C[5]=-1.168179404

C[6]=0.01720849503

C[7]=-0.03324154833

C[8]=0.04853011721

C[9]=-0.00329759596

W[0]=2318.802413

W[1]=-34.26340731

W[2]=-25.18508254

W[3]=-0.4511599559

W[4]=0.8331550691

W[5]=0.1648776491

W[6]=-0.003695735428

W[7]=0.006614888271

W[8]=-0.004215340349

W[9]=-0.0001600304257

m[0]=104.5511514

m[1]=13.07182007

m[2]=-2.001541182

m[3]=0.03815445222

m[4]=-0.15083255

m[5]=0.04198394854

m[6]=0.000200298596

m[7]=-0.000111599993  
m[8]=0.0006744688395  
m[9]=-0.0002345065605

## SOLUTION

**Unit Settings: SI C kPa kJ mass deg**

capacity1 = 6219 [W]  
capacityError1 = 0.1031 [%]  
mdot1 = 40.57 [g/s]  
mdotError1 = 0.6106 [%]  
power1 = 2081 [W]  
powerError1 = 0.8957 [%]  
Tcond1 = 129.2 [F]  
Tevap1 = 44.6 [F]

capacity2 = 8776 [W]  
capacityError2 = 1.489 [%]  
mdot2 = 46.83 [g/s]  
mdotError2 = 1.162 [%]  
power2 = 1693 [W]  
powerError2 = 0.207 [%]  
Tcond2 = 100.4 [F]  
Tevap2 = 44.6 [F]

12 potential unit problems were detected.