

Accurate

NIST Traceable Calibration
with up to 0.01cc/min
Resolution

Precise

Unaffected by Temperature
or Barometric Pressure

Versatile

Measure Air, N₂, O₂, H₂, He &
5%Ar/CH₄, & CO₂

Convenient

No Glassware, Liquids or
Bubbles

Reliable

Ideal for GC Flows, Industrial
Hygiene and General Lab Use

Alltech

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The Flowmeters Preferred by Over 7000 Customers.....

Alltech Digital Flow Check™ and Digital Flow Check HR™ Flowmeters!



The DFC-HR™ Flowmeter-
increased resolution at low flowrates

The Standard DFC™ Flowmeter-
for routine flow measuring tasks

Contact your Alltech office or distributor for current or local prices.

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Brochure #468

Alltech Helium Leak Detector - the Perfect Companion to DFC Flowmeters



- Tired of Wasting Time and Money on Costly Helium Leaks?
- Tired of Getting Less than Optimal Performance out of Your Gas Chromatograph?
- Want to Eliminate Contamination Caused by Soap Solutions when Leak Checking?
- Alltech's Helium Leak Detector is Your Solution to these Problems.

Alltech's Helium Leak Detector is a portable, easy to use gas leak detector that quickly pinpoints leaks in your GC system, even in the most difficult to reach and confined locations. The unit zeros in ambient air and utilizes a highly sensitive thermal actuated cell and signal amplification to detect leaks. When a leak is detected, a signal is displayed on the unit's LED display and an audible alarm sounds. The Helium Leak Detector is designed to specifically detect costly helium leaks, but will detect any gas mixture with a thermal conductivity different from that of air. No more messy soap solutions or system contamination.

Bundle an Alltech Helium Leak Detector with a DFC™ flowmeter. They're the only tools you need to keep your GC running efficiently.

Alltech Helium Leak Detector^o

DESCRIPTION	VOLTAGE	PART No.	PRICE
ALLTECH HELIUM LEAK DETECTOR			
Includes detector & 110V charger	110V	60229	
Includes detector & 220V charger	220V	60231	

^o Units are CE Marked. The Alltech Helium Leak Detector is not explosion proof and should not be used to detect combustible gases. The unit should also not be used with corrosive gases.

DFC Flowmeter Ordering Information

Alltech Digital Flow Check™ Flowmeters

DESCRIPTION	PART No.	PRICE
Flowmeters		
Alltech Digital Flow Check™		4700
Alltech Digital Flow Check HR™		5700
Replacement Accessories		
1/16" (1.6mm) Barbed Inlet/Outlet		5707
Fitting for DFC-HR™ (Chrome Plated Nickel)		
1/8" (3.2mm) Barbed Inlet/Outlet		5706
Fitting for DFC-HR™ (Chrome Plated Nickel)		
1/16" (1.6mm) Barbed Inlet/Outlet		4721
Fitting for DFC™ (Polymer)		
1/8" (3.2mm) Barbed Inlet/Outlet Fitting for DFC™ (Polymer)		4722
Split Vent Adaptor		4705
General Purpose Adaptor		4704
Capillary Column Adaptor		5705
1/32" (0.8mm) ID Connecting Tubing, 10ft		4703
1/8" (3.2mm) ID Connecting Tubing, 1m		4785
Recalibration Services*		
for the DFC™		4702
for the DFC-HR™		5702

*Send Purchase Order with unit to be recalibrated.

No Return Authorization number is required when ordering recalibration service.



www.alltechWEB.com

Your Online Technical Resource for Chromatography



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Your Local Distributor is:

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Contact your Alltech office or distributor for current or local prices.

