

STACK

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*****  
* Stack outlet temperature calculation      by HeatAidDesign      *  
* Date of Running      2017/12/12/14/30/20      *  
*****
```

Title : V\*\*\*\_S\*\*\*  
Service : Design\_Condition\_C1

STACK INSIDE SURFACE TEMPERATURE CAL.  
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CONDITIONS

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Stack Inlet Gas Temp      :      180.000 deg C  
Ambient Air Temp        :      15.000 deg C  
Exhaust Gas Flowrate    :    424400.00 kg/hr  
Wind Velocity           :      1.800 m/s  
Flue Gas Compositions -  
Carbon dioxide          :      6.398 wt%  
Sulfur dioxide          :      0.001 wt%  
Nitrogen                :      72.025 wt%  
Water                   :      6.900 wt%  
Oxygen                  :      13.390 wt%  
Ar                      :      1.275 wt%  
Stack Inside Diameter   :    3500.000 mm  
Stack Thickness         :      9.000 mm  
Stack Height            :     40.000 m
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GAS SIDE CONDITIONS

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Viscosity                :      0.000024 kg/m-sec  
Gas Thermal Cond.       :      0.030746 kcal/m-hr-c  
Gas specific Heat       :      0.259575 kcal/kg-c  
Inside Heat Transfer Coeff :     17.994 kcal/h-m2-C  
Stack Outlet Gas Temp   :     175.265 deg C
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STACK CONDITIONS

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Thermal Conductivity    :      50.375 kcal/h-m-C  
Total Heat Loss Rate    :    521610.812 kcal/hr  
Interface Surface Temp  :     111.725 deg C  
Outside Surface Temp    :     111.479 deg C
```