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Subject: Pneumatic damping

Posted by [Wayne Parham](#) on Sun, 09 Dec 2001 00:39:39 GMT

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A system at resonance oscillates at maximum intensity. This can be a mass and a spring, a Helmholtz chamber or an electrical tuned circuit. At the resonant frequency, even just a little energy input creates large amplitude output. Notice that the examples of resonators each have two reactive elements. The mass and the spring are two reactive elements, the electrical circuit has an inductor and capacitor and the Helmholtz resonator has mass of the air and its compressibility, just like a mass and spring. If you add a resistance, you are providing damping. A shock absorber of a car is a damper, and it prevents the car from bouncing wildly at resonance. Likewise, the acoustic/pneumatic properties of a loudspeaker cabinet control the resonance of the speaker.

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