

**DATOS AGUA**

$$\dot{m}_{ag} = 0,65 \text{ [kg/s]}$$

$$c_{ag} = 4,18 \text{ [kJ/kg}\cdot\text{K]}$$

$$t_{1ag} = 10 \text{ [C]}$$

$$t_{2ag} = 0 \text{ [C]}$$

**ESTADOS R134a****--(4)**

$$P_4 = 0,15748 \text{ [MPa]}$$

$$t_4 = -16 \text{ [C]} \quad \text{---de tablas--}$$

$$h_4 = 29,3 + x_4 \cdot 208,45$$

$$x_4 = 0,298$$

$$s_4 = 0,1192 + x_4 \cdot (0,9298 - 0,1192)$$

**--(1)**

$$P_1 = P_4$$

$$t_1 = t_4 \quad \text{---de tablas--}$$

$$h_1 = 237,74$$

$$x_1 = 1$$

$$s_1 = 0,9298$$

**--(2)**

$$t_2 = 60 \text{ [C]} \quad \text{---de tablas--}$$

$$h_2 = 283,1$$

$$P_2 = 1,4 \text{ [MPa]}$$

$$s_2 = 0,9297$$

**--(3)**

$$p_3 = P_2 \quad \text{---de tablas--aproximando } h_3=h_f[t_3] \quad T_3 = 30 \text{ [C]}$$

$$h_3 = h_4$$

$$s_3 = 0,3396$$

**BALANCES DE ENERGIA****--EVAPORADOR**

$$\dot{m}_R \cdot (h_4 - h_1) + \dot{m}_{ag} \cdot c_{ag} \cdot (t_{1ag} - t_{2ag}) = 0$$

**--COMPRESOR**

$$\dot{Q}_{com} = -0,5 \text{ [kW]}$$

$$\dot{Q}_{com} - \dot{W}_{com} + \dot{m}_R \cdot (h_1 - h_2) = 0$$

**--CONDENSADOR**

$$\dot{Q}_C + \dot{m}_R \cdot (h_2 - h_3) = 0$$

$$\text{COP} = \frac{\dot{Q}_C}{\dot{W}_{com}}$$

**BALANCES DE ENTROPIA**

**--COMPRESOR**

$$\frac{\dot{Q}_{com}}{273 + \frac{t_1 + t_2}{2}} + \dot{m}_R \cdot (s_1 - s_2) + \dot{\sigma}_{com} = 0$$

**--CONDENSADOR**

$$\frac{\dot{Q}_C}{273 + 25} + \dot{m}_R \cdot (s_2 - s_3) + \dot{\sigma}_C = 0$$

**--VALVULA LAMINACION**

$$\dot{m}_R \cdot (s_3 - s_4) + \dot{\sigma}_{VL} = 0$$

**--EVAPORADOR**

$$\dot{m}_R \cdot (s_4 - s_1) + \dot{m}_{ag} \cdot c_{ag} \cdot \ln \left[ \frac{t_{1ag} + 273}{t_{2ag} + 273} \right] + \dot{\sigma}_E = 0$$

SOLUTION

Unit Settings: SI C MPa kJ mass deg

COP = 3,989

$\dot{Q}_C = -35,59$  [kW]

$\dot{\sigma}_{com} = 0,001676$  [kW/K]

$\dot{\sigma}_{VL} = 0,003929$  [kW/K]

$\dot{m}_R = 0,1857$  [kg/s]

$\dot{\sigma}_C = 0,009865$  [kW/K]

$\dot{\sigma}_E = 0,007919$  [kW/K]

$W_{com} = -8,923$  [kW]

Arrays Table: Main

	$s_i$ [kJ/kg-K]	$P_i$ [MPa]	$h_i$ [kJ/kg]	$t_i$ [C]	$x_i$
1	0,9298	0,1575	237,7	-16	1
2	0,9297	1,4	283,1	60	
3	0,3396	1,4	91,42	30	
4	0,3608	0,1575	91,42	-16	0,298

