



### The Second Law of Thermodynamics

- **Clausius' statement:** *It is impossible to construct a device that operates in a cycle and whose sole effect is to transfer heat from a cooler body to a hotter body.*
- **Kelvin-Planck statement:** *It is impossible to construct a device that operates in a cycle and produces no other effect than the performance of work and the exchange of heat from a single reservoir.*
- **Carnot's theorem:** *No engine operating between two reservoirs can be more efficient than a Carnot engine operating between the same two reservoirs.*