



ACROSS

- 1 The _____ energy of a thermodynamic system is the total of the kinetic energy due to the motion of molecules and the potential energy associated with the vibrational and electric energy of atoms within molecules or crystals.
- 2 A _____ system, as contrasted with an open system, is a physical system that does not interact with its surroundings.
- 5 _____ is a branch of physics that studies the effects of changes in temperature, pressure, and volume on physical systems at the macroscopic scale by analyzing the collective motion of their particles.
- 8 Mechanical _____ is the amount of energy transferred by a force.
- 9 The mechanical _____ of heat was an expression of 19th century science stating that mechanical work may be transformed into heat, and conversely heat into work, with the magnitude of one always proportional to the other.
- 12 The _____ of energy states that the total amount of energy in any system remains constant, although it may change forms.
- 13 A thermodynamic _____ is the macroscopic condition of a thermodynamic system as described by its particular thermodynamic parameters.
- 14 A _____ process is a thermodynamic process in which the pressure stays constant.

DOWN

- 1 A _____ process, also called an isometric process or an isovolumetric process, is a thermodynamic process that occurs without a change in volume.
- 3 A thermodynamic _____, originally called a working substance, is defined as that part of the universe that is under consideration, separated by a real or imaginary boundary from the environment or surroundings.
- 4 A _____ process is a thermodynamic process in which the temperature of the system stays constant.
- 6 A _____ process or an isocaloric process is a thermodynamic process in which no heat is transferred to or from the working fluid.
- 7 Heat _____ is the passage of thermal energy from a hot to a cold body.
- 10 A thermodynamic _____ may be defined as the evolution of a thermodynamic system proceeding from an initial state to a final state.
- 11 The _____ law of thermodynamics states that the increase in the internal energy of a thermodynamic system is equal to the amount of heat energy added to the system minus the work done by the system on the surroundings.