```
p2=25000
T2=600
h2=enthalpy(STEAM_NBS,p=p2,T=T2)
s2=entropy(STEAM_NBS,p=p2,T=T2)
h3i=enthalpy(STEAM_NBS,p=p3,s=s2)
{p3=5000}
p4=p3
eta_t=0.84
h2-h3=(h2-h3i)*eta_t
T3=temperature(STEAM_NBS,h=h3,p=p3)
h4=enthalpy(STEAM_NBS,p=p4,T=T2)
s4=entropy(STEAM_NBS,p=p4,T=T2)
h5i=enthalpy(STEAM_NBS,p=p5,s=s4)
p5=5
h4-h5=(h4-h5i)*eta_t
x5=quality(STEAM_NBS,p=p5,h=h5)
p6=p5
h6=enthalpy(STEAM_NBS,p=p6,x=0)
s6=entropy(STEAM_NBS,p=p6,x=0)
p1=p2
h1i=enthalpy(STEAM_NBS,p=p1,s=s6)
eta_p=0.70
h1-h6=(h1i-h6)/eta_p
wp=h6-h1
wt_hp=h2-h3
wt_lp=h4-h5
qin=(h2-h1)+(h4-h3)
eta_th=(wt_hp+wt_lp+wp)/qin
HR=1/eta_th*K1
K1=3600
```

SOLUTION

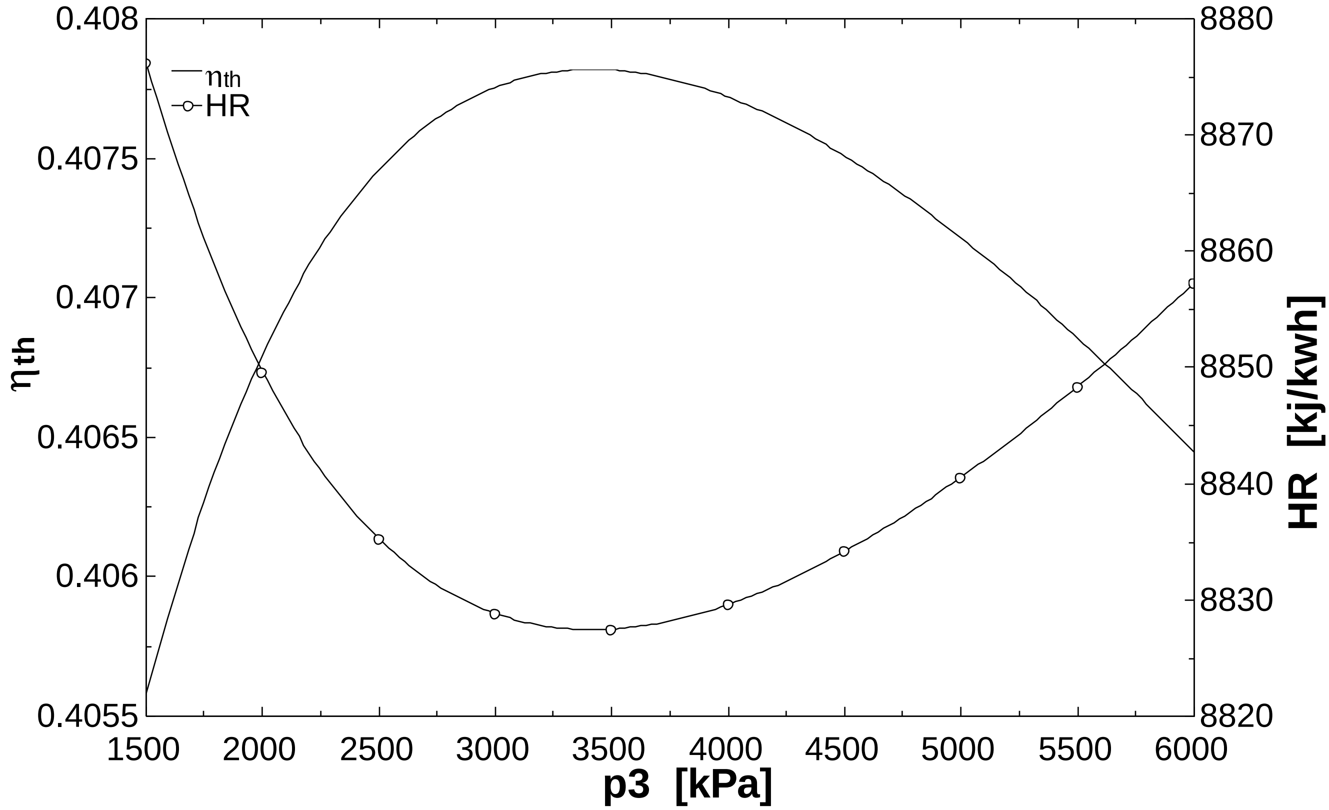
Unit Settings: [kJ]/[C]/[kPa]/[kg]/[degrees]

Maximization of eta_th(p3) 17 iterations: Quadratic Approximations method

η_p = 0.7	η_t = 0.84	η_{th} = 0.4078 [-]	h1 = 173.4 [kJ/kg]	h1i = 162.7 [kj/kg]
h2 = 3490 [kj/kg]	h3 = 3014 [kJ/kg]	h3i = 2923 [kJ/kg]	h4 = 3679 [kJ/kg]	h5 = 2496 [kJ/kg]
h5i = 2271 [kJ/kg]	h6 = 137.7 [kj/kg]	HR = 8827 [kj/kwh]	K1 = 3600 [kj/kwh]	p1 = 25000 [kPa]
p2 = 25000 [kPa]	p3 = 3416 [kPa]	p4 = 3416 [kPa]	p5 = 5 [kPa]	p6 = 5 [kPa]
qin = 3982 [kJ/kg]	s2 = 6.359 [kj/kg-k]	s4 = 7.446 [kJ/kg-K]	s6 = 0.4761 [kj/kg-k]	T2 = 600 [C]
T3 = 313.2 [C]	wp = -35.71 [kJ/kg]	wt_{hp} = 476.7 [kJ/kg]	wt_{lp} = 1183 [kJ/kg]	x5 = 0.9733 [-]

No unit problems were detected.

Purple units were automatically set. Right click on the variable to confirm or change the units.


0.408
0.4075
0.407
0.4065
0.406
0.4055
8880
8870
8860
8850
8840
8830
8820
η_{th}
HR
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
p3 [kPa]
η_{th}
HR [kj/kwh]