

# Thermal Mass Flow Product Guide

Low Flow

Medium Flow

High Flow

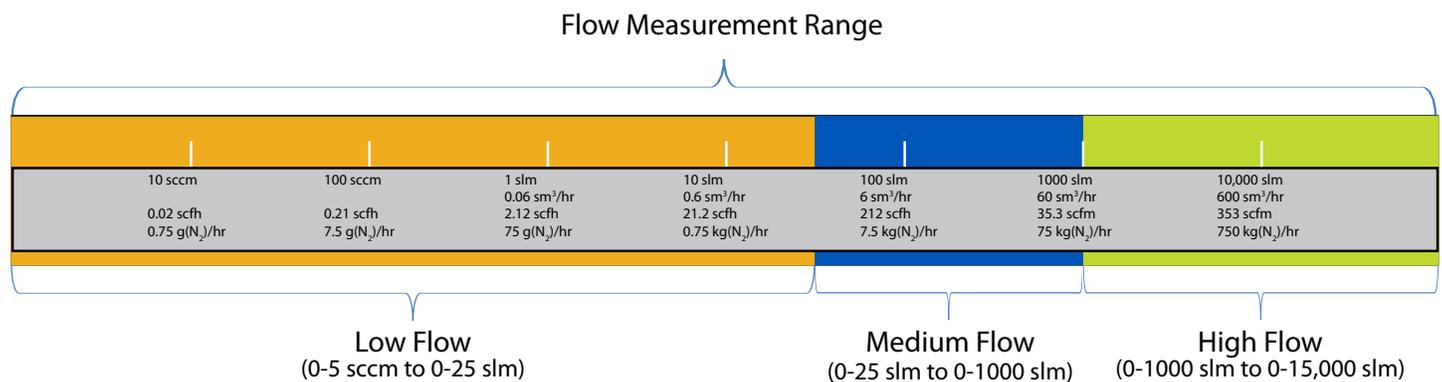


# Thermal Mass Flow

Teledyne Hastings Instruments brings over 70 years of experience to offer a full line of thermal mass flow measurement and control instruments. With an experienced design team, thermal mass flow expertise, and global sales and service networks, we are able to provide both a broad selection of equipment and unrivaled customer support.

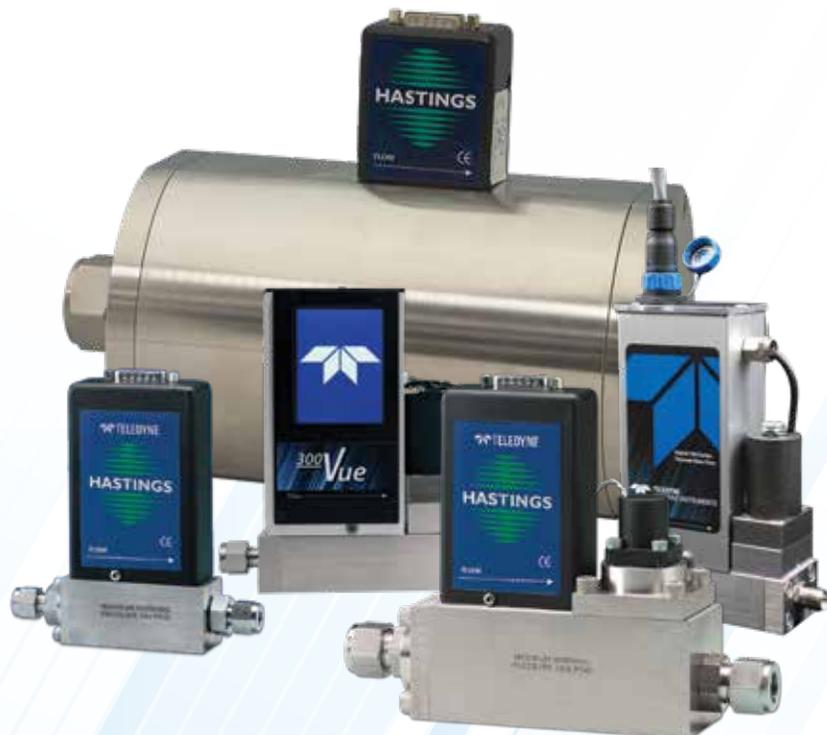
Find reliable solutions for applications in laboratory and industrial environments, high and low flows, corrosive gases and very high temperatures. Your needs can be met with these quality product lines, designed and manufactured by Teledyne Hastings.

Solve your application challenges with our trusted line of thermal mass flow meters and thermal mass flow controllers.



## WHY MASS FLOW?

Measuring a gas flow with a mass-based measurement provides accuracy, repeatability, and stability. It is insensitive to line pressure; gas conversions are simple and direct. Among the available mass flow instruments, those with on-board digital calibration records and auto-correction achieve the best performance.



