

Increase Efficiency of Carnot Heat Engine

How can the thermal efficiency of a Carnot heat engine be increased?

Answer: Increase the high temperature or decrease the low temperature.

Explanation: The thermal efficiency of all the reversible heat engines (so no friction or irreversibilities), referred to as Carnot engines, operating between two reservoirs with the same high and low temperature are equal. This is independent of the cycle (e.g., turbine or combustion engine) or the working fluid (e.g., water or gas). Adding feed water heating or regeneration is not possible as all heat is added at a constant high temperature while all heat is rejected at a constant low temperature. Only a higher high temperature and / or a lower low temperature will increase the efficiency.