Question #81865

State different types of damping a vibration system

Answer:

Damping, in physics, restraining of vibratory motion, such as mechanical oscillations, noise, and alternating electric currents, by dissipation of energy.

Coulomb damping arises chiefly from the electrostatic forces of attraction between the sliding surfaces and converts mechanical energy of motion, or kinetic energy, into heat.

Viscous damping is caused by such energy losses as occur in liquid lubrication between moving parts or in a fluid forced through a small opening by a piston (as in automobile shock absorbers).

The friction damping occurs when the motion of a vibrating body is checked by its friction with the gas or liquid through which it moves.

In hysteresis damping, some of the energy involved in the repetitive internal deformation and restoration to original shape is dissipated in the form of random vibrations of the crystal lattice in solids and random kinetic energy of the molecules in a fluid.

In magnetic damping, energy of motion is converted to heat by way of electric eddy currents induced in either a coil or an aluminum plate (attached to the oscillating object) that passes between the poles of a magnet.

Source:

Encyclopedia Britannica. *Damping*. Available online at: https://www.britannica.com/science/damping