

TELEDYNE HASTINGS

LOW CAPACITY FLOWMETERS AND CONTROLLERS

INSTRUMENTS

Models HFM-E-200, HFC-E-202

FEATURES

- $\pm 1\%$ of Full-Scale Accuracy¹
- Proven Reliability
- Range — 10 to 30,000 sccm (N₂ Equivalent)
- NIST Traceable Calibration
- Tylan® FC-260 Footprint

APPLICATIONS

- Leak Testing
- Medical Research
- Vapor Deposition
- R&D and Process Flows
- Semiconductor Processes
- Pollution Monitoring
- Gas Blending
- Chromatography

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HFM-E-200 / HFC-E-202

DESIGN FEATURES

The Teledyne Hastings Instruments (THI) Model HFM Mass Flowmeter and HFC Mass Flow Controller represent over 55 years of experience in designing and manufacturing reliable, high quality mass flow instruments. The HFM/HFC Series flow instrument can be set up to measure and control any of a wide variety of gases under many different pressure conditions as required.

The Models HFM-E-200 and HFC-E-202 were specifically designed to meet the footprint dimensions of the Tylan® FC-260 model. They are based on refinements to the existing Hastings 200 Series flow product line.

The HFM/HFC Series of flow instruments is based on a modular design. At the heart of each instrument is an insulated thermo electric sensor which provides enhanced zero stability and allows installation in any orientation plane in most low pressure applications. This sensor is designed to be removable/replaceable in the field to virtually eliminate long down time due to clogging. Additionally, the HFM/HFC design features an integral filter and an easily replaceable closed loop electronics card.* The HFC also features an externally adjustable valve with easily replaceable flow orifices.

All of these standard features, when coupled with the instrument's inherent linear response to flow changes and THI's long-proven reputation for quality, result in the finest flowmeters and flow controllers available today.

Optional Features

Fittings
O-ring seals
High pressure rating (1000 psig)
4-20 mA converters
Cleaned for oxygen service

Accessories

Power supplies/readouts
Interconnecting cables

*Note: After changing components, instruments require recalibration to meet accuracy specifications.



TELEDYNE INSTRUMENTS
Hastings Instruments
A Teledyne Technologies Company

MODELS HFM-E-200, HFC-E-202

SPECIFICATIONS HFM-E-200

Accuracy¹ and Linearity	±1% F.S.
Repeatability	±0.075% Rdg +0.05% F.S. (max.)
Standard Pressure Rating	500 psig
Pressure Coefficient	+0.0067% Rdg/psi (0-1000 psig N ₂)
High-Pressure Option	Proof tested to 1500 psig
Leak Integrity	< 1x10 ⁻⁹ sccs
Temperature Coefficient (10°-50°C)	Zero ±0.1% F.S./°C (max.) Span ±0.05% Rdg/°C (max.)
STP	0°C and 760 Torr
Input Power	±15 VDC at ±45 mA (max.)
Flow Signal	0-5.00 VDC or 4-20 mA (inherently linear)
Wetted Material	316 SS, Viton®, 87/13 Au/Ni Braze
Connector	10 x 2 Edge card
Fittings Available	Swage (1/8", 1/4" & 3/8"), VCO, VCR
Weight (approx.)	1.6 lb (0.6 kg)

SPECIFICATIONS HFC-E-202

Accuracy¹ and Linearity	±1% F.S.
Repeatability	±0.075% Rdg +0.05% F.S. (max.)
Standard Pressure Rating	500 psig
Pressure Coefficient	+0.0067% Rdg/psi (0-1000 psig N ₂)
Control Valve DP	Per customer request
High-Pressure Option	Proof tested to 1500 psig
Leak Integrity	< 1x10 ⁻⁹ sccs
Temperature Coefficient (10°-50°C)	Zero ±0.1% F.S./°C (max.) Span ±0.05% Rdg/°C (max.)
STP	0°C and 760 Torr
Input Power	±15 VDC at +45 mA/-185 mA (max.)
Flow Signal	0-5.00 VDC or 4-20 mA (inherently linear)
Command Input	0-5.00 VDC or 4-20 mA available
Wetted Material	316 SS, Nickel, Viton®, 87/13 Au/Ni Braze
Connector	10 x 2 Edge card
Fittings Available	Swage (1/8", 1/4" & 3/8"), VCO, VCR
Weight (approx.)	1.6 lb (0.6 kg)

