

Thermodynamic Processes

Physics

The four named processes, and what is held constant in each.

What is constant, and the consequence.

Process	Constant	Consequence
Isothermal	Temperature	$\Delta U = 0$, so $Q = W$
Isobaric	Pressure	$W = p\Delta V$
Isochoric	Volume	$W = 0$, so $\Delta U = Q$
Adiabatic	No heat exchange	$Q = 0$, so $\Delta U = -W$

An adiabatic compression raises temperature without adding heat — which is how a diesel engine ignites its fuel.