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HI-Q ENVIRONMENTAL PRODUCTS COMPANY

Air Sampling Equipment, Systems & Accessories













For the Environmental Scientist & Health Physicist

Catalog "T" 2002-03

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Table of Contents

HI-Q

Outdoor Hi-Volume Air Samplers

TSP HI-Vol Samplers 3-5
Brushless Blower Retrofit Kits 6
PM-10 Samplers 7
PM-2.5 Samplers 8
PUF Samplers 9

Portable Hi-Volume Air Samplers

Brushless Motor 10
Low Cost, Variable Speed 11
Total Volume 12
Timer Controlled 13
Low Cost, Fixed Speed 14

Battery and Solar Powered Air Samplers

Internal Battery & Charger, Variable Speed 15
Internal Battery & Charger, Fixed Speed 16
External Battery & Charger, Variable & Fixed Speed ... 17
12/24 Brushless/Brushed Variable/Fixed Speed 18
Custom Battery/Solar Sampling Systems 19

Continuous Duty Air Samplers

Cabinet Mounted Pump 20
Mobile Cart 21
Portable 22
Low Flow 23
Mobile Air Sampling Station 24

Size Selective Particulate Sampling Inlets

PM-10, PM-2.5, & Adjustable 25

Stack & Fume Hood Sampling

Probes, Nozzles, & Flanges 26-27

Filter Holders

Paper Only Holders 28
Combination Cartridge & Paper Holders 29

Filter Media For Air Sampling

TEDA Impregnated Carbon Cartridges 30-31
Silver Impregnated Zeolite Cartridges 32
Filter Paper 33-34

Air Flow Calibrators, Adapters, & Calibration Services

AFC-COMPLETE-XX 35
Air Flow Calibrators, High & Low Flow 36-37
Venturi Flow Meters, In-Line 38
Calibration Services 38
Calibrator Adapter Fittings 39

Air Sampling Accessories

Replacement Vacuum Pumps 40
Programmable Timers 41
Equipment Lab Jack 41
Air Sampling & Return Exhaust Sample Lines 41
Air Sampling & Equipment Tri-Pod 42
Mobile Air Sampling & Equipment Cart 42
Automatic Flow Control Valve 43
Sample Saver Covers 43
Quick Disconnect & Hose Barb Fittings 43
Gas Totaling Meters 44

Instrument Weather Houses

Instrument Weather Houses & Accessories 45

Notes 46

Terms & Conditions of Sale 47

Dear Customer:

HI-Q ENVIRONMENTAL PRODUCTS COMPANY

HI-Q Environmental Products Company would like to thank you for your interest in our air sampling products. We have been a leading manufacturer of air sampling equipment since 1973. Within our catalog you will find a full line of air sampling systems and accessories. If you do not see a system that completely meets your needs, please contact our Engineering Department for assistance. Join us on our worldwide web site at **http://www.hi-q.net**. The web site is your source for the latest information available on HI-Q products and Services.

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Outdoor Hi-Volume Air Samplers

HVP-3800AFC & HVP-3500AFC Series

TSP HI-Vols



- **Automatic Mass Flow Control**
- **Brushless, 2 or 3-Stage Blower**
- **Maintenance-Free!**
- **For Continuous Use**
- **Constant Flow Display**
- **Elapsed, Resettable, Electronic Timer**
- **Resettable Flow Totalizer**
- **Applicable to EPA's 40 CFR, 50, App. B**
- **PM-10 Adaptable!**

These high volume air samplers are housed in a clear-anodized aluminum outdoor shelter. The units incorporate a maintenance-free, two or three stage centrifugal blower powered by a brushless, variable speed, maintenance-free motor. The motor is controlled by an electronic mass flow sensor that detects changes in the operators pre-set flow rate caused by changes in temperature, barometric pressure, and pressure drop due to dust loading on filter media. It compensates for these changes by adjusting the motor speed to maintain the pre-set flow rate. Three separate LCD's, display elapsed time, total volume of air sampled, and instantaneous flow rate.

HI-Q's mass flow controlled air sampling systems are available with either a 2 stage, or, for higher pressure drop applications, a 3 stage brushless blower. Blower selection is dependent on individual sampling environment. When ordering, please specify desired volumetric units and power requirements.

- For **PM-10** sampling, see the ***Size Selective Inlets*** section of this catalog.
- For **Filter Paper**, see the ***Filter Media for Air Sampling*** section of this catalog.
- For **Calibrators,** see the ***Air Flow Calibrators, Adapters and Calibration Services*** section of this catalog.
- For **Replacement Blowers,** see the ***Air Sampling Accessories*** section of this catalog.

Motor/Pump:	Brushless, 2 or 3 Stage Centrifugal Blower. For motor specification see product description under Replacement Blowers.
Housing:	Anodized Aluminum Outdoor Shelter with lockable control panel door and filter media roof. Please see model # HVP-2000 for overall cabinet dimensions.
Calibrated Flow Range: (HVP-3500/3800AFC)	10-50 SCFM (SCMM or SLPM unit calibration upon request)
Calibrated Flow Range: (HVP-3504/3804AFC)	2-15 SCFM (SCMM or SLPM unit calibration upon request)
Flow Totalizer:	Resettable Standard Cubic Feet (total volume in cubic meters or liters upon request)
Elapsed Timer:	Electronic, Resettable Hours & Tenths of Hours, LCD read out, 5 year internal battery.
Unit Net Weight:	49 lbs.
Shipping Weights & Dimensions:	19" x 19" x 49" @ 55 lbs. (Box 1) 17" x 17" x 22" @ 11 lbs. (Box 2)
HVP-3800/4AFC Power Specifications:	115 VAC, 50/60 Hz., 9.0 Amp, 800 Watt / Max Vacuum Capacity 85" H_20 230 VAC, 50/60 Hz., 10.5 Amp, 1200 Watt / Max Vacuum Capacity 118" H_20
HVP-3500/4AFC Power Specifications:	115 VAC, 50/60Hz., 5.0 Amp, 250 Watt / Max Vacuum Capacity 49" H_20 230 VAC, 50/60Hz., 4.5 Amp, 400 Watt / Max Vacuum Capacity 39" H_20
Flow Calibrator:	See Air Flow Calibrators
Filter Paper:	See Filter Paper For Air Sampling
PM-10:	See Size Selective Inlets

Ordering Information

HVP-3800AFC (3-Stage)
Automatic Flow Control, HI-Vol Air Sampler, 115 VAC, with 3-Stage Brushless Blower. Unit includes 8" x 10" filter paper holder.

HVP-3500AFC (2-Stage)
Automatic Flow Control, HI-Vol Air Sampler, 115 VAC, with 2-Stage Brushless Blower. Unit includes 8" x 10" filter paper holder.

HVP-3804AFC (3-Stage)
Automatic Flow Control, HI-Vol Air Sampler, 115 VAC, with 3-Stage Brushless Blower. Unit includes 4" Diameter filter paper holder.

HVP-3504AFC (2-Stage)
Automatic Flow Control, HI-Vol Air Sampler, 115 VAC, with 2-Stage Brushless Blower. Unit includes 4" Diameter filter paper holder.

230 Volt units, see descriptions above.
HVP-3800AFC/230
HVP-3500AFC/230
HVP-3804AFC/230
HVP-3504AFC/230

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HI-Q



HVP-3300BRL & HVP-3000BRL Series

TSP HI-Vols

- **Brushless, 2 or 3 Stage Blower**
- **Manual Speed Control**
- **Actual Flow Reading**
- **For Continuous Use**
- **Maintenance-Free**
- **Elapsed, Resettable, Electronic Timer**
- **Applicable to EPA's 40 CFR, 50, App. B**
- **PM-10 Adaptable!**

These High Volume Air Samplers are housed in a clear-anodized aluminum outdoor shelter. The Brushless, two or three stage centrifugal fan blower can be used for particulate sampling with either a 4" diameter or 8" x 10" filter paper holder. The blower motor has a variable speed control feature which allows the operator to select a flow rate up to the capacity of the pump. Select the air sampler which best fits your needs: Choose the 2-stage, 250 watt brushless blower for typical air sampling environments, or, when the sampling application requires a stronger overall vacuum capacity, select the 3-stage, 800 Watt system (for 230 Volt applications see ratings below). When ordering, please specify volumetric units and power requirements.

– For **PM-10** sampling, see the ***Size Selective Inlets*** section of this catalog.
– For **Filter Paper**, see the ***Filter Media for Air Sampling*** section of this catalog.
– For **Calibrators,** see the ***Air Flow Calibrators, Adapters and Calibration Services*** section of this catalog.
– For **Replacement Blowers,** see the ***Air Sampling Accessories*** section of this catalog.

Motor/Pump:	Brushless, 2 or 3 Stage Centrifugal Blower.
Housing:	Anodized Aluminum Outdoor Shelter with lockable control panel door and filter media roof. See model # HVP-2000 for overall cabinet dimensions.
Calibrated Flow Range: (HVP-3000/3300BRL)	10-50 CFM (CMM or LPM unit calibration upon request)
Calibrated Flow Range: (HVP-3004/3304BRL)	5-35 CFM (CMM or LPM unit calibration upon request)
Elapsed Timer:	Electronic, Resettable Hours & Tenths of Hours, LCD read out, 5 year internal battery.
Unit Net Weight:	45.5 lbs.
Shipping Weights & Dimensions:	19" x 19" x 49" @ 51 lbs. (Box 1) 17" x 17" x 22" @ 11 lbs. (Box 2)
HVP-3300/4BRL Power Specs & Max Vac Capacity:	115 VAC, 50/60Hz., 9.0 Amp, 800 Watts/ Max Vacuum: 85" H_20 230 VAC, 50/60Hz., 10.5 Amp, 1200 Watts/ Max Vacuum: 118" H_20
HVP-3000/4BRL Power Specs & Max Vac Capacity:	115 VAC, 50/60Hz., 5.0 Amp, 250 Watts/ Max Vacuum: 49" H_20 230 VAC, 50/60Hz., 4.5 Amp,400 Watts/ Max Vacuum: 39" H_20
Flow Calibrator:	See Air Flow Calibrators
Filter Paper:	See Filter Paper For Air Sampling
PM-10:	See Size Selective Inlets

Ordering Information

HVP-3300BRL (3-Stage)
Manual Speed Control, 3-Stage Brushless, High Volume Air Sampler. 115 VAC. Unit includes 8" x 10" filter paper holder.

HVP-3000BRL (2-Stage)
Manual Speed Control, 2-Stage Brushless, High Volume Air Sampler. 115 VAC. Unit includes 8" x 10" filter paper holder.

HVP-3304BRL (3-Stage, 4"Ø)
Manual Speed Control, 3-Stage Brushless, High Volume Air Sampler. 115 VAC. Unit includes 4" Diameter filter paper holder.

HVP-3004BRL (2-Stage, 4"Ø)
Manual Speed Control, 2-Stage Brushless, High Volume Air Sampler. 115 VAC. Unit includes 4" Diameter filter paper holder.

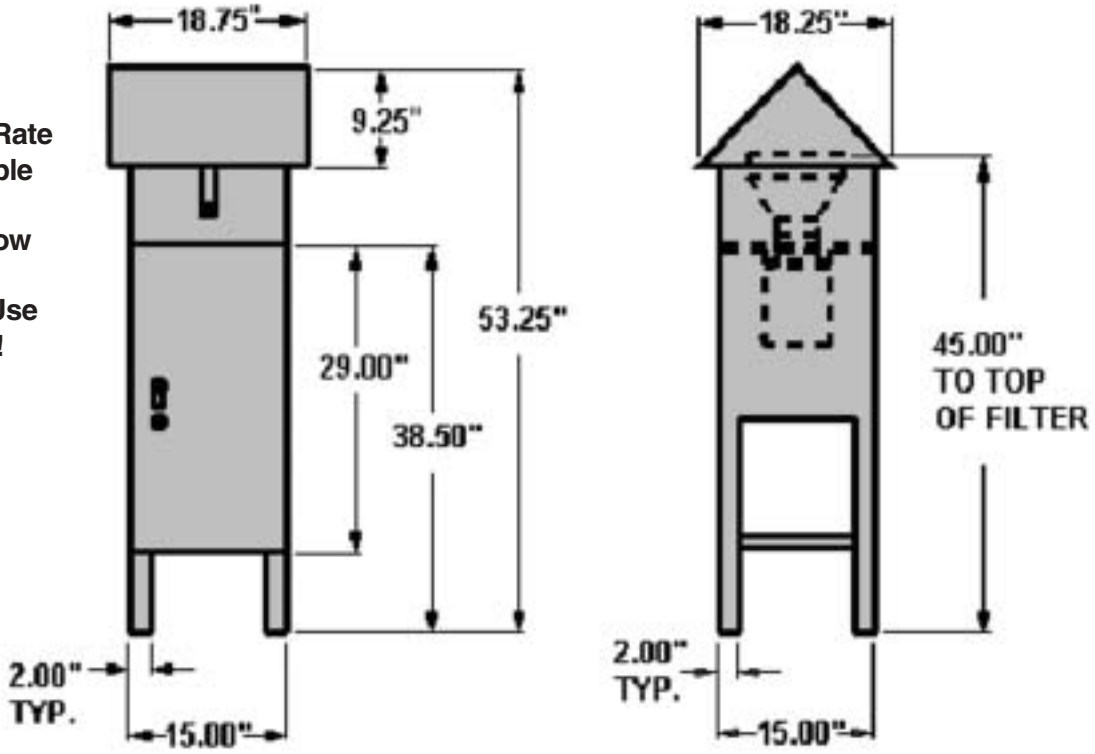
230 Volt units, see descriptions above.
HVP-3300BRL/230
HVP-3304BRL/230
HVP-3000BRL/230
HVP-3004BRL/230

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HVP-2000 Series

TSP HI-Vols

- 2-Stage, Brushed Blower
- Adjustable Flow Rate
- Elapsed, Resettable Timer
- Instantaneous Flow Reading
- For Continuous Use
- PM-10 Adaptable!



This unit is built around a two stage centrifugal fan type brushed blower. The tangential discharge exhaust allows a higher maximum flow rate than other similar types of units. To reduce motor winding burn out, the HVP-2000 has a separate motor cooling fan. Brush-life will range between 800 to 1,200 hours depending on sampling motor speed. Motor brushes can be changed in the field within 15 to 20 minutes with a screwdriver.

- For **PM-10** sampling, see the ***Size Selective Inlets*** section of this catalog.
- For **Filter Paper**, see the ***Filter Media for Air Sampling*** section of this catalog.
- For **Calibrators,** see the ***Air Flow Calibrators, Adapters and Calibration Services*** section of this catalog.
- For **Replacement Blowers,** see the ***Air Sampling Accessories*** section of this catalog.

Motor/Pump:	Brushed, 2-Stage Centrifugal Blower.
Housing:	Anodized Aluminum Outdoor Shelter with lockable control panel door and filter media roof.
Calibrated Flow Range: (HVP-2000)	10-50 CFM (CMM or LPM unit calibration upon request)
Calibrated Flow Range: (HVP-2004BRL)	5-30 CFM (CMM or LPM unit calibration upon request)
Elapsed Timer:	Electronic, Resettable Hours & Tenths of Hours, LCD read out, 5 year internal battery.
Unit Net Weight:	46.5 lbs.
Shipping Weights & Dimensions:	19" x 19" x 49" @ 51 lbs. (Box 1) 17" x 17" x 22" @ 11 lbs. (Box 2)
HVP-2000/4BRL Power Specifications:	115 VAC, 50/60Hz., 9.0 Amp, 300 Watts 230 VAC, 50/60Hz., 4.6 Amp, 269 Watts
Flow Calibrator:	See Air Flow Calibrators
Filter Paper:	See Filter Paper For Air Sampling
PM-10:	See Size Selective Inlets

Ordering Information

HVP-2000
Manual Speed Control, Brushed Motor Blower, High Volume Air Sampler. 115 VAC. Unit includes 8" x 10" filter paper holder.

HVP-2004
Manual Speed Control, Brushed Motor Blower, High Volume Air Sampler. 115 VAC. Unit includes 4" Diameter filter paper holder.

230 Volt version of units described above.
HVP-2000/230
HVP-2004/230

HVP20-003
Replacement Motor Brush Set, 2 Brushes/Set.

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Automatic Flow Control, 2 & 3 Stage Brushless Blower Retro-Fit Kits



- **Includes Panel Mounted Flow Totalizer, Elapsed Time, & Instantaneous Flow Displays**
- **Upgrade Existing Systems**
- **Salvage Sound Enclosures**
- **Adapts to Standard 15" x 15" (footprint) HI-Vol Systems**
- **Stay Cutting Edge at Half the Cost**

These Retro-fit kits are for the conversion of standard sheltered High Volume Air Samplers to complete, Mass Flow Controlled, 2 or 3 Stage Brushless Blower units.

HI-Q's Retrofit Kits include a 2 or 3 Stage brushless blower hard mounted to a flat motor support plate with right angle cabinet attachment brackets, a mass flow probe, HI-Q control board with silk screened mounting panel, resettable total-volume, elapsed time, and instantaneous flow rate displays, grounded power cord, and the necessary kit mounting hardware. Upon ordering, please specify volumetric units and power requirements.

Ordering Information

3800AFC-BRL KIT (3-Stage)

Retro-Fit Kit for the Automatic Flow Control, HI-Vol Air Sampler, 115 VAC, with 3-Stage Brushless Blower. For 230 volt applications add "/230" after model number.

3500AFC-BRL KIT (2-Stage)

Retro-Fit Kit for the Automatic Flow Control, HI-Vol Air Sampler, 115 VAC, with 2-Stage Brushless Blower. For 230 volt applications add "/230" after model number.



**shown with Retrofit Options*

Manual Speed Control, Brushless Blower Retro-Fit Kits

The BRL-3000M & BRL-3300M Series Retro-Fit Kits are for the conversion of Brushed, Shelter Type, High Volume units to complete Manual Speed Flow Controlled, 2 or 3 Stage Brushless Blower High Volume Air Samplers.

This blower pump package converts standard high volume air samplers to brushless motor, adjustable flow rate units. The easy to install package consists of a 2 or 3 -Stage brushless blower, motor speed controller, motor mounting plate with right angle shock mount support brackets, and venturi tube pressure sensor mounted in the blowers exhaust. The pressure tap on the venturi tube can be connected to an existing water manometer or standard rotometer. A Rotometer with markable blank scale, electronic elapsed resettable timer, hard wired Power Toggle Switch, & Control/Display mounting panel can be purchased separately. NIST traceable Custom calibration is also available.

Ordering Information

BRL-3300M (3-Stage)

3-Stage, Brushless Motor Blower, Manual Speed Control Conversion Kit for shelter type High-Volume Air Samplers.115 VAC. For 230 volt applications add "/230" after model number.

BRL-3000M (2-Stage)

2-Stage Brushless Motor Blower, Manual Speed Control Conversion Kit for shelter type High-Volume Air Samplers. 115 VAC. For 230 volt applications add "/230" after model number.

Retrofit Options

BRL-ROTOMETER

Flowmeter with markable blank scale, bypass calibration needle valve, & pressure tap hose barb for connection to venturi exhaust.

EET11

Elapsed, Resettable, Electronic Timer in Hours & Tenths Of Hours with Reset Push Button.

TOGGLESWITCH

Toggle Power Switch, Panel Mount.

HVP2000/3000

Clear Anodized Aluminum Mounting Panel for Flowmeter, Timer, Toggle Power Switch,& Moter Speed Control.

FUSEHOLDER

Panel mountable fuse holder.

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PM10-3800AFC, PM10-3500AFC, PM10-3300BRL, PM10-3000BRL, & PM10-2000

PM-10 Size Selective High Volume Air Sampling Systems



- **Complete Systems Designed to Meet or Exceed U.S. EPA Federal Reference Method Performance Specifications for PM-10 Sampling**
- **Five High Performance Systems to choose from**
- **Brushless & Brushed Motor Driven 2 & 3-Stage Blowers Available**
- **NIST Traceable Flow Calibration**

The EPA Clean Air Act of 1987 established a measuring standard to evaluate and monitor the health effects of thoracic inhaleable particles. The standard was set that in order for an environment to be healthy, in terms of these particles, it must have a concentration of less than 150 µg/m^3 of particles with aerodynamic diameters less than 10 microns (µm). The standard has been deemed PM-10, particulate size of 10µm. Adherence to this standard is most important in industries and environments which produce a large mass of PM-10's such as mills, mines, and biomedical facilities.

HI-Q Environmental Products Company offers five complete PM-10 sampling systems designed to meet or exceed U.S. EPA Federal Reference Method performance specifications for the collection of PM-10 in ambient air. Each of the five systems incorporates the same size selective inlet mounted on top of any of HI-Q's five High Volume, Outdoor, TSP Air Sampling Systems depicted on the previous pages. The inlet is designed to sample at a flow rate of 40 CFM.

Ordering Information

PM10-3800AFC (3-Stage)
Automatic Flow Control, PM-10 HI-Vol Air Sampling System, 115 VAC, with 3-Stage Brushless Blower. Three separate LCD's, display elapsed time, total volume of air sampled and instantaneous flow rate. Unit includes 8" x 10" filter paper holder and PM-10 Size Selective Inlet. Standard Units are SCFM.

PM10-3500AFC (2-Stage)
Automatic Flow Control, PM-10, HI-Vol Air Sampling System, 115 VAC, with 2-Stage Brushless Blower. Three separate LCD's, display elapsed time, total volume of air sampled and instantaneous flow rate. Unit includes 8" x 10" filter paper holder and PM-10 Size Selective Inlet. Standard Units are SCFM.

PM10-3300BRL (3-Stage)
Manual Speed Control, Brushless 3-Stage Blower, PM-10, High Vol Air Sampling System. 115VAC. Unit includes 8"x10" filter paper holder and PM-10 Size Selective Inlet. Standard Units are ACFM.

PM10-3000BRL (2-Stage)
Manual Speed Control, Brushless 2-Stage Blower, PM-10, HI-Vol Air Sampling System. 115 VAC. Unit includes 8" x 10" filter paper holder and PM-10 Size Selective Inlet. Standard Units are ACFM.

PM10-2000
Manual Speed Control, Brushed Motor Blower PM-10, HI-Vol Air Sampling System. 115 VAC. Unit includes 8" x 10" filter paper holder and PM-10 Size Selective Inlet. Standard Units are ACFM.

PM10-3800AFC/230, PM10-3500AFC/230, PM10-3000BRL/230, & PM10-2000/230
230 Volt version of units described above.

Options:

7DAYTIMER
Seven Day Mechanical Timer. Fourteen trippers are included with timer to allow for weekly sample scheduling.

EXHAUST-10
10 foot pump/sample Exhaust Hose.

