**How Hydraulic and Pneumatic Systems Compare?**

*Hydraulic systems* are

• operated by liquid, which becomes more viscous in cold temperatures, thus causing the device to “stiffen” (and the liquid may freeze)

• used to transmit force by compression

• self-lubricating

• not self-cooling

• less commonly found than pneumatic systems

• used to transport fluids in pipes, which requires pumps to create pressure to keep fluid flowing, as well as valves to regulate direction of flow

• both natural and constructed

* **examples:** the heart and circulatory system, oil pipeline, water pipes, hair salon or dentists’ chairs, Jaws of Life, car hoists

*Pneumatic systems* are

• operated by gas or air, which contracts but does not become more viscous in cold temperatures

• used to transmit force by decompression (like a spring)

• not self-lubricating

• self-cooling

• more commonly found than hydraulic systems

• both natural and constructed

* **examples**: the lungs and respiratory system, air brakes, large tampers, dentists’ drills, air bags, tires

Both *hydraulic systems* and *pneumatic systems*

* can multiply a force,
* are based on the transformation of energy,
* deal with pressure in fluids, and
* have many technological applications.