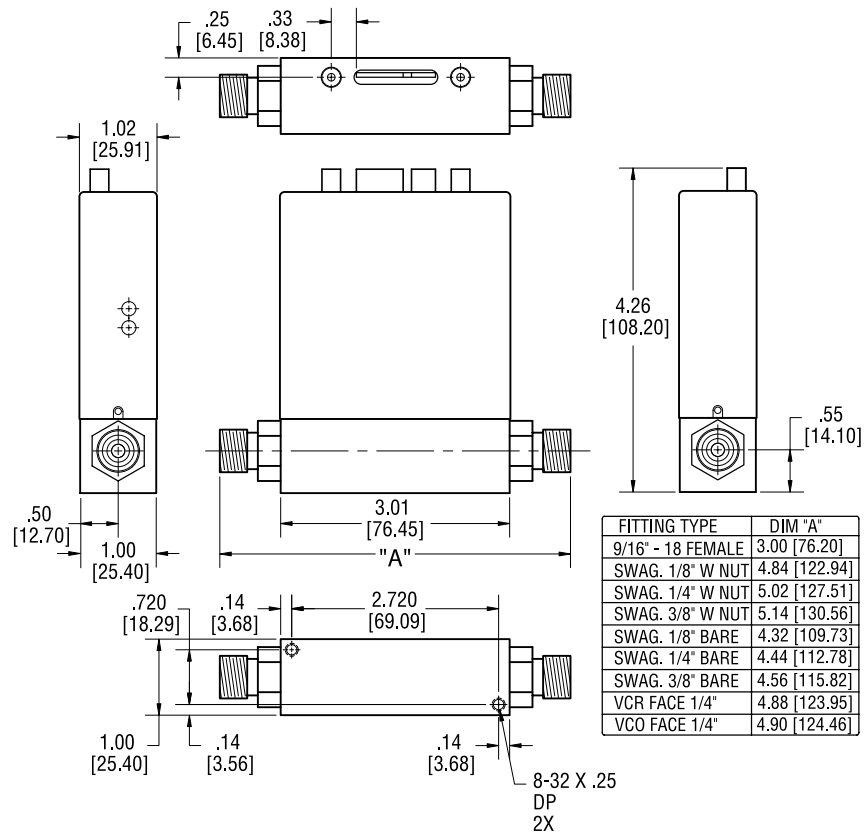
Teledyne Hastings Instruments reserves the right to change or modify the design of its equipment without any obligation to provide notification of change or intent to change.

Kalrez® is a registered trademark of Dupont Dow Elastomers L.L.C.
Swagelok® is a registered trademark of Crawford Company.
VCR® is a registered trademark of Cajon Company.
VCO® is a registered trademark of Cajon Company.
Viton® is a registered trademark of Dupont Dow Elastomers L.L.C.

