

Documentation

Matlab Codes

**HEX\_Qdotmax.mat**

1. **Function name:**

HEX\_Qdotmax.mat

1. **Model description:**

HEX\_Qdotmax is a single matlab code aiming to calculate the maxium 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.

1. **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).

1. **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.

1. **External function requirements:**

The user must install CoolProp (<http://www.coolprop.org/>) to run HEX\_ Qdotmax.mat.

1. **Matlab version:**

This code has been developed under Matlab R2015a

1. **Contact:**

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

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