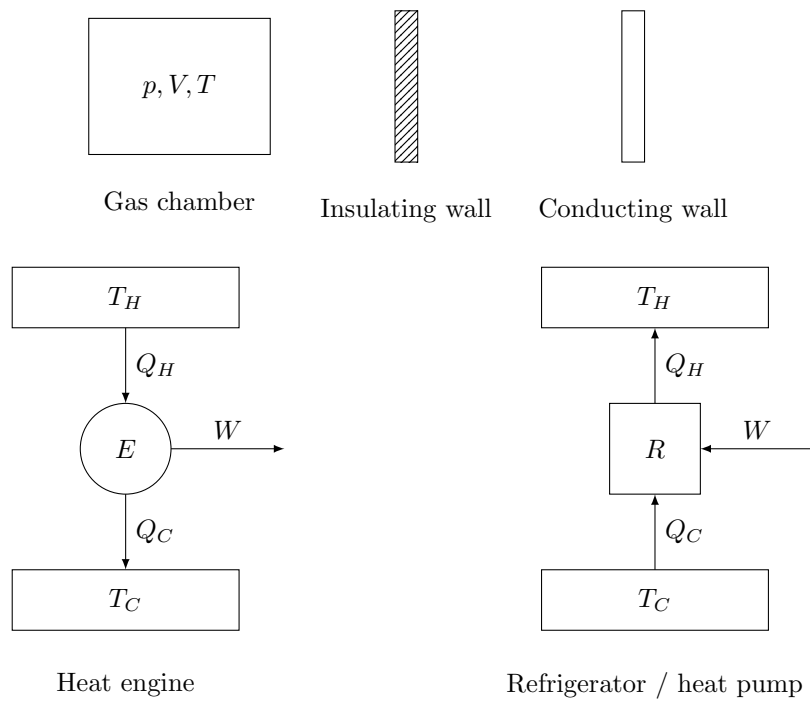
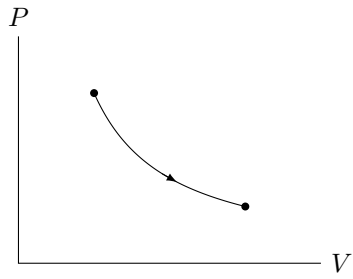


Thermodynamic components and energy flow

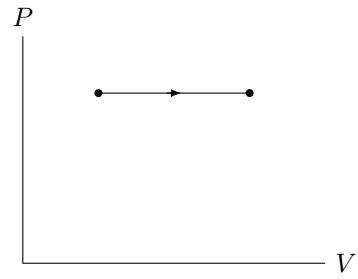


Heat and work labels denote positive magnitudes. Arrow direction distinguishes energy entering and leaving the device. The schematic does not calculate efficiency.

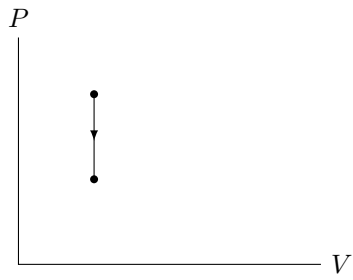
Pressure–volume processes



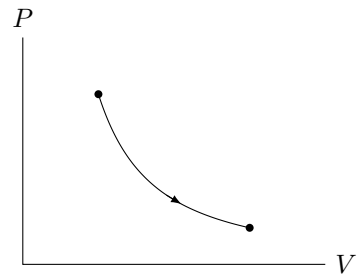
isothermal process



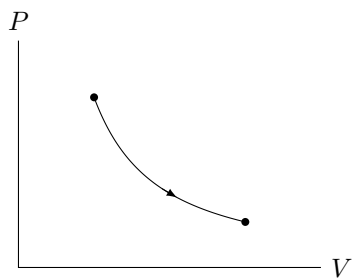
isobaric process



isochoric process



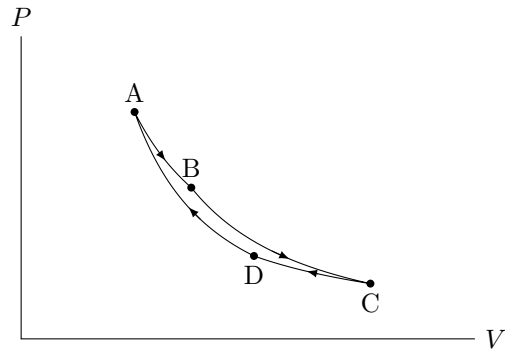
adiabatic process



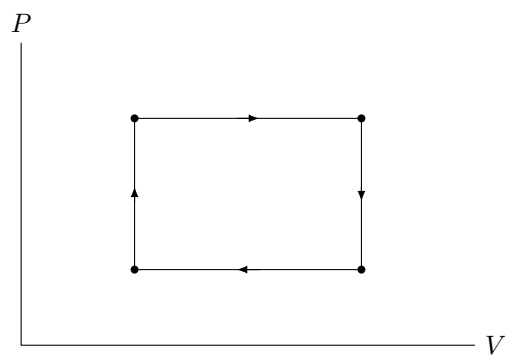
polytropic process

Curves use consistent author-chosen pressure and volume units. Defaults show expansion, except the isochoric example, which shows decreasing pressure.

Closed cycles



Carnot cycle: two isotherms and two reversible adiabats



Clockwise isobaric-isochoric cycle