

# ISO 9931 Measurement System



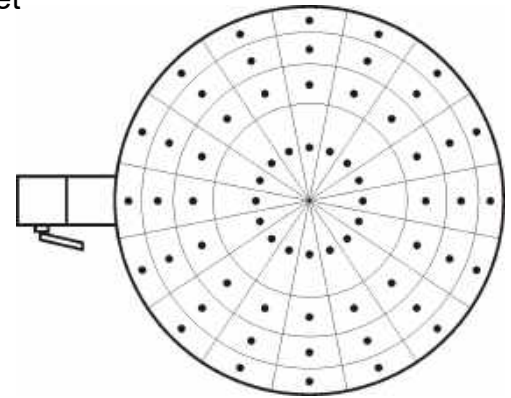
The ISO 9931 Measurement System is utilized to sample particulate flow carried within an air stream. By isokinetically extracting the sample, the particulate flow rate can be determined. The sampling probe, the SwivelSampler™, features four (4) adjustable nozzles that rotate around the center axis, and thus the probe is ideally suited for use in round pipe flow systems. The nozzles are positioned at different radial positions from the center representing equal areas. The rotation of the probe head allows the nozzles to extract particulate samples over the entire pipe cross section while entering through a single test port. This increases the test accuracy when there is a gradient in the particulate distribution.



ISO 9931 sampling in a coal piping system

The vacuum extraction rate is set by the operator based on the known average air velocity within the pipe. The rotation of the probe head is performed manually with a uniform sample time used at each rotational set point. A particulate collection system separates the sample, which is weighed after each test to calculate the total pipe particulate flow.

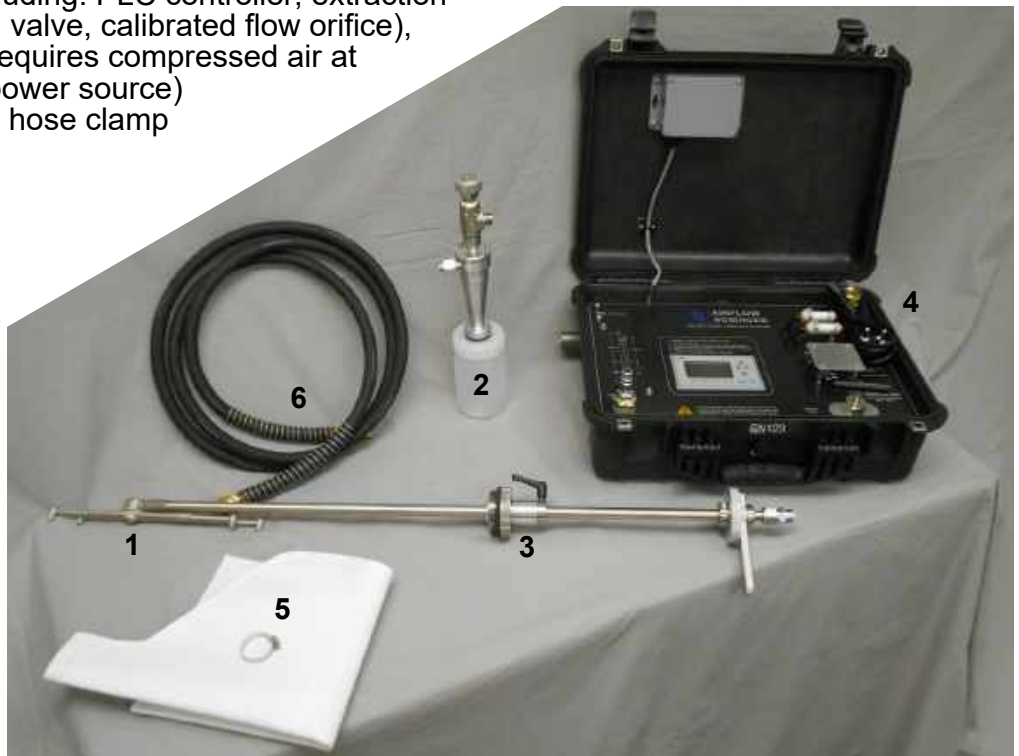
The standard system (ASE part no. ISO-SYSTEM-V2) is shown in the photograph.



ISO 9931 Sampling Points

## Components:

- 1 – Standard SwivelSampler™ probe (CP-ISO9931) with rotational gearing and four (4) adjustable nozzles
  - 2 – Particle collection system: cyclone with sampling jar (ISO-CJ)
  - 3 – Dustless connector (DC-ISOCP) with depth lock
  - 4 – Control box (ISO-CB-V2) including: PLC controller, extraction rate control system (vacuum, valve, calibrated flow orifice), heated back purge system (requires compressed air at 80 psi and 110 or 240 VAC power source)
  - 5 – Filter Bag (ISO-FA4-FB) with hose clamp
  - 6 – Vacuum sample tube (10' [3m] length) (ISO-UMB-VSH)
- Data Sheet and Calculations Spreadsheet (not shown)
  - Users manual, Certificates of Calibration (not shown)



## ISO 9931 Measurement System Details and Specifications

The SwivelSampler™ can be manufactured to a variety of specifications.

Typical features are listed below, though custom orders are available:

- Pipe diameter – 12" to 31" [305 to 787 mm]
- Color coded rotation dial
- Level indicator (to ensure proper alignment)
- Material – 304 stainless steel
- Dustless connector – 1.5" [38.1 mm] or 2" [50.8 mm] NPT thread



Alignment level, rotation indicator, and handle



Dustless connector



Control panel with PLC controller



SwivelSampler™ probe head

## Optional Accessories

### Seal Air Fitting

ASE's Mobile Seal Air Fitting (part no. SAF-MOB) greatly improves the accuracy, speed, and safety of a test. When testing flows with high positive static pressure, the SAF keeps the air and particulate from leaking out of the pipe when the test port is open to insert the probe. The SAF blows plant compressed air into the test port, allowing safe access and making for a much cleaner test.



SAF-MOB

