

# ABSTRACT

## ASYMMETRICAL THERMAL ACTUATION IN A MICROACTUATOR

A microminiature valve (10) having an actuator member (22) that includes a central body (13) suspended on radially spaced legs (26, 27), with each leg having first and second layers of materials (13, 20) having substantially different coefficients of thermal expansion. The legs (26, 27) include heating elements (32, 33) and are fixed at one end to allow radial compliance as selected heating of the legs (26, 27) causes flexure. An actuator member includes a boss having an actuator face (11). A seat substrate (12) having a flow via (14) defined by a valve seat (16) is aligned with the actuator face (11). Asymmetrical thermal actuation of the actuator member (22) moves the actuator face (11) from the valve seat (16) in a rotational displacement relative to the flow orifice (14), thereby offering improved control of the fluid flow through the orifice (14).

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