



Staplex[®] PM10

High Volume Air Sampler

- Designed to meet all of EPA's PM-10 performance specifications in Federal Reference Method
- 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 PM10 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 10 micron impactor cut-point impact onto the greased impaction surface. The PM-10 particles smaller than 10 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 10 microns. The mass concentration of PM-10 particles (micrograms per cubic meter) is determined by dividing the particulate mass (micrograms) by the sampled air volume (cubic meters). The air volume is properly totalized by maintaining a constant flow rate of 40 ACFM with Electronic Mass Flow Controller.

Inlet Collection Efficiency: PM10 Inlet has a cut-point of 9.7 microns over a wind speed of 0 to 36 KPH.

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

Basic System includes the following Staplex[®] components:

1. **PM10-SSI** Size Selective Inlet
2. **TFIA** Series High Volume Air Sampler,
3. **SH810** 8"x10" Filter Holder Assembly
4. **FPC810** Filter Paper Cassette
5. **FC-1LTM/FC-2LTM** Constant Flow Controller with Elapsed Time Indicator
6. **SAM** Aluminum Outdoor Shelter

Filters: Staplex Type TFAQ810 Quartz Fiber Filters, 8" x 10" [20 cm x 25 cm] (25 per box)

Additional Options:

- DTM-1/DTM-2 Digital Timer
- FR-1/FR-2 Flow Recorder
- MT-2/MT-3 Mechanical Timer

NOTE: PM10 Size Selective Inlet is available separately as Part No. PM10-SSI for conversion of existing TSP (Total Suspend Particulate) High Volume Air Sampling Systems. Above Basic System Components are recommend to convert a TSP System to a basic PM10 System.

Accuracy of Mass Flow Control : $\pm 2.5\%$ deviation over 24-hour sampling period at 40 CFM [1.14 CMM]

DTM-1/DTM-2 Digital Timer all functions are digital and quartz crystal controlled; digital clock with 1/4-in. LED display and 7.2 VDC rechargeable stand-by battery.

Elapsed Time Indicator: 99,999.99 hours (non-resettable)

Mechanical Timer: 7-day or 6-day timer; fully adjustable start and stop times in 15 minute intervals; ± 30 minutes accuracy.

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

Net Weight: Base with Basic Components: 45 lbs. (20.5 kg.) PM10 Size Selective Inlet, 50 lbs. (23 kg.)

Made in U.S.A.

Specifications subject to change without notice or obligation.

Model PM10-1 115 VAC, 60 Hz System

Model PM10-2 230 VAC, 50 Hz System

(specify all components/options when ordering)

Staplex[®] Air Sampler Division

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