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Recycled Paper — part of the Alltech commitment to protect our valuable natural resources

Reliable Performance Backed by Superior Support

NIST Traceable & CE Certified

The DFC™ and DFC-HR™ flowmeters are calibrated with seven gases using NIST traceable standards. An economical recalibration service maintains the unit's performance, and includes minor repairs and an NIST-traceable calibration certificate. The certificate includes percent error data indicating how far your meter was out of calibration, helping you meet ISO, GLP, GMP and other quality system requirements. Both flowmeters carry the CE mark for electromagnetic susceptibility (EN55011/1991, Group 1, Class B & EN55022/1994, Class B) and immunity (EN50082-1/1997) standard.

Superior Product Support After the Sale

Ever notice how some companies seem to disappear after you purchase their flowmeter? That's not the case with Alltech's DFC™ flowmeters. We do not use third party calibration services that perform mass calibrations on just any flowmeter or swap your flowmeter for another flowmeter, like some competitors. The DFC™ flowmeters are serviced in-house by a staff of trained calibration technicians to ensure the accuracy and validity of your meter's calibration. Your meter is calibrated and returned to you, allowing you to maintain the integrity of your quality system calibration records.

Never Worry About Missing a Recalibration Date Again!

You have more important things to do than keep track of when it's time to recalibrate your flowmeter. Alltech offers a free calibration reminder service for the Alltech DFC™ and DFC-HR™ flowmeters. We will send you a reminder by email one month prior to the expiration date of your flowmeter's calibration to send in your unit for recalibration, helping you to comply with ISO, GLP, GMP and other quality system requirements.

To take advantage of this convenient and easy to use service, go to www.alltechweb.com/dfcremind and register your flowmeter(s). We will send you a reminder at the time interval you request that it's time to send your flowmeter in for recalibration.

Suggested Flowmeter Applications

Low Flow Applications (DFC-HR)

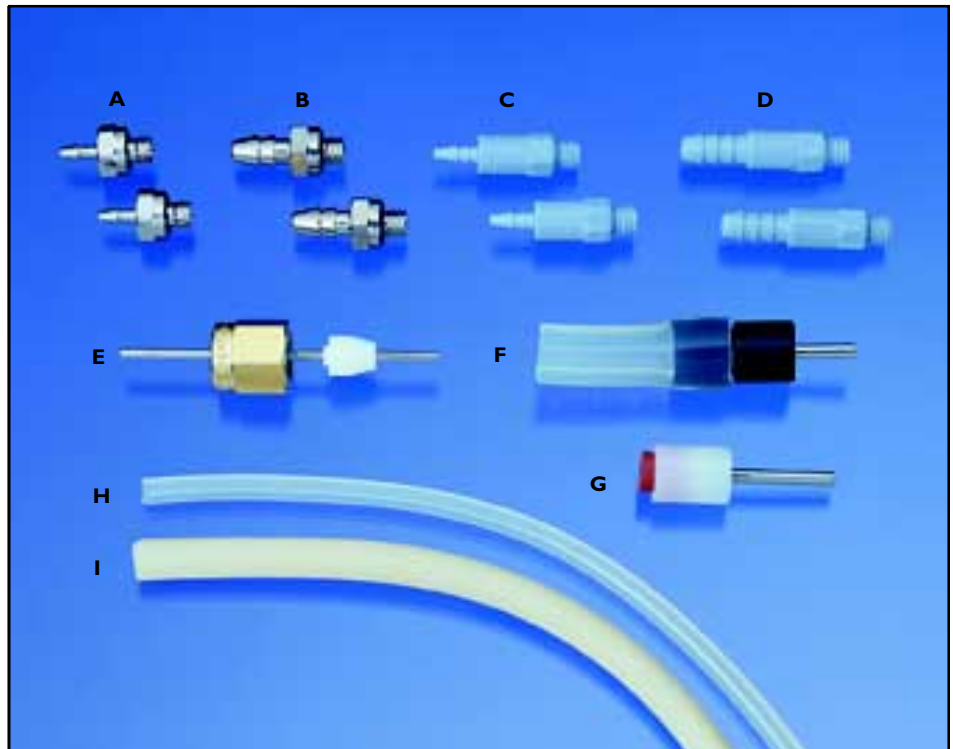
- Capillary GC Flows
- Split Ratios
- Leak Testing
- Applications Requiring Precise Flow Measurement Below 10cc/min

