TANSA EQUIPMENTS PVT. LTD. AN ISO 9001:2008 COMPANY

ORIFICE BASED STEAM / GAS FLOW METER

MODEL: GFM 100 / GFM 200

GFM - 100 & GFM - 200
GAS, AIR & STEAM FLOW METERING SYSTEM.

INTRODUCTION:

Use our GFM series flow meter for measuring flow rates of bio-gas, LPG, compressed air, steam (saturated & superheated) in closed pipes. The flow meter is suited for wide range of applications where affordability, reliability and ruggedness are of prime importance.

In conventional system of measurement, the differential pressure generated by orifice plate is measured by D.P. transmitter. The output from D.P. transmitter after square rooting is accepted as proportional to flow - rate. This assumption is true only when density is constant.

Unfortunately, density of compressible fluid is never constant. The density of compressible fluid changes with line pressure & line temperature. Thus, introducing errors in flow rate measurement.

TANSA MAKE GFM FLOW METERING SYSTEM:
PRINCIPLE OF OPERATION:

GFM series provides on - line density correction to conventional system.

As per BS 1042 / ISO : 5167 standard, the equation for mass flow when measured with orifice states:

$$Q_m \propto \sqrt{\rho \cdot \Delta P}$$

Where,

Q_m = mass flow rate.
ρ = instantaneous density.
ΔP = differential pressure.

Thus, by measuring line pressure & temperature & using the relevant algorithms, instantaneous density can be found out & also the state of steam (i.e. saturated / superheated) .By knowing the correct density one can compute the accurate mass-flow rate. The further operation of integration, square rooting is similar to ordinary flow Totaliser.

We, at TANSA understand our users' needs & hence offer two models for orifice flow meter: GFM100 for Biogas,LPG & air application & GFM 200 specifically for steam.

In GFM 200 the hardware like valve, temperature-sensing elements etc can be provided with IBR approval.

The complete GFM system is provided in chemically compatible material with the fluid and includes all the necessary hardware for the installation. Since the density calculations for steam and gases differ, the computing units used for GFM100 & GFM200 are different. GFM series can also be used for flow measurement of non-compressible fluids like water, furnace oil etc. which increases its versatility.

PRINCIPAL ADVANTAGES OF GFM SERIES:

1. On - line density compensation possible because of on-line temperature & pressure measurement.
2. Various sizes of orifice assemblies available with accurate design calculations
3. Various types of needle valves, gate valves & manifolds with or without IBR approval as per application.
4. Sturdy, rugged field mounting type pressure transmitter is supplied with standard end connections.
5. On - line display of compensated mass flow rates, density, temperature; output of DP transmitter is offered. LED indication for status of steam (saturated or superheated) is provided.
6. Various models of mass flow integrators (computing units) GFT-100 & SFT-200(wall/panel mounting) available to suityour application.
7. User friendly. No need to feed all the complicated orifice constants since the system is intelligent enough to calculate.
8. Isolated 4-20mA dc output proportional to compensated flow rate.
9. Disconnection of DPT, PT, Temperature sensor or TT is indicated by error message.
10. Partial system available to suit your existing uncompensated flow rate using existing orifice & DP transmitter or vortex flow meter.
11. Complete system engineered to suit your requirement.
12. It is a standard system & highly reliable.
13. It is easy to maintain. Calibration of orifice, DP transmitter, pressure transmitter is easy & inexpensive.
14. No moving parts.

TANSA

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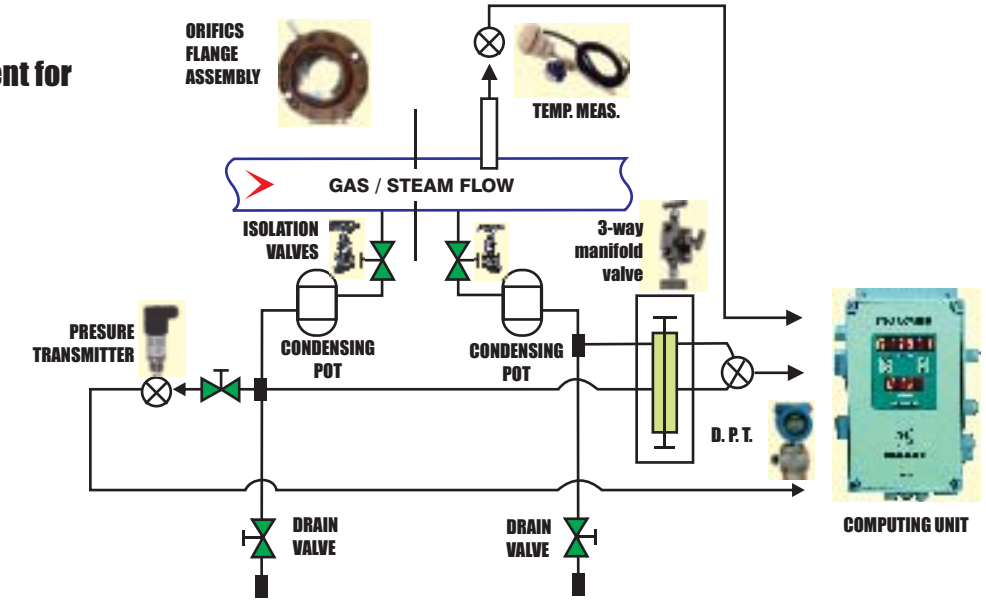
Schematic Arrangement for GFM Series



*** SPECIFICATIONS:**

1.	Service	:	Biogas, Compressed Air, Compressed Gas, LPG, Steam.
	Composition	:	User to specify.
2.	Size	:	½" to 14"
3.	Type of Flow meter	:	Differential Pressure Type.
4.	Flow Element	:	Orifice / Integral Orifice
5.	MOC Of Flow element	:	SS 316
6.	Type of Flanges	:	WNRF (Weld Neck Raised Face) / SORF (Slip On Raised Face)
7.	MOC of Flange	:	C.S / S.S / P.P.
8.	Flange Rating	:	ANSI 150 / ANSI 300 / ANSI 600
9.	Type Of Taps	:	Flanged Tapping / Corner Tapping / D & D/2
10.	No. Of DP Tappings	:	1 Pair
11.	No. Of Drain Tappings	:	1 Pair
12.	Design Standard	:	BS - 1042 / ISO : 5167
13.	Accuracy	:	± 3% of actual reading
14.	Typical Turndown	:	10:3.

* Specifications are subject to change without prior notice.

COMMON FEATURES FOR STEAM & GAS FLOW TOTALIZERS:-

- Easy user friendly programming
- Password protected for all modes except display mode
- Computer/Printer Interfacing with RS 232/RS 485 port with MODBUS RTU
- Fault indications indicated by different error codes
- Overflow indicated by blinking display up to 3000 readings
- Data logging facility with 3445/ 6890 number of readings is available.
- Linear or square root operation.
- Accuracy of ± 0.25 % of Full Scale
- Wall/Panel mounted
- Universal power supply

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