Assumptions

This section simplifies the original problem and helps in developing the theoretical model by filling in the missing information for the physical system. The numbers given in the square brackets refer to the Theoretical Models Section: Theoretical Models, General Definitions Section: General Definitions, Data Definitions Section: Data Definitions, Instance Models Section: Instance Models, Likely Changes Section: Likely Changes, or Unlikely Changes Section: Unlikely Changes, in which the respective assumption is used.

Thermal-Energy-Only: The only form of energy that is relevant for this problem is thermal energy. All other forms of energy, such as mechanical energy, are assumed to be negligible. TM: consThermE.

Heat-Transfer-Coeffs-Constant: All heat transfer coefficients are constant over time. GD: nwtnCooling.

Constant-Water-Temp-Across-Tank: The water in the tank is fully mixed, so the temperature of the water is the same throughout the entire tank. GD: rocTempSimp DD: ht_flux_P.

Temp-PCM-Constant-Across-Volume: The temperature of the phase change material is the same throughout the volume of PCM. GD: rocTempSimp LC: Uniform-Temperature-PCM DD: ht_flux_P.

Density-Water-PCM-Constant-over-Volume: The density of water and density of PCM have no spatial variation; that is, they are each constant over their entire volume. GD: rocTempSimp.

Specific-Heat-Energy-Constant-over-Volume: The specific heat capacity of water, specific heat capacity of PCM as a solid, and specific heat capacity of PCM as a liquid have no spatial variation; that is, they are each constant over their entire volume. GD: rocTempSimp.

Newton-Law-Convective-Cooling-Coil-Water: Newton's law of convective cooling applies between the heating coil and the water. DD: ht_flux_C.