

Flow rate characteristics of the renewed servo PD flow meter

T. Funaki¹

¹*National Institute of Advanced Industrial Science and Technology, Central 3, Umezono 1-1-1, Tsukuba, Ibaraki, JAPAN
funaki.t@aist.go.jp*

NMIJ has the national airflow standard system in Japan for the middle range that the volumetric flow rate is from 5 to 1000m³/h. One of the standard system is a closed-loop calibration facility (CLCF) has the capability to generate flow of up to 1000m³/h and uses for the calibration of the various gaseous flow meters. The servo PD flow meter has played a role of the reference flow meter in the CLCF. However, this servo PD flow meter has become dysfunctional because of the deterioration. Therefore, we updated the control unit and the assist motor of the servo PD flow meter in order to solve the deterioration in this time.

This paper describes the flow rate characteristics of the renewed servo PD flow meter. At first, the renewed servo PD flow meter in various conditions of pressure and flow rate has been examined. Additionally, the influence of differential pressure zero point correction and the set-up control parameter to drive the servo motor which drives the servo PD flow meter's rotors has been evaluated. Moreover, the influence due to the total number of measured pulses is also examined. Finally, we discuss and consider the stability and the precisely performance of the renewed servo PD flow meter.
