

11.9

Save QuickHelp

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In [5]: phi=1.0;
land_height=6.0e-3;
ve=.8;
stroke=100.0e-3;
piston_dia=99.4e-3;
bore=100.0e-3;
CR=8.0;
T0=333;
P0=101.325e3;
bsfc=300;
P1=3.0e6;
T1=400;
Ra=286.9;

V_crev=pi*(1/4.0)*land_height*(bore**2-piston_dia**2)/4;
m_crev=1000.0*(2/3.0)*P1*V_crev/(Ra*T1); print "m_crev=" ,m_crev;

V_tot=V_crev+pi*bore**2*stroke*ve*(1/4.0); print "V_tot=" ,V_tot;
m_tot=1000.0*P0*V_tot/(Ra*T0); print "m_tot=" ,m_tot;

x_crev=m_crev/m_tot; print "x_crev=" ,x_crev;

V_crev= 5.63790217613e-07 m^3
m_crev= 0.00982555276426 g
V_tot= 0.000628882320936 m^3
m_tot= 0.666977550944 g
x_crev= 0.0147314594777

In [7]: HC_emiss=(2/3.0)*V_crev*(1-(1/2.0)-(1/3.0))*1e6/(V_crev-m_crev)
HC_emiss= 99.6106193912 ppm by Volume

In [10]: bsHC_ratio=m_crev*(1-1/2.0-1/3.0)/m_tot; print "bsHC_ratio=" ,bsHC_ratio
bsHC_ratio= 0.00245524324628

In [11]: bsHC=bsHC_ratio*bsfc; print "bsHC=" ,bsHC, " g/kWh"
bsHC= 0.736572973885 g/kWh

In [ ]:
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