



VF3/VF4 FLOW METER PROCUREMENT SPECIFICATION

1. The VF3 and VF4 flow meters shall operate on the vortex shedding principle. The vortices shall be generated by an all-welded shedder bar placed in the flow stream. The shedder bar causes vortices to be generated, which represent the specific volume flow of fluid (liquid, gas, steam), at a rate that is linearly proportional to the process flow rate. The meter will have an all-welded velocity sensing tab located behind the shedder bar. There shall be no cavities that can clog to cause the meter to lose functionality and there shall be no moving parts. The meter shall use piezoelectric crystals to sense the vortices as they are being shed. The crystals shall be located out of the flow stream via an all-welded design that uses no process seal.
2. The VF3 meter shall be an insertion style vortex shedding meter capable of being inserted into 2" and larger pipe. The VF3 meter shall be capable of being permanently mounted or Hot Tap mounted into the flow stream.
3. The VF4 meter shall be an inline style vortex shedding meter capable of being installed in to pipe sizes ½" to 12."
4. The meter shall have the ability to be built with and measure velocity, temperature and pressure in a self-contained package. The process temperature range shall be from -330 Deg F to 750 Deg F.
5. The electronics shall be intelligent and able to read the process volumetric flow, the temperature and pressure and output a calculated mass flow without the need for an external flow computer. They shall have the ability to be field programmed to output compensated mass flow of gas, steam and or liquid via a communicator or from a front panel display without the need for an external flow computer. The meter shall be able to calculate 5 different variables, (volumetric flow, mass flow, temperature, pressure, density) and simultaneously output 3 of the 5 variables. The outputs shall be field-programmable and any combination of 3 of the 5 process variables can be chosen. The meter shall have the option to accept a secondary temperature input into the electronics to calculate Energy consumption. This can be used in the sent or return line and can calculate the enthalpy of chilled water, hot water, steam and condensate return.
6. The units shall be capable of being a loop powered two wire fully compensated meter. In addition, it can also be powered via a 4 wire DC supply, an AC input, or by ethernet. The meter shall have up to 3 analog outputs, a totalizer pulse output and a scaled frequency output. Digital communications via HART, MODBUS, BACnet, or IP versions of MODBUS/BACnet shall be optional as well.
7. The meter housing shall be suited for hazardous locations (Class I Div 1, Groups B, C, and D. Dust and Ignition-Proof Class II/III Division 1 Groups E,F, and G). ATEX II 2 G Ex d IIB+H2 T6 and II 2 D Ex td A21 IP66 T850C Ta=600C. IECEx Ex d IIB+H2 T6 and Ex tD A21 IP66 T850C Ta=600C.
8. VF3 insertion flow meter accuracy shall be 1.2% or rate for liquids, 1.5% of rate for gas and steam, 1.5% of mass flow rate for liquids, 2% of mass flow rate for gas and steam, +/- 2 deg F for temperature, .3% of full scale for pressure, .3% of density for liquids and .5% of density for gas and steam.
9. VF4 inline flow meter accuracy shall be .7% or rate for liquids, 1% of rate for gas and steam, 1% of mass flow rate for liquids, 1.5% of mass flow rate for gas and steam, 2% of temperature, .3% of full scale for pressure, .3% of density for liquids and .5% of density for gas and steam.
10. The instrument will be the Model VF3 or VF4 manufactured by Fox Thermal, 399 Reservation Road, Marina, CA 93933 Phone: 831-384-4300, Email: sales@foxthermal.com, Website: www.foxthermal.com.