# Flow Meters and Controllers

Meeting Your Requirements



## 200 Series

### General Purpose

- Mass flow meter & controller
- Very high flow capable (15,000 slm)
- Economical
- Accurate
- Elastomer sealed
- Linear output



## 300 Series

### High Performance

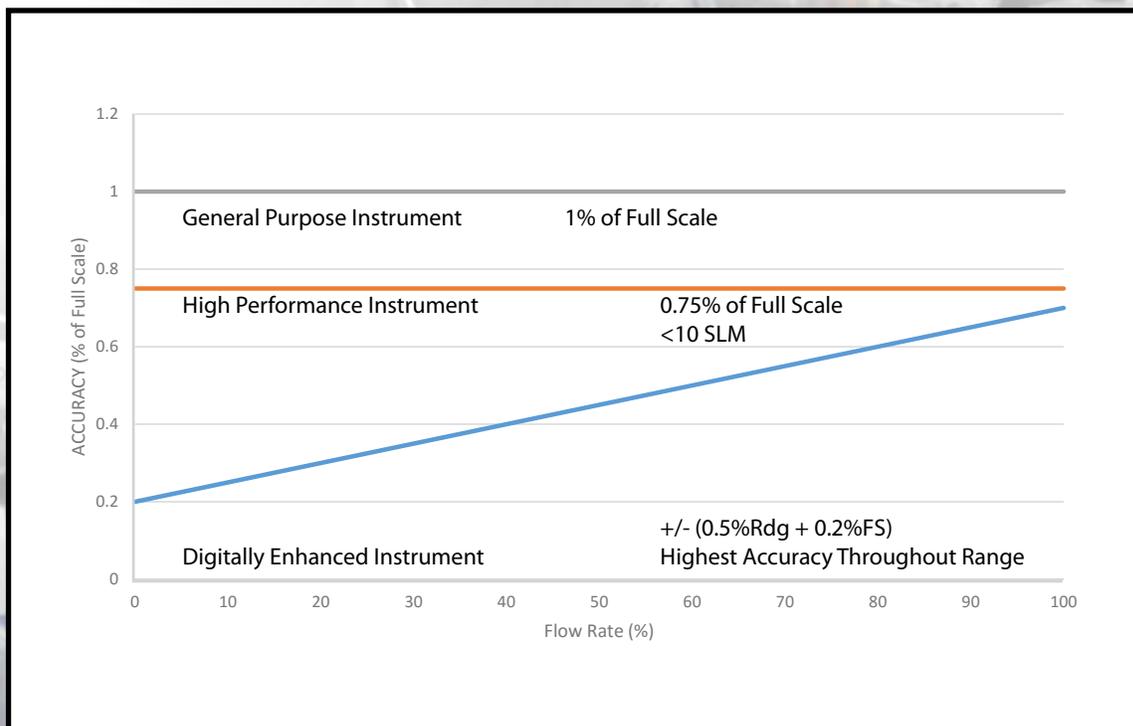
- Mass flow meter & controller
- High flow capable (10,000 slm)
- Fast response
- Highly accurate
- Metal sealed (<25 slm)
- Linear output
- Low pressure drop
- Foldover protection



## Digital 300 Series

### Digitally Enhanced

- Mass flow meter & controller
- High flow capable (10,000 slm)
- Highest accuracy
- Metal sealed (<25 slm)
- Digital communications
- Flow totalizing
- Low pressure drop
- Optional Display
- Optional IP-67



Teledyne Hastings Instruments contributes significant process efficiencies to its Operational Excellence program through lean manufacturing and lean office implementations.

# Low Flow Thermal Mass Flow



## HFM-200 / HFC-202

- Full Scale Ranges:  
10 sccm to 25 SLM (N<sub>2</sub> Equivalent)
- Accuracy: ± 1% FS
- 500 PSIG Working Pressure;  
Optional 1000 PSIG
- Materials of Construction:  
316SS, Nickel, Viton®, Kalrez®



