

Heat Transfer

Physics

The three mechanisms, and what each requires.

Mechanism, medium and dependence.

Mode	Needs	Depends on
Conduction	A material medium	Thermal conductivity, area, gradient
Convection	A fluid that can move	Density differences, fluid properties
Radiation	Nothing — works in vacuum	T^4 and surface emissivity

Stefan-Boltzmann: power radiated $\propto T^4$. Doubling absolute temperature increases radiated power sixteen-fold.