

ABSTRACT

NORMALLY OPEN TYPE PIEZOELECTRIC ELEMENT DRIVEN METAL DIAPHRAGM CONTROL VALVE

An accurate and stable flow rate control can be achieved even under high temperature conditions, and the compressive strength can be adjusted without a control valve being disassembled.

Specifically, the control valve comprises a body 7 that forms a valve chamber 7a' and a valve seat 7c, a metal diaphragm 8 installed inside the valve chamber 7a' and making contact with and departing from the valve seat 7c, an actuator box 10 fixed to the side of the body 7, a piezoelectric element 13 installed inside the actuator box 10 to thrust a metal diaphragm 8 through mediation of the metal diaphragm presser 12 by being elongated downward due to application of voltage, a conical spring mechanism 14 that absorbs elongation of the piezoelectric element 13 at the time when the metal diaphragm 8 makes contact with the valve seat 7c and a prescribed thrust is applied to the valve seat 7c and the like, and a preload mechanism 21 that applies upward compressive force to the piezoelectric element 13 all the time and makes it possible that the compressive force applied to the piezoelectric element 13 can be adjusted from outside of the control valve.