"Turbo"
"HW2 P3"
"Zhaoyi Jiang(.1364)"

"Inlet"
p01=30[bar]
t01=400[c]
s1=**entropy**(***Steam***,***P***=p01,***T***=t01)
h01=**enthalpy**(***Steam***,***P***=p01,***T***=t01)

"Exit"
pd=10[bar]
s2s=s1
h01=h02
h2s=**enthalpy**(***Steam***,***s***=s2s,***P***=pd)
h01-h2s=0.5*v2s^2***convert**(m,km)
0.97=v2/v2s
h02-h2=0.5*v2^2***convert**(m,km)
t2=**temperature**(***Steam***,***P***=pd,***h***=h2)

"Calculation"
zeta=(h2-h2s)/(h02-h2)
eta_s=1/(zeta+1)

SOLUTION
Unit Settings: SI C bar kJ mass deg

η_s = 0.9409	h01 = 3232 [kj/kg]	h02 = 3232 [kj/kg]
h2 = 2959 [kj/kg]	h2s = 2942 [kj/kg]	p01 = 30 [bar]
pd = 10 [bar]	s1 = 6.923 [kj/kg-k]	s2s = 6.923 [kj/kg-k]
t01 = 400 [C]	t2 = 257.1 [c]	v2 = 738.9 [m/s]
v2s = 761.8 [m/s]	ζ = 0.06281	

No unit problems were detected.