Motor/Pump:	PM10-3800AFC: Brushless, Electronic Control/3-Stage. PM10-3500AFC: Brushless, Electronic Control/2-Stage. PM10-3300BRL: Brushless, Mechanical Control/3-Stage. PM10-3000BRL: Brushless, Mechanical Control/2 Stage. PM10-2000: Brushed, Mechanical Control/2-Stage.
Housing:	Anodized Aluminum Outdoor Shelter with lockable control panel door. See HI-Q's HVP-2000 & PM10-40HEAD for overall cabinet & Size Selective Inlet dimensions.
Calibrated Flow Range:	10-50 CFM (CMM unit calibration upon request). NIST Traceable Calibration.
Unit Net Weight:	47 lbs.-Cabinet Weight (avg.). 44 lbs.-Size Selective Inlet.
Shipping Weight & Dimensions:	19" x 19" x 49" @ 55 lbs. Cabinet Carton (avg.). 32" x 32" x 25.5" @ 60 lbs. Size Selective Inlet Carton.
PM10-3800AFC Power Specifications:	115 VAC, 50/60 Hz., 9.0 Amp, 800 Watt 230 VAC, 50/60 Hz., 10.5 Amp, 1200 Watt
PM10-3500AFC Power Specifications:	115 VAC, 50/60Hz., 5.0 Amp, 250 Watt 230 VAC, 50/60Hz., 4.5 Amp, 400 Watt
PM10-3000AFC Power Specifications:	115 VAC, 50/60Hz., 5.0 Amp, 250 Watts 230 VAC, 50/60Hz., 4.5 Amp, 400 Watts
PM10-2000 Power Specifications:	115 VAC, 50/60Hz., 9.0 Amp, 300 Air Watts 230 VAC, 50/60Hz., 4.6 Amp, 269 Air Watts
Elapsed Timer: (all units)	Electronic, Resettable Hours & Tenths of Hours, LCD read out, 5 year internal battery.
Flow Totalizer: (PM10-3800 & 3500 only)	Resettable Standard Cubic Feet (total volume in cubic meters or liters upon request)
Flow Display: (PM10-3800 & 3500 only)	Standard Cubic Feet per Minute (SCCM or SLPM display upon request)
Flow Calibrator:	See Air Flow Calibrators
Filter Media:	See Filter Media For Air Sampling Section

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HI-Q



PM2.5-1000 & PM2.5-1500

PM-2.5 Size Selective Air Sampling Systems

On July 18, 1997, the United States Environmental Protection Agency (US EPA) under 40 CFR Part 50 published its decision to revise the national ambient air quality standards (NAAQS) for particulate matter (PM). The consideration of the revision was based on the EPA's "review of available scientific evidence" which linked allowable exposure levels of current PM standards to adverse health and welfare effects. Implementation of the new standards "will provide increased protection against a wide range of PM-related health effects".

HI-Q Environmental Products Company eagerly introduces a cost effective PM-2.5 Air Sampling System. HI-Q's, EPA designed inlet, PM-2.5 air sampling systems are intended for quantifying the levels of particulate 2.5 microns in size and smaller. The flow rate is displayed as ALPM (Actual Liters per Minute), and the total volume as ACM (Actual Cubic Meters), as required by the EPA.

Ordering Information

PM2.5-1000

- Low Cost.
- E.P.A. Designed Sampler Inlet Assembly consisting of 10 Micron Inlet Assembly, 10 Micron Impact Assembly, 2.5 Micron Impact Assembly, 2.5 Micron Filter & Filter Holder Assembly.
- A linear pump with 35,000 Hrs. MTBF rating, Shock mounted.
- Surge suppression chamber.
- Manual (TMV) Top Mounted Valve type rotometer, indicating flow in actual liters per minute flow rate.
- Elapsed, Resettable, Electronic Timer.
- Axial fan cooling at 100 CFM.
- Flow totalizing meter, metric units.
- Rigid fiberglass "Unistrut" mounting frame.
- NEMA 4 & 12 cabinet housing.
- Baked/powder coated finish.

Ordering Information

PM2.5-1500

- Electronic Flow Control/Recording.
- E.P.A. Designed Sampler Inlet Assembly consisting of 10 Micron Inlet Assembly ,10 Micron Impact Assembly, 2.5 Micron Impact Assembly, 2.5 Micron Filter & Filter Holder Assembly.
- Continuous Electronic Flow Control.
- Digital air flow monitor/meter with NIST traceable certificate.*
- Instantaneous Flow Rate & Total Sample Volume Display.
- Elapsed, Resettable, Electronic Timer.
- A shock mounted linear pump with 35,000 Hrs. MTBF rating.
- Axial fan cooling at 100 CFM.
- Surge suppression chamber.
- Rigid fiberglass "Unistrut" mounting frame.
- NEMA 4 & 12 cabinet housing. Baked/powder coated finish.

* Displayed units are liters per minute with an accuracy of ±1% at calibration points.

PM-2.5 Options

PM2.5-RACK
Two tier filter holder & impacting plate, single throw, quick access rack mechanism. Allows user to simply release a lever at the bottom of the cabinet to quickly access/inspect filter media and impaction plate.

PM2.5-TEMPRCRDR
Two point temperature recorder with range of -30 to + 50 degrees C. Records external, (incoming cooling air), and filter exit temperature, simultaneously, on either 24 hour or 7 day charts.

PM2.5-SLRSHLD
Solar shield for external temperature probe location.

PM2.5-PRINTER
Impact style printer for permanently recording sample data.

FP7593-204 & FP7592-204
Plain & Unique Alphanumeric Identifier PM2.5 Filter Collection Media 46.2 mm, Ring Supported, PTFE Membrane, Nominal 2.0mm Pore Size, for PM-2.5mm Ambient Air Monitoring filter media. 50 Filters per box.



PM2.5-RACK Option

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PUF-2000 & PUF-3300BRL

Polyurethane Foam (PUF), Pesticide Particulate & Vapor Collection System

- **Used to Sample in Accordance with US EPA Methods TO-4, TO-9, & TO-13**
- **Adjustable Speed Control for Flow Rates up to 10CFM (280 LPM)**
- **Available With Either a Brushless or Brushed Motor, 3-Stage Blower**
- **For Programmable Continuous Use or Intermittent Use**
- **NIST Traceable Flow Calibration**
- **Seven-Day Mechanical Timer**
- **Elapsed, Resettable, Electronic Timer**



HI-Q Environmental Products Company's Polyurethane Foam (PUF) air sampling system is designed to simultaneously collect both airborne particulate and pesticide vapors. Both the PUF-2000 (Brushed) and PUF-3300BRL (Brushless) Organic Toxics Samplers house a combination 4" diameter paper & glass cartridge "PUF" holder to collect samples at adjustable flow rates between 2 and 10 CFM. The sample flow rate can instantaneously be viewed on the panel mounted, NIST traceable calibrated flow meter. A tripper set, seven day mechanical timer is internally hard mounted in the cabinet to allow for weekly scheduling of on/off sampling. The complete system is housed in a clear-anodized aluminum outdoor shelter.



Ordering Information

PUF-2000
PUF Air Sampler with 2-10 CFM Manual Speed Control. The PUF unit incorporates a 2-stage brushed motor blower, seven day mechanical trip timer, an elapsed hour timer, combination 4" dia. paper & PUF holder, NIST traceable calibrated flow meter, lockable clear anodized aluminum outdoor shelter.

PUF-3300BRL
PUF Air Sampler with 2-10 CFM Manual Speed Control. The PUF unit incorporates a 3-stage brushless motor blower, seven day mechanical trip timer, an elapsed hour timer, combination 4" dia. paper & PUF holder, NIST traceable calibrated flow meter, lockable clear anodized aluminum outdoor shelter.

PUF-2000/230
PUF-3300BRL/230
230 Volt version of units described above.

Filter Media:

HIQ-3PUF
3" long Polyurethane vapor collection substrate, (unwashed) package of 10.

HIQ-2PUF
2" long Polyurethane vapor collection substrate, (unwashed) package of 10.

HIQ-1PUF
1" long Polyurethane vapor collection substrate, (unwashed) package of 10.

Options:

EXHAUST-10
10 foot pump/sample Exhaust Hose.

Motor/Pump:	**PUF-2000:** Brushed, 2-Stage Centrifugal Blower. **PUF-3300BRL:** Brushless,3 Stage Centrifugal Blower.
Housing:	Anodized Aluminum Outdoor Shelter with lockable control panel door and filter media cover. Please see model # HVP-2000 for overall cabinet dimensions.
Calibrated Flow:	2-10 CFM (LPM unit calibration upon request).
Range:	NIST Traceable Calibration.
Programmable Timer:	Seven Day Mechanical Timer. Fourteen trippers are included with timer to allow for weekly sample scheduling.
Unit Net Weight:	65 lbs.
Shipping Weight & Dimensions:	19" x 19" x 49" @ 56 lbs. (Box 1) 17" x 17" x 22" @ 26 lbs. (Box 2)
PUF-2000 Power Specifications:	115 VAC, 50/60Hz., 9.0 Amp, 300 Air Watts 230 VAC, 50/60Hz., 4.6 Amp, 269 Air Watts
PUF-3300BRL Power Specifications:	115 VAC, 50/60Hz., 9.0 Amp, 800 Watts 230 VAC, 50/60Hz., 10.5 Amp, 1200 Watts
Flow Calibrator:	See Air Flow Calibrators
Filter Media:	See Filter Paper For Air Sampling Section for 4" paper. See ordering information for Polyurethane Foam.

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Portable Hi-Volume Air Samplers

HI-Q



-DIGITAL Series,
Digital Display of Flow Rate, Total Volume, & Min/Max Flow

CF-1000BRL Series

Brushless Motor, Portable HI-Vol Air Samplers

- **Portable, Less Than 10 Pounds**
- **Brushless Motor, 2-Stage Blower**
- **Adjustable Flow Rate**
- **Elapsed, Resettable, Electronic Timer**
- **Instantaneous Flow Reading**
- **For Continuous or Intermittent Use**
- **Maintenance Free!**

This Portable, Maintenance-Free, Variable Speed, High Volume Air Sampling System is ideal for continuous or intermittent sampling. The "CF-1000BRL" air sampler series have three flow ranges from which to choose. The standard CF-1001BRL unit includes a 1½" female straight-pipe fitting, which accepts all "CF" Series holders (excluding the CFPH-810), and is calibrated with a flow range of 2 to 8 CFM. The standard CF-1002 & 1003BRL models come with a 4" diameter paper holder which can be adapted either up or down to accept any combination or paper-only "CF" series filter holder, including the 8" x 10". The 1002 and 1003 units come calibrated with a flow range of 8 to 28 and 15 to 50 CFM respectively. Upon ordering, please specify intended flow range if different from those listed, volumetric units (CFM or LPM) and intended filter collection media. Customized flow ranges are available upon request.

Note: Order CF-1000BRL-DIGITAL Series air sampler for Digital Flow Totalizer, Instantaneous Flow Rate Display, Min/Max Flow over sample period & Alarm/ Communications Options.

Motor/Pump:	Brushless, 2-Stage Centrifugal Blower.
Housing:	9" x 10" x 11½", aluminum cabinet, primed and painted with two component polyurethane paint.
Max Flow Rate: (CF-1001BRL)	8 CFM (w/ FP2063-20) & 4.5 CFM (w/ FP5211-20)
Max Flow Rate: (CF-1002BRL)	28 CFM (w/ FP2063-102) 17 CFM (w/ FP5211-102)
Max Flow Rate: (CF-1003BRL)	50 CFM (w/ FP2063-810, 8" x 10") 45 CFM (w/ FP5211-810, 8" x1 0")
Elapsed Timer:	Electronic, Resettable Hours & Tenths of Hours, LCD read out, 5 year internal battery. Minute timer may be substituted.
Unit Net Weight:	9.5 lbs.
Shipping Weight & Dimensions:	12 lbs., one box. 11¼" x 10" x 13¼"
CF-1000BRL-Series Power Specifications:	115 VAC, 50/60Hz., 5.0 Amp 230 VAC, 50/60Hz., 4.5 Amp
Filter Holders & Adapters:	See Filter Holders
Flow Calibrator:	See Air Flow Calibrators
Filter Paper:	See Filter Paper For Air Sampling
Filter Cartridges:	See Analytical Cartridges
Annular Kinetic Impactors:	See Size Selective Inlets

Ordering Information

CF-1001BRL or CF-1001BRL-DIGITAL
Flow Range: 2-8 CFM (60-230 LPM, special request) HI-VOL Air Sampler, 115VAC. Includes 1½" Female Straight Pipe Thread Inlet for "CF" series holders.

CF-1002BRL or CF-1003BRL-DIGITAL
Flow Range: 8- 28 CFM (250-800 LPM, special request) HI-VOL Air Sampler, 115VAC. Includes 4" Dia. filter paper only holder.

CF-1003BRL or CF-1003BRL-DIGITAL
Flow Range:15-50 CFM (400-1400 LPM, special request) HI-VOL Air Sampler, 115VAC. Includes 4" Dia. filter paper only holder which accepts the "CF" series 8" x 10" holder.

230 Volt version of units described above.
CF-1001BRL/230
CF-1002BRL/230
CF-1003BRL/230

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Portable Hi-Volume Air Sampler

CF-900 Series

Low Cost, Portable HI-Vol Air Samplers

- **Dependable Low-Cost/High-Performance Air Sampling!**
- **2-Stage Blower, Brushed Motor**
- **Manual Speed Control**
- **Elapsed, Resettable, Electronic Timer**
- **Instantaneous Flow Reading**
- **For Continuous or Intermittent Use**
- **Portable/Rugged Housing Weighing Less Than 10 Pounds**

This Low-Cost/High-Performing Air Sampling System is ideal for radioiodine and particulate grab & continuous duty air sampling. The CF-900 Series air samplers are packaged in rugged aluminum enclosures weighing less than 10 pounds. Its' light weight yet durable frame allows a single operator to transport, set up, and take a sample quickly in almost any conditions. Order the unit which best fits your needs; specify desired flow range, volumetric units (CFM or LPM), and intended filter collection media.

Note: Order CF-900-DIGITAL Series air sampler for Digital Flow Totalizer, Instantaneous Flow Rate Display, Min/Max Flow over sample period & Alarm Communications Options.



-DIGITAL Series,
Digital Display of Flow Rate, Total Volume, & Min/Max Flow

Ordering Information

CF-901 or CF-901-DIGITAL
Flow Range: 2-12 CFM (60-340 LPM, special request) HI-VOL Air Sampler, 115VAC. Includes 1½" Female Straight Pipe Thread for "CF" series holders.

CF-902 or CF-903-DIGITAL
Flow Range: 5-35 CFM (150-1,000 LPM, special request) HI-VOL Air Sampler, 115VAC. Includes 4" Dia. filter paper only holder.

CF-903 or CF-903-DIGITAL
Flow Range:10-50 CFM (300-1400 LPM, special request) HI-VOL Air Sampler, 115VAC. Includes 4" Dia. filter paper only holder which accepts the "CF" series 8" x 10" holder.

230 Volt version of units described above.
CF-901/230
CF-902/230
CF-903/230

CF-900-003
Replacement Motor Brush Set, 2 Brushes/Set.

Motor/Pump:	Brushed, 2-Stage Centrifugal Blower.
Housing:	8¼" x 10" x 11½", aluminum cabinet, primed and painted with two component polyurethane paint.
Max Flow Rate: (CF-901)	12 CFM (w/ FP2063-20) & 6.5 CFM (w/ FP5211-20)
Max Flow Rate: (CF-902)	35 CFM (w/ FP2063-102) & 22 CFM (w/ FP5211-102)
Max Flow Rate: (CF-903)	60 CFM (w/ FP2063-810, 8" x 10") & 55 CFM (w/ FP5211-810, 8" x 10")
Elapsed Timer:	Electronic, Resettable Hours & Tenths of Hours, LCD read out, 5 year internal battery. Minute timer upon request.
Unit Net Weight:	9.5 lbs.
Shipping Weight & Dimensions:	12 lbs., one box. 11¼" x 10" x 13¼"
CF-900-Series Power Specifications:	115 VAC, 50/60Hz., 8.0 Amp 230 VAC, 50/60Hz., 3.5 Amp
Filter Holders & Adapters:	See Filter Holders
Flow Calibrator:	See Air Flow Calibrators
Filter Paper:	See Filter Paper For Air Sampling
Filter Cartridges:	See Analytical Cartridges
Annular Kinetic Impactors:	See Size Selective Inlets

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CF-920FT Series

Total Volume, Portable Air Samplers



- **Totalizing Air Sampler!**
- **Samples Pre-Selected Volume of Air**
- **Manual Speed Control**
- **Instantaneous Digital Flow Rate Display**
- **Elapsed, Resettable, Electronic Timer**
- **2-Stage Blower, Brushed Motor**
- **For Continuous or Intermittent Use**
- **Convenient, Light Weight Housing**
- **CFM or CMM Calibration**

This lightweight, Totalizing Air Sampler collects an operator pre-selected volume of air through filter collection media, then shuts off automatically. The unit can be set to display in either Cubic Feet or Cubic Meters. This unit is ideal for emergency "hands-off" total-volume grab samples. Please specify volumetric units (CFM or CMM), and intended filter media upon ordering.

Motor/Pump:	Brushed, 2-Stage Centrifugal Blower.
Housing:	10¾" x 9" x 11½", aluminum cabinet, primed and painted with two component polyurethane paint.
Max Flow Rate: (CF-920FT)	12 CFM (w/ FP2063-20) & 6.5 CFM (w/ FP5211-20)
Max Flow Rate: (CF-921FT)	40 CFM (w/ FP2063-102) & 25 CFM (w/ FP5211-102)
Elapsed Timer:	Electronic, Resettable Hours & Tenths of Hours, LCD read out, 5 year internal battery. Minute timer upon request.
Unit Net Weight:	11.5 lbs.
Shipping Weight & Dimensions:	13 lbs., one box. 12" x 9½" x 16"
CF-920FT-Series Power Specifications:	115 VAC, 50/60Hz., 8.0 Amp 230 VAC, 50/60Hz., 3.5 Amp
Filter Holders & Adapters:	See Filter Holders
Flow Calibrator:	See Air Flow Calibrators
Filter Paper:	See Filter Paper For Air Sampling
Filter Cartridges:	See Analytical Cartridges
Annular Kinetic Impactors:	See Size Selective Inlets

Ordering Information

CF-920FT
Flow Range: 2-12 CFM (60-340 LPM, special request) HI-VOL Air Sampler, 115VAC. Includes 1½" Female Straight Pipe Thread Inlet for "CF" series holders.

CF-921FT
Flow Range: 5-40 CFM (150 LPM, special request) HI-VOL Air Sampler, 115VAC. Includes 4" Dia. filter paper only holder.

230 Volt version of units described above.
CF-920FT/230
CF-921FT/230

CF-920FT-003
Replacement Motor Brush Set, 2 Brushes/Set.

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CF-970T Series

Timer Controlled, Portable HI-Vol Air Samplers

- Timer Controlled Grab Sampling
- Timing from .01 Sec. to 9,999 Hours
- Six Programmable Operating Modes
- 2-Stage Blower, Brushed Motor
- Manual Speed Flow Control
- For Continuous or Intermittent Use
- Instantaneous Flow Reading
- Motor Cooling Fan
- Air Sampling with Programmable Digital Timer



The CF970T-Series Air Samplers provide sampling time ranges from 0.01 seconds to 9999 Hours. Time ranges and operating modes are selected by front panel programming. There are eleven programmable time ranges and six programmable operating modes (i.e.: delay, interval, single shot,….). The programmable versatility makes the CF-970T ideal for grab and intermittent assay of particulate and radioiodine. Specify intended filter media type and desired flow ranges/units upon ordering.

Motor/Pump:	Brushed, 2-Stage Centrifugal Blower.
Housing:	8 1/4" x 10" x 11 1/2", aluminum cabinet, primed and painted with two component polyurethane paint.
Max Flow Rate: (CF-971T)	12 CFM (w/ FP2063-20) & 6.5 CFM (w/ FP5211-20)
Max Flow Rate: (CF-972T)	35 CFM (w/ FP2063-102) & 22 CFM (w/ FP5211-102)
Max Flow Rate: (CF-973T)	60 CFM (w/ FP2063-810, 8" x 10") & 45 CFM (w/ FP5211-810, 8" x 10")
Unit Net Weight:	11 lbs.
Shipping Weight & Dimensions:	13 lbs., one box 11 1/4" x 10" x 13 1/4"
CF-970T-Series Power Specifications:	115 VAC, 50/60Hz., 8.0 Amp 230 VAC, 50/60Hz., 3.5 Amp
Filter Holders & Adapters:	See Filter Holders
Flow Calibrator:	See Air Flow Calibrators
Filter Paper:	See Filter Paper For Air Sampling
Filter Cartridges:	See Analytical Cartridges
Annular Kinetic Impactors:	See Size Selective Inlets

Ordering Information

CF-971T
Flow Range: 2-12 CFM (60-340 LPM, special request) HI-VOL Air Sampler, 115VAC. Includes 1 1/2" Female Straight Pipe Thread for "CF" series holders.

CF-972T
Flow Range: 5-35 CFM (150-1,000 LPM, special request) HI-VOL Air Sampler, 115VAC. Includes 4" Dia. filter paper only holder.

CF-973T
Flow Range:10-50 CFM (300-1400 LPM, special request) HI-VOL Air Sampler, 115VAC. Includes 4" Dia. filter paper only holder which accepts the "CF" series 8" x 10" holder.

230 Volt version of units described above.
CF-971T/230, CF-972T/230, & CF-973TBRL/230

CF-970T-004
Replacement Motor Brush Set, 2 Brushes/Set.

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TFIA Series

Low Cost, Portable HI-Vol Samplers

- **Dependable Low-Cost/High-Volume Air Sampling!**
- **Portable and Lightweight**
- **Instantaneous Flow Reading**
- **For Continuous or Intermittent use**
- **Indoor or Outdoor use**

This low cost pump is ideal for indoor or outdoor sampling of Air Pollutants such as Radioactive Particulate. The standard TFIA unit comes complete with a rotometer scaled up to 70 CFM and a 4" diameter filter holder assembly which accepts the "CF" series 8" x 10" paper only holders.

Motor/Pump:	Brushed, 2-Stage Blower.
Main Housing:	Sturdy Lightweight Dural
Max Flow Rate:	40 CFM (w/ FP2063-102)
TFIA w/ 4" holder	25 CFM (w/ FP5211-102)
Max Flow Rate:	70CFM (w/ FP2063-810)
TFIA w/ 8" x 10" holder	62 CFM (w/ FP5211-810)
Unit Net Weight:	9 lbs.
Shipping Weight & Dimensions:	13 lbs., one box. $10\frac{1}{2}$" x $10\frac{1}{2}$" x $13\frac{1}{2}$"
TFIA TFIA-2:	115 VAC, 50/60Hz., 9.0 Amp (230 VAC, 50/60Hz., 5.5 Amp)
Filter Holders & Adapters:	See Filter Holders
Flow Calibrator:	See Air Flow Calibrators
Filter Paper:	See Filter Paper For Air Sampling
Filter Cartridges:	See Analytical Cartridges
Annular Kinetic Impactors:	See Size Selective Inlets

Ordering Information

TFIA
HI-VOL Air Sampler, 115VAC 50-60 Hz. Includes 4" Dia. filter paper only holder. Does not include HI-Q calibration.