GC Applications (DFC and DFC-HR)

- Detector Gases
- Packed Column Flow
- Split Ratios
- Linear Velocity

Lab Applications (DFC and DFC-HR)

- Set Instrument Operating Parameters
- Industrial Hygiene Applications
- Monitor Flow to Traps, Sorbent Tubes, Incubators, Fermentors & Reaction Vessels
- SFC and SFE Applications
- In-Line Applications
- Monitor Vacuum & Purging Processes
- Gas Blending
- Gas Sampling



Note: DFC™ Flowmeter includes C, D, E, F, H & I

DFC-HR™ Flowmeter includes A, B, E, F, G, H & I

Accessories:

- A** 1/16" (1.6mm) Barbed Inlet/Outlet Fitting for DFC-HR™ Flowmeter (Part No. 5707)
- B** 1/8" (3.8mm) Barbed Inlet/Outlet Fitting for DFC-HR™ Flowmeter (Part No. 5706)
- C** 1/16" (1.6mm) Barbed Inlet/Outlet Fitting for DFC™ Flowmeter (Part No. 4721)
- D** 1/8" (3.8mm) Barbed Inlet/Outlet Fitting for DFC™ Flowmeter (Part No. 4722)
- E** Split Vent Adaptor (Part No. 4705)
- F** General Purpose Adaptor (Part No. 4704)
- G** Capillary Column Adaptor (Part No. 5705)
- H** 1/32" (0.8mm) ID Connecting Tubing (Part No. 4703)
- I** 1/8" (3.8mm) ID Connecting Tubing (Part No. 4785)

Simply a Better Way to Measure Flow

Reliable, Accurate Flow Measurement

Alltech's family of Digital Flow Check™ flowmeters (DFC™ and DFC-HR™) are the perfect choice for all your flow applications. They provide reliable, accurate real-time measurements for all your gas streams. With seven gas NIST-traceable calibration, 2% of reading accuracy, and a measuring range from 0.01-500cc/min, one flowmeter replaces several separate flowmeters for GC, SFC, SFE, industrial hygiene, biotechnology, and general laboratory applications.

The DFC™ and DFC-HR™ flowmeters work equally well with positive and negative (vacuum) flow sources and may be placed in-line for continuous flow measurement (maximum pressure 20psig). Use them to monitor flow to traps, sorbent tubes, incubators, fermenters, or reaction vessels without interrupting gas flow.

Alltech DFC™ and DFC-HR™ flowmeters are unsurpassed for GC applications. The "Linear Velocity" mode displays the column flow and linear velocity. Split ratios are just as easy. Simply measure the column flow, connect to the GC's split vent, hit the "split" key, and adjust the gas flow until the desired split ratio appears on the display. Unlike other meters that intermittently block flow as they take measurements, the DFC™ and DFC-HR™ flowmeters work with Electronic Pressure Control (EPC).

A single 9-volt alkaline battery powers the meter. The unit automatically powers-off five minutes after the last keystroke to conserve battery life. A low battery warning alerts you long before meter performance deteriorates.

Rugged & Reproducible Performance

The DFC™ and DFC-HR™ incorporate a rugged solid-state sensor with microprocessor that measures true mass flow without the ambient temperature and pressure change errors that affect soap film and acoustic sensor meters. There's also no watervapor error (up to 5%) that plagues soap film techniques. You'll obtain precise, accurate flow measurement with no liquids, no bubbles, no waiting, and no hassles!

Unlike competitive flowmeters, the DFC™ and DFC-HR™ flow meters tolerate water vapor, making them suitable for purge and trap applications. If the sensor is exposed to an exceedingly moist sample, simply purge the sensor with dry gas for several minutes to restore performance.

