"Turbo"
"HW2 P4"
"Zhaoyi Jiang(.1364)"

"Inlet"
p01=10[bar]
t01=450[c]
h01=**enthalpy**(***Steam***,***P***=p01,***T***=t01)
s01=**entropy**(***Steam***,***P***=p01,***T***=t01)

"Exit"
p2=6[bar]
v2=550[m/s]
h02=h01
h01-h2=0.5*v2^2***convert**(m,km)
h2s=**enthalpy**(***Steam***,***s***=s01,***P***=p2)
s2=**entropy**(***Steam***,***h***=h2,***P***=p2)
x=**quality**(***Steam***,***s***=s2,***h***=h2)
"x=100 means it is superheated"

"Mach Number"
c=**soundspeed**(***Steam***,***h***=h2,***s***=s2)
Mech=v2/c

"VLC"
h01-h2s=0.5*v2s^2***convert**(m,km)
phi=v2/v2s

"Isen eff"
eta_s=phi^2

SOLUTION
Unit Settings: SI C bar kJ mass deg

c = 618.9 [m/s]	η_s = 0.9477	h01 = 3371 [kj/kg]
h02 = 3371 [kj/kg]	h2 = 3220 [kj/kg]	h2s = 3212 [kj/kg]
Mech = 0.8887	p01 = 10 [bar]	p2 = 6 [bar]
ϕ = 0.9735	s01 = 7.62 [kj/kg-c]	s2 = 7.633 [kj/kg-c]
t01 = 450 [C]	v2 = 550 [m/s]	v2s = 565 [m/s]
x = 100		

No unit problems were detected.