



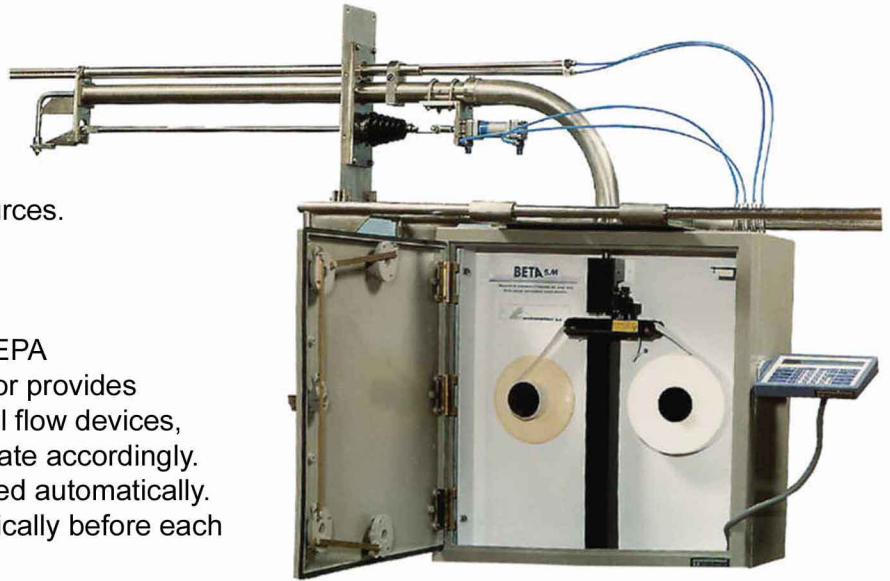
Conforms with the new  
cement & upcoming boiler  
& utility NESHAP rules!

# BETA 5M

## Particulate Monitoring System

Meets EPA P.S. 11 and Appendix F - Procedure 2

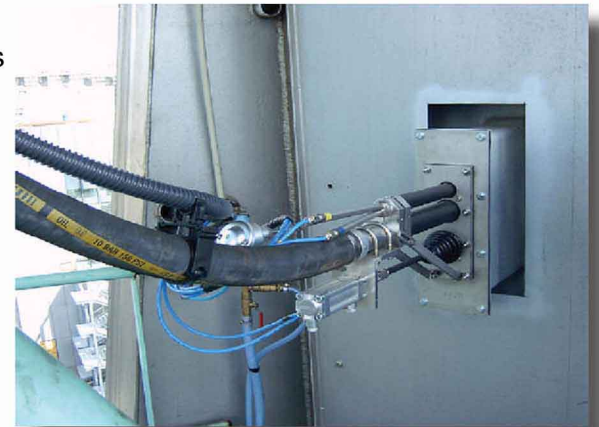
The BETA 5M is an automated, field proven analyzer for measuring the mass emission of particulates from stationary sources. The beta gauge measurement technique, ideal for wet and dry applications, is independent of particulate characteristics (size, color, and shape) and complies with EPA and ISO standards. The built-in flow monitor provides isokinetic sampling, independent of external flow devices, and automatically adjusts the sample flow rate accordingly. Daily mass and flow calibrations are provided automatically. Sample system integrity is verified automatically before each measurement cycle via a leak check.



BETA 5M monitor with rigid sampling probe

### Key Features:

- Sample probe heated to 350° F eliminates condensation and prevents corrosion
- Isokinetic sampling set via built-in Pitot tube
- Built-in pitot tube sets sample flow rate isokinetically
- Beta gauge measurement is independent of particulate characteristics
- Complies with P.S. 11, Procedure 2 of Appendix F, and ISO 10473
- Rigid or flexible probe provides for ease of installation
- Automatic daily calibration of mass and flow
- Mass flow meters provide quarterly Sample Volume Audit (SVA) per 40CFR, Appendix F, Procedure 2
- Compact enclosure provides protection from ambient condition
- Leak check of sampling system per EPA testing requirement



Flexible Sampling Probe

## Particulate Emissions Monitor by Beta Ray Attenuation

### Specifications:

#### Range:

- Particulates: 2-4,000 mg/Nm<sup>3</sup>
- Flow: 10-130 ft/sec

Detection Limit: 0.1 mg/Nm<sup>3</sup>

Accuracy: 10% (from 0.1-30 mg)

Sample probe tube length: 5, 7.5, 10, 13 ft.;  
material 316 stainless steel

Source: C14, very low activity (3.66 MBq)

Detector: Geiger-Muller

Filter tape: 5,000 measurements

Measurement unit:

NEMA 4, 2.5'H x 1'D x 2.5'H, 132 lbs. (without probe)

Temperature range: 15-100° F

#### Outputs:

- Serial: RS232/422
- Analog: 8 (0-1v /4-20mA)
- Relay I/O: 1 general alarm/1 stand-by

### Utilities:

Power: 220VAC, 4kVA

Air: 90psi, 20 SCFM, Instrument grade

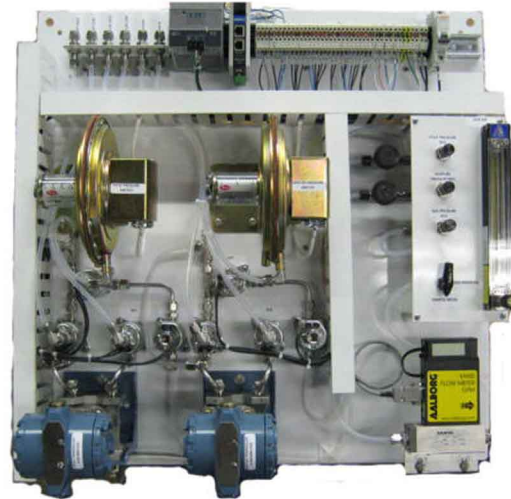
### Options:

Flexible or rigid sampling probe

Hastelloy probe tube

Sample volume audit (SVA) module

to meet for 40CFR60, Appendix F, Procedure 2



Procedure 2 Module

### Description:

A built-in pitot tube measures the flue gas velocity and sets the sample flow rate with a motor driven valve for isokinetic sampling. The heated sampling probe extracts the particulates which are deposited on a filter tape. A beta gauge is used to measure the particulates. The mass concentration is determined by a differential measurement where a blank filter is measured prior to collecting the sample. An optical encoder precisely determines the filter tape position for each sample measurement cycle. Prior to each sample collection cycle a vacuum leak check is performed by sealing the sampling system with a shut off valve. Daily calibrations for mass and sample volume are performed automatically. A pair of pressure transducers and mass flowmeters determine allow an independent audits of sample volume, as required by Procedure 2 of 40CFR60, Appendix B.

The unit is microprocessor based which manages the measurement cycles, including flow rate and temperature regulation, calculations, and alarms. The signal interface is available in either an analog/digital or a serial format. An HMI provides local access to the instrument for setup, diagnostics, and programming.

The sample probe, available in either a rigid or flexible configuration, allows simplified installation at new or existing facilities.