

EFFECTS OF TEMPERATURE AND PRESSURE ON THE GAS MF SERIES MINI-FLOWMETERS

GENERAL

A MF Series for gas service is precision flow sensor suitable for use in quasi-steady state applications where the flowrate changes are negligible when compared to the response time of the meter and where the secondary effects on meter calibration are negligibly small.

The calibration curve for the MF Series Mini-Flowmeter is somewhat dependent on the gas density to be encountered in actual service.

This is a direct result of the fact that the energy available to drive the flowmeter decreases as the gas density is reduced while the frictional forces remain essentially constant.

The variations of meter factor with gas density have a non-proportional effect over the range of the flowmeter. The significance has not been effectively modeled to date in a way to make it predictable. For this reason, each flowmeter must be individually calibrated on conditions which resemble those it will see in actual service.

The effect of density on meter calibration becomes more significant as the gas density decreases. For low density applications, it has been suggested that an error of less than 0.5% can be expected for a density change of less than +/-10%.

RECOMMENDED PRACTICE

In general, it is advised that the MF Series Mini-Flowmeters be used only in gas applications where the line pressure is regulated within +/-10% of the nominal absolute pressure and where the temperature extremes are not beyond +/-50 degrees F of the nominal temperature.

The MF Series Mini-Flowmeter should be individually calibrated on a simulated density equal to the nominal line conditions.