Thermo
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			geschlossenes System		stationärer Fließprozess	
	const.	ZGL	$w_{12,\text{rev.}}$	q_{12}	$w_{t,12,\text{rev.}}$	q_{12}
Isobar	p	$\frac{v}{T} = \text{const.}$ $\Rightarrow \frac{v_2}{v_1} = \frac{T_2}{T_1}$	$-\int_{v_1}^{v_2} p\,dv$ $= -p(v_2 - v_1)$	$h_2 - h_1$ $= c_p(T_2 - T_1)$	$\int_{p_1}^{p_2} v\,dp = 0$	$h_2 - h_1$ $= c_p(T_2 - T_1)$
Isochor	v	$\frac{p}{T} = \text{const.}$ $\Rightarrow \frac{p_2}{p_1} = \frac{T_2}{T_1}$	$-\int_{v_1}^{v_2} p\,dv = 0$	$u_2 - u_1$ $= c_v(T_2 - T_1)$	$\int_{p_1}^{p_2} v\,dp$ $= v(p_2 - p_1)$ $= R(T_2 - T_1)$	$u_2 - u_1$ $= c_v(T_2 - T_1)$
Isotherm	T	$p \cdot v = \text{const.}$ $\Rightarrow \frac{p_2}{p_1} = \frac{v_1}{v_2}$	$-\int_{v_1}^{v_2} p\,dv$ $= -R \cdot T \ln\left(\frac{v_2}{v_1}\right)$ $= R \cdot T \ln\left(\frac{p_2}{p_1}\right)$	$q_{12} = -w_{12,\text{rev.}}$ $= R \cdot T \ln\left(\frac{v_2}{v_1}\right)$ $= -R \cdot T \ln\left(\frac{p_2}{p_1}\right)$	$\int_{p_1}^{p_2} v\,dp$ $= -R \cdot T \ln\left(\frac{v_2}{v_1}\right)$ $= R \cdot T \ln\left(\frac{p_2}{p_1}\right)$	$q_{12} = -w_{t,12,\text{rev.}}$ $= R \cdot T \ln\left(\frac{v_2}{v_1}\right)$ $= -R \cdot T \ln\left(\frac{p_2}{p_1}\right)$
Isentrop (rev. adiabat $\Rightarrow q_{12} = 0$; $\Delta s = 0$)	$p \cdot v^\kappa$	$\frac{T_2}{T_1} = \left(\frac{v_1}{v_2}\right)^{\kappa-1}$ $= \left(\frac{p_2}{p_1}\right)^{\frac{\kappa-1}{\kappa}}$	$\frac{p_1 \cdot v_1}{\kappa-1}\left(\frac{T_2}{T_1} - 1\right)$ $= \frac{p_1 \cdot v_1}{\kappa-1}\left(\left(\frac{v_1}{v_2}\right)^{\kappa-1} - 1\right)$ $= \frac{R \cdot T_1}{\kappa-1}\left(\left(\frac{p_2}{p_1}\right)^{\frac{\kappa-1}{\kappa}} - 1\right)$	0	$\frac{\kappa \cdot p_1 \cdot v_1}{\kappa-1}\left(\frac{T_2}{T_1} - 1\right)$ $= \frac{\kappa \cdot p_1 \cdot v_1}{\kappa-1}\left(\left(\frac{v_1}{v_2}\right)^{\kappa-1} - 1\right)$ $= \frac{\kappa \cdot R \cdot T_1}{\kappa-1}\left(\left(\frac{p_2}{p_1}\right)^{\frac{\kappa-1}{\kappa}} - 1\right)$	0
Polytrop	$p \cdot v^n$	$\frac{T_2}{T_1} = \left(\frac{v_1}{v_2}\right)^{n-1}$ $= \left(\frac{p_2}{p_1}\right)^{\frac{n-1}{n}}$	$\frac{p_1 \cdot v_1}{n-1}\left(\frac{T_2}{T_1} - 1\right)$ $= \frac{p_1 \cdot v_1}{n-1}\left(\left(\frac{v_1}{v_2}\right)^{n-1} - 1\right)$ $= \frac{R \cdot T_1}{n-1}\left(\left(\frac{p_2}{p_1}\right)^{\frac{n-1}{n}} - 1\right)$	$(c_v - \frac{R}{n-1})\Delta T$	$\frac{n \cdot p_1 \cdot v_1}{n-1}\left(\frac{T_2}{T_1} - 1\right)$ $= \frac{n \cdot p_1 \cdot v_1}{n-1}\left(\left(\frac{v_1}{v_2}\right)^{n-1} - 1\right)$ $= \frac{n \cdot R \cdot T_1}{n-1}\left(\left(\frac{p_2}{p_1}\right)^{\frac{n-1}{n}} - 1\right)$	$\left(c_p - \frac{n \cdot R}{n-1}\right)\Delta T$

Tabelle 1: Zustandsänderungen