

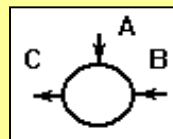
Feed heater

This document shows how Thermo Utilities, MS Excel Add-ins can be used for calculation of feed heater.

In a Rankine cycle, wet steam (3.5 bar with $q = 0.83$) is bled off for heating purpose. The bleed steam and feed water (3.5 bar and 135 C) from a pump are mixed in the feed heater.

Determine the quantity of bleed steam.

The steam supplied from the boiler is 5 kg/s



Inputs		Units	Error ?
Pressure at A, B and C	3.5	bar	
Steam quality at A	0.83		
Steam Temp. at B	135	C	
Steam quality at C	0		
Mass Flow	5.00	kg/s	
Outputs			
Spec. enthalpy at A	2366.57	kJ/kg	
Spec. enthalpy at B	567.7011	kJ/kg	
Spec. enthalpy at C	584.27	kJ/kg	
Energy and mass balance			
Eq1: $m_A + m_B - m_C = 0$			
Eq2: $m_A \cdot h_A + m_B \cdot h_B - m_C \cdot h_C = 0$			
mass flow of bleed steam	0.046	kg/s	
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