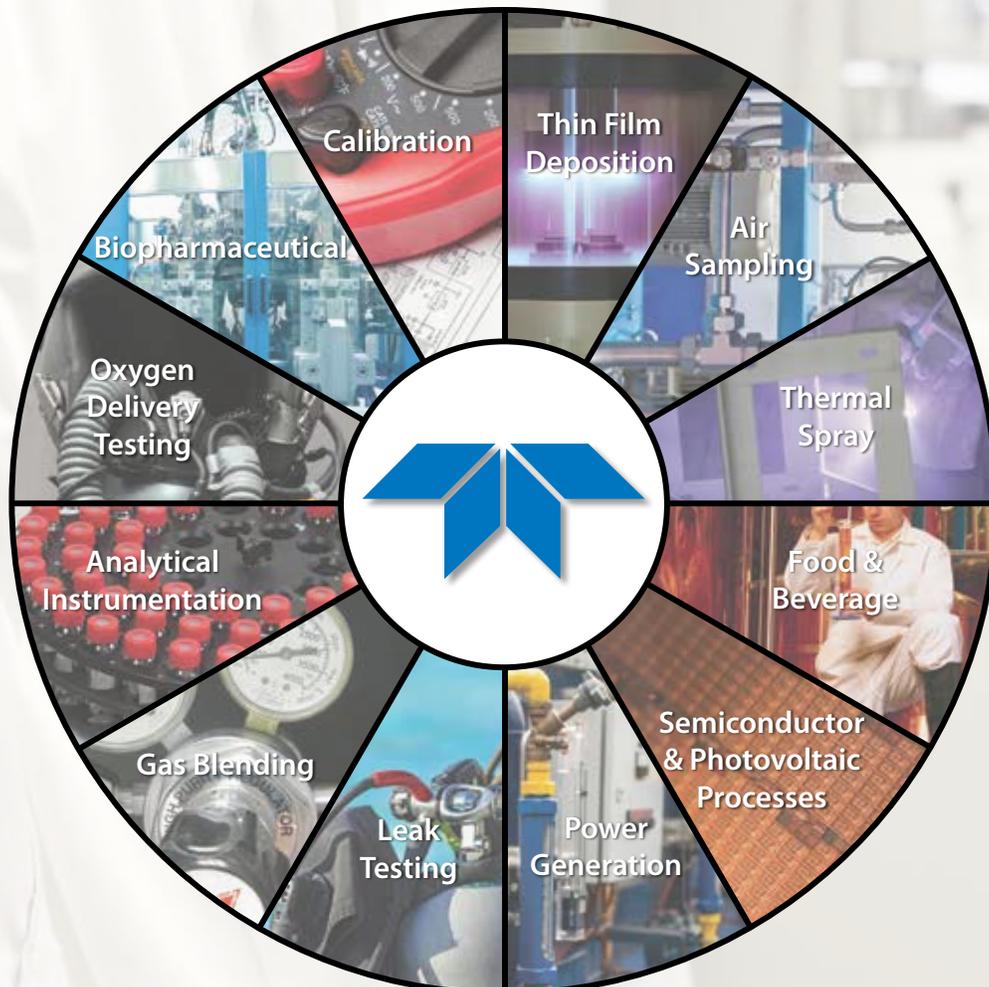
## HFM-300 / HFC-302

- Full Scale Ranges:  
5 sccm to 25 SLM (N<sub>2</sub> Equivalent)
- Accuracy: ± 0.75 % FS (< 10 SLM FS) and ± 1% FS (> 10 SLM FS)
- 500 PSIG Working Pressure;  
Optional 1000 PSIG
- Materials of Construction:  
316SS, Nickel, Kalrez®
- Fast Response



## HFM-D-300 / HFC-D-302 A/B

- Full Scale Ranges:  
5 sccm to 25 SLM (N<sub>2</sub> Equivalent)
- Accuracy: ± (0.5% Rdg + 0.2% FS )
- 500 PSIG Working Pressure;  
Optional 1000 PSIG
- Materials of Construction:  
316SS, Nickel, Kalrez®
- RS-232/RS-485
- Optional Display
- Optional IP-67



# Medium Flow Thermal Mass Flow



## HFM-201 / HFC-203

- Full Scale Ranges:  
25 SLM to 1000 SLM (N<sub>2</sub> Equiv)
- Accuracy: ± 1% FS
- 500 PSIG Working Pressure;  
Optional 1000 PSIG
- Materials of Construction:  
316SS, Nickel, Viton®, Kalrez®, PTFE



## HFM-301 / HFC-303

- Full Scale Ranges:  
25 SLM to 1000 SLM (N<sub>2</sub> Equiv)
- Accuracy: ± 1% FS
- 500 PSIG Working Pressure;  
Optional 1000 PSIG
- Materials of Construction:  
316SS, Nickel, Viton®, Kalrez®, PTFE
- Fast Response



## HFM-D-301 / HFC-D-303 A/B

- Full Scale Ranges:  
25 SLM to 1000 SLM (N<sub>2</sub> Equiv)
- Accuracy: ± (0.5% Rdg + 0.2% FS)
- 500 PSIG Working Pressure;  
Optional 1000 PSIG
- Materials of Construction:  
316SS, Nickel, Viton®, Kalrez®, PTFE
- RS-232/RS-485
- Optional Display
- Optional IP-67



# High Flow Thermal Mass Flow



## HFM-205 / HFC-207

- Full Scale Ranges:  
1000 SLM to 2500 SLM (N<sub>2</sub> Equiv)
- Accuracy: ± 1% FS
- 500 PSIG Working Pressure
- Materials of Construction:  
316SS, Nickel, Viton®, Kalrez®, PTFE