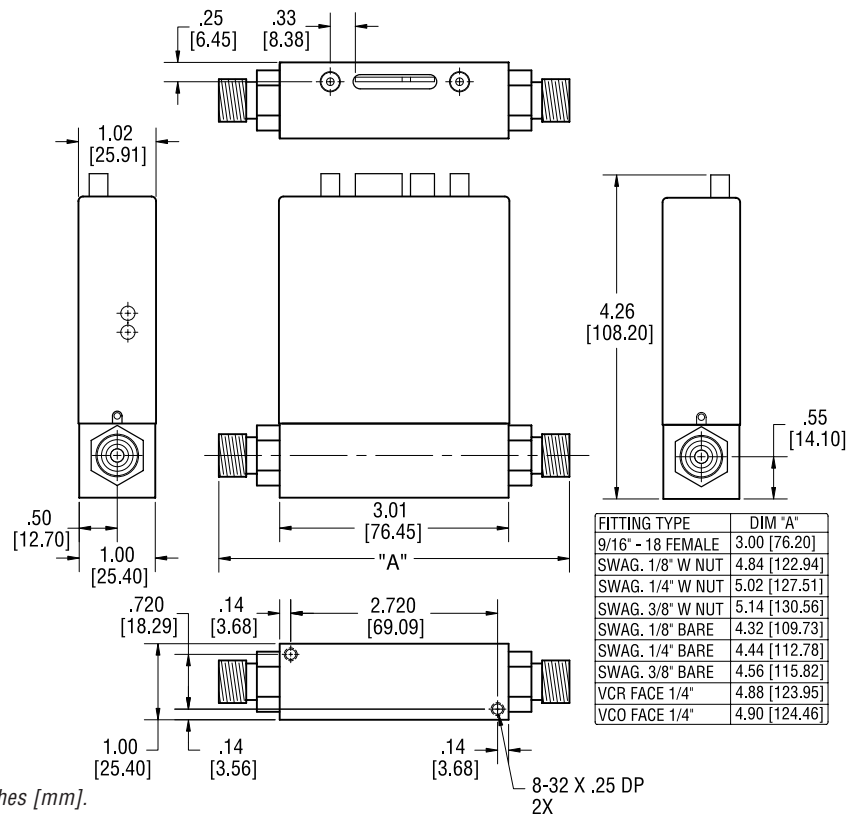
¹See Product Manual for critical information on instrument accuracy and the use of GCFs (gas conversion factors). Stated accuracy is for nitrogen or other gas specific calibration and use with this gas only.

MODELS HFM-E-200, HFC-E-202

Model HFM-E-200



Model HFC-E-202



All dimensions shown are in inches [mm].

MODELS HFM-E-200, HFC-E-202

Selection Chart

Typical instrument ordering/options number:

Model No.	Circuit Board	Output	Fittings	O-Rings	Working Pressure	Calibration Type
HFM-E-200	01	01	01	01	01	01

Order No.	Options
Circuit Board	
01	Standard
Output	
01	0-5 Volts (Standard)
02	4-20mA
Fittings	
01	1/4" Swagelok (Standard)
02	1/8" Swagelok
03	VCR® 1/4"
04	VCO® 1/4"
05	1/4" Elbow
06	No Fittings

Order No.	Options
O-Rings	
01	Viton (Standard)
02	Kalrez®
03	Neoprene
Working Pressure	
01	500 psig (Standard)
02	1000 psig
Calibration Type	
01	NIST 5 Point (Standard)
02	NIST 10 Point
03	NIST 20 Point

Range Information

Range _____

Flow Units _____

Gas _____

Standard Conditions* _____

*Referenced to standard temperature and pressure (0°C and 760 Torr, respectively).

Selection Chart

Typical instrument ordering/options number:

Model No.	Circuit Board	Output	Fittings	O-Rings	Working Pressure	Calibration Type
HFC-E-202	01	01	01	01	01	01

Order No.	Options
Circuit Board	
01	Standard
Output	
01	0-5 Volts (Standard)
02	4-20mA Output
03	4-20mA I/O
Fittings	
01	1/4" Swagelok (Standard)
02	1/8" Swagelok
03	VCR 1/4"
04	VCO 1/4"
05	1/4" Elbow
06	No Fittings

Order No.	Options
O-Rings	
01	Viton (Standard)
02	Kalrez
03	Neoprene
Working Pressure	
01	500 psig (Standard)
02	1000 psig
Calibration Type	
01	NIST 5 Point (Standard)
02	NIST 10 Point
03	NIST 20 Point

Range Information

Range _____

Flow Units _____

Gas _____

Upstream Pressure _____

Downstream Pressure _____

Is downstream pressure dependent on flow resistance? Y/N _____

Standard Conditions* _____

*Referenced to standard temperature and pressure (0°C and 760 Torr, respectively).