TFIA-2
HI-VOL Air Sampler, 230VAC 50-60 Hz. Includes 4" Dia. filter paper only holder. Does not include HI-Q calibration.

* For Adjustable Flow Rate, Motor Mounting Plate, Elapsed Timer, or NIST Traceable Side Mounted Flowmeter see "TFIA Options" below.

TFIA Options:

- **Motor Speed Control**
- **Elapsed, Electronic Timer w/ Mounting Bracket**
- **N.I.S.T. Traceable Side Mounted Rotometer**
- **Portable Motor Mounting Plate**
- **Lightweight Fiberglass Tripod**

Upon placing an order or sending a unit in for re-calibration, HI-Q suggests considering the customization of the standard TFIA sampler with some of our popular TFIA options such as: Motor Speed Control which allows the user to set specific sampling flow rates, N.I.S.T. Traceable Side Mounted Rotometer which simplifies re-calibration and meter viewing, Elapsed Timer, Tri-Pod, and TFIA Motor Mounting Plate which allows an operator to set the sampler down virtually anywhere for stable sampling.



Shown with TFIA options

Optional Tripod
TR-1000B
Air Sampling & Equipment Tripod
see page 42

TFIA Options

Ordering Information

SMR-TFIA
HI-Q calibrated, Side Mounted Rotometer (for accurate, easy to read, flow measurements). Please specify intended filter media & desired flow range.

MSC-TFIA
Hard mounted Motor Speed Control.

ETMB-TFIA
Hard mounted Electronic, Resettable, Elapsed Timer with Bracket, minutes & 10^{ths} of minutes.

MNTPLT-TFIA
7" x 9" TFIA Mounting Plate for desk-top sampling. Non-Slip feet.

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CF-995B Series

Variable Speed, Internal Battery Powered, Portable Air Sampler

- **Manual Flow Rate Control**
- **Internally Mounted 12 Volt, 26 Amp-Hour Battery, 4 AMP Out Battery Charger, & Automatic AC/DC Relay Switch**
- **Panel Mounted Programmable Timer**
- **Instantaneous Air Flow Rate Indicator**
- **N.I.S.T. Traceable Calibration**
- **2-Stage Brushed Blower**
- **For Continuous (AC) or Intermittent (DC) Use**



HI-Q has incorporated a high efficiency, variable speed circuit in its CF-995B, battery operated air sampler series which allows its users to preset flow rates by varying the blower motor speed. The CF-995B & CF-995B-4 are ideal for adjustable flow, remote location air sampling where AC line power is not available. An internally mounted battery and battery charger eliminate the need for the transportation of cumbersome battery cables and the awkward handling of heavy batteries. A 10-function, panel-mounted programmable timer allows the user to preset a wide range of sample times and cycles. The maximum settable flow rate of the CF-995B series air samplers is dependent upon the pressure drop across the collection filter media being used. An internally mounted, automatic AC/DC relay switch, allows the CF-995B series air samplers to also be used continuously when AC power is available. Upon Ordering, please specify intended filter media type and size.

Motor/Pump:	12 Volt DC, 8.5 Max Amp Draw, 2-stage, centrifugal blower.
Battery:	12V, 26 A.H., Sealed/Maintenance-Free Rechargeable Battery. Approximate continuous run time when used @ ambient conditions and a draw of 8.2 Amps is 3.0 hours.
Battery Charger:	Internally mounted, solid state 12 volt DC charger. Nominal output current of 4.0 Amps with supply voltages of 110/120 VAC, 60 Hz.
Battery Specs.:	18.7 lbs., sealed construction, immobilized gel electrolyte.
Unit Weight:	36 lbs. (with internal Charger & Battery)
Shipping Weight:	Total 39 lbs., 2 Boxes 8" x 8" x 6" & 13" x 11½" x 16¼"
Housing:	10¼" x 10" x 14¼", Aluminum cabinet, primed & painted with 2-component polyurethane paint.
Max Flow Rate: CF-995B	80 LPM (w/ FP2063-20, 2" Dia.), 68 LPM (FP2063-20 & TC-12) & 50 LPM (w/ FP5211-20, 2" Dia.)
Max Flow Rate: CF-995B-4	165 LPM (w/ FP2063-102, 4" Dia.) & 122 LPM (w/ FP5211-102, 4" Dia.)

Ordering Information

CF-995B

Variable Speed, Battery operated air sampler complete with internally mounted 115VAC battery charger (4.0 Amp output), 12VDC, 26 A.H. Battery, American Type 16/3 grounded cord. Standard Flow Range of 10-95 LPM. Includes 1½" Female Straight Pipe Thread for "CF" series holders. Specify intended filter media/size upon ordering.

CF-995B-4

4" Diameter paper only, variable speed, battery operated air sampler complete with internally mounted 115VAC battery charger (4.0 Amp output), 12VDC, 26 A.H. Battery, American Type 16/3 grounded cord. Standard Flow Range of 30-175 LPM. Use HI-Q's FHA-4CF to adapt down to female 1½" dia. SPT fitting, to accept "CF" series filter holders. Specify intended filter media/size upon ordering.

CF-995B/230
CF-995B-4/230

Unit as described above with switchable 230/115 VAC battery charger. Nominal output current from charger is 2.0 Amps.

Options & Spare Parts:

CF-995B-005

Replacement Motor Brush Set, 2 Brushes/Set

CF-995B-002

Replacement 12 volt DC, 26 Amp Hour Battery. This maintenance free, immobilized electrolyte battery is packaged in a high impact resistant ABS plastic case.

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Battery and Solar Powered Air Samplers

HI-Q



CF-993B Series

Internal Battery Operated Portable Air Sampler

- **Internally Mounted 12 Volt Battery & Battery Charger**
- **Timer Controlled Air Sampling (Programmable)**
- **Instantaneous Air Flow Rate Indicator**
- **N.I.S.T. Traceable Calibration**
- **2-Stage Brushed Blower**
- **For Continuous or Intermittent Use**

HI-Q's CF-993B & CF-993B-4 are ideal for remote location air sampling where line power is not available. An internally mounted sealed 12 Volt battery and battery charger eliminate the need for the transportation of cumbersome battery cables and the awkward handling of heavy batteries. The timer has 10 programmable timing functions with a wide time range. The flow rate of the CF-993B series air samplers are dependent upon the pressure drop across the collection filter media being used. If line power is available, sampling time can be extended by running line voltage to the charger while sampling. Due to the difference in Amp draw of the motor versus amperage output of the charger in the standard CF-993B, the unit will eventually stop running and need to be fully recharged. Upon Ordering, please specify intended filter media type and size.

NEW **Continuous AC powered air sampling is now possible on the CF-993B & CF-993B-4 with the addition of HI-Q's optional, internally mounted, AC/DC RELAY. The "AC/DC Relay" can be added to existing, or supplied with new units to allow continuous sampling where AC Power is available.**

Motor/Pump:	12 Volt DC, 8.5 Max Amp Draw, 2-stage, centrifugal blower.
Battery:	12V, 26 A.H., Sealed/Maintenance-Free Recharge-able Battery. Approximate continuous run time when used @ ambient conditions and a draw of 8.2 Amps is 3.0 hours.
Battery Charger:	Internally mounted, solid state 12 volt DC charger. Nominal output current of 4.0 Amps with supply voltages of 110/120 VAC, 60 Hz. A lower output current of 2.0 Amps if using switchable style 230/115 VAC, 50/60 Hz charger.
Battery Specs.:	18.7 lbs., sealed construction, immobilized gel electrolyte.
Unit Weight:	36 lbs. (with internal Charger & Battery)
Shipping Weight:	Total 39 lbs., 2 Boxes 8" x 8" x 6" & 13" x 11½" x 16¼"
Housing:	10¼" x 10" x 14¼", Aluminum cabinet, primed & painted with 2-component polyurethane paint.
Max Flow Rate: CF-993B	95 LPM (w/ FP2063-20, 2" Dia.) & 55 LPM (w/ FP5211-20, 2" Dia.)
Max Flow Rate: CF-993B-4	185 LPM (w/ FP2063-102, 4" Dia.) & 142 LPM (w/ FP5211-102, 4" Dia.)

Ordering Information

CF-993B

Battery operated air sampler complete with internally mounted 115VAC battery charger (4.0 Amp output), 12VDC, 26 A.H. Battery, American Type 16/3 grounded cord. Standard Flow Range of 10-120 LPM. Includes 1½" Female Straight Pipe Thread for "CF" series holders. Specify intended filter media/size upon ordering.

CF-993B-4

4" Diameter paper only, battery operated air sampler complete with internally mounted 115VAC battery charger (4.0 Amp output), 12VDC, 26 A.H. Battery, American Type 16/3 grounded cord. Standard Flow Range of 40-195 LPM. Use HI-Q's FHA-4CF to adapt down to female 1½" dia. SPT fitting, to accept "CF" series filter holders. Specify intended filter media/size upon ordering.

CF-993B/230
CF-993B-4/230

Unit as described above with switchable 230/115 VAC battery charger. Nominal output current from charger is 2.0 Amps.

Options & Spare Parts:

AC/DC RELAY

Internally Mounted AC/DC Solid State Relay module with rectifier for CF-993B Series Air Samplers. Allows user to use system as a DC or AC powered unit.

CF-993B-005

Replacement Motor Brush Set, 2 Brushes/Set.

CF-993B-002

Replacement 12 volt DC, 26 Amp Hour Battery. This maintenance free, immobilized electrolyte battery is packaged in a high impact resistant ABS plastic case.

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Battery and Solar Powered Air Samplers

CF-18V

12 VDC, Variable Speed, Manual/Timer Controlled Air Sampler

- Variable Speed Motor for Flow Rate Selection
- Continuous or Timer Controlled Sampling
- N.I.S.T. Traceable Calibration
- External Battery Operated
- Instantaneous Flow Reading



Motor/Pump:	12 Volt DC, 2-Stage Centrifugal Blower, Max. Amp Draw : 14.0
Battery Cables:	8 Foot Battery Cables included with unit.
Unit Weight:	14 lbs.
Shipping Weight:	Total 17 lbs., 1 Box, 16" x 12" x 10"
Housing:	15½" x 8" x 8" Aluminum cabinet, primed & painted with 2-component polyurethane paint.
Max Flow Rate:	5 CFM (TC-12 Cartridge)
Filter Holders & Adapters:	Unit includes a 1½" female straight-pipe fitting, which accepts "CF"- Series holders.
Flow Calibrator:	See Air Flow Calibrators
Filter Paper:	See Filter Paper For Air Sampling
Filter Cartridges:	See Analytical Cartridges
Batteries:	Call for Quote

The CF-18V field unit operates on a single 12 volt automotive battery (not included). The two stage centrifugal fan pump motor is speed controlled by a rheostat which allows an operator to set a desired volumetric flow rate. An In-Line venturi allows for instantaneous flow measurement directly from an individually calibrated Magnehelic®. Continuous or 0-30 minute grab samples can be taken on a variety of "CF-Type" combination or paper only filter holders.

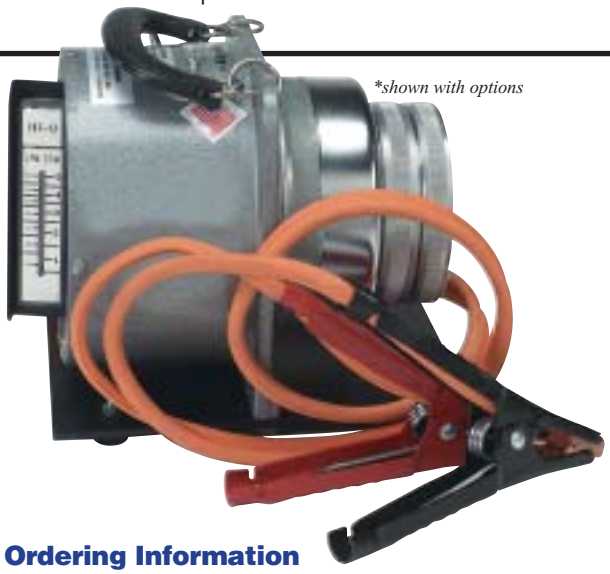
Ordering Information

CF-18V
12 VDC External Battery, Variable Speed, Manual or Timer Controlled Air Sampler.

TFIA-4BC

12/24 VDC, Fixed Speed Air Samplers

The TFIA-4BC is identical in configuration to the TFIA accepting the same TFIA options (excluding speed controller) as the AC power version depicted in the Portable HI-Volume Air Sampler section of this catalog. The TFIA-4BC operates on two automotive batteries in series, or for half the flow rate with one 12 Volt Automotive Battery (Batteries not included).



**shown with options*

Motor/Pump:	12/24 Volt DC, 2-stage centrifugal blower. Amp Draw: 6.0 @ 12 Volts & 10 .0 @ 24 Volts.
Battery Cables:	8 Foot Battery Cables included.
Unit Weight:	12 lbs.
Shipping Weight:	Total 14 lbs., 1 Box, 10½" x 10½" x 13¼"
Unit Dimensions:	8½" x 7½" x 7½"
Max Flow Rate: 12 Volts DC	8 CFM (w/ FP2063-102, 4" Dia.) 16 CFM (w/ FP2063-810, 8" x 10")
Max Flow Rate: 24 Volts DC	17 CFM (w/ FP2063-102, 4" Dia.) 26 CFM (w/ FP2063-810, 8" x 10")
Filter Holders & Adapters:	Unit includes a 4" Dia. paper only holder. Accepts 8" x 10" CF Holder.
Batteries:	Call for Quote

Ordering Information

TFIA-4BC
12/24 VDC, Battery Operated, Fixed Speed Air Sampler.

SMR-TFIA
HI-Q calibrated, Side Mounted Rotometer (for accurate, easy to read, flow measurements). Please specify intended filter media & desired flow range.

ETMB-TFIA
Hard mounted Electronic, Resettable, Elapsed Timer with Bracket.

MNTPLT-TFIA
7" x 9" TFIA Mounting Plate for desk-top sampling. Non-Slip feet.

Battery and Solar Powered Air Samplers

CF-1512-VBRL & CF-1524-VBRL

Variable Speed, Brushless Blower, Battery Operated Air Sampler



- **Brushless Motor Blower**
- **Maintenance-Free**
- **Variable Speed Control**
- **Low Amp Draw**
- **Compact & Light Weight**
- **Elapsed, Resettable Sample Timer**
- **Ideal for Solar Powered Air Sampling Stations**

Due to its low Amp draw, variable speed flow rate control, brushless maintenance free blower and portability, the CF-1512-VBRL is considered to be ***"The Ideal External Battery Operated Air Sampler"***.

The brushless blower used in the CF-1512-VBRL draws a maximum of 3.0 Amps at 6.5 CFM, permitting longer sampling times on a single battery charge. For higher maximum flow rates, with minimal Amp draw, consider using the CF-1524-VBRL which draws a maximum of 6.0 Amps while sampling at a controllable flow rate of 9.5 CFM.

The 12 & 24 VDC, CF-1500-VBRL Series units (without batteries & cables) each weigh less than nine pounds, which simplifies system setup and transportation.

Motor/Pump: CF-1512-VBRL	12 Volt DC, 3.0 Max Amp Draw , Brushless Motor, Centrifugal Blower.
Motor/Pump: CF-1524-VBRL	24 Volt DC, 6.0 Max Amp Draw, Brushless Motor, Centrifugal Blower.
Unit Weight:	9 lbs. (without battery & cables)
Shipping Weight:	Total 12 lbs., 1 Box 11¼" x 10" x 13¼"
Housing:	10" x 9" x 11½", Aluminum cabinet, primed & painted with 2-component polyurethane paint.
Max Flow Rate: CF-1512-VBRL	6.5 CFM (w/ FP2063-102, 4" Dia.) & 3.0 CFM (w/ FP2063-20, 2" Dia.)
Max Flow Rate: CF-1524-VBRL	9.5 CFM (w/ FP2063-102, 4" Dia.) & 4.0 CFM (w/ FP2063-20, 2" Dia.)
Filter Holders & Adapters:	See Filter Holders. Unit includes a 4" dia. filter paper holder which may be adapted down to accept "CF" series holders.
Flow Calibrator:	See Air Flow Calibrators
Filter Paper:	See Filter Paper For Air Sampling
Filter Cartridges:	See Analytical Cartridges

Ordering Information

CF-1512-VBRL (12 Volt DC)
CF-1524-VBRL (24 Volt DC)

**Use FHA-4CF to adapt down to female 1½" SPT, 11½" TPI fitting.*

CF-24B

12/24 VDC, Fixed Speed Air Samplers



- **12/24 VDC FIXED SPEED**
- **Elapsed, Resettable Timer**
- **External Battery Operated**
- **Instantaneous Flow Reading**
- **N.I.S.T. Traceable Calibration**

The CF-24B, FIXED SPEED, 12/24 VDC external battery operated field unit is ideal for remote site grab sampling. An elapsed, resettable timer (with independent 5 year battery) is incorporated into the unit housing to track exact sampling duration. The throughput flow rate is dependent upon the pressure drop across the filter media and the supplied voltage (12 or 24 volts DC). The CF-24B includes a 1½" female straight pipe fitting which accepts the "CF" series filter holders.

Motor/Pump:	12/24 Volt DC, 2-stage centrifugal blower. Amp Draw: 9.0 @ 12 Volts & 13.7 @ 24 Volts.
Battery Cables:	8 Foot Battery Cables included.
Unit Weight:	13 lbs.
Shipping Weight:	Total 14 lbs., 1 Box 11¼" x 10" x 13¼"
Unit Dimensions:	CF-24B: 8" x 11.5" x 8" Painted Aluminum cabinet.
Max Flow Rate: 12 Volts DC	3.4 CFM (w/ FP2063-20, 2" Dia.) 6.5 CFM (w/ FP2063-102, 4" Dia.)
Max Flow Rate: 24 Volts DC	6.5 CFM (w/ FP2063-20, 2" Dia.) 11.5 CFM (w/ FP2063-102, 4" Dia.)
Filter Holders & Adapters:	Unit includes a 1½" female straight-pipe fitting, which accepts "CF"- series holders.
Flow Calibrator:	See Air Flow Calibrators
Filter Paper:	See Filter Paper For Air Sampling
Filter Cartridges:	See Analytical Cartridges

Ordering Information

CF-24B

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Battery and Solar Powered Air Samplers

Custom Battery/Solar Operated Air Sampling Systems

- **Continuous or Timer Controlled Sampling**
- **Adjustable Flow Metering Valve**
- **External or Internal Battery Operated**
- **Fully Customizable Configurations**
- **Low Amp Draw**
- **Solar Powered**

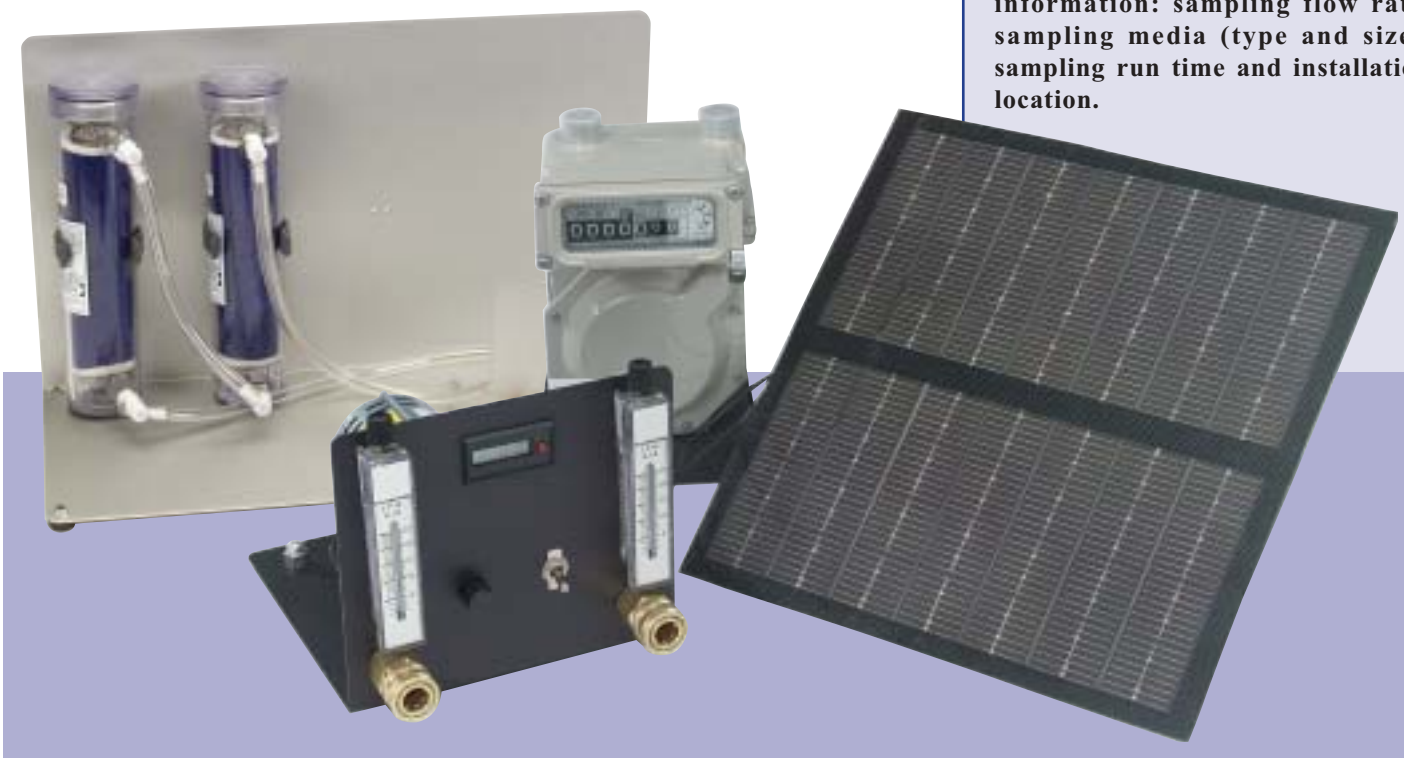


Since 1973 HI-Q Environmental Products Company's engineering staff has designed and developed hundreds of "Custom, Turn-Key" Air Sampling Systems. Among these custom units are Complete Solar Powered Air Sampling Systems, which require Low Amp Draw, DC driven vacuum pumps. Let HI-Q's experience work for you.

Our solar-powered air sampling systems utilize fully integrated power supplies designed to provide safe and reliable power generation without the need and expense of installing utility power. The sealed, maintenance free batteries are designed for deep cycle operation and extended life in solar applications. The aluminum array support structures and battery enclosures are strong yet lightweight and corrosion resistant for harsh marine or severe weather locations. The solar power systems are designed to withstand rugged transportation to remote sites, single-lift integral lifting lugs and/or forklift slots are provided. Optional helicopter handling features are also available.

