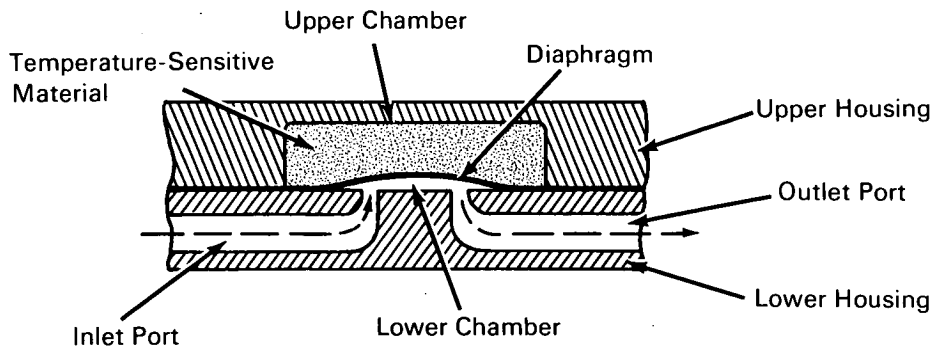
NASA TECH BRIEF

Temperature Responsive Valve Withstands High Impact Loading



A valve has been designed to regulate the flow of a reactant to a chemical heater used in a space application. The valve has been designed to withstand extreme impact loading (up to 10,000 g's envisioned) for use on hard landing lunar and planetary probes. Because of its space application also, weight and size considerations take on added importance.

The valve is made up of an upper and a lower housing, the lower containing an inlet and an outlet port, and upper containing a cavity. A lightweight, thin diaphragm divides the cavity into an upper and a lower chamber. The upper chamber is filled with a temperature sensitive material such as silicone rubber that will expand or contract in a predetermined manner in response to temperature changes.

In operation, the temperature of the incoming fluid through the inlet port causes the temperature sensitive material to contract or expand, thus causing the diaphragm to move up or down, respectively, to open or restrict the flow passage between inlet and outlet ports.

Note:

Inquiries concerning this invention may be directed to:

Technology Utilization Officer
NASA Pasadena Office
4800 Oak Grove Drive
Pasadena, California 91103
Reference: B67-10225

Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code GP, Washington, D.C. 20546.

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Category 05