

```

c                                     HX.for
c
c      implicit real*8 (a-h,o-z)
c      data Cws,Qdot,pi/0.01417,4.386e9,3.1415927/
c      data dip,dop,aN,Ao/0.654,0.75,8485.,90007.00/
c      data Tp1,Tp2,akw/604.,550.,10.80/
c      data fi,fo/0.0,0.0002437/
c      data Avlv/1.1/
c      data hin/500.00/
c
c      di=dip/12.00
c      do=dop/12.00
c      areai=pi*di*di*aN/4.00
c
c      Tavp=0.5*(tp1+tp2)
c      DTp=Tp1-Tp2
c ---- Read Tube-side properties from the T_av = (T_HL + T_CL)/2
c      call intrpl(Tavp,cpp,cpg,amufp,amug,akfp,akg,prpl,prg,sigf,
1      betaf,rof,rog,anuf,anug,vf,vfg,vg)
c ---- Calculate C3:
c      Wp=Qdot/DTp
c      Rep=4.*Wp/(pi*amufp*di*aN)
c      hi=0.023*akfp*(Rep**0.8)*(Prpl**0.3333333)/di
c      terma=do/(di*hi)
c      termb=do*alog(do/di)/(2.*akw)
c      C3=terma+termb+(do*fi/di)
c ---- We begin the loop at this point:
c      Ps=840.00
1000 continue
c      i=i+1
c      call PRP(Ps, HIN ,HF, HG, KSTAT ,Tsdum ,VS, Xs ,ALPHAs,
1      VF, VG, DVDHP ,DVDPH ,TS,SFs,SGs)
c      hfg=hgs-hfs
c
c      tw=0.5*(tavp+ts)
c      call intrpl(ts,cps,cpg,amufs,amug,akfs,akg,prs,prg,sigfs,
1      betaf,rofs,rogs,anuf,anug,vf,vfg,vg)
c
c      termb=sqrt(sigfs/(rofs-rogs))
c      terma=(termb/(amufs*hfg))**0.333333
c      Z1=Cws*hfg*(Prs**1.7)*terma/Cps
c      C2=Z1/(Qdot**0.66666)
c      C1=(C3+C2*(Ao**0.666))/Ao
c      Z2=Wp*cpp*C1
c      eff=1.-exp(-1/Z2)
c      Tcold=Tp1-eff*DTp
c      eps=(Tcold-Ts)/Ts
c      if(eps.le.0.001) go to 1001
c      Ps=Ps+1.0
c      Ws=Qdot/hfg
c      write(*,2) Ps,Ts,Tcold,eff,c1,c2,c3
c      if(i.gt.20) stop
c      go to 1000
1001 continue
c      z3=alog((Tp1-Ts)/(Tp2-Ts))
c      aLMTD=(Tp1-Tp2)/z3
c

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cmin=Wp*cpp
aNTU=-alog(1.-eff)
Rp=terma
Rfp=fi+fo
Rw=do*alog(do/di)/(2.*akw)
Rs=C2*(Ao**0.66666)
sigR=Rp+Rfp+Rw+Rs
U=aNTU*Cmin/Ao
Up=Qdot/(Ao*aLMTD)
Upp=1./sigR
2  format(f8.1,1x,f8.1,1x,f8.1,1x,f10.4,1x,3E10.3)
stop
end

```