



DYNAMIC ERROR OF THE TURBINE GAS METER AT COMPLEX FLOW PULSATION LAWS

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ABSTRACT

Turbine gas meters (TGM) are widely used for the accounting of natural gas, and also as standards in the facilities for restoring of gas flow volume unit. Their metrological parameters straight influence efficiency of energy use. For TGM appearance of the so-called dynamic error δ because of TGM rotor inertia is characteristic. This error is well investigated for the elementary flow pulsation laws. However, in practice TGM usually work under conditions of complex pulsation laws, sometime at sign-altering pulsations when flow direction periodically varies.

Response and dynamic error of TGM under the above-stated conditions at different values of frequency f and amplitude ΔQ of pulsations has been studied. For numerical simulation it has been used earlier developed method according to which the equation of TGM response on sharp flow change is being applied for calculations on each step of time t . The experimentally defined time constant of inertia T is being used as key parameter of process. The big advantage of the method - its suitability for any flow pulsation laws, including sign-altering ones.

Keywords: turbine gas meter, response, dynamic error