Ordering Information

Due to the uniqueness of sampling requirements, please contact our Sales/Engineering department for a complete quotation for your particular application. For solar powered air sampling systems we require the following information: sampling flow rate, sampling media (type and size), sampling run time and installation location.



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HI-Q

New Digital Display Option

CMP-SERIES

Cabinet Mounted, Continuous Duty, Constant Flow Air Sampling Systems



- Adjustable, Heavy Duty, Automatic Flow Control Valve
- N.I.S.T. Traceable, Instantaneous Flow Reading
- Continuous Duty Rotary Vane Vacuum Pump
- Portable, Bench-Type, Fan Cooled, Weather Resistant Cabinet
- Elapsed, Resettable, Electronic Timer
- Dual Vacuum Gauges for Evaluating Sample/Pump Performance
- Custom Flow Ranges & Pump Packages Available

HI-Q's CMP-Series air sampling systems allow for continuous duty/ constant flow rate air samples at operator pre-set flow rates. These continuous duty, constant flow, self contained sampling systems are commonly used as the primary air mover for gas/particulate collection and/or real time air monitoring. Two face mounted vacuum gauges allow the user to observe pump performance and filter loading. An internal filtration system hinders premature carbon vane wear and flow meter clogging. The Cabinet Mounted Pump System has two side mounted handles to simplify transporting the unit to specific sampling locations.

Ordering Information

CMP-0523CV

Adjustable Flow Range: 0.5 - 4.0 CFM. Motor: 1/4 hp, 115 VAC , 50/60Hz., 5.5 Amp. Unit Weight: 45.5 lbs. Shipping Dim's: 49 lbs. 1 box, 23" x 15.5" x 14".

CMP-1023CV

Adjustable Flow Range: 0.5 - 6.5 CFM. Motor: 3/4 hp, 115 VAC , 50/60Hz., 11.5 Amp. Unit Weight: 64.5 lbs. Shipping Dim's: 68 lbs. 1 box, 23" x 15.5" x 14".

CMP-0523CV/230

Same description as above except with a 1/4 hp, 230 volt 60HZ motor, 3.0 Amp draw.

CMP-1023CV/230

Same description as above except with a 3/4 hp, 230 volt 50/60HZ motor, 6.0 Amp draw.

Motor/Pump:	Oilless, Rotary Vane, Vacuum Pump with 1/4, 3/4 HP, 115 or 230 VAC, Shock Mounted Motor.
Control Valve: (MCV-260)	Mechanical, Heavy Duty, Automatic Flow Control Valve. This valve controls the air flow rate to ±5% of the operator set flow rate.
Housing:	22" W x 12½" D x 11" H, aluminum cabinet painted with two component, chemically resistant, polyurethane paint. Rubber support feet.
Elapsed Timer:	Electronic, Resettable Hours & Tenths of Hours, LCD read out, 5 year internal battery.
Filter Holders:	See Filter Holders For Air Sampling, "RV-Series"
Filter Cartridges:	See Analytical Cartridges
Filter Paper:	See Filter Paper For Air Sampling
Air Flow Calibrator:	See Air Flow Calibrators
Replacement Motors/Kits:	See "Replacement Rotary Vane Vacuum Pumps & Service Kits" in the Air Sampling Accessories section of this catalog.

Customizing Options:

CMP-EXHSTRTVL

This hard mounted exhaust retrieval kit is built into the CMP cabinet to allow the user to route exhaust gases back out of the cabinet through a face mounted and labeled 3/8" male quick disconnect coupling.

Digital Display Options:

CMP-DIGITAL-4.0

The CMP-DIGITAL-4.0 air sampling system is the digital equivalent to HI-Q's CMP-0523CV. An operator is able to toggle through the panel mounted LED to display instantaneous Flow Rate, instantaneous Total Volume of air sampled, and Minimum & Maximum flow over the sample period. The smart LED also allows for communication & alarm cards for further electronic customization of the sampler.

CMP-DIGITAL-6.5

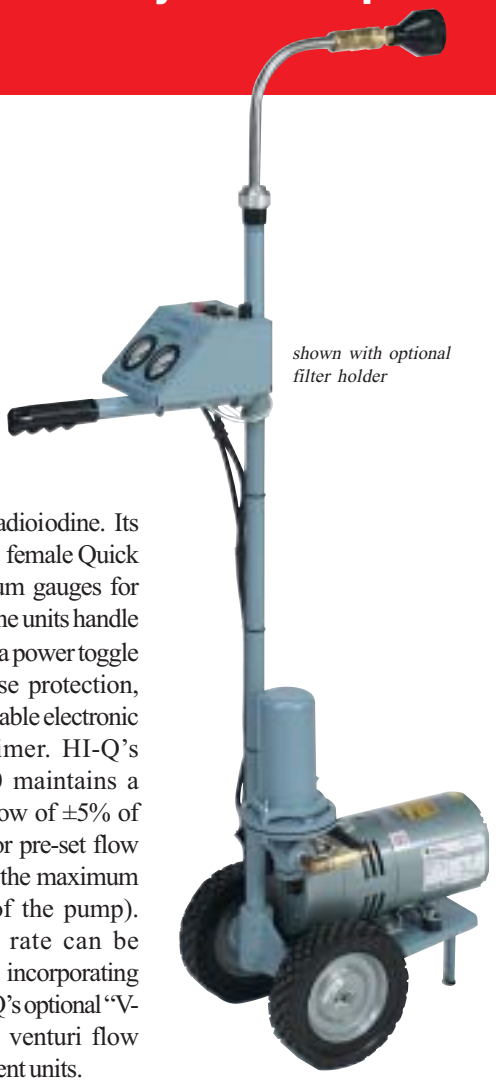
The CMP-DIGITAL-6.5 air sampling system is the digital equivalent to HI-Q's CMP-1023CV. An operator is able to toggle through the panel mounted LED to display instantaneous Flow Rate, instantaneous Total Volume of air sampled, and Minimum & Maximum flow over the sample period. The smart LED also allows for communication & alarm cards for further electronic customization of the sampler.

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MRV-SERIES

Mobile Cart Continuous Duty, Constant Flow Air Sampling Systems

- **Telescoping "Goose Neck" for Breathing-Zone Air Sampling**
- **Automatic Flow Control Valve**
- **Electronic, Resettable, Elapsed Timer**
- **Continuous Duty, Rotary Vane Vacuum Pump**
- **Dual Vacuum Gauges for measuring DP across filter media**
- **Sturdy Cast Aluminum Base Plate**
- **Flow Ranges of 0 - 7.0 CFM**



shown with optional filter holder

This "Golf Cart" type unit can be used for the assay of both particulates and gaseous radioiodine. Its telescoping "Goose Neck" allows for industry standard breathing zone air sampling. There is a 3/8" female Quick Disconnect fitting at the sampling inlet which accepts all "RV" series filter holders. Two vacuum gauges for measuring pressure differential across the filter media are conveniently mounted in a control box on the units handle along with a power toggle switch, fuse protection, and a resettable electronic elapsed timer. HI-Q's MCV-260 maintains a constant flow of ±5% of the operator pre-set flow rate (up to the maximum capacity of the pump). The flow rate can be viewed by incorporating one of HI-Q's optional "V-FLO-XX" venturi flow measurement units.

Air Mover:	Oilless, Rotary Vane, Vacuum Pump with 1/4, or 3/4 HP, 115 or 230 VAC, Shock Mounted Motor.
Control Valve: (MCV-260)	Mechanical, Heavy Duty, Automatic Flow Control Valve. This valve controls the air flow rate to ±5% of the operator set flow rate.
Timer:	Electronic, Elapsed, Resettable Timer in Hours & Tenths
Optional Flow Meter:	Add "-HMF" to model number for Hard Mounted Flowmeter option or see removable V-FLO-XX units described below.
Filter Holders:	See Filter Holders For Air Sampling, "RV-Series"
Filter Cartridges:	See Analytical Cartridges
Filter Paper:	See Filter Paper For Air Sampling
Air Flow Calibrator:	See Air Flow Calibrators
Replacement Pumps/Kits:	See Replacement Rotary Vane Vacuum Pumps & Service Kits in the "Air Sampling Accessories Section" of this catalog.

Ordering Information

Model Number (Order)	Net Ship Wt. lbs.	Power (VAC)	Motor (HP)	RPM 50/60 HZ	Max. Vac.	Max CFM (open air)	Hard Mounted Flowmeter (HMF)
MRV-0523CV	68 lbs., 2 boxes	115/230	1/4	1425/1725	26" Hg	4.0 CFM	no
MRV-0523CV-HMF	68 lbs., 2 boxes	115/230	1/4	1425/1725	26" Hg	4.0 CFM	yes
MRV-1023CV	89 lbs., 2 boxes	115/230	3/4	1425/1725	26" Hg	7.0 CFM	no
MRV-1023CV-HMF	89 lbs., 2 boxes	115/230	3/4	1425/1725	26" Hg	7.0 CFM	yes

V-FLO-XX

Optional Air Flow Measuring Device for MRV-Series Air Samplers



Precision machined venturi flow meter with NIST traceable flow calibration between the specified ranges described below. Each V-FLO-XX unit includes a 3/8" female quick disconnect on the inlet and a 3/8" male quick disconnect fitting on the outlet. For a complete description of HI-Q's Venturi Flow Meters, please see the "Air Flow Calibrators" section of this catalog.

Ordering Information

LPM Models	Calibration Range in LPM	CFM Models	Calibration Range in CFM
V-FLO-55L	5 TO 55 LPM	**V-FLO-2**	0.2 TO 2.0 CFM
V-FLO-85L	10 to 85 LPM	**V-FLO-3**	0.5 TO 3.0 CFM
V-FLO-115L	15 TO 115 LPM	**V-FLO-4**	0.5 TO 4.0 CFM
V-FLO-140L	20 TO 140 LPM	**V-FLO-5**	0.5 TO 5.0 CFM
V-FLO-170L	25 TO 170 LPM	**V-FLO-6**	1.0 TO 6.0 CFM
V-FLO-200L	25 TO 200 LPM	**V-FLO-7**	1.0 TO 7.0 CFM
V-FLO-XXL	SPECIFY LPM RANGE	**V-FLO-XX**	SPECIFY CFM RANGE

** For Dual Scale (both LPM & CFM markings on the flow meter) applications add the letters "-DSC" to the end of any of the model numbers described above (i.e.: V-FLO-XX-DSC)*

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HI-Q

New In-Line Toggle Switch with Fuse Protection Option

VS23-SERIES

Continuous Duty, Constant Flow Air Sampling Systems

- Automatic Flow Control Valve
- Continuous Duty/Constant Flow
- Longer Vane Life
- "Lubricated for Life" Bearings
- N.I.S.T. Traceable Flow Meter
- Flow Ranges of 0.1 - 9.0 CFM

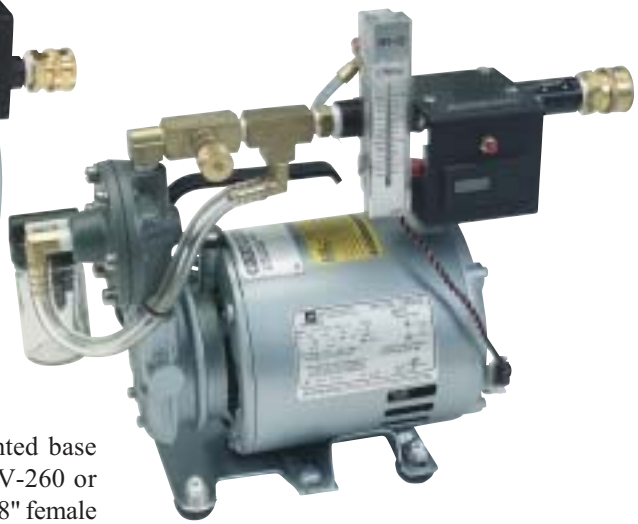
all units shown with optional elapsed timer



VS23-1023CV (3/4 HP)



VS23-0523CV (1/4 HP)



VS-0211-CRNV (1/6 HP)

The VS-Series Air Sampling Systems can be either incorporated as the primary vacuum source in air monitoring instrumentation or used in conjunction with filter holders and filter media for the collection of particulate and/or gaseous constituents. The systems are furnished complete with a shock mounted base motor/pump, carrying handle, heavy duty constant air flow control valve (MCV-260 or MCV-22), venturi flow meter, exhaust muffler, 6 foot grounded power cord, and a 3/8" female quick disconnect for easy filter holder and sample line replacement. All rotary vane motor/pumps have automatic overload cut off and are warranted for one year after purchase.

Ordering Information

Model Number (Order)	Net Wt. Lbs.	Power (VAC)	Motor (HP)	RPM 50/60 Hz	Max. Vac.	Max LPM (open air)	Max CFM (open air)
VS-0211-CRNV	21 lbs.	115	1/6 HP	NA/1725	20" Hg	22 LPM	0.78 CFM
VS23-0523CV	35 lbs.	115/230	1/4	1425/1725	26" Hg	127 LPM	4.5 CFM
VS23-1023CV	55 lbs.	115/230	3/4	1425/1725	26" Hg	255 LPM	9.0 CFM

Air Mover:	Oilless, Rotary Vane, Vacuum Pump with 1/6, 1/4, or 3/4 HP, 115 or 230 VAC, Shock Mounted Motor.
Control Valve: (MCV-260)	Mechanical, Heavy Duty, Automatic Flow Control Valve. This valve controls the air flow rate to ±5% of the operator set flow rate.
Control Valve: (MCV-22)	Mechanical, Heavy Duty, Differential Type Automatic Flow Controller. Maintains operator pre-set flow rate within ±5%.
Timer Option:	Optional, see Elapsed Timer Options.
Filter Holders:	See Filter Holders For Air Sampling, "RV-Series"
Filter Cartridges:	See Analytical Cartridges
Filter Paper:	See Filter Paper For Air Sampling
Air Flow Calibrator:	See Air Flow Calibrators
Replacement Pumps/Kits:	See Replacement Rotary Vane Vacuum Pumps & Service Kits in the "Air Sampling Accessories" section of this catalog.

VS-Series Air Sampler Options:

EET13-B
Elapsed, Electronic, Resettable Minute Timer with Mounting Bracket. 6-Digit, Minutes & Tenths of Minutes Display.

EET11-B
Elapsed, Electronic, Resettable, Hour Timer with Mounting Bracket. 6-Digit, Hours & Tenths of Hours Display.

EET11-VAC-SWTCH
115 VAC Vacuum Activated Elapsed, Resettable Electronic Timer in Hours & Tenths of Hours with Mounting Bracket & 3/8" MNPT inlet/outlet.

VS-VACUUM-GAUGE
Hard Mounted 0"-30" Hg Vacuum Gauge.

VS-ON/OFF-SWITCH New
In-Line ON/OFF Power Switch with fuse protection.

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LF-SERIES

Low Flow, Cabinet Mounted, Continuous Duty Air Sampling Systems



- Low Flow Rate
- Cabinet Mounted
- Fuse Protected
- Elapsed, Resettable, Electronic Timer
- Continuous Duty
- Manual Flow Control
- Customizable Configurations

Ordering Information

Low Flow Oilless Diaphragm Air Sampling Systems

Model Number (Order)	Net Wt. Lbs.	Power VAC	Cabinet Mounted	AMP Draw	Max. Vac.	Flow Range CCM
LF10D-50	5 lbs.	115	Yes	0.6	15" Hg	5-50 CCM
LF10D-240	5 lbs.	115	Yes	0.6	15" Hg	30-240 CCM
LF10D-1000	5 lbs.	115	Yes	0.6	15" Hg	100-1000 CCM

Low Flow Oilless, Rotary Vane Air Sampling Systems

Model Number (Order)	Net Wt. Lbs.	Power VAC	Cabinet Mounted	Motor HP	Max.Vac.	Flow Range LPM
LF2032-10	15 lbs.	115	Yes	1/8	26" Hg	1-10 LPM
LF2032-25	15 lbs.	115	Yes	1/8	26" Hg	2-22 LPM
LF2032-50	15 lbs.	115	Yes	1/8	26" Hg	5-50 LPM

With a continually increasing demand, HI-Q Environmental Products Company has developed a new line of low flow, low cost, manual flow control air sampling systems. HI-Q has configured this line of complete sampling systems with flow ranges from 5-CCM to 50-LPM. Each unit includes a shock mounted vacuum pump, lightweight carrying case with non-skid feet, carrying handle, 6 foot grounded power cord, electronic timer registering elapsed hours & tenths of hours, on/off switch, fuse protection, sample line inlet, and an adjustable flow metering valve.

Low Flow Oilless Rocking Piston Air Sampling System

This Low Flow Sampling System has a flow range of 2-25 LPM. It consists of a 13 pound, 1/8 hp, Oilless Rocking Piston Pump, TMV needle control valve (for flow rate adjustment/measurement), brass interconnect piping, and 1/4" hose barb (Quick Disconnect Optional).



Model Number (Order)	Net Wt. Lbs.	Power VAC	Cabinet Mounted	Motor HP	Max.Vac.	Flow Range LPM
LFRR-25	15 lbs.	115	No	1/8	26" Hg	2-25 LPM

Timer Options for the LFRR-25

EET13-B
Elapsed, Electronic, Resettable Minute Timer with Mounting Bracket. 6-Digit, Minutes & Tenths of Minutes Display.

EET11-B
Elapsed, Electronic, Resettable, Hour Timer with Mounting Bracket. 6-Digit, Hours & Tenths of Hours Display.

EET10-B
Elapsed, Electronic, Resettable Hour/Minute Timer with Mounting Bracket. 8-Digit, Hours & Minutes Display.

EETXX
Replacement Timer, Remote Reset Push Button, & Quick Disconnect wire leads for above listed units. Replace "XX" with corresponding number described above.

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M.A.S.S.

Mobile Air Sampling Station, High & Low Flow Sampling

- **All-In-One Enclosure!**
- **Protocol Sampling For Particulate, Iodine, CO_2, SO_2 & Tritium**
- **Dual Mass Flow Controllers, High and/or Low Flow**
- **Separate Flow Rate & Total Volume Displays For Each Sample Line**
- **Individual Sample Line Elapsed Time Indicator Display**

HI-Q's Mobile Air Sampling Station can be supplied with controllable flow rates from as little as 2 SCCM up to, as high as 200 SLPM. The unit can be equipped as either a single or dual flow sampling system – you make the call. *Have an existing Stack Flow Rate Monitor?* HI-Q's MASS Unit can easily be linked together with an existing stack-flow monitor to achieve real-time Iso-Kinetic stack sampling or HI-Q can supply the MASS unit complete with its own stack flow monitor built in. The MASS unit can be supplied with fittings for stack sampling or equipped with a set-height "Giraffe Neck" type head for sampling breathing-level ambient air. *Need Real Time Monitoring?* HI-Q can supply the MASS Unit with "vendor-preferred" Alpha, Beta, Gamma, Iodine, and/or Tritium real-time monitors incorporated into the complete system.

The high flow system is primarily used to collect particulate and/or pull air samples through carbon or silver impregnated zeolite cartridges for the assay of radioiodine. The high flow system may also be used for pulling sample air through noble gas, alpha, beta and/or gamma radiation real time monitors. The low flow system can be supplied with glassware sampling train mounted inside the cabinet which can be used for many types of bubbler and/or silica gel column collection methods.

- **ISO-Kinetic Stack Sampling Option**
- **Available As Mobile Cart Or Fixed Location**
- **Real Time Monitoring Options**
- **Custom Configurations Available**

Ordering Information

MASS

Mobile, Single Flow Measurement And Control Air Sampling System. See standard mass system, technical description.

Add "Option #" to "Order Number" above to customize your system. I.E. Order: **MASS-DUAL-ISO** *for a complete dual flow, Iso-Kinetic MASS system.*

-DUAL	Unit with two, individual, flow measurement and control systems.
-F	Fixed location system. Includes mounting plinth and hardware.
-ISO	Iso-Kinetic option. Includes single point probe, rate/total display, Iso-Kinetic control circuit.
-GL	Glassware option. Includes 490 ml column and set of two 500 ml bubblers hard mounted inside cabinet.
-S	Special. RS232, RS485, Printer, Back-up Pump, Analog Output, Real Time Monitor Connections, Special Cabinet Configurations, Alarm Contacts, and other options are available.

Standard MASS System, Technical Description

Flow Measure/Control:	Mass flow meter/controllers Accuracy: ± 1.0% of F.S.
Housing:	NEMA12, Steel with dip bath primed/powder coated finish
Flow & Total Vol. Display:	0.56" LED with Rate, Min., Max., and Total display.
Elapsed Timer:	Electronic, resettable hours & tenths, LCD read out
Pump:	Rotary vane or other as req'd
Unit Weight:	Approx. 160 lbs.
Shipping Weight:	Approx. 200 lbs.

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PM10-INLET

PM-10 Size Selective Sampling Inlet



HI-Q Environmental Products Company's High Volume PM-10 Size Selective Inlet samples suspended particulate in the air at a flow rate of 40 CFM through its omnidirectional head. The air is then accelerated through multiple internal nozzles toward a greased collection plate. Due to their larger momentum, particles greater than 10 microns cannot negotiate the air stream turn, thereby colliding and adhering to the collection plate. Due to the difference in stopping distances the thoracic particles smaller than or equal to 10 microns are carried through, where they are collected on pre-weighed filter paper. The weight increase of the filter paper is considered the mass of PM-10 collected. The mass concentration of PM-10's is determined by dividing the particulate mass by the volume of air sampled. The "PM10-INLET" is adaptable to all of HI-Q's HVP-Series cabinets.

Ordering Information

PM10-INLET (filter holder not included)

Overall Head Dimensions: 19" Tall x 28" Diameter49 lbs.

Shipping Weight & Dimensions: 1 Box 32" x 32" x 25.5", 60 lbs.



PM2.5-INLET

PM-2.5 Size Selective Sampling Inlet with filter holder.

HI-Q Environmental Products Company's, EPA Designed, PM-2.5 Sample inlet operates on the same principles of particulate impaction as the PM10-INLET described above. Air is drawn into the omnidirectional inlet head at a flow rate of 16.67 LPM. The air is then accelerated toward the first impaction stage where particulate with aerodynamic diameters greater than 10µm are collected (filtered out). The air stream, carrying particulate 10 microns and smaller, continues down the inlet toward the second impaction stage where particles larger than 2.5 microns are collected. Finally, particulate 2.5µm and smaller continue down the inlet where they are collected on a 46.2 mm diameter, ring supported filter media disc.

