



Documentation

Matlab Codes

HEX_Qdotmax.mat

1. Function name:

HEX_Qdotmax.mat

2. Model description:

HEX_Qdotmax is a single matlab code aiming to calculate the maximum amount of heat power that can be transferred between two fluids in a counterflow heat exchanger. This maximum value is either given by a pinch point of 0K between the temperature profiles, or limited by the maximum and minimum temperatures achievable by the fluids.

3. Model inputs:

The model inputs are the following ones:

- fluid_h: name of the hot fluid
- P_h_su (Pa), inlet pressure of the hot fluid
- in_h_su (K or J/kg), inlet temperature or enthalpy of the hot fluid
- m_dot_h (kg/s), mass flow rate of the hot fluid
- fluid_c, name of the cold fluid
- P_c_su (Pa), inlet pressure of the cold fluid
- in_c_su (K or J/kg), inlet temperature or enthalpy of the cold fluid
- m_dot_c (kg/s), mass flow rate of the cold fluid
- param: structure variable containing the model parameters, i.e.
 - param.type_h = type of input for hot fluid, ('H' for enthalpy, 'T' for temperature);
 - param.type_c = type of input for cold fluid, ('H' for enthalpy, 'T' for temperature);

It is really important to note that the model can handle both types of inlet conditions: either a supply enthalpy or a supply temperature. By default, it is assumed that the fluid is incompressible if the temperature is provided as input (liquid phase only).

4. Model outputs:

The only output of this code is “Q_dot_max” : the maximum amount of power that can be transferred considering the supply conditions of the fluids.

5. External function requirements:

The user must install CoolProp (<http://www.coolprop.org/>) to run HEX_Qdotmax.mat.

6. Matlab version:

This code has been developed under Matlab R2015a

7. Contact:

For any further information, please contact one of the main developers of ORCmKit:

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