

WATER HAMMERLESS VALVE

Abstract

[Problems] To limit an opening of the fluid channel by automatically preventing the stem from upward movement caused by water hammer using a pneumatically-operating valve.

[Means for solving problems] The present invention provides a water hammerless valve comprising a pneumatically-operating valve comprising a valve disc for opening and closing a fluid channel by moving upward and downward through a pneumatic actuator operation, and a limiting mechanism for interfering upward movement of the valve disc when the water hammer occurs,

wherein the limiting mechanism comprising (1) a stepping motor including a rotation shaft fixed on the upper actuator, (2) a vertical movement component connected to the rotation shaft for moving upward when the rotation shaft rotates in one rotating direction, and for moving downward when the rotating shaft rotates in the opposite rotating direction, (3) a lower detecting component for detecting the fact that the vertical movement component contacts the upper end of the stem when the lower detecting component moves downward, and (4) a control device (a) for rotating the stepping motor in one direction when the control device starts air supply to the actuator, (b) for rotating the stepping motor in the opposite direction when the control device stops air supply, and (c) for transmitting a stop signal to the stepping motor when the lower end of detecting component detects the fact.

Figure 1