Symbol	Description	SI Units
ρ	Mass density	$\mathrm{kg/m^3}$
$\mathbf{v}$	Velocity vector	$\mathrm{m/s}$
$\rho\mathbf{v}$	Momentum per unit volume	$\mathrm{kg/(m^2\,s)}$
$\boldsymbol{\sigma}$	Cauchy stress tensor	N/m^2
$\boldsymbol{\sigma}\mathbf{n}$	Traction vector on a surface	$\mathrm{N/m^2}$
$\mathbf{b}$	Body force per unit mass (e.g., gravity)	$\mathrm{m/s^2}$
$\rho\mathbf{b}$	Body force per unit volume	$\mathrm{N/m^3}$
$\mathbf{q}$	Heat flux vector	$\mathrm{W/m^2}$
S	Volumetric heat source (heat generation rate)	$\mathrm{W/m^3}$

Table: Common fields, fluxes, and sources appearing in mass, momentum, and energy balance laws.

Symbol	Description	SI Units
T	Temperature	K
e	Internal energy per unit mass	$\mathrm{J/kg}$
E	Total energy per unit mass $\left(E = e + \frac{1}{2}\mathbf{v}\cdot\mathbf{v}\right)$	$\mathrm{J/kg}$
ρe	Internal energy per unit volume	$\mathrm{J/m^3}$
ρE	Total energy per unit volume	$\mathrm{J/m^3}$
k	Thermal conductivity	$\mathrm{W/(m\,K)}$
c_p	Specific heat at constant pressure	$\mathrm{J/(kg\,K)}$
c_v	Specific heat at constant volume	$\mathrm{J/(kg\,K)}$

Table: Energy variables and common thermal material properties used in the energy equation.

Symbol	Description	SI Units
∇	Gradient operator	$1/\mathrm{m}$
$\nabla \cdot \mathbf{v}$	Velocity divergence	$1/\mathrm{s}$
$\nabla \cdot (\rho \mathbf{v})$	Mass flux divergence	$\mathrm{kg}/(\mathrm{m}^3\,\mathrm{s})$
$\nabla \cdot \boldsymbol{\sigma}$	Stress divergence (force density)	N/m^3
$\nabla \cdot \mathbf{q}$	Heat flux divergence	W/m^3
$\rho \mathbf{v} \otimes \mathbf{v}$	Momentum flux tensor	$\mathrm{kg}/(\mathrm{m}\,\mathrm{s}^2)$
$\boldsymbol{\sigma}\mathbf{v}$	Mechanical power flux	W/m^2

Table: Differential operators and commonly appearing derived quantities in balance laws.