Ordering Information

PM2.5-INLET

AKI, AK-1375F4, AK-1375TH, C-9, & SF200

Annular Kinetic Impactor Heads, with Adjustable Stopping Distances



HI-Q Environmental Products Company's AK-Series adjustable Annular Kinetic Impactor Heads are designed for collecting alpha, beta, & gamma-emitting contaminants, plutonium fission, Radon decay products and size specific dust particles. By adjusting the stopping distance (nozzle to impactor plate distance) and varying the particle velocities an operator can collect size specific dust particles. The AKI is currently being used in the field at 30 CFM with a 1/4" gap to collect particles of 2.5µm and larger on the greased impaction plate. For a particle cut size of 10µm or larger a flow rate of 5-6 CFM through either of the AK-1375 series Impactors is recommended.

Ordering Information

AKI
Annular Kinetic Impactor Head. 4" diameter paper adapter. Rear Intake.

C-9
2" Dia. Cupped SS Collection Planchet with 1/4" Lip & Smooth Finish. 100/Box.

C-5A
2" Dia. Cupped SS Collection Planchet with 1/8" Lip & Smooth Finish. 100/Box.

SF200
Collection Coating Fluid 1/4" Ounce Fluid with eyedropper.

AK-1375F4
Annular Kinetic Impactor Head. 4" diameter paper adapter. Front Intake.

AK-1375TH
Annular Kinetic Impactor Head. 1½" male SPT adapter. Front Intake.

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HI-Q is ready to help with your stack sampling requirements:

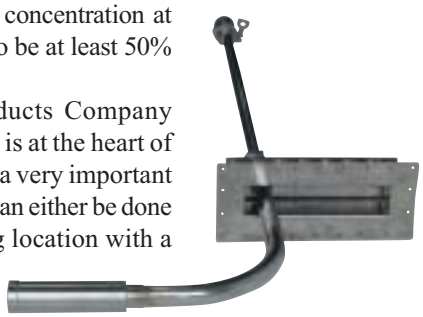
State and Federal nuclear regulatory agencies require a stack discharge sampling program as part of the licensing process. Radionuclides discharged to the air in the form of particulate and volatile compounds must be assayed. Therefore, nuclear facilities are required to follow standard protocol for sampling their effluent. Possible emission of radionuclides to the general public has to be monitored in a systematic and acceptable manner. In the United States, the Unites States Environmental Protection Agency (USEPA) has the authority over such matters, and the current requirements and guidelines for sampling in nuclear stacks and ducts are laid down in **ANSI N13.1 1999**.

The sampling requirements are such that a system has to be designed for the collection of 10 m aerodynamic diameter (AD) particles. This size has been chosen, keeping in view that any effect of an emission on the public's health, is restricted to the respirable mass it contained. Sampling of an effluent for gases, poses fewer problems compared to that of particulate. Therefore a system capable of successfully sampling 10 m AD particles will also be sufficient for sampling effluent gases.



Non-Obstructing 1½" dia. In-Line Sample Inlet

In particle sampling, the challenges are many fold: 1) to aspirate particles from the stack flow into a sampling probe without bias, 2) to deliver those particles at the probe exit without any appreciable loss on the inner surfaces of the probe, 3) to further carry the particles through a transport line to a detection and analysis station without incurring additional losses and 4) to successfully analyze the sample and fulfill requirements, such as, raising an alarm (if needed) and/or to keep inventory of the release. According to the ANSI N13.1 1999 standard, the particle concentration at the detection/analysis station has to be at least 50% of that in the free stream.



HI-Q Environmental Products Company considers that the sampling probe is at the heart of the whole sampling system and is a very important design component. The sampling can either be done at multiple points at the sampling location with a rake of un-shrouded, sharp-edged, probes operated isokinetically or at a single point with a shrouded probe operated either non-isokinetically or isokinetically. The probe performance is the criterion to decide which type of sampling has to be used. For single-point sampling it has to be ensured that the uniformity of particle concentration has reached an acceptable limit at the sampling location, and that the correct type of shrouded probe is being used. For multiple-point sampling, the system has to be carefully evaluated to find out if it can achieve the acceptable performance as mentioned in ANSI N13.1 1999. The sample transport line has to meet the ANSI requirements as well.

Complete Stack Sampling Systems & Accessories

Stainless Steel Probes, Nozzles, & Flanges

Complete Stack Sampling Systems

- Real-Time Monitoring
- Sample Collection for Analysis
- Mass Flow Control
- Iso-Kinetic Sampling Systems
- Custom Design

Stainless Stack Sampling Components

- Shrouded Probes
- Single Point Probes
- Multi Point Probes
- Slotted Sampling Probes
- Flanges
- Transport Lines
- Precision Machined Nozzle Tips

Stack Sampling Design Standards

- ANSI N13.1 1999
- ANSI N13.1 1969
- EPA
- NESHAPS

The following is a brief description of common stack sampling components:

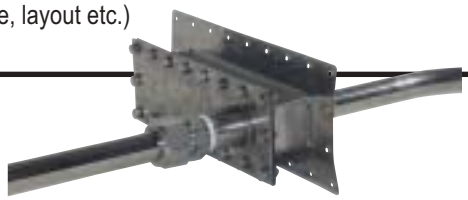
Flanges:	Corrosion resistant stainless steel flanges or bulkhead plates are available for round or rectangular stacks, vents, or ducts.
Probes & Nozzles:	The probe can be single point, multiple point, or slotted depending on the size and configuration of the stack, vent, or duct.
Stack Flow:	We have a complete line of air velocity gauges and monitoring devices available to meet your needs. From multi-point pitot tubes to thermal anemometer systems.
Sample Flow:	A range of systems can be used, from a simple venturi flow meter with a manual control valve to mass flow measuring and control systems with digital displays for instantaneous flow rate and accumulated total.
Pump Systems:	Many standard systems are found throughout our catalog but special designed systems are available for stack/fume hood sampling as well. Multi-sampling-point tank systems and dual, flip-flop pump systems are available.
Instrument Weather Houses:	Our instrument weather houses are designed to house pumps and instruments in an outdoor area. They are the industry standard and have proved to be very durable with their baked on polyurethane painted finish. NEMA rated enclosures are also available.

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Ordering Information

HI-Q Environmental Products Company's product line includes complete sampling systems consisting of a probe, a transport line, a sampling pump and a flow controller. We recommend, design, and supply complete systems. HI-Q Environmental Products Company is able to make stack-sampling system design suggestions by receiving your sampling requirements and operating conditions. *System design begins by providing HI-Q with the following information:*

1. Stack Flow Rate or Range: (i.e. 35,000 CFM)
2. Sample Point Stack Dimensions: (i.e. 36" Dia. Stack)
3. Sampling flow rate: (i.e. 50 LPM)
4. Sample Collection Media: (i.e. 47 mm diameter Glass Fiber)
5. Location of analysis station with respect to the sampling location (i.e. distance, layout etc.)



Stainless Steel Sampling Flanges

For Round Stacks or Ducts

Part Number	Stack Diameter	Probe Diameter
SSFLNG-50-XX	-XX	1/2"
SSFLNG-75-XX	-XX	3/4"
SSFLNG-100-XX	-XX	1"
SSFLNG-125-XX	-XX	1 1/4"
SSFLNG-150-XX	-XX	1 1/2"

- XX=Exact Outer **Diameter** of Round Stack/Duct
- Add "-M" to P/N for **Multi-Point** Probe Applications
- Add "-S" to P/N for **Shrouded**, Single Point Applications

For Rectangular Stacks or Ducts

Part Number	Minimum Flat Surface Area	Probe Diameter
SSFLNG-50	49 square inches	1/2"
SSFLNG-75	64 square inches	3/4"
SSFLNG-100	64 square inches	1"
SSFLNG-125	64 square inches	1 1/4"
SSFLNG-150	64 square inches	1 1/2"

- Add "-M" to P/N for **Multi-Point** Probe Applications
- Add "-S" to P/N for **Shrouded**, Single Point Applications



Single Point Stainless Steel Sampling Probes (without nozzle)

HI-Q precision bends stack and fume hood-sampling probes from stainless steel tubing. Precision-machined nozzle tips may be added from the "Custom Machined Stainless Steel Sampling Nozzles" section. Single-point probes are custom manufactured to customer specifications.

Order XX = length after 90°	Tube OD	Min Bend Radius (5 X Tube OD)
SS-P50-XX	1/2"	2 1/2"
SS-P75-XX	3/4"	3 3/4"
SS-P100-XX	1"	5"
SS-P125-XX	1 1/4"	6 1/4"
SS-P150-XX	1 1/2"	7 1/2"

- "-XX" Tube Run after 90° Bend

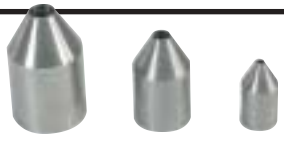
Multi-Point Stainless Steel Sampling Probes

HI-Q designs and manufactures multi-point stainless steel probes meeting ANSI-N13.1 guidelines. Multi-Point probes are custom designed to meet the end users needs.

Order XX = length after 90°	MAIN TUBE OD	Min Bend Radius of each point (5 X Tube OD)
SS-P50-XX-P	1/2"	2 1/2"
SS-P75-XX-P	3/4"	3 3/4"
SS-P100-XX-P	1"	5"
SS-P125-XX-P	1 1/4"	6 1/4"
SS-P150-XX-P	1 1/2"	7"

- "-XX" = Tube Run after 90° Bend
- "-P" = Number of sampling points (drops)

Custom Machined Stainless Steel Sampling Nozzles

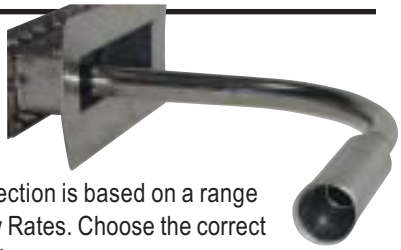


HI-Q precision machines stainless steel nozzle tips. The slip dimensions are based on standard stainless steel tubing. Specify the nozzle tip opening upon ordering by replacing the "XXX" in the order number.

Order (XXX=Tip Opening)	TUBE OD	Nozzle Tip Opening Range
SS-25NOZ-XXX	1/4"	0.025" to 0.194"
SS-50NOZ-XXX	1/2"	0.125" to 0.444"
SS-75NOZ-XXX	3/4"	0.250" to 0.680"
SS-100NOZ-XXX	1"	0.375" to 0.930"
SS-125NOZ-XXX	1 1/4"	0.750" to 1.180"
SS-150NOZ-XXX	1 1/2"	0.875" to 1.430"

- "-XXX" = Tip Opening

Stainless Steel Shrouded Probe Selection



Single Point Shrouded Probe selection is based on a range of Stack Velocities & Sample Flow Rates. Choose the correct shrouded probe from the table below:

Probe Designation	Nominal Sampling Rate, LPM	Velocity Range (m/s) for which 0.8 </= Td" </=1.3
RF-2-111	57 (2 CFM)	0 to 24
RF-3-111	85 (3 CFM)	1 to 25
RF-2-112	57 (2 CFM)	0 to 16
RF-3-112	85 (3 CFM)	1 to 25
RF-2-113	57 (2 CFM)	0 to 5

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Paper Only Filter Holders

The following filter holders are used for the collection of particulate from the air (in-line or open faced) taken with either high or low volume pumps. Choosing the correct filter holder is dependent on three factors: 1. Type of Pump (Rotary Vane or Centrifugal Fan), 2. Filter paper dimensions (i.e.: 2" dia., 47mm dia., 8" x 10" , etc.…), and 3. Type of connecting fitting (i.e.: 3/8" male quick disconnect or thread type). All of HI-Q's filter holders are machined from 6061-T6 Aluminum (unless otherwise specified) and anodized Black, Gold or Blue depending upon the filter type. **Add a "-SS" to unit model number for Stainless Steel holder construction.**

Abbreviations:			
	MQD = Male Quick Disconnect	**MPT** = Male Pipe Thread	**SPT** = Straight Pipe Thread
	FQD = Female Quick Disconnect	**FPT** = Female Pipe Thread	**TPI** = Threads Per Inch
	Black Anodize = 2" Ø Paper Holder	**Gold Anodize** = 47mm Ø Paper Holder	**Clear Anodize** = 4" Ø Paper Holder



RVPH-Series

Open Faced Paper Only Holders. Includes 3/8" male quick disconnect coupling.

Model	Paper Size Dia.	(Fitting)
RVPH-20	2 Inch.	(3/8" MQD)
RVPH-25	47mm	(3/8" MQD)
RVPH-102	4 Inch.	(3/8" MQD)



RVPA-Series

2",47mm, & 4" Diameter Paper Only, In-Line Adapter Cones.

Model	Paper Size Dia.	(Fitting)
RVPA-10	2 Inch.	(3/8" FPT)
RVPA-15	47mm	(3/8" FPT)
RVPA-102	4 Inch.	(3/8" FPT)
RVPA-5	47mm	(1/2" FPT)
RVPA-13	47mm	(3/4" FPT)
RVPA-17	47mm	(1" FPT)



ILPH-Series

Complete, In-Line, Paper Only Assembly. Includes one 3/8" male & female quick disconnect.

Model	Paper Size Dia.	(In-Out Fitting)
ILPH-20	2 Inch.	(3/8" FQD-3/8MQD)
ILPH-47	47mm	(3/8" FQD-3/8MQD)
ILPH-102	4 Inch	(3/8" FQD-3/8MQD)
ILPH-5	47mm	(1/2" FPT-3/8MQD)
ILPH-13	47mm	(3/4" FPT-3/8MQD)
ILPH-17	47mm	(1" FPT-3/8MQD)



CFPH-Series

Open Faced Paper Only Holders. 1½" male SPT, 11½ TPI male threaded fitting.

Model	Paper Size Dia.	(thread)
CFPH-20	2 Inch.	(1.5 male SPT)
CFPH-25	47mm	(1.5 male SPT)
CFPH-102	4 Inch	(1.5 male SPT)



CFPH-Series

4" Dia. & 8" x 10" Filter Paper Holder Attach CFPH-45 & CFPH-810 to units with 4" dia., threaded intake fittings.

Model	Paper Size
CFPH-45	4" dia. Paper Only Holder.
CFPH-810	8" x 10" Paper only



8" x 10" Removable Filter Paper Cartridge

Allows a user to pre-load & remove existing 8" x 10" filter collection media in a controlled environment. When in the field the user is able to replace the existing (used) cartridge with the pre-loaded (new) cartridge without having to directly handle the filter collection media.

Mode	Description
810-CARTRIDGE	8" x 10" removable filter paper cartridge w/ snap on cover.

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Combination Cartridge & Paper Filter Holders

The following filter holders may be used for the collection of solid particulate on paper and/or volatile compounds in a filter cartridge taken from the air with either a high or low volume pump. In choosing the correct holder one needs to know the specific paper size (usually 2" or 47mm dia.), and a cartridge configuration. Cartridge configurations can be found under the Analytical Cartridge Section of this catalog. All HI-Q filter holders are machined from 6061-T6 Aluminum (unless otherwise specified) and anodized Black, Gold or Blue depending upon the filter media they accept. **Add a "-SS" to unit model number for Stainless Steel holder construction.**

Abbreviations: **MQD** = Male Quick Disconnect; **FQD** = Female Quick Disconnect; **Black Anodize** = 2" Ø Paper or TC-XX/AGX-2 Holder; **MPT** = Male Pipe Thread; **FPT** = Female Pipe Thread; **Gold Anodize** = 47mm Ø Paper or TCAL-XX/AGX-4 Holder; **SPT** = Straight Pipe Thread; **TPI** = Threads Per Inch; **Blue Anodize** = TCGA-Series or AGX-10GA Holder



RVH-Series

Open Faced, Combination Filter Paper & Cartridge Holder. Includes one 3/8" male quick disconnect.

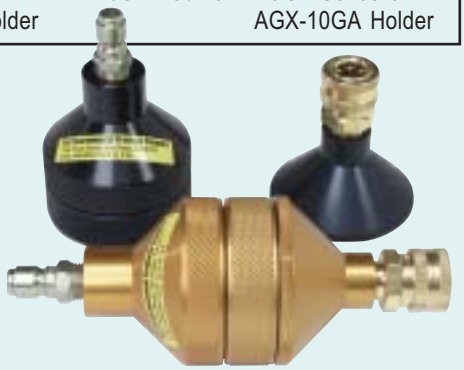
Model	Paper	Cartridge
RVH-20	2"	TC
RVH-25	47mm	TC
RVH-30	2"	TCAL
RVH-35	47mm	TCAL
RVHGA-30	2"	TCGA
RVHGA-35	47mm	TCGA



RVA-Series

2", 47mm, & 4" dia. In-Line Adapter Cones, used to convert open faced filter holders to In-Line.

Model	Paper	Fitting
RVA-10	2"	3/8" FPT
RVA-15	47mm	3/8" FPT
RVA-102	4"	3/8" FPT
RVA-12	2"	3/4" FPT
RVA-13	47mm	3/4" FPT
RVA-16	2"	1" FPT
RVA-17	47mm	1" FPT



ILFH-Series

Complete, In-Line, Combination Paper & Cartridge Filter Holder Assembly. Includes one 3/8" male & female quick disconnect.

Model	Paper	Cartridge
ILFH-20	2"	TC
ILFH-22	2"	TCAL
ILFH-25	47mm	TC
ILFH-27	47mm	TCAL

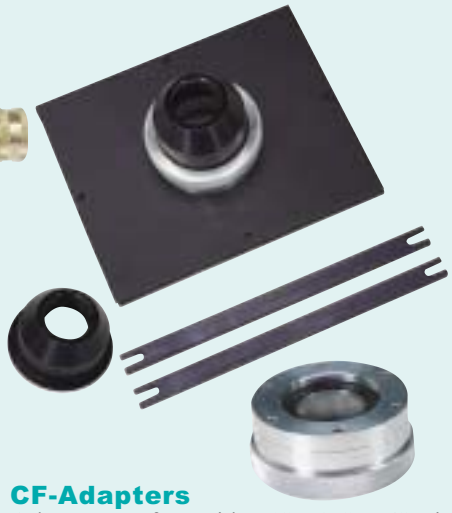
Note: Specify Inlet size if other than 3/8" Female NPT.



Tandem Cartridge Holder

Insert this Tandem Cartridge Holder between the sections of any combination holder to create a multi cartridge sampling train.

Model	Cartridge Type
CTH-50	TC
CTH-55	TCAL



CF-Adapters

Adapt Down from either 8" x 10" or 4" Dia. paper holders to 1½" Female SPT 11½ TPI.

Model	Adapter Plates From/To
FHA-4CF	4" Dia./ 1.50" female SPT
FHA-810CF	8" x 10"/ 1.50" female SPT
FHA-90	4" dia. Paper Holder. Replaces paper nut on all combination style holders.



CFH-Series

Open faced combination, cartridge & paper holder. Use with CF-Series Sampling Systems with a 1.50" Dia. female threaded 11.5 TPI intake.

Model	Paper	Cartridge
CFH-20	2"	TC
CFH-25	47mm	TC
CFH-30	2"	TCAL
CFH-35	47mm	TCAL

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Nuclear Grade Carbon Cartridges used for the assay of Radioiodine

Background information on Radioiodine Testing:

Collection efficiencies on adsorption media such as TEDA Impregnated Carbon and Silver Impregnated Zeolite, are important indicators of what one might expect to collect under environmental use. Iodine usually is found as sublimed volatilized Iodine. This specie will condense on almost any surface or dust particle and will always have a very high collection efficiency.

Methyl Iodide is used for standard testing because it is the smallest organo-molecular form of Iodine and is gaseous at ambient temperature. Because it is gaseous, it can be used to test the collection efficiencies on a "worst case scenario" basis. Methyl Iodide is not normally found in nature, nor as a by-product of nuclear power generation.

The standard industrial test procedure is: ASTM D-3803-1998, with test conditions of P=1ATM, T=30°C, Velocity=40 ft/s, R.H.=95%. CH3I concentration=1.75 mg/M^3, Pre-Equilibration = 18 hours, Pollutant load = 1 hour, Elution = 1 hour.

The nuclear industry uses these test procedures for comparative testing of collection media. HI-Q has all retention efficiency testing conducted by outside consulting/testing laboratories, to eliminate any possibility of bias. Environmental scientists will not use the analytical cartridges under ideal ASTM conditions, but rather at the conditions found at the sampling site. For example, the sample cartridge will be used directly in the air sampler and not pre-equilibrated for 18 hours. Also, the Loading rate of dispersion cannot be controlled, and post sweeps are not generally done, nor does one have control of the sampled environmental air conditions such as temperature and relative humidity. The environmental scientist should therefore be aware that air sampling for radioiodine is strongly affected by: the species of Iodine, flow rate (face velocity), collection media/mesh size, relative humidity, temperature, and sampling duration. Per the U.S. Department of Energy, in their publication "Environmental Regulatory Guide for Radiological Effluent Monitoring and Environmental Surveillance (DOE/EH-0173T), the "linear flow rate across particulate filters and charcoal cartridges should be maintained between 20 and 50 m/minute (DOE/EP-0023)".

To approximate actual field-testing conditions, samples of various mesh size TEDA impregnated carbon cartridges are tested over a range of commonly used flow rates. From the data collected, typical collection efficiency curves were drawn which allows the customer to select that product which will best suits their analytical needs. Each individual lot of carbon, from which the cartridges are made, is tested and certified for collection efficiency of the media size and batch lot # by an outside testing laboratory per standard industrial test procedure ASTM D-3803-1998 described above.

Noble Gas Retention

The question is often asked, "What is the retention efficiency of Radio Iodine or Xenon on Carbon and Silver Zeolite?" The reason the question is asked, is because ^{133}Xe is a by-product of nuclear fission. The answer can be found in communications published in the Journal of Health Physics. Typically, when Carbon and Silver Zeolite are dosed with ^{133}I and ^{133}Xe, tests show that 0.03 to 0.5% of the original concentration of ^{133}Xe will be retained on 40x50 mesh TEDA impregnated Carbon (provided no post sweep purge is made with air or nitrogen). Silver impregnated Zeolite was found to have retained 1/15,000th the amount of ^{133}Xe as that of the Carbon.

HI-Q means High-Quality!!

We manufacture the best analytical grade cartridges in the industry! We purchase the best Coconut Shell Carbon available with certified activity. This media is then Impregnated with 5% TEDA and distributed uniformly by mechanical and gas phase volatilization. The impregnated media is then tested for retention efficiency by an outside (not affiliated with HI-Q) laboratory and certified. The media is shipped to us in air tight, lined drums. Cartridges are then hand packed and sealed. Each unit has the same media weight to assure a constant packing density. They are then heat-sealed in an air tight 6 mil polyethylene package.

Analytical Carbon Cartridges Available in 3 Mesh Sizes

HI-Q has three mesh sizes of impregnated Carbon available. They are: 8 x 16, 20 x 30 and 30 x 50 Mesh. These three Mesh sizes are made available because sampling requirements vary, depending on, flow rate, sampling duration, sampling equipment type, Iodine specie, etc. As a rule, the smaller the mesh size (i.e. 30 x 50), the higher the Iodine retention efficiencies, but the greater the pressure drop through the filter cartridge (smaller size materials present a greater surface area allowing higher gas to surface contact). Due to the high pressure drop, the very fine 30 x 50 Mesh cartridge should only be used in positive displacement pump systems, NOT centrifugal fan, high Volume or battery operated pumps.

