



Staplex

PM2.5 High Volume Air Sampler System

- Particles with sizes larger than 2.5 microns aerodynamic diameter impact on porous retaining disk. Particles smaller than 2.5 microns aerodynamic diameter are vented from the impaction zone downward to the sampling filter.
- Hinged sampling chamber for easy cleaning/greasing of collection shim
- Removable collection shim prevents large particle bounce at high concentration sites

Principle of Operation:

Suspended particles in the air are sampled at 40 ACFM through the circumferential inlet of the PM-2.5 Size Selective Inlet. The symmetrical design insures wind-direction insensitivity, and the Inlet design and internal configuration makes the collection efficiency independent of wind speed from 0 to 36 kilometers per hour. The particles are then accelerated through multiple circular Impactor nozzles. By virtue of their larger momentum, particles greater than the 2.5 micron impactor cut-point impact onto the greased impaction surface. The PM-2.5 particles smaller than 2.5 microns are carried vertically upward by the air flow and down multiple vent tubes to the 8-inch x 10-inch quartz fiber filter (Staplex® No. TFAQ810), where they are collected. The large particles settle out in the impaction chamber on the collection shim and are removed/cleaned during prescribed maintenance periods.

The quartz fiber filter is weighed before and after sampling. The weight increase is the mass of particles smaller than 2.5 microns. The mass concentration of PM-2.5 particles (micrograms per cubic meter) is determined by dividing the particulate mass (micrograms) by the sampled air volume (cubic meters).

The FC-1 Series Electronic Mass Flow Controller included in the system properly totalizes the air volume by maintaining a constant flow rate of 40 ACFM regardless of filter loading, atmospheric conditions and line voltage

Flow Rate: 40 cubic feet per minute (CFM), 1.13 cubic meters per minute.

Filter Media: 8-in. x 10-in. (20 cm x 25 cm) quartz fiber filter media, Staplex® No. TFAQ810 (25 / box)

Accuracy of Mass Flow Control (@ 40 CFM): $\pm 2.5\%$ deviation over 24-hour sampling period.

Required Filters: Staplex® Type TFAQ810 Quartz Fiber Filters, 8" x 10" (25 per box)

Additional Options:

FR-1 and FR-2 - Flow Recorder
DTM-1 and DTM-2 Digital 7-Day Timer
MT-1 and MT-2 Mechanical 7 Day Timer
CKHV810 Calibration Kit

NOTE: Staplex® PM2.5 Size Selective Inlet is available separately as Part No. PM2.5-SSI for conversion of existing TSP (Total Suspend Particulate) High Volume Air Sampling Systems to PM2.5 Systems. Above Basic System Components are recommend to convert to a basic PM2.5 System. PM2.5 system can convert to a PM10 System by removing a component of the PM2.5 inlet.

Size: 64"H (163 cm) high x maximum 28" (71 cm) diameter

Net Weight: Base with Basic Components: 45 lbs. (20.5 kg.) PM2.5 Size Selective Inlet, 50 lbs. (23 kg.)

Made in U.S.A.

Model PM2.5-1 Basic PM2.5 High Volume Air Sampling System 115 VAC, 60 Hz

Model PM2.5-2 Basic PM2.5 High Volume Air Sampling System 230 VAC, 50Hz
(specify components when ordering)

Staplex Air Sampler Division

777 Fifth Avenue, Brooklyn, New York 11232-1695

Basic System includes the following Staplex[®] components:

1. PM2.5-SSI Size Selective Inlet
2. TFIA Series High Volume Air Sampler
3. SH810 8"x10" Filter Holder Assembly
4. FPC810 Filter Paper Cassette