Each unit's straight through gas flow path reduces backpressure, internal volume, and sensor purge time. Readings stabilize quickly, and measurements at low flowrates are accurate and precise. You'll obtain more reproducible GC results, run to run, and lab to lab. It's easier to transfer methods and stay within retention windows. No wonder they are the flowmeters preferred by over 7000 customers.

Choosing the Right Flowmeter for Your Application

Choose the standard DFC™ flowmeter if you require an economical, accurate, easy-to-use flowmeter for setting most analytical instrument operating parameters. Choose the high resolution DFC-HR™ flowmeter for your most demanding low flow applications. It offers all the features of the standard DFC™ flowmeter plus a wider flow range and higher resolution (0.01cc/min).

Enhanced Features of DFC-HR™ for Measuring Low Flowrates

Most general purpose flowmeters do not have the accuracy or precision you need at low flowrates. Don't waste money purchasing two flowmeters, one for low flow applications and another for general purpose use. The DFC-HR™ flowmeter's autoranging display shows two decimal places (0.01cc/min resolution) for reading less than 10cc/min, giving you the accuracy, precision and reproducibility you require. It is ideal for setting GC flows or for leak testing. Its high sensitivity easily detects even the smallest leaks.

Zero point thermal drift makes accurate low flow measurements difficult or impossible with some flowmeters. But the DFC-HR™ flowmeter's fast convenient autozero sequence adjusts the zero point for your current



laboratory conditions. Obtain accurate, reproducible readings without compromising the unit's NIST-traceable calibration. Use the autozero sequence whenever your measurements require 0.01 cc/min resolution.

The DFC-HR™ flowmeter's integral bypass valve isolates the flow sensor from the gas stream during the autozero sequence. An integral bypass channel maintains flow to downstream devices.

Versatile Fittings

It's easy to connect the DFC™ or DFC-HR™ to any flow source. Each unit includes interchangeable fittings and 1/32" and 1/8" ID tubing. Use the smaller tubing for low-flow measurements. The larger tubing minimizes backpressure for high-flow measurements.

Flow adaptors make convenient, leak-free connections to all of your flow sources. Both flowmeters include general purpose and HP split vent adaptors. The general purpose adaptor connects to HP FID, split vent traps, packed GC columns and gas lines. The HP Split Vent adaptor connects to Agilent/Hewlett Packard GC split vents. The DFC-HR™ flowmeter also includes a capillary column adaptor.

Specifications for DFC™ and DFC-HR™ Flowmeters

Flow Range:	<i>DFC™ Flowmeter:</i>	0.1-500cc/min Air, N ₂ , H ₂ , O ₂ , He and 5%Ar/CH ₄ Autoranging 0.1-300cc/min CO ₂
	<i>DFC-HR™ Flowmeter:</i>	0.01-500cc/min Air, N ₂ , H ₂ , O ₂ , He and 5%Ar/CH ₄ Autoranging 0.01-300cc/min CO ₂
Accuracy:	<i>DFC™ Flowmeter:</i>	0.1cc/min or ±2% of reading
	<i>DFC-HR™ Flowmeter:</i>	0.01-9.99cc/min: 0.01cc/min or ±2% of reading 10.0-500cc/min: 0.1cc/min or ±2% of reading
Sensor Type:		Solid-State Mass Flow, Silicon on Ceramic
Calibration:		Multipoint, NIST Traceable, all Gases, Certificate supplied with % Error Data
Modes:		Standard Flow Range: Mass Flow, Linear Velocity & Split Ratio Low Flow Range: Mass Flow & Split Ratio
Display:		16-Character Alpha-Numeric LCD, Autoranging
Power:		9-Volt (Alkaline), Automatic Power Off 5 Minutes after Last Key Stroke, Low Battery Warning
Dimensions:		7.5" x 2.26" x 4.0" (190.5 x 57.4 x 101.6mm)
Safety:		CE Mark Certification to EN55011, EN5502 & EN50082-1
Warranty:		1 year parts & labor. Does not cover recalibration of unit.