TEDA impregnated carbon cartridges are used in the Nuclear Industry for the assay and quantification of any radioiodine that may be generated in a nuclear environment. This filter media has a high affinity for the adsorption and chelation of the various species of Iodine.

HI-Q uses the highest quality and grade of coconut shell activated Carbon, impregnated with 5% TEDA (Triethylene di Amine). TEDA acts as a chelating agent to chemically bind the Iodine and reduce loss by de-sorption.

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TEDA Impregnated Carbon Cartridges

HI-Q Environmental Products Company manufactures a number of configurations of activated carbon cartridges to fit almost all industry standard cartridge holders. The most common size in the industry is the 2¼" dia. x 1" thick unit. These are HI-Q's "TC-Series" cartridges. This cartridge container is made of radiation yellow, high density polypropylene which is chemically inert, with a spun polypropylene retainer. The cartridges are easily cut open for analysis. Other popular HI-Q cartridge configurations, are the 2½" dia. x 1" (TCAL-Series), and the 2½" dia. x 1½" (TCGA Series) metal can configuration commonly used in post accident monitors.

All cartridges are heat-sealed in an airtight 6-mil polyethylene package to prevent contamination before use. The unopened package has a ten-year shelf life. Ten cartridges are contained in each package (custom packaging is available with no minimum order). Certification of retention efficiency analysis using Methyl Iodide is furnished with each order. Testing is done using ASTM D-3803-1998, by an outside testing laboratory.



TC-08



TC-Series



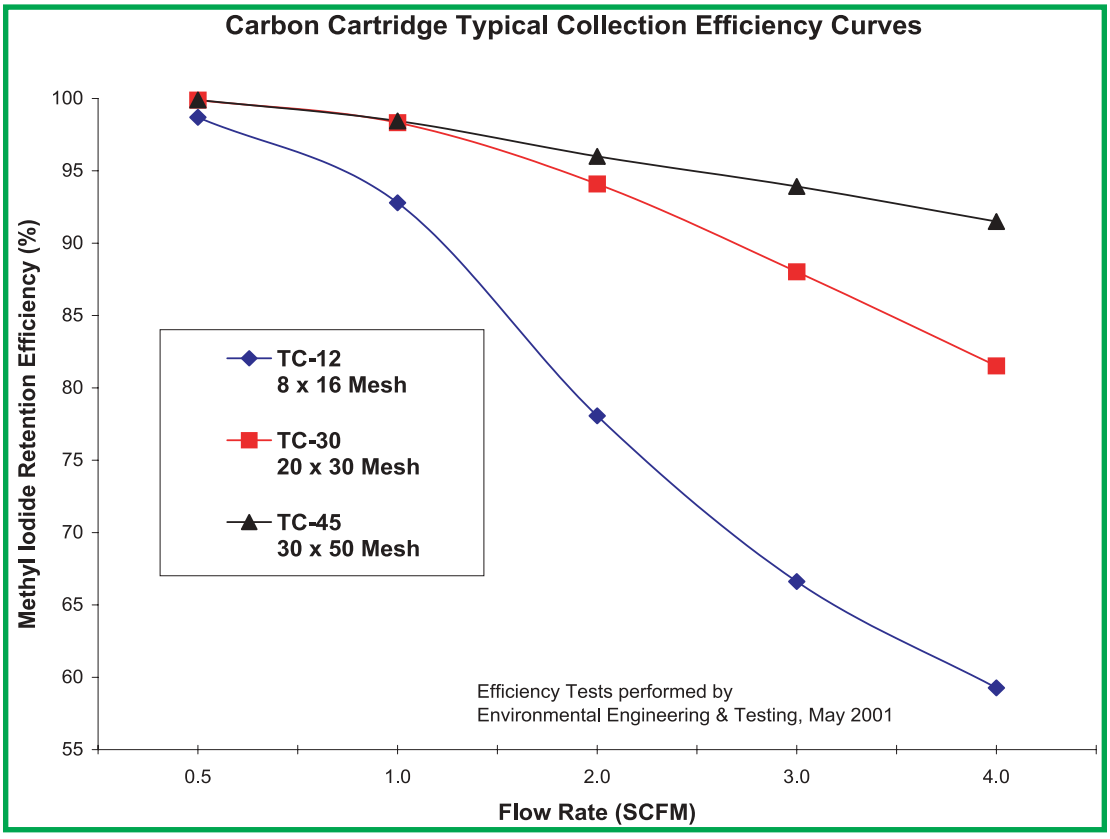
TCAL-Series



TCGA-Series

Ordering Information

Order	Cartridge Series	Dimensions	Carbon Mesh Size
TC-08	TC	1-5/8 " x 3/4" (used in personnel Air Samplers)	8 x 16 Mesh
TC-12	TC	2¼" x 1" Plastic Cartridge	8 x 16 Mesh
TC-30	TC	2¼" x 1" Plastic Cartridge	20 x 30 Mesh
TC-45	TC	2¼" x 1" Plastic Cartridge	30 x 50 Mesh
TCAL-12	TCAL	2½" x 1" Metal Can Cartridge	8 x 16 Mesh
TCAL-30	TCAL	2½" x 1" Metal Can Cartridge	20 x 30 Mesh
TCAL-45	TCAL	2½" x 1" Metal Can Cartridge	30 x 50 Mesh
TCGA-12	TCGA	2½" x 1½" Metal Can Cartridge	8 x 16 Mesh
TCGA-30	TCGA	2½" x 1½" Metal Can Cartridge	20 x 30 Mesh
TCGA-45	TCGA	2½" x 1½" Metal Can Cartridge	30 x 50 Mesh



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HI-Q

Silver Impregnated Zeolite Cartridges

Major Applications:

- **Permit analysis of Radioiodine without interference from Radioactive Noble Gases in the air stream.**
- **Remove Radioiodine from the air stream to permit accurate analysis of Radioactive Noble Gases.**

The "AGX" Series, Silver impregnated Zeolite Cartridges contain a highly efficient inorganic adsorbent for the collection and removal of elemental and organic forms of radioactive Iodine. Laboratory test indicate that radioactive Xenon, Krypton, and other Noble Gases are not retained to any significant degree by Silver impregnated Zeolite cartridges (approximately 1/15,000th or less than that retained by activated Carbon). The media is nonflammable and operates at a very high efficiency at elevated temperatures. These cartridges are the preferred and specified type for inclusion in post accident standby monitoring systems.

HI-Q has each batch of Silver Zeolite tested to assure a high percentage of radioiodine capture. Methyl Iodide is used for standard testing because it is the smallest organo-molecular form of Iodine and is gaseous at ambient temperature. Because it is gaseous, it can be used to test the collection efficiencies on a "worst case scenario" basis.

The standard industrial test procedure is: ASTM D-3803-1998, with test conditions of P=1ATM, T=30°C, Velocity=40 ft/s, R.H.=95%. CH_3I concentration=1.75 mg/M^3, Pre-Equilibration = 18 hours, Pollutant load = 1 hour, Elution = 1 hour.

The nuclear industry uses these test procedures for comparative testing of collection media. HI-Q has all retention efficiency testing conducted by outside consulting/testing laboratories, to eliminate any possibility of bias. A copy of the original certificate is supplied with each order of cartridges certifying the percent retention of radioiodine per ASTM D-3803-1998 test methods.

All cartridges are heat-sealed in an airtight 6-mil polyethylene package to prevent contamination before use. The unopened package has a ten-year shelf life. Ten cartridges are contained in each package. Custom packaging is available with no minimum order.



AGX-2



AGX-4

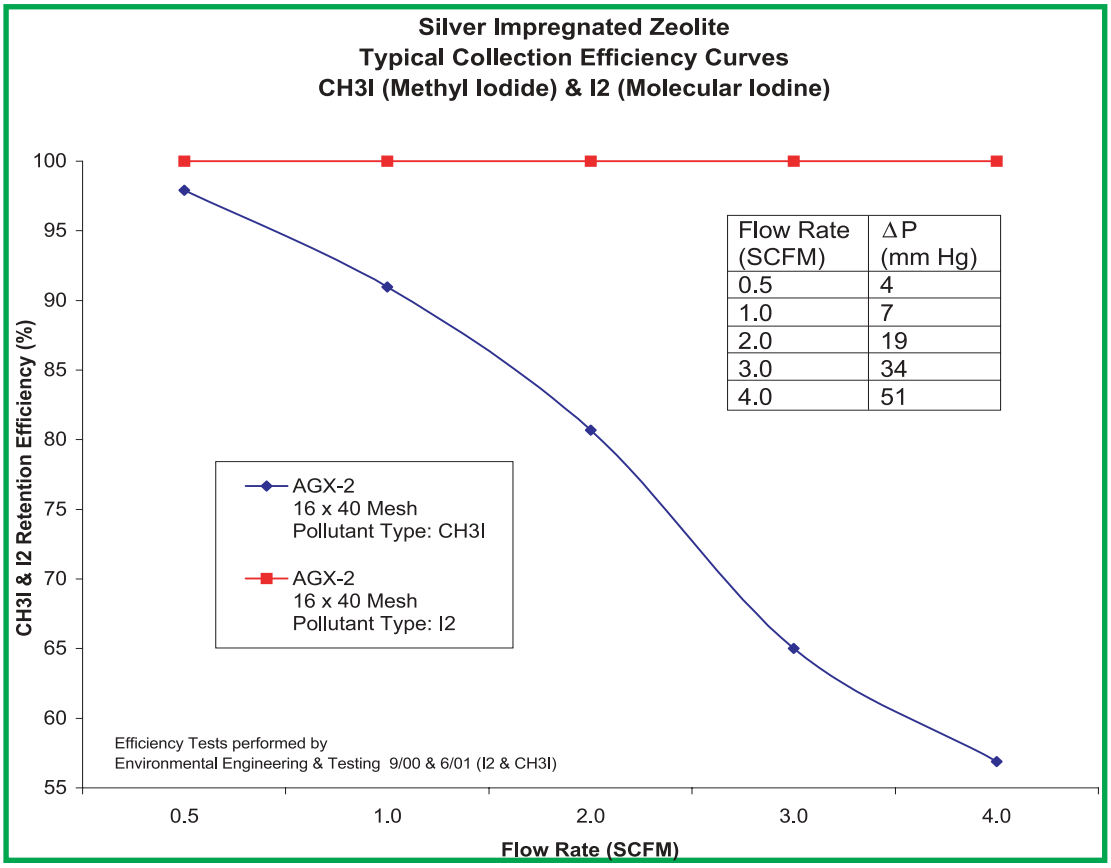


AGX-10GA

Ordering Information

Order	Cartridge Series	Dimensions	Carbon Mesh Size
AGX-2	AGX	2¼" x 1" Plastic Cartridge	16 x 40 Mesh
AGX-4	AGX	2½" x 1" Metal Can Cartridge	16 x 40 Mesh
AGX-10GA	AGX	2½" x 1½" Metal Can Cartridge	16 x 40 Mesh

Note: additional custom mesh sizes available: 30 x 50 and 50 x 80



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Filter Paper for Air Sampling

Glass Fiber, Ashless Cellulose, & Carbon Impregnated Filter Paper



General Information: Environmental air sampling uses two major categories of filter paper media, Cellulose and Glass fiber. Carbon Impregnated filter paper is occasionally called out for in the determination of the presence of airborne Iodine.

Glass Fiber Filter Media

Glass fiber filter media is made from 100% micro-fine borosilicate glass fibers. Glass fiber filters are used where high flow rate and micron/sub-micron filtration is required. The filter media can be used for both liquid and air filtration. In the highest purity form, HI-Q offers a binderless "AE" grade glass filter media. With its' excellent purity, using the **FPAE** series filter paper reduces the overall possibility of extractable organics commonly found in cellulose filter paper. Where greater structural strength filter papers are needed (high pressure drop, vacuum applications), either a spun polyester backing is used, Type **FP5211**, or a minimal amount of acrylic resin binder is used, Type **FP2063** & **FP2061**, to keep up the integrity of the glass fibers during and after sampling/analysis. Some PM-10 sampling applications specifically call out for Whatman's "EPM-2000", HI-Q part number **FP2000**. FP2000 was developed and produced especially for use in high volume PM-10 air sampling equipment that collects atmospheric particulates and aerosols.

Properties of Glass Fiber Media: The borosilicate glass fibers are inert and resistant to all but strongly alkaline bases or acids such as hydrofluoric acid. The fibers are heat resistant and will only begin to soften at over 600°C. The borosilicate glass has a refractive index of 1.51, and when immersed in a solvent of a similar refractive index like benzene, the fibers will be transparent. Particles collected on the media then become easier to visibly identify. NOTE: BENZENE HAS BEEN DETERMINED TO BE A TOXIC SUBSTANCE.

Particle Retention: For air and gas filtration, collection of sub-micron (less than one micrometer in aerodynamic diameter) particles is sometimes required. In nuclear environmental air testing, the protocol is for sub-micron collection. Use of glass fiber media is therefore recommended. The test procedure for determining the effectiveness of particle retention is known as the DOP smoke test. In this test, DOP (di octyl phthalate) is heated, the vaporized compound is dispersed into the air where it is cools and condenses into mono-molecular particles of 0.3 micron size. By drawing these airborne particles through the filter media and measuring the amount of breakthrough particle, a retention efficiency is established. See tabular results in "General Performance Summary on Glass Fiber Paper". NOTE: DOP HAS BEEN DETERMINED TO BE A CARCINOGEN.

FP2063-XX, Hydrophobic Glass Fiber Filter Paper

This hydrophobic, high purity filter media is recommended for use in general purpose, high and low volume air sampling applications for particulate collection. It is composed of 100% high quality borosilicate glass microfibers. Both the FP2063 & FP2061 filter paper grades are excellent for the removal of micron and sub-micron size particulate from ambient air and stack gases. Because glass fibers are brittle and do not naturally bind together, a small amount of acrylic resin binder (composition of which is described in CFR Title 21, Part 177.2260, Filters, Resin Bonded. ASTM Spec) is used to retain the filter paper integrity during air sampling and routine handling. The total borosilicate glass microfiber composition found in the FP2063 & FP2061 filter media contains less than 5% acrylic resin binder.

FP2061-XX, Hydrophilic Glass Fiber Filter Paper

This high purity filter paper has all the same properties of the type FP2063, except that it is hydrophilic. Choose the paper best suited for your sampling application and particle identifying method.

FP5211-XX Glass Fiber Filter Paper

This laminated Glass Fiber filter paper is a high-efficiency multi-purpose filter medium with good heat resistance. It is particularly recommended for both gas and liquid filtration in medical and air monitoring applications. The base material consists of glass microfibers with a 3-7% acrylic resin binder. The supporting scrim maintains the integrity of the glass fibers under flow stress compaction. The scrim can be applied to either side depending on the filter design. The scrim is bonded to the glass media using a polyester hot melt which has a melting point of 325° F.

FPAE-XX, Binderless, Ultra-Pure, Glass Fiber Filter Paper

This binderless, high efficiency, high purity, HEPA quality filter media is commonly used in the collection of alpha, beta, and gamma emitting particulate. It is an excellent all around analytical grade filtration media for use in the removal of micron and submicron size particulates from both liquids and gases.

FP2000-XX, Binderless, Ultra-Pure, Glass Fiber (Whatman EPM-2000)

The EPM-2000 grade paper was developed and produced especially for use in high volume PM-10 air sampling equipment that collects atmospheric particulates and aerosols. It is manufactured from 100% pure borosilicate glass of special purity enabling detailed chemical analysis of trace pollutants to take place with the minimum of interference or background. EPM-2000 was selected by the EPA to be the standard filter for use in the nationwide network of Hi-Vol air samplers. 8" x 10" sheets are individually numbered to facilitate identification.

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HI-Q

New Teflon Filter Paper Support/Protection Gaskets... no more tears!



Carbon Impregnated Filter Media

Carbon impregnated cotton fiber filter paper, type **FPAIC**, is found in applications where the determination of an airborne Iodine species are required.

FPACI-XX

Carbon impregnated cotton fiber filter media contains 50-55% Carbon by weight. The paper is available in all standard die sizes and is generally used to qualitatively determine the presence of Iodine in a sampling environment. The paper resists most dilute acids (not suitable for warm alkaline solutions).

Glass Fiber, Ashless Cellulose, & Carbon Impregnated Filter Paper

Glass Fiber Filter Media

Ashless Cellulose Filter Paper

Cellulose fiber filter paper such as the **Whatman 41**, is commonly used in quantitative analytical techniques such as gravimetric analysis. E.G.: To convert precipitate to a stable weighing form, a chemist may wish to ignite the filter paper containing collected precipitate in a pre-weighed crucible, thereby removing the filter paper with minimal and uniform residual "ash". Cellulose paper is also commonly used for smears or swipes. Cellulose paper is not recommended with pumps that can't overcome large pressure drops (e.g. battery operated centrifugal type) or, where required, to maintain a constant flow rate over the entire sampling period.

FP1441-XXX, Whatman, Grade 41: 20-25µm

The fastest ashless filter paper, recommended for analytical procedures involving coarse particles or gelatinous precipitates (i.e., iron or aluminum-hydroxides). Also used in quantitative air pollution analysis. Cellulose paper is also commonly used for smears or swipes.

TEFLON-GSKT-XX, Teflon Support Gaskets:

Teflon Support Gaskets may be placed above and below the filter paper disc creating a protective barrier between the occasional sharp edges of filter paper holder support screens and retaining rings. The inner & outer diameters of the Teflon rings are punched to a specifically tight tolerance to minimize any flow disturbance and to maximize filter collection media face exposure. Punched Teflon thickness is 0.020.

General Performance Summary on Glass Fiber Paper:

Filter Type:	FP2063	FP2061	FP5211	FPAE	FP2000
Basic Weight pounds per 3000 sq.ft.:	48	48	54	42	41
Caliper Thickness:	0.016" @ 4psi	0.016" @ 4psi	0.015" @ 7.3psi	0.020" @ 0.5psi	0.017"
DOP Smoke Penetration @ 0.3um @ 32 lpm:	97%	97%	99.985%	99.99%	99.99%
Air Flow Resistance (mm of water) @ 32 lpm:	14.5 mm H_2O	14.5 mm H_2O	38 mm H_2O	48 mm H_2O	NA
Binder:	Acrylic	Acrylic	Acrylic	None	None
Backing:	None	None	Spunbonded Polyester	None	None

Ordering Information

(Filter Paper Packaged 100 pcs./box.)

Paper Type	47 mm Dia.	2" Dia.	4" Dia.	8" x 10"
FP1441	FP1441-47	FP1441-20	FP1441-102	FP1441-810
FP2063	FP2063-47	FP2063-20	FP2063-102	FP2063-810
FP2061	FP2061-47	FP2061-20	FP2061-102	FP2061-810
FP5211	FP5211-47	FP5211-20	FP5211-102	FP5211-810
FPAE	FPAE-47	FPAE-20	FPAE-102	FPAE-810
FP2000	FP2000-47	N/A	N/A	FP2000-810
FPACI	FPACI-47	FPACI-20	FPACI-102	FPACI-810
TEFLON-GSKT	TEFLON-GSKT-47 (ID: 41mm, OD: 47mm, SOLD: 10/PK)	TEFLON-GSKT-20 (ID: 1-3/4", OD: 2", SOLD: 10/PK)	TEFLON-GSKT-102 (ID: 3-3/8", OD: 4", SOLD: EACH)	N/A

Note: HI-Q stocks many other punched filter paper sizes not shown in table above (i.e.: 21mm, 37mm, 50mm, 24" x 24"…..). Call for additional custom sizes.

7386 Trade Street / San Diego, CA 92121 / Phone 858-549-2820 / Fax 858-549-9657 / WWW.HI-Q.NET
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The "All-In-One" Digital Air Flow Calibrator

- **Correction for Standard Temperature & Pressure at the Flip of a Switch – Select "STP" or "Actual"**
- **Temperature Measurement of "In-Line" Air Flow – Display either °F or °C**
- **Barometric Pressure Measurement – Display Either Inch Hg or mm Hg**
- **Durable Rotary Power/Unit Selection Switch – Positive Option Selection**
- **Large Digital Display – 1/2" LCD**
- **Battery Operated – Unit May Be Run On Either AC or DC Power**



Specifications:		
Parameter	Display Range	Resolution
Barometer	0-31 in Hg; 0-770 mm Hg	0.01 in Hg 1 mm Hg
Air Flow	See "Calibration Range" under "Ordering Information"	0.001CFM
Temperature	14 °F to 140 °F -10 °C to 60 °C	0.04 °F 0.02 °C
Measurement Accuracy:	Flow Rate: ±2.0% of Full Scale Temperature: ±0.9°F (±0.5 °C) Barometric Pressure: ±1.5 mmHg @25 °C	
Flow Display:	Cubic Feet per Minute; Liters per Minute; Cubic Meters per Minute	
Panel SwitchesRotary: (6 positions)(Slide = STP)	OFF, SCFM, SLPM, SCMM, TEMP (°C), BARO (mm Hg) (STP = Reading corrected to Standard Temperature & Pressure)	
Panel SwitchesRotary: (6 positions)(Slide = ACTUAL)	OFF, ACFM, ALPM, ACMM, TEMP (°F), BARO (in Hg) (ACTUAL, "A" = Actual or Apparent flow reading)	
Power Requirements:	Voltage, wall adapter: 12 VoltsCurrent: 80 milliamps Batteries: Six "c" cells, 1.2 V NiCd	
Overall Dimensions:	12"W X 6"D X 11"H (Includes handle & inlet/outlet fittings)	
Weight:	8 pounds 4 ounces; (3.74 kg)	
Storage Temperature:	-4°F to 158°F (-20°C to + 70°C)	
Operating Temperature:	14°F to 140°F (-10°C to + 60°C)	
Calibration:	Factory calibration is recommended once per year. Note: Serial Port Calibration Module available under options.	

