

Reheating Rankine cycle

Consider a simple ideal Rankine cycle and an ideal Rankine cycle with two reheat stages. Both cycles operate between the same pressure limits. In the simple Rankine cycle, the maximum temperature is 600 degrees Celsius while in the reheat Rankine cycle the maximum temperature is 400 degrees Celsius. Which cycle will have higher thermal efficiency and why?

Answer: The simple Rankine cycle since the average temperature at which heat is added will be higher compared to the reheat Rankine cycle.

Explanation: The thermal efficiency of the simple ideal Rankine cycle will be higher since the average temperature at which heat is added will be higher in this case.