## HFM-305 / HFC-307

- Full Scale Ranges:  
1000 SLM to 2500 SLM (N<sub>2</sub> Equiv)
- Accuracy: ± 1% FS
- 500 PSIG Working Pressure
- Materials of Construction:  
316SS, Nickel, Viton®, Kalrez®, PTFE
- Fast Response



## HFM-D-305 / HFC-D-307 A/B

- Full Scale Ranges:  
1000 SLM to 2500 SLM (N<sub>2</sub> Equiv)
- Accuracy: ± (0.5% Rdg + 0.2% FS )
- 500 PSIG Working Pressure
- Materials of Construction:  
316SS, Nickel, Viton®, Kalrez®, PTFE
- RS-232/RS-485
- Optional Display
- Optional IP-67



## HFM-200-LFE

- Full Scale Ranges:  
8 SLM to 15,000 SLM (N<sub>2</sub> Equiv)
- Accuracy: ± 1% FS
- Materials of Construction: 316SS,  
Nickel, Viton®
- Low Pressure Drop



## HFM-306

- Full Scale Ranges:  
10,000 SLM (N<sub>2</sub> Equiv)
- Accuracy: ± 2% FS
- 300 PSIG Working Pressure
- Materials of Construction: 316SS,  
Nickel, Viton®
- Fast Response



## HFM-D-306 / HFC-D-308 A/B

- Full Scale Ranges:  
10,000 SLM (N<sub>2</sub> Equiv)
- Accuracy: ± (0.5% Rdg + 0.2% FS )
- 300 PSIG Working Pressure
- Materials of Construction: 316SS,  
Nickel, Viton®, Kalrez®, PTFE
- Fast Response
- RS-232/RS-485
- Optional Display
- Optional IP-67

# Accessories/Specialty Products



## THCD-101

- Single Channel Power Supply / Display
- Handles (1) Flow Meter, Controller, or Vacuum Gauge
- Displays Units of Measurement
- Analog: 0-5 vdc, 0-10 vdc
- USB and Ethernet



## THCD-401

- Four Channel Power Supply / Display
- Handles (4) Flow Meters, Controllers, Vacuum Gauges, and more
- Displays 4 Simultaneous Channels with Units and Gas ID
- Analog: 0-5 vdc, 0-10 vdc, 4-20 mA
- USB and Ethernet
- Ratio Control for Gas Blending
- Totalizer Function



## NALL

- Flow Meter
- Full Scale Ranges: 10 sccm to 15,000 SLM (N<sub>2</sub> Equivalent)
- Typical Accuracy: ± 1% FS
- 500 PSIG Working Pressure; Optional 1000 PSIG (select sizes)
- Materials of Construction: 316SS (Optional Monel), Gold/Nickel Braze
- 100° C Working Temperature; Optional 200° C
- Hermetic Seal Option

## Here When You Need Us

Buy from the company that makes it easy!

Teledyne's technical staff is available to help you with application review, model selection, and product configuration. We listen to you to ensure that we understand the requirements of your application. Collectively, our technical staff has well over 100 years of experience in a broad array of applications. Put our flow control expertise to use for you.



### Lifetime Technical Support

We are always here for you. If you have questions about measurement and control of gas flow or you want to discuss a new application - we are here to help!



### Stocked Inventory

Check out our expanding list of stocked inventory of Digital 300 Mass Flow Controllers. We may already have the instrument you need; it is ready to ship!

### Fast Delivery

We understand the importance of fast, on time delivery. When you need it even faster, we are able to provide expedited build, calibration and delivery service to keep your application up and running.



### Global Coverage

Teledyne Hastings has sales and service staff located around the world. Our team is ready to help you where you need us!

# More From Teledyne Hastings



## Vacuum Gauging

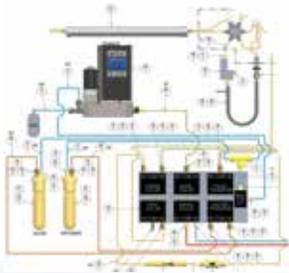
Teledyne Hastings is the world leader in high quality, reliable, thermocouple vacuum gauge tubes, instrumentation, and accessories.

Our vacuum products have established a reputation for ruggedness – even in the most demanding environments. Our products have been to the moon and back, literally! Put that reliability to work for your application.



## Calibration Services

We have teams located in Europe, Asia, and the USA dedicated to provide calibration of both our vacuum and flow products. In many cases, expedited service is available. To find the service center closest to you, visit our website or contact us directly.



## Engineered Solutions

We pride ourselves on our success at delivering customized vacuum and mass flow instruments for individual and OEM installations. With over 70 years of experience in designing solutions, our engineering team is ready for you. Talk to us.

