

## MALEMA KINETIC FLOW METER MODEL KFM 2100



KFM 2100 Series is an advanced flow element that is suitable for liquid, gas and steam flow measurement with high accuracy and repeatability. Thanks to its patented design where a stream lined bullet shaped flow element that causes a minimum disruption to the flowing medium providing unmatched flow turndown with very low pressure drop.

KFM 2100 series is available as a flow element separately as well as a complete flow meter. In the first option, you have a choice of using a differential pressure transmitter of your preference. Alternatively, we can integrate the KFM flow element with a differential pressure transmitter and supply as a fully calibrated unit.

### FEATURES:

**A novel design approach in fluid flow measurement**

**High turn down: 10:1 typical; up to 50:1 for some applications with multiple transmitters**

**No need for straight runs**

**Stream lined measuring section: Low pressure drop**

**No moving parts**

**Measurement is independent of flow regime: Suitable for laminar, turbulent and transition flow conditions**

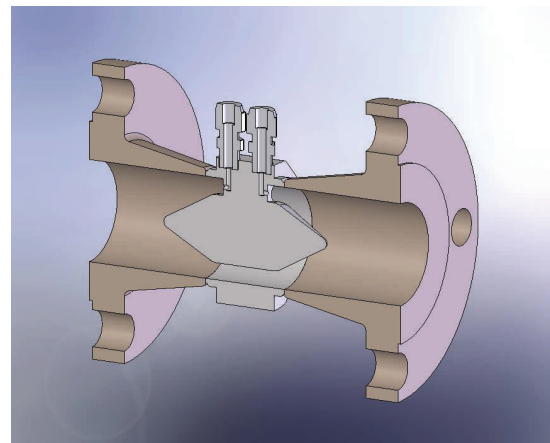
**High accuracy and repeatability**

**Volumetric and mass flow measurement with built-in temperature sensor option**

**Suitable for liquids, gases and steam**

**Patented design (Patent No. US 7,478,565 B2)**

KFM Flow Meter



KFM Primary Element  
Patent No. US 7,478,565 B2

### APPLICATIONS:

- WATER AND WASTE WATER
- CONDENSATE, COOLING WATER & HOT WATER
- PETROLEUM PRODUCTS
- ACIDS AND ALKALIES
- COMPRESSED AIR
- INDUSTRIAL GASES
- STEAM

## PRINCIPLE OF MEASUREMENT

An elongated flow-body of streamlined shape transforms the incident fluid flow in such a way that the sensor's response is immune to flow regime and variations in flow velocity profile.

Dynamic pressures, P1 and P2, are measured in proximity to the streamlined flow-body. One pressure-sensing port faces upstream, the other downstream. The two signals are combined in a unique way to simultaneously measure fluid volumetric flow rate, mass flow rate and density (for gases).

$$P_1 = \frac{1}{2} \rho V^2 + P_0$$

$$P_2 = -\frac{1}{2} \rho V^2 + P_0$$

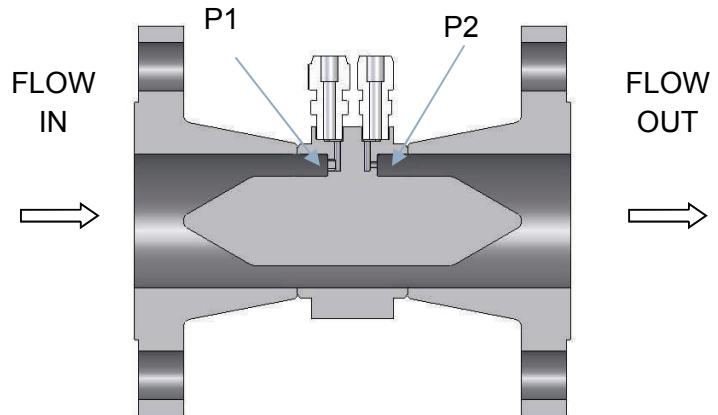
$P_0$  = static pressure

V = average flow velocity

$$\rho = \text{gas density} = (P_1 + P_2) / (2ZRT)$$

$$\text{Mass flow } Q_m = K \times \sqrt{(\Delta P \times \rho)}$$

Where K = meter constant



### General Specification:

Sizes:	½" to 3"
End connection:	Flanged, Screwed and Weld type
End connection rating:	ANSI #150, 300 & 600; other options possible
Medium:	Liquids, gas and steam
Primary element accuracy:	+/- 0.5% of the rate
Repeatability:	+/- 0.1% of the rate
Materials:	SS 316L; Other options on request
Versions:	Primary Element Primary Element with DP transmitter (volumetric flow) Primary Element with multi-variable transmitter (mass flow)
Types:	In-line and insertion (pending)
Transmitter mounting:	Remote or integral (compact)

If you need a quote from us please visit our website: [http://malema.com/Industrial/pdf/Flow\\_Meter\\_Application\\_Sheet.pdf](http://malema.com/Industrial/pdf/Flow_Meter_Application_Sheet.pdf) , fill-in the details requested in the flow application questionnaire and email/fax to us. We will get back to you at the earliest.

DOC# KFM2100-FLYER20100211

Specifications are subject to change without notice.

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