Ordering Information

Select the desired flow range:	Calibration Range			Meter
Model Number	CFM	LPM	CMM	Connection
AFC-COMPLETE-1	0.1 to 1	3 to 30	0.003 to 0.030	3/8" Male QD
AFC-COMPLETE-2	0.2 to 2	6 to 56	0.006 to 0.056	3/8" Male QD
AFC-COMPLETE-3	0.3 to 3	9 to 85	0.009 to 0.085	3/8" Male QD
AFC-COMPLETE-4	0.4 to 4	11 to 113	0.011 to 0.113	3/8" Male QD
AFC-COMPLETE-5	0.5 to 5	14 to 142	0.014 to 0.142	3/8" Male QD
AFC-COMPLETE-10	1 to 10	28 to 280	0.028 to 0.280	3/8" Male QD
AFC-COMPLETE-15	2 to 15	56 to 425	0.056 to 0.425	1½" MSTP
AFC-COMPLETE-30	5 to 30	140 to 850	0.140 to 0.850	1½" MSTP
AFC-COMPLETE-40	5 to 40	140 to 1130	0.140 to 1.130	1½" MSTP
AFC-COMPLETE-50	5 to 50	140 to 1400	0.140 to 1.400	1½" MSTP
AFC-COMPLETE-70	10 to 70	280 to 1980	0.280 to 1.980	1½" MSTP
AFC-COMPLETE-XX *Replace "-XX" with uppermost flow rate.*	Dependent upon flow range	Dependent upon flow range	Dependent upon flow range	Dependent upon flow range

"The field technician's first choice"

HI-Q's AFC-COMPLETE, digital air-flow calibrator, is *"the field technicians first choice"* when it comes to air-flow calibration. This microprocessor based air-flow calibrator incorporates the use of a differential pressure sensor, a precision thermistor, an absolute barometric pressure sensor, and a precision machined venturi tube, to measure and calculate instantaneous flow rate in either CFM*, LPM*, or CMM*, air temperature in either ºF or ºC, and Barometric Pressure in either Inches of Hg or mmHg.

* "STP" may be selected for volumetric unit correction to Standard Temperature & Pressure.

Ordering Options

COMPLETE-CALMOD

"In-House" Calibration Module for AFC-COMPLETE Series Air Flow Calibrators. Connects to Serial Port on rear of unit.

COMPLETE-BATTERY

Spare Battery Pack for AFC-COMPLETE Series Air Flow Calibrators.

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Air Flow Calibrators, Adapters, & Calibration Services

HI-Q



Analog & Digital AFC-XX

Low & Medium Volume Air Flow Calibrators, Analog & Digital Displays

- **CUSTOMIZABLE- Simply Replace "-XX" with the Flow Range & Units of Your Choice.**
- **DEPENDABLE- Direct, Reliable Readings Certified & Traceable to NIST.**
- **QUICK- Standard Quick Disconnect Fitting for Airtight Setups & Immediate Flow Readings.**
- **DURABLE-Rugged Construction Built for Heavy-Duty Use in All Environments.**

Air Flow Measurement Devices

HI-Q Environmental Products Company's steel constructed, two-component polyurethane painted Air Flow Calibrator (AFC) housings incorporate a precision machined venturi tube to create a pressure differential across a fixed orifice. By varying the air flow velocities, the pressure differentials are measured & recorded against a laminar flow element whose calibration is certified and traceable to the **National Institute of Standards and Technology (N.I.S.T.)**. The AFC's overall internal simplicity of operation reduces the frequency of re-calibration to once or twice per year depending on (individual) regulatory protocol. AFC-XX series air flow calibrators are intended to be used open to air.

AFC-Series Flow Ranges

By varying the orifice size and the chosen Magnehelic® (Standard AFC) or differential pressure sensor/transmitter (AFC-DIGITAL), HI-Q can fabricate calibrators in almost any desired flow range. Unlike other manufacturers, HI-Q does not use pre-silk screened dial faces in their analog AFC units. HI-Q individually hand marks each AFC dial face.

Choosing an AFC-Series Flow Range

Flow vs. Pressure Differential produces a logarithmic (non-linear) reading. On a Magnehelic® gage the spacing between the numbers on the lower end of the scale will be close together and further apart on the upper end of the scale. For the greatest visual accuracy, HI-Q suggests, **ordering a unit with the lowest upper range as practical** (i.e.: don't select an AFC-8 if your pump only draws a maximum of 4 CFM).

Analog style AFC

Analog style AFC units house a Magnehelic® differential pressure gage, whose relative volumetric flow rate units are transferred onto a direct reading scale. A reflective tape on the scale, behind the analog needle, reduces parallax error. Overall accuracy on analog AFC units is better than +/- 5%.





Digital style AFC

Digital style AFC units house an LED display which employs advanced technology for stable, drift free, readout while incorporating features that provide flexibility now and in the future with Plug-in option cards available for alarm contacts, analog output, and serial communication. The AFC-DIGITAL's Rate/Total display indicates air flow rate in Actual Cubic Feet per Minute (ACFM) and displays total volume sampled in Actual Cubic Feet (ACF). Metric calibration is also available. Accuracy: +/- 1% full scale at calibration points. (15 points per standard calibration). *Contact HI-Q for Analog to Digital Conversion kits.*

Ordering Information

Replace "**XX**" with the uppermost desired flow rate. See paragraph on Choosing AFC-Series Flow Ranges. If a dual scale reading is required (both CFM & LPM displayed on one scale) replace "**AFC**" with "**DSC**" (i.e. order: DSC-3 for 0-3 CFM & 0-85 lpm marked scale).

Low Flow, Single Range Air Flow Calibrators, ranges between 0-7 CFM (0-200 LPM)

Model	Calibration Range	Meter Connection
AFC-XX	0.0-XX SCFM @ STP	3/8" Male QD
AFC-XXL	0.0-XX SLPM @ STP	3/8" Male QD
AFC-DIGITAL-XX	0.0-XX SCFM @ STP	3/8" Male QD
AFC-DIGITAL-XXL	0.0-XX SLPM @ STP	3/8" Male QD

Medium Flow, Single Range Air Flow Calibrators, ranges between 3-15 CFM (85-425 LPM)

Model	Calibration Range	Meter Connection
AFC-XX	3.0-XX SCFM @ STP	1/2" Male QD
AFC-XXL	85-XX SLPM @ STP	1/2" Male QD
AFC-DIGITAL-XX	3.0-XX SCFM @ STP	1/2" Male QD
AFC-DIGITAL-XXL	85-XX SLPM @ STP	1/2" Male QD

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AFC-Dual-XX

Dual Range Air Flow Calibrators

Dual Range Air Flow Calibrators

If you require visual accuracy over a large flow range, or wish to calibrate a number of air flow units consisting of more than one flow range, select HI-Q's Dual Range AFC. The Dual Range unit consists of two pressure differential gauges installed in a single cabinet, that precisely measures both the low and high rate of air through a single venturi.



Ordering Information
Dual Range Air Flow Calibrators, split ranges between 0-15 CFM (0-425 LPM)

Model	Low Range 0- up to 7 CFM	High Range 3- up to 15 CFM	Meter Connection
AFC-XXD	0-XX SCFM @ STP	3.0-XX SCFM @ STP	1/2" Male QD
AFC-XXDL	0-XX SLPM @ STP	85-XX SLPM @ STP	1/2" Male QD
AFC-DIGITAL-XXD	0-XX SCFM @ STP	3.0-XX SCFM @ STP	1/2" Male QD
AFC-DIGITAL-XXDL	0-XX SLPM @ STP	85-XX SLPM @ STP	1/2" Male QD

HFC-XX & HFC-SIDE-XX

HI-Volume Air Flow Calibrator, HFC-Series



The HFC-Series, HI-Volume Air Flow Calibrators, have eliminated the need for cumbersome orifice plates and water manometers. The HFC-XXC series units utilize a precision machined Venturi tube coupled with a pressure differential gauge giving a direct reading in the volumetric units of your choice (i.e. SCFM @ stp) . The unit is calibrated against an in-line N.I.S.T. traceable laminar flow element. The primary calibrator meets the requirements of MIL Std. 45662A. HFC-XX series units are intended to be used open to air.

The direct meter read-out will indicate the flow in standard CFM, LPM, or CMM at standard conditions (29.92" of Hg and 70º F). Given actual sampling temperature & barometric pressure during calibration, a technician can convert actual flow readings (i.e. ACFM) to standard units (i.e. SCFM) by making a simple calculation using look-up correction factors from tables given in the operating manual.

Depending on orientation at calibration (vertical vs. horizontal), HI-Q offers two HFC models: The HFC-XX is intended for high flow calibrations in the vertical plane, such as seen with the "HVP" style high volume air samplers. Whereas HI-Q's HFC-SIDE-XX is intended for the calibration of low to high flow rates in the horizontal plane, such as seen with HI-Q's line of portable continuous duty and grab air samplers.

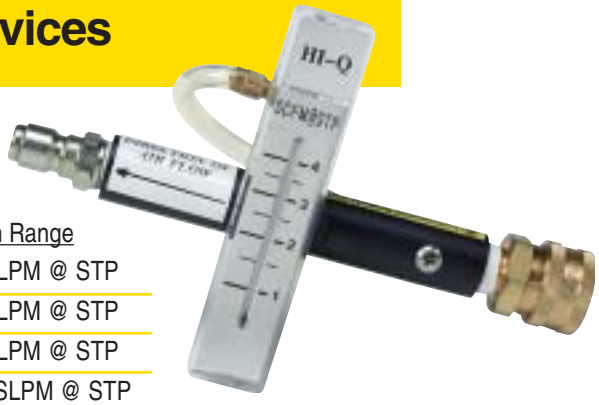
The HFC-XX series units have a standard 1 1/2" male straight pipe thread (MSPT) which can be screw into most low to medium volume air sampling pumps (ie: HI-Q's, CF-1001BRL or CF-901). On higher volumetric flow samplers, a user must incorporate an adapter plate. With the use of HI-Q's **FHA-4CF** 4" diameter adapter disc, an operator is able to calibrate a unit with a 4" diameter filter holder assembly. The **FHA-810CF** adapter plate is used to calibrate units with an 8" x 10" paper holder.

Ordering Information
Replace "**XX**" with the uppermost desired flow rate. If a dual scale reading is required (i.e. both CFM & LPM displayed on one scale) replace "**C**" with "**DSC**" (e.g. order: HFC-50DSC for 10-50 CFM & 280-1500 LPM marked scale). High Volume, Single Range Air Flow Calibrators ranges between 10-50 CFM (280-1500 LPM).

Model	Calibration Range	Orientation	Fitting
HFC-XXC	10-XX SCFM @ STP	Vertical	1-1/2" MSPT
HFC-XXL	280-XX SLPM @ STP	Vertical	1-1/2" MSPT
HFC-SIDE-XXC	10-XX SCFM @ STP	Horizontal	1-1/2" MSPT
HFC-SIDE-XXL	280-XX SLPM @ STP	Horizontal	1-1/2" MSPT

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Air Flow Calibrators, Adapters, & Calibration Services



V-FLO
Air Flow Measuring Unit

The V-FLO-XX series units incorporate a flowmeter and a precision-machined venturi tube to create a pressure differential across a fixed orifice which floats the indicating ball in the flowmeter. By varying the flow velocities, the pressure differentials are measured & recorded against a laminar flow element whose calibration is certified and traceable to the **National Institute of Standards and Technology (N.I.S.T.)**. The recorded volumetric flow units are then marked directly on the attached flowmeter scale. HI-Q's V-FLO models are accurate within ±5% of full scale reading. The standard V-FLO-XX body is six inches long and threaded on both ends with 3/8" female NPT. The complete unit includes one male (outlet) & one female (inlet) 3/8" quick disconnect fitting. The V-FLO-XX, venturi flow meters are intended for in-line use.

Ordering Information for Venturi Flow meters: On custom units replace "**XX**" with the uppermost desired flow rate. If a dual scale reading is required (i.e. both CFM & LPM displayed on one scale) add the letters "**DSC**" to the end of the model number (e.g. order: V-FLO-5-DSC for 1-5 CFM & 28-140 LPM marked scale).

Note: Larger Flow meters with expanded scales are available.

Ordering Information

Order LPM	Calibration Range
V-FLO-30L	2 TO 30 SLPM @ STP
V-FLO-50L	2 TO 50 SLPM @ STP
V-FLO-70L	5 TO 70 SLPM @ STP
V-FLO-90L	10 TO 90 SLPM @ STP
V-FLO-115L	15 TO 115 SLPM @ STP
V-FLO-XXL	SPECIFY LPM RANGE

Order CFM	Calibration Range
V-FLO-2	0.0 TO 3.0 SCFM @ STP
V-FLO-4	0.5 TO 4.0 SCFM @ STP
V-FLO-6	1.0 TO 6.0 SCFM @ STP
V-FLO-8	2.0 TO 8.0 SCFM @ STP
V-FLO-10	2.0 TO 10 SCFM @ STP
V-FLO-XX	SPECIFY CFM RANGE

Calibration, Re-Calibration, Certification, & Re-Certification Services for Air Sampling Equipment, Systems, & Accessories

- **All HI-Q Calibrations Performed Per ANSI/NCSL Z540-1-1994**

HI-Q Environmental Products Company offers a calibration and re-certification service for air flow calibrators and air sampling instrumentation.

Standard protocol requires recalibrating air flow measurement devices once or twice per year depending on use and sampling environment. HI-Q calibrates and certifies units against a **N.I.S.T.** traceable laminar flow element and furnishes a certification of accuracy with each unit.

Re-Calibration service charges vary depending upon the complexity of the service. The table to the right describes the recertification service ordering information for functioning air flow measurement units. Repair services are also available.



Ordering Information

Style	Flow Range and Scale Description	Cost Code
Single Range (either SCFM or SLPM)		
V-FLO-Series	Low Flow, Single Range SCFM or SLPM Flowmeter/Rotameter	A
AFC-Series	Low Flow, Single Range SCFM or SLPM Magnehelic®	B
HFC-Series	High Flow, Single Range SCFM or SLPM Magnehelic®	C
Dual Scale, Single Range (both SCFM & SLPM)		
V-FLO-Dual	Low Flow, Dual Scale SCFM and SLPM Flowmeter	B
DSC-Series	Low Flow, Dual Scale SCFM and SLPM Magnehelic®	C
HFC-Dual	High Flow, Dual Scale SCFM and SLPM Magnehelic®	D
Dual Range, Single Scale (Low & High Flow, 2 Separate Gauges)		
AFC-15D	Specify Separate Flow Ranges (i.e..:0-3, 3-15)	D
Dual Range, Dual Scale (Low & High Flow, 2 Separate Gauges)		
AFC-15D/425D	Specify Separate Flow Ranges (i.e..:0-3, 3-15)	E
Electronic Programming Re-Calibration & Certification		
ELECTRONIC	Electronic Calibration & Certification (i.e.: Flow & Totalizer Calibration)	E
Dry Gas Totaling Meters		
DRY GAS METERS	5 Point Certification	F

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Calibrator Adapter Fittings

Air Flow Calibrators are generally used to verify the displayed sample flow rate accuracy of complete air sampling systems. Along with the flow measuring device to be calibrated, it is recommended that a "Complete" system for calibration should also includes the actual filter holder and filter media in order to duplicate realistic pressure drops experienced in a true sampling environment. The following adapters allow a technician to connect an Air Flow Calibrator at the end of (open to air) an "In-Line" High, Medium or Low Volume Air Sampling calibration set up.

Standard Calibration set-up, from right to left, (as shown in picture) is as follows: 1.) Open to Air, 2.) Air Flow Calibrator, 3.) Calibrator Adapter Fitting, 4.) Filter Holder & Media, 5.) Flow meter to be Calibrated, 6.) Flow Control Valve, and finally 7.) Vacuum Pump.



Ordering Information

Choose In-Line Calibration Adapter Cone with reference to your filter media holder and male fitting included with your air flow calibrator.

Combination Filter & Paper Holder In-Line Adapter Cones

Model	Connects to Holder Type	Quick Disconnect
RVA-10-CA	Combination, 2" Paper	3/8" Female QD
RVA-15-CA	Combination, 47mm Paper	3/8" Female QD
RVA-2-CA	Combination, 2" Paper	1/2" Female QD
RVA-5-CA	Combination, 47mm Paper	1/2" Female QD
CFA-20-CA	Combination, 2" Paper	1 1/2" FSPT
CFA-25-CA	Combination, 47mm Paper	1 1/2" FSPT

Paper Only Filter Holder In-Line Adapter Cones

Model	Connects to Holder Type	Quick Disconnect
RVPA-10-CA	Paper Only, 2" Paper	3/8" Female QD
RVPA-15-CA	Paper Only, 47mm Paper	3/8" Female QD
RVPA-2-CA	Paper Only, 2" Paper	1/2" Female QD
RVPA-5-CA	Paper Only, 47 mm paper	1/2" Female QD
CFPA-30-CA	Paper Only, 2" Paper	1 1/2" FSPT
CFPA-35-CA	Paper Only, 47mm Paper	1 1/2" FSPT

Note: FSPT = Female Straight Pipe Thread (CF-Series Holders & Adapters)

Calibration Adapter Plates (High Flow)

HI-Q Environmental Products Company's "FHA-Series" adapters are designed to reduce overall pressure drop found during the calibration of standard 4" diameter and 8" x 10" filter paper sampling applications. The FHA's unique design reduces the overall paper to adapter fitting contact, thereby allowing the maximum obtainable free cross-sectional surface area through which unrestricted air can pass. This is done to duplicate the conditions of ambient air, open face, sampling procedure's and to reduce the overall error in calibration.



Ordering Information

FHA-4CF
4" Dia. Disc x 1½" Female Straight Pipe Thread.

FHA-810CF
8" x 10" Plate x 1½" Female Straight Pipe Thread.

FHA-810X810
In-line 8" x 10" filter holder adapter with minimal flow disturbance. Assembly includes one inverted standard 8" x 10" holder complete with two mounting rails and a foam gasket. Filter holder inlet: 1½" female straight pipe thread.

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Replacement Rotary Vane Vacuum Pumps, Parts & Service Kits

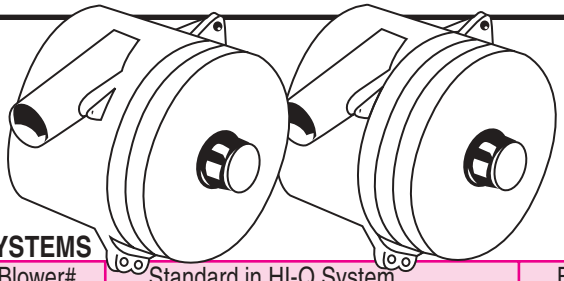
RV11-0211, RV23-0523, & RV23-1023

The Oilless Rotary Vane, Air Sampling Pumps incorporated in HI-Q's continuous duty air sampling systems have "Lubricated-for-Life" ball bearings which leaves the internal workings virtually maintenance free. The only servicing needed is the occasional replacement of vanes, "O" Rings, filters, and gaskets when they become worn. Many variables determine the life expectancy of a pump, such as ambient temperature, operating cycle/speed, duty level, condition of air handled and unit maintenance. HI-Q recommends inspecting the pump system every 2,000 hours. Inspection is done within a few minutes by removing a few bolts and the pump end casting which exposes the rotor and vanes.

Ordering Information

System Model Number:	XXX-0211CRNV	XXX-0523CV	XXX-1023CV
Replacement Motor/Pump:	**RV11-0211**	**RV23-0523**	**RV23-1023**
Service Kits (Includes 4 Vanes)	**K218**	**K478**	**K479**
Single Replacement Vanes (4 Required)	**AA348A**	**AH850A**	**AK513**
Filter/Muffler End Cap Assembly	**AA617G**	**AK526**	**AK526**

- **0523 & 1023 Service kits include: 4 Carbon Vanes, 2 Felt Filters, 1 Motor Gasket, 2 Felt Filter End Cap Assembly "O"-Rings, and 5 Bolt Gaskets.**
- **0211 Service kits include: 4 Carbon Vanes, 1 Body Spacer, 2 Muffler Jar Cover Gaskets, & 4 Felt Filters.**



Replacement Brushless & Brushed Vacuum Motor/Blowers

Ordering Information

115 VOLT SYSTEMS

Replacement Blower#	Standard in HI-Q System	Blower Description
HVP38-001A	HVP-3800AFC	120 VAC, 800 WATT, 3-STAGE BRUSHLESS, ELECTRONIC CONTROL.
HVP35-001	HVP-3500AFC	120 VAC, 250 WATT, 2-STAGE BRUSHLESS, ELECTRONIC CONTROL.
HVP33-001	HVP-3300BRLCF-1300BRL	120 VAC, 800 WATT, 3-STAGE BRUSHLESS, MECHANICAL CONTROL.
		UNIT INCLUDES HARD WIRED MOTOR SPEED CONTROL POT.
HVP30-001	HVP-3000BRL &CF-1000BRL	120 VAC, 250 WATT, 2-STAGE BRUSHLESS, MECHANICAL CONTROL.
		UNIT INCLUDES HARD WIRED MOTOR SPEED CONTROL POT.
HVP20-001	HVP-2000	120 VAC, 2-STAGE BRUSHED BLOWER, MECHANICAL CONTROL.
CF900-001	CF-900	120 VAC, 2-STAGE BRUSHED BLOWER, MECHANICAL CONTROL.

230 VOLT SYSTEMS

Replacement Blower#	Standard in HI-Q System	Blower Description
HVP38-230A	HVP-3800AFC/230	240 VAC, 1200 WATT, 3-STAGE BRUSHLESS, ELECTRONIC CONTROL.
HVP35-230	HVP-3500AFC/230	240 VAC, 400 WATT, 2-STAGE BRUSHLESS, ELECTRONIC CONTROL.
HVP33-002	HVP-3300BRL/230CF-1300BRL/230	240 VAC, 1200 WATT, 3-STAGE BRUSHLESS, MECHANICAL CONTROL.
		UNIT INCLUDES HARD WIRED MOTOR SPEED CONTROL POT.
HVP30-002	HVP-3000BRL/230 &CF-1000BRL/230	240 VAC, 400 WATT, 2-STAGE BRUSHLESS, MECHANICAL CONTROL.
		UNIT INCLUDES HARD WIRED MOTOR SPEED CONTROL POT.
HVP20-025	HVP-2000/230	240 VAC, 2-STAGE, BRUSHED BLOWER, MECHANICAL CONTROL.
CF900-002	CF-900/230	240 VAC, 2-STAGE BRUSHED BLOWER, MECHANICAL CONTROL.

12/24 DC OPERATED SYSTEMS

Replacement Blower#	Standard in HI-Q System	Blower Description
CF-993-001	CF-993B & CF-24B	24 VDC, 14.4 AMP, 2-STAGE BRUSHED BLOWER.
CF1524-001	CF-1524-VBRL	24 VDC, 5 AMP, BRUSHLESS BLOWER. ELECTRONIC CONTROL.

Note: 3-Stage Brushless Blowers can replace older 2-stage Blowers. Consult HI-Q Engineering for wiring and Fuse Specifications.

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7DAYTMR & ELECPRGTMR

Programmable Timers

HI-Q Environmental Products Company offers two main types of programmable timers which can be installed in any of our air sampling systems. Other option-specific timers available upon request.

