

SASS[®] 4000



Aerosol Concentrator

Capture low-concentration particles with high-volume air flow

Features

- No moving parts, other than the primary fan
- Minimal maintenance
- Wide operating temperature
- Clog resistant
- Sampled air volume is maximized to improve collection statistics

Application Areas

- Environmental
- Air quality
- Agriculture
- Public Health
- Medical facilities
- Homeland security
- Military
- Power Plants

The SASS[®] 4000 is a highly efficient, high-volume aerosol concentration device. Many applications require the collection and analysis of aerosol particles, ranging from counterterrorism to epidemiology, medicine, and agriculture. These applications typically involve the monitoring or collection of airborne plant, animal, or human pathogens. But aerosol sample analysis is frequently plagued by four problems:

- The targeted pathogen is present at a very low concentration
- The collection process involves too small an air sample to be statistically valid
- The temperature is below freezing
- Available bioassay methods are not sensitive enough

The SASS[®] 4000 concentrator solves these problems by processing large volumes of ambient air, and continuously transferring particulates from this primary air stream to a much smaller secondary airflow. As a result, the secondary flow can reach aerosol concentrations that



are 4X to 15X higher than present in the incoming air. The concentrator therefore amplifies the ambient aerosol concentration, while retaining most of the particles that were present in the incoming airflow in the secondary flow. Also, if a wet sampler is used, heating of the secondary air requires much less power than would be required to keep the primary air above freezing.

Particles are routed into the secondary flow by forcing primary circuit air to circulate through specially shaped channels where centrifugal force and particle momentum are used to isolate and concentrate the particles. The interior structure has been designed so that the smallest flow cross-section is a channel 0.6 mm wide x 6.35 cm long, providing good resistance to clogging by larger particles. A coarse screened cover with 5.4 mm square openings further restricts the entrance of large debris.

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SASS® 4000 sampling specifications

Primary Airflow	4000 liters/min is sampled uniformly from around the concentrator's circumference.
Aerosol Range	Aerosols greater than 0.5 microns in diameter with a particle density of 1.0 g/cc.
Concentration Enhancement	4 - 15 times typical for aerosols greater than 0.5 microns in size. Performance is also influenced by secondary airflow. Please request specific data for your application.
Secondary Airflow	30-360 LPM at +0.4 cm of water static head maximum; aerosol concentrate typically delivered to a wet or dry sampler such as the SASS 2300 or SASS 3100, respectively.
Secondary Airflow Connection	Hose barb fitting on base surface for nominal 3.8 cm ID hose.

Physical specifications

Operating Temperature	-40°C to 70°C
Dimensions (excl. tripod legs)	38 cm high x 25.4 cm diameter max.
Mounting	Quick-detach tripod legs; 0.53m to 1.46m adjustable height.
Height with Tripod Legs	90 cm to 184 cm (user adjustable)
Weight	6.32 kg (13.9 lbs.) excluding tripod legs
Power Consumption	160 watts at 24VDC; Brushless drive motor with 70,000 hour life at 40°C. 100 to 230 VAC lump-in cord AD/DC converter supplied.
Sound Level	72 dBA @ 1 meter radius on inlet equatorial plane.
Optional Accessories	Hard shell carrying case; hose for connecting to a SASS 2300; hose for connecting to a SASS 3100; filter adapter plate.



The SASS 4000 may be connected to a SASS 2300 wet-wall cyclone air sampler, a SASS 3100 dry sampler, or other collection instruments.

Research International reserves the right to change specifications without prior notice.



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