

## TEST DATA OF FUEL GAS FLOWMETER OF GPU

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In order to register the volume consumption for fuel gas of gas pumping unit has been used a rotational flowmeter [1]. A vortex generator was installed as a triangular prism on the pivot vertical axis in the rotational flowmeter, which contains the body of vortex generators and electromagnetic transducers, connected to a range of signal converters and a computer. The vortex generator interacts with electromagnetic sensors with membranes, having resonance at a frequency equal to their own acoustic channel frequency through gas flow with located behind it at a distance equal to the size of the area of the transformation.

The flowmeter acts as follows. The flow of gas, cutting off (turbocharge) from the vortex generator creates Karman-Rubach's path in the form of pressure pulsation. Flow fluctuations are recorded by electromagnetic sensors, where fluctuations are summarized and averaged, and data is sent to the charge amplifier, band filter, mounting plate of analogue-to-digital converter, and computer. The computer processes the measured signal in the form of a Fourier transform. The data is sent to the unit of the frequency of the signal breaking, where they are compared with the standard. If the comparison condition is violated, adjust the turbo until an effective value is obtained. In the flow meter under consideration, the calculation of fuel gas density is organized by measuring the temperature, fuel gas pressure and compressibility factor according to the method [2]. To calculate the compressibility coefficient, it is sufficient to measure the pressure, temperature and density of the gas.

Mass flow rate of fuel gas is calculated on the computer according to a specially designed program after entering values of all initial parameters through the NVL03 ADC board and calculating intermediate values of volume flow rate and density of fuel gas.

Industrial tests of the fuel gas flow meter have been realized at Dashava compressor station. During the measurements a rectilinear section of the pipe, the length of which is equal to ten pipe diameters, was maintained. Based on the results of

measurements of fuel gas flow rate, calculations of gas volume flow rate under normal conditions and mass flow rate of gas were performed, Fig. 1.

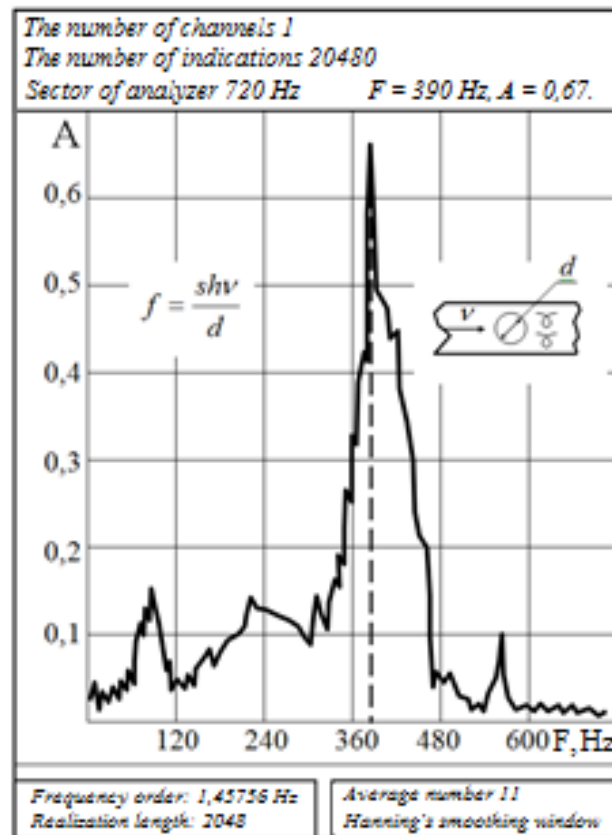


Fig. 1 - Results of GPU fuel gas flow rate research

Calculation results are coordinated with the data of direct flow measurement by the pressure drop at the flow washer.

## References

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