

PM 10 High Volume Samplers

PM 10 Size Selective High Volume Sampling Systems

Andersen/GMW's High Volume PM 10 Sampling Systems meet all Federal Reference Method Performance specifications for the measurement of PM 10 and have been EPA designated as an approved Method for the determination of ambient PM 10 particulate concentrations. Each PM 10 Sampler bears an identification label with the FRM designation number RFPS-1287-063. Volumetric and Mass Flow Controlled Systems are available for 24 hour ambient PM 10 measurements.

Mass Flow Controlled High Volume Air Sampling Systems

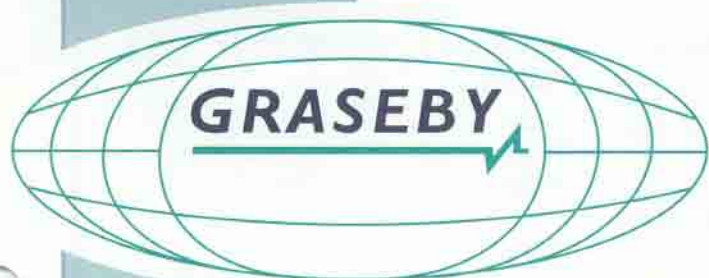
The Mass Flow Controlled High Volume Samplers feature accurate collection of total suspended particulates and PM 10, meeting EPA specifications. Air flow through the system is maintained at a constant rate by an electronic probe which automatically adjusts the speed of the blower/motor to correct for variations in line voltage temperature, pressure, and filter loading.

Adjustable over a range from 20CFM to 60CFM, air flow is controlled at a constant standard condition of 25°C temperature and 760 mm Hg pressure within plus or minus 1 CFM. By maintaining an exact air flow rate through the sampler, the particulate concentration is extremely accurate and reliable.

The high volume air sampler incorporates a pressure recorder or a well type manometer for flow verification. The elapsed time indicator is calibrated in hours, tenths, and hundredths. A wide variety of electronic and mechanical timers are available, along with the Flow Manager (see specification sheet for Flow Manager).

FEATURES

- Accurately Samples Aerodynamic Diameter of Particles Less than 10 Micrometers (PM 10)
- All Weather, Outdoor Shelter Constructed of Anodized Aluminum
- High Speed Motor Designed for 24-Hour Continuous Sampling
- Rugged electronic circuit and mass flow probe for accurate sampling
- Optional brushless blower motor available
- Electronic Flow Manager available for data logging and sampler field data



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Volumetric Flow Controlled Air Sampling Systems

The Andersen/GMW Volumetric Flow Controller (VFC) is a critical flow orifice venturi device used to control gas flow. When applied to a high volume air sampler, this flow control principal incorporates a smooth-wall venturi orifice that gradually opens to a recovery section. Vacuum is provided by a blower/motor downstream of the venturi. Over 95% of the energy lost in differential pressures across the restricting orifice is recovered in this design.

Flow control is accomplished by restricting, and thus accelerating the air flow through the venturi. At a point in the flow stream, air velocity will equal the acoustic velocity, or speed of sound, and critical flow will be achieved. As long as downstream changes are small, all conditions at the venturi (including the flow rate) are determined by upstream conditions. This is referred to as "choking" and is a characteristic of all VFC's. The PM 10 utilizes this principle of choked or critical flow to maintain a constant actual flow rate of 40 ACFM (1.13 ACMM) over the sample period. Since critical flow through the venturi is not greatly affected by changes in the filter loading, ambient temperature or barometric pressure, a stable "Volumetric flow" rate is maintained.

The orifice used in this system can also be described as a well documented Critical Venturi Meter (CVM). CVM is a specially machined nozzle or restriction device designed to react to a specific pressure ratio expressed in absolute terms. When air reaches the speed of sound in the throat (smallest diameter) of the CVM, a sound pressure barrier is set up that will not allow more air through under the existing temperature and pressure conditions. This is the "critical flow" point of the meter, thus the name Critical Venturi Meter. The Volumetric Flow Controller regulates flow at a constant but unadjustable rate without any moving parts or electronic components. Each PM 10 Sampler bears an identification label with the EPA designation number RFPS-1287-063.

FEATURES

- Accurately Samples Aerodynamic Diameter of Particles Less than 10 Micrometers (PM 10)
- All Weather, Outdoor Shelter Constructed of Anodized Aluminum
- High Speed Motor Designed for 24-Hour Continuous Sampling
- Optional Brushless Blower Motor Available
- Meets All Federal Reference Method Performance Specifications for the Measurement of PM 10
- No Electronic Components
- Electronic Flow Manager Available for Data Logging and Sampler Field Data

Specifications:

Mass Flow Control

Volumetric Flow Control

Motor:	HP 0.6	HP 1.0
Amperage:	6.25	7.0
Wattage:	750	840
Flow Set Point:	20 to 60 ACFM	40 ACFM
Flow Control Accuracy:	+/- 2.5%	<1% Deviation over 24-hour period
Power Source:	115v,60Hz or 220v,50/60Hz	115v,60Hz or 220v,50/60Hz
Net Weight:	112 lbs.	136 lbs
Shipping Sizes & Weights:		
Shelter:46" x 20" x 23"	70 lbs.	74 lbs.
Inlet: 32" x 32" x 26"	65 lbs.	58 lbs.
VFC, Blower & Filter Holder: 28" x 21" x 19"	N/A	27 lbs.
Federal Reference Method Designation Number:	RFPS-1287-063	RFPS-1287-063