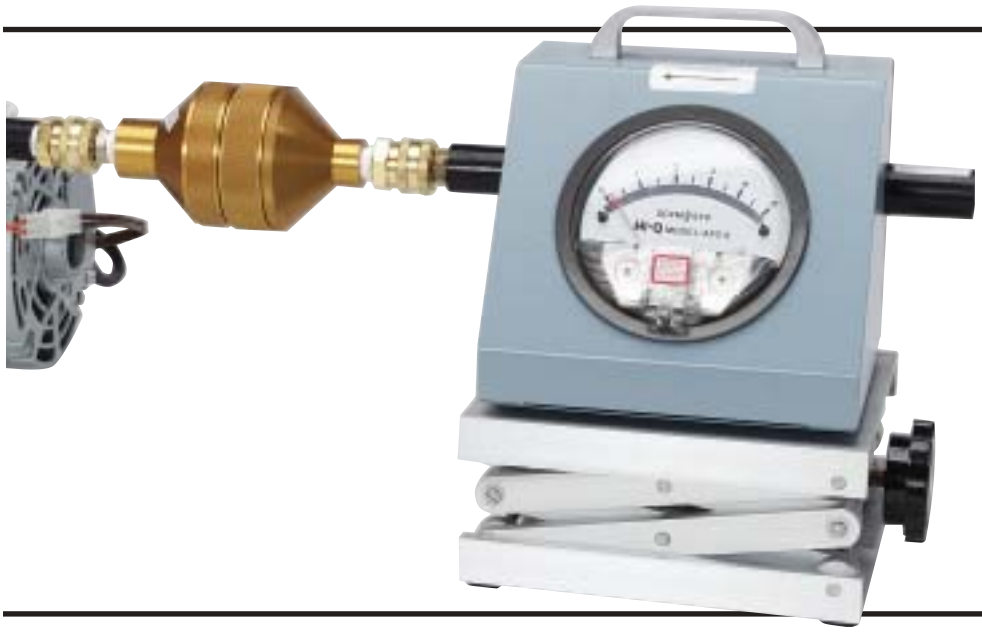
Ordering Information

7DAYTMR

This 7 Day Skip Timer allows a user to schedule with individual settings for each day of the week when power to an instrument should turn on and off. Any day may be omitted. Timer includes 14 trippers.

ELECPRGTMR

This electronic timer can be easily programmed to perform any standard timing operation: On-Delay, Off-Delay, Interval 1, Interval 2, or repeat cycle. Five selectable time ranges and programmable decimal point provide preset times ranging from 0.1 seconds to 9999 hours. All programming is done through the front panel, with an intuitive button-per-digit keypad that makes entry of preset times quick and easy. A crisp LCD display lets the operator readily view elapsed or remaining cycle time as well as preset value.



LABJACK

Equipment Lab Jack

HI-Q Environmental Products Company's adjustable height lab jack can be used in supporting & elevating air sampling equipment and calibration devices with an extension range between 3½" to 14". The LABJACK's sturdy frame can support equipment weighing up to 45 lbs. on its 6¼" x 7½" platform.

Ordering Information

LABJACK

RVSMPLN-XX & CFSMPLN-XX

Air Sampling & Return Exhaust Sample Lines

Ordering Information

RVSMPLN-XX

3/8" Diameter, Rotary Vane Style Vacuum Pump Air Sampling Line. The braid reinforced polyurethane sample line includes one 3/8" male & female quick disconnect on opposing ends of the sample line. "XX" represents the number of linear feet needed.

CFSMPLN-XX

1½" Diameter, Centrifugal Fan Type Vacuum Pump Air Sampling Line. Sample hose includes one 1½" male & female threaded PVC style fitting on opposing ends. "XX" represents the number of linear feet needed.



Many air sampling procedures call for remote site sampling where the vacuum source (air sampling pump) cannot be conveniently located in the same area where sampling is required. This may be due to a variety of reasons including explosive sampling environments, inaccessibility, and noise level restrictions. For this reason, HI-Q has developed two types of sample retrieval and exhaust lines.

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HI-Q

TR-1 & TR-1000B

Air Sampling & Equipment Tripods

HI-Q's TR-1 & TR-1000B are medium-weight tripods capable of extended sampling heights over 60 inches. For lightweight instrumentation, 12 pounds or less, HI-Q recommends the TR-1. For sampling applications that have equipment that exceeds the 12-pound workload capacity of the TR-1, HI-Q offers the TR-1000B. The TR-1000B is capable of sampling heights over 65 inches while supporting equipment up to 30 pounds. The TR-1000B series tripods will not swell, crack, or split with climate variations. They are lighter than wood and won't dent as an aluminum-type may. Weighing just under 9 lbs., the TR-1000B is an excellent choice for those who take samples in remote rugged terrain. Both the TR-1 and the TR-1000B include a 9" x 7" black anodized aluminum instrument mounting plate. The plate comes with pre-taped holes to fit a variety of standard air sampling pump bases.



TR-1000B
Shown with Air Sampler



TR-1
Low Profile

Ordering Information

Model Number:	TR-1	TR-1000B
Maximum Capacity:	12 lbs.	30 lbs.
Maximum extended height:	68.0"	72.0"
Folded length:	22"	40"
Center column extension:	13.5	N/A
Net weight:	4.5 lbs.	9 lbs.
Equipment Mounting Plate:	9"x 7"x ¼" Black Anodized Aluminum	9"x 7"x ¼" Black Anodized Aluminum
Leg material:	Aluminum	Pultruded Fiberglass

MSC-PLASTIC, MRV0523-BOX & MRV0523CV-ALPHA

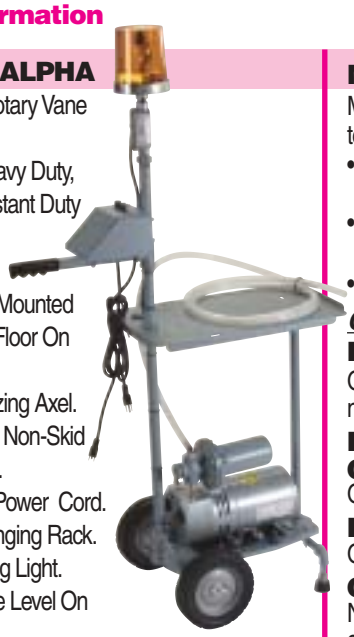
Mobile Air Sampling & Equipment Carts

- **Heavy Duty (Alpha) CAM Carts**
- **Universal, Multi-Purpose Sampling Carts**

HI-Q Environmental Products Company's Custom Mobile Air Sampling & Equipment Carts have proven to be industry leaders. From the heavy-duty design of the MRV0523CV-ALPHA used primarily to support ALPHA CAM's, to the telescoping equipment platform of the MSC-PLSTC used primarily for the transport of complete battery operated air sampling system.

Ordering Information

MRV0523CV-ALPHA



1. ¼ Hp Oilless Rotary Vane Vacuum Pump.
2. Mechanical, Heavy Duty, Adjustable Constant Duty Control Valve.
3. 16" X 13" Mounting Plate Mounted 28" Above The Floor On Handle Bar.
4. 15" Rear Stabilizing Axel.
5. Dual Stabilizing, Non-Skid Front Foot Pegs.
6. 50' Hard Wired Power Cord.
7. Power Cord Hanging Rack.
8. Rotating Warning Light. Mounted At Eye Level On Cart Post.
9. Custom Mounting Plates For Most (Alpha) CAM's.
10. Custom Wiring For Desired (Alpha) CAM Unit.

MSC-PLSTC



shown with options

Mobile Sampling Cart with telescoping mounting plate.

- Telescoping mounting plate: 54" to 72"
- Wheels: free rotating, lockable casters.
- Cart footprint: 23" x 18"

Options

PO-5
Optional hard mounted power bar.

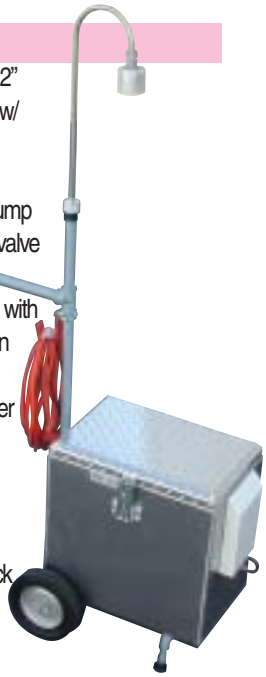
POWER CORD-50
Optional 50 foot power cord, 14/3.

POWER CORD-25
Optional 25 foot power cord, 16/3.

CUSTOM FEATURES
Name your custom feature: (i.e.: custom tray sizes, cord hanging rack, shock mounted pumps…)

HANGING-RACK
Power cord winding hooks

MRV0523-BOX



- High quality 18" x 18" x 12" Weather Proof Housing w/ cooling fan
- Continuous Duty Oilless Rotary Vane Vacuum Pump
- Mechanical flow control valve
- Adjustable height Gooseneck sample inlet with bug screen & integral rain shield
- NIST traceable flow meter
- Internally mounted filter holder
- On/Off switch with fuse protection
- Locking Hasp for padlock
- Security eyelet for chaining to pole
- 25' power cord

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MCV-260

Mechanical, Heavy Duty, Automatic Flow Control Valve

This valve will control the air flow rate to ±5% of the set flow rate over a wide pressure differential. It is the best commercially available mechanical vacuum flow controller. The unit operates by use of two diametrically opposed springs and a diaphragm that controls the valve opening. Depending upon pump capacity, flows between 0.5 to 10 CFM can be controlled by increasing or decreasing the spring tension with a wing nut found under the protective spring cover housing. Once set, the control valve will maintain a constant flow, ±5%, up to the capacity of the pump. This valve is a full Flow Controller not a "Flow Regulator" or adjustable orifice commonly found in the industry. Because the MCV-260 uses no make up air, nor "bleed-in" air to control the flow rate, the total volume of air sampled equals the total volume of air exhausted. This is ideal for applications requiring a Gas Meter to be hooked up to the exhaust (pressure application) of the sampler for totalizing the volume of air sampled.

FOR POSITIVE DISPLACEMENT PUMPS ONLY



Ordering Information

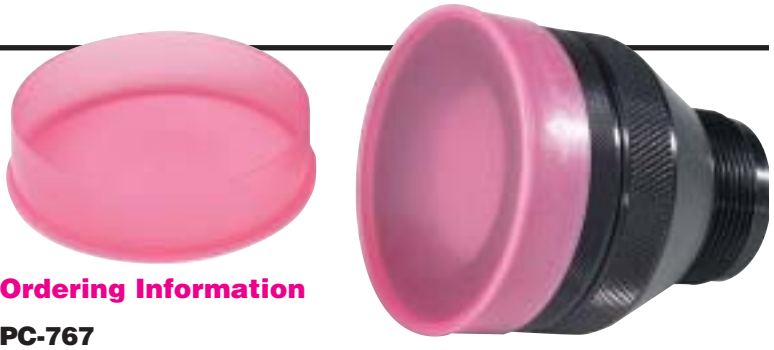
MCV-260
Mechanical Heavy Duty Automatic Flow Control Valve (3/8" Female NPT Inlet/Outlet).

MCV-RK
Rebuild Kit: Replacement Buna "N" diaphragm and "O" Ring.

PC-767

Sample Saver Covers
Open Face Filter Covers

Anti-Static plastic cover for HI-Q combination cartridge & filter paper holders. Ideal for transporting filter holders to and from the field & laboratory without cross-contamination or particle loss. Fits all HI-Q open faced, combination type, filter holders.



Ordering Information

PC-767
Anti-Static Filter Covers in packages of 10 each.
Fits HI-Q Combination Type, open face filter holder.

Quick Disconnect Fittings & Hose Barbs

The following Quick Disconnect Couplings and Hose Barbs are for "RV" Series Holders and Sampling Systems. HI-Q stocks male & female Stainless Steel and Brass Quick Disconnect fittings for all 3/8" fitting combinations.

FQD= Female Quick Disconnect
MQD= Male Quick Disconnect
MNPT= Male National Pipe Thread
FNPT= Female National Pipe Thread





Ordering Information

Hose Barbs

Model	Fittings	Mtrl.
375MXBARB	3/8" MNPT X 3/8" HOSE BARB	Brass
375FXBARB	3/8" FNPT X 3/8" HOSE BARB	Brass
375MX25BARB	3/8" MNPT X 1/4" HOSE BARB	Brass
375FX25BARB	3/8" MNPT X 1/4" HOSE BARB	Brass
375MX500BARB	3/8" MNPT X 1/2" HOSE BARB	Brass
375FX500BARB	3/8" FNPT X 1/2" HOSE BARB	Brass

Disconnect Fittings

Model	Fittings (3/8")	Mtrl.
BST-3M	FQD-MPT	Brass
BST-3	FQD-FPT	Brass
ST-N3M	MQD-MPT	Steel
SST-3M	FQD-MPT	Stainless Steel
SST-3	FQD-FNPT	Stainless Steel
SST-N3M	MQD-MPT	Stainless Steel

Note: Don't see what you need? HI-Q stocks a variety of Stainless Steel & Brass quick disconnects, couplers, reducers, nipples, tees, elbows, and hose barb fittings. Give us a call.

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Record Total Volume of Air Sampled!





S-275, R-275, #415, MR-5, MR-8, MR-12, & SK25

Gas Totaling Meters

HI-Q offers a wide range of dry gas totaling meters which, when incorporated in an air sampling system, are an excellent source for recording the ***total volume*** of air sampled. The gas-totaling meter may either be connected to have gas supplied through the inlet (connected to the exhaust of a positive displacement pump) or drawn through the outlet (connected on the vacuum side of an air sampling system). The direction of the flow must simply be maintained per the flow arrow indicator on the cover, i.e. inlet to outlet.

Ordering Information		Capacity @ ½" Diff.				Direct Reading Meter Index (Odometer Type)				
						Cubic Feet (Total = 9999XX)			Cubic Metes (Total = 99999.9)	
Cubic Feet P/N	Cubic Meter P/N	CFM	LPM	Max W.P. psi	Fitting NPT	1st Reading	1st Proving Hand	2nd ProvingHand	1st Reading	Proving Hand
S-275	**MR-5**	4.2	118	5	3/4" F	100	1/3/rev	2'/rev	0.1	0.05/rev
R-275	**MR-8**	4.7	133	5	3/4" M	100	1/3/rev	2'/rev	0.1	0.05/rev
#415	**MR-12**	7.1	200	10	1 1/4" M	100	1/3/rev	2'/rev	0.1	0.05/rev
-	**PK25**	-	83	1.45	3/8" F	-	-	-	0.001	0.2L/rev

*all meters rated for a temperature range of -30ºF to +150ºF

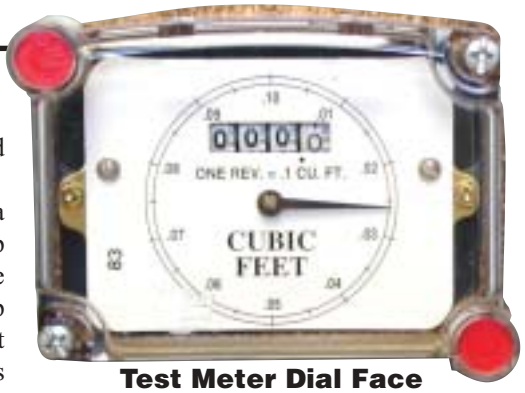
Test Meters -TESTMETER

Test Meters are particularly advantageous in applications where minute amounts of gas must be measured with a high degree of accuracy. They are used in factories, laboratories, testing departments, and precision air sampling trains.

One of the more popular uses of this type of meter has been in the area of pollution control & sampling. The Environmental Protection Agency has set standards of performance for limiting gaseous and particulate emissions from factories. Federal, state, and local pollution control authorities have discovered a need for dependable precision instruments to sample and evaluate pollutants. Test Meters are being implemented in stack sampling and pollution monitoring equipment.

Test Meters come equipped with a special test index. This index has a sweep hand, which could be compared to the sweep hand on a stopwatch. The sweep hand circle is finely graduated so that accurate measurement of minute amounts of flow can be accomplished. Timing of the sweep hand also allows for the accurate establishment of small flow rates.

The test index used on the S-275 through the #415 has a sweep hand, which makes one revolution for each 1/10 cubic foot of gas consumed. It may easily be read to the nearest 0.005 cubic foot and has a maximum reading of 999 cubic feet.



Test Meter Dial Face

Upon request, this group of test meters can also be equipped with an index whose test hand makes one revolution for one cubic foot of gas consumed.

Ordering Information: Add the word **"-TESTMETER"** behind any of the part numbers (P/N) above. Not available on P/N PK25 meter.

Temperature Compensation -TC

All dry gas-totaling meters can be equipped with a bimetallic element that will automatically correct for changes in gas temperature and convert line volumes to the common base temperature of 60 ºF.

The fundamental difference in a temperature-compensated meter is the tangent. It features twin bi-metallic elements as the active or compensating members. The tangent is mounted in such a way that temperature variations, causing expansion or contraction of the bimetallic element, alter the volume of the meter. This automatically causes the meter to speed up or slow down as required and does not affect valve timing.

A temperature compensated meter can be outwardly identified by a difference in the manufacturer's badge color along with a "TC" notation on both the badge and the meter index. Standard meters have blue badges. TC meters have red manufacture's badges.

The typical temperature compensation performance is within an accuracy band of ±2% over a flowing gas temperature range of –20ºF to +120ºF.

Ordering Information: Add the initials **"-TC"** behind any of the part numbers (P/N) above. Not available on P/N PK25 meter.

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WH-36 & WH-40

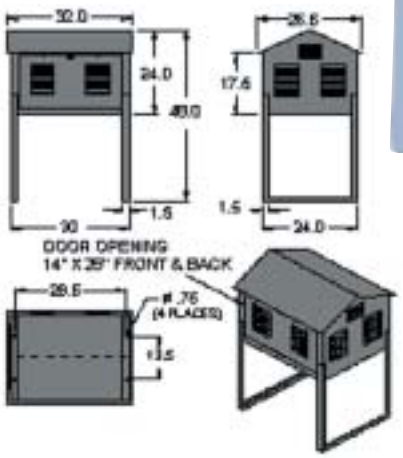
Instrument Weather House

- **DEPENDABLE- Built for Heavy-Duty Use in All Environments.**
- **SECURE- Double Thumb Twist Locks with Pad Lockable Hasp on Each Access Door.**
- **RIGID- Pop-Riveted Housing with "U" Frame, Bolt on Leg Set.**
- **DURABLE- Built from 0.090" Thick Sheet Aluminum. 26" Long Piano Style Hinges Support Each Access Door. Individual Unit Components are Acid Primed and Then Painted with 2-Component, High Solid Polyurethane Paint, Then Baked.**

HI-Q's Instrument Weather House with its heavy gauge, primed and painted, aluminum body is ideal for protecting instruments from harsh outdoor sampling environments. The WH-36 & 40 series Instrument Weather Houses conveniently house and protect air sampling and other instrumentation. Two, large, 14" x 26" piano hinged access doors allow an operator to conveniently mount and maintain instrumentation and equipment. Both access doors may be closed with twist pins and then secured with a padlock.



WH-40
shown with options



Color Choices:

- Metallic Blue
- White
- Anodized Aluminum

Ordering Information

WH-36
Standard Instrument Weather House.

WH-40
Instrument Weather House with Internal Screens & Louvers. The WH-40's internal screened louvers are removable for easy cleaning. The counter mounting of the internal louvers prevents rain or snow from blowing directly into the housing and onto instrumentation.

Accessories:

All accessories are mounted free of charge when ordered with instrument weather house.

SD-90100
Snap Disc Thermostat Switch. Turns on Axial fan at 100°F and Off at 90°F

PO-5
Power outlet with mounting bracket, 16/3 grounded wire, 5 outlets, 15 Amp breaker.

WH-LS
Lamp outlet with pull chain. Used for lighting or a heat lamp.

GN-R&WS
Rain & Wind Shield for filter holders externally mounted on gooseneck. Includes 3/8" male & female quick disconnect for easy installation.

AF-100
Axial Fan, 110V, 50/60 Hz., 100 CFM free air capacity, mounts in the apex of weather house roof. Removes excess heat generated by pumps or sun.

WH-EL
Extended Legs, elevates weather house to 67" above the ground (to peak).

WH-GN
Stainless Steel Gooseneck assembly, 3/8" NPT inlet/outlet. Allows operator to sample at EPA designated breathing levels by mounting the filter holder assembly externally 59" above the ground. Custom tubing lengths available.

WH-6X10LS
Replacement 6" x 10" Internal screen & louver set (3 set louvered door).

WH-7X10LS
Replacement 7 1/4" x 10 1/4" Internal screen & louver set (old style, 2-set louvered door).

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Notes:

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Terms and Conditions of Sale

Establishing Terms:

We will gladly open an account to companies with an established credit rating. Credit references and banking information are required for all new accounts. **Accepted credit cards:** VISA, MasterCard, American Express.

Shipping:

All shipments are considered FOB plant, San Diego, California. Shipping charges are generally prepaid and added to invoice. A minimum $5.00 "packaging and handling" fee plus shipping and insurance are applicable to all orders. We can ship by other means or express when requested by the purchaser upon order placement.

** A 10% service charge will be added to the invoice for rush delivery. Minimum charge, $25.00.*

Billing Terms:

Credit approval is necessary for establishing an open account. Billing terms are Net 30 days. There is a minimum order of $50.00 for all purchases. Other methods of payments are Visa, MasterCard, American Express, Checks in advance, COD, Money Order, Letter of Credit, or Wire Transfer. All processing fee's and banking charges for Wire Transfer and Letter of Credit are charged to the customer account. All prices and specification are subject to change without notice.

** A monthly 1½% late charge will be applied to all past due Invoices.*

Damages in Transit:

HI-Q Environmental Products Company takes every reasonable precaution to pack your order so that it arrives in an undamaged condition. The common carrier assumes the responsibility for safe delivery. If you find apparent or concealed damages to your shipment, YOU must make a claim to the carrier, as you are the insured party. If you do not receive complete satisfaction, please call us for our help.

International Orders:

We have product dealers in many countries. All international orders are shipped upon receipt of an I.L.C., with all bank charges to buyers account. A payment by check or wire transfer is also acceptable. Any wire transfer fee's incurred are the buyer's responsibility. All bank charges are to the customers account.

We ship air freight, insurance and documentation charges collect from San Diego, California, 92121, USA.

All Merchandise Guaranteed:

If for any reason you are not satisfied with your purchase, please call our Customer Service Department to obtain an RMA number. Upon authorization, return the merchandise in it's original container and within 30 days, you will receive full credit or a refund. Our products are warranted for one year on parts and labor. Shipping to and from the factory are to be paid by the customer. Out of warranty repairs can be made at a nominal charge. Warranty is limited to a refund of prices paid or complete replacement of the item.

Ordering Methods:

Phone: 858-549-2820
Fax: 858-549-9657
Website: WWW.HI-Q.NET
E-mail: SALES@HI-Q.NET
Mail: 7386 Trade Street
San Diego, CA. 92121

Upon placing an order, please include the following information:

- **Your name & company's name**
- **Your direct contact information**
- **Billing & Shipping Address**
- **Method of Payment**
- **Purchase Order Number**
- **Preferred Shipping Method**

We Accept ALL Major Credit Cards:



For Help or Technical Support:

Phone: 858-549-2820
E-mail: Info@HI-Q.NET

HI-Q ENVIRONMENTAL PRODUCTS COMPANY

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Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

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We're here to make your life easier. How can we help you today?

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