

	Isothermal (rev)	Isothermal (irrev)	Adiabatic (rev)	Adiabatic (irrev)	Isobaric	Isochoric(heating)
q	$+nRT\ln\frac{V_2}{V_1}$	$+P_{ext}\Delta V$	0	0	$\int C_P dT$	$\int C_V dT$
T _F	= T _I	= T _I	$= T_i \left(\frac{P_i}{P_f} \right)^{\frac{1-\gamma}{\gamma}}$	$= T_i \left(\frac{C_V + \frac{RP_{ext}}{P_i}}{C_V + \frac{RP_{ext}}{P_F}} \right)$	$T_2 = \frac{T_1 V_2}{V_1}$	$T_2 = \frac{T_1 P_2}{P_1}$
w	$-nRT\ln\frac{V_2}{V_1}$	$-P_{ext}\Delta V$	$\int C_V dT$	$\int C_V dT$ or $-P_{ext}\Delta V$	$-P_{ext}\Delta V$	0
ΔU	0	0	$\int C_V dT$	$\int C_V dT$	$\int C_V dT$	$\int C_V dT$
ΔH	0	0	$\int C_P dT$	$\int C_P dT$	$\int C_P dT$	$\int C_P dT$
ΔS	$+nR\ln\frac{V_2}{V_1}$	$+nR\ln\frac{V_2}{V_1}$	0	$+nR\ln\frac{V_2}{V_1} + C_V \ln\frac{T_2}{T_1}$	$C_V \ln\frac{T_2}{T_1} + nR\ln\frac{V_2}{V_1}$	$C_V \ln\frac{T_2}{T_1}$