

ABSTRACT OF THE DISCLOSURE

A method and apparatus for detection of clogging of an orifice by measuring the upstream side pressure without breaking up the piping system in a flow rate control unit using an orifice, so as to extend the life of the flow rate control unit and enhance its safety. The apparatus of detecting clogging of an orifice in a pressure-type flow rate controller has a control valve (CV), an orifice (2), a pressure detector (14) for measuring the upstream pressure P_1 therebetween, and a flow rate setting circuit (32) wherein, with the upstream pressure P_1 maintained about two or more times higher than the downstream pressure P_2 , the downstream flow rate Q_c is calculated with the equation $Q_c = KP_1$ ($K = \text{constant}$) and wherein the control valve (CV) is controlled by the difference signal Q_Y between the calculated flow rate Q_c and the set flow rate Q_s . The apparatus comprises:

- 15 a storage memory M memorizing standard pressure attenuation data $Y(t)$ of the upstream pressure P_1 measured with the flow rate switched from the high set flow rate Q_{SH} to the low set flow rate Q_{SL} with the orifice (2) not clogged,
- 20 a pressure detector (14) for determination of the pressure attenuation data $P(t)$ of the upstream pressure P_1 with the flow rate switched from the high set flow rate Q_{SH} to the low set flow rate Q_{SL} with the orifice (2) in the actual conditions,
- 25 a central processing unit CPU for checking the pressure attenuation data $P(t)$ against standard pressure attenuation data $Y(t)$, and
- an alarm circuit (46) that turns on a clogging alarm when the pressure attenuation data $P(t)$ deviates from standard pressure attenuation data $Y(t)$ to a specific degree or beyond that.