Fluid Flow Characterization of Piezoelectric Gas Valves

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Piezoelectric gas valves are a major source of fueling for the Pegasus Toroidal Experiment. Piezoelectric crystals are electromechanical interaction materials, which contract or expand when electrical force is applied. Piezoelectric valves operate on a simple concept. When voltage is applied to the crystal, the crystal contracts and opens the valve inlet allowing the gas to pass. Characterization of these specific gas valves involves testing and calibration to obtain gas valve properties such as flow rate which are typically 100 Torr-L/sec. Accurate flow characterization of these piezoelectric gas valves will assist experimentalists on the Pegasus Toroidal Experiment to understand how to better fuel their plasmas.