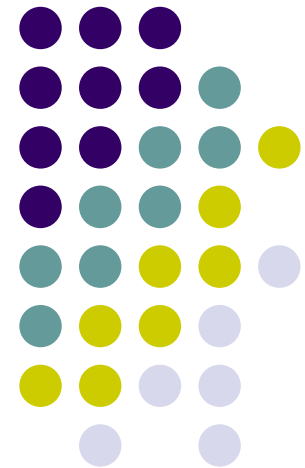


SIBATA

Product lineup

Environmental Instruments



Regulations for Industrial Hygiene (Japan)



Various work environments	Item to be measured	Number of times measured	Period records are
Indoor work areas that scatter large amount of soil and stone, rock, mineral, metal, and carbon dust●	atmospheric dust concentration, free silicic acid content	once every 6months or less	7years
Heat, cold, or indoor work environments with humidity	Temperature, humidity, radiant heat	once every half month or less	3years
Indoor work environments where there are loud noises	Equivalent noise level	once every 6months or less	3years
Underground working section 1. Areas where carbon dioxide stagnate 2. Underground areas with ventilation 3. Places where it is more than 28℃	carbonic-acid gas concentration ventilation volume and temperature of the atmosphere	(1)Once every month or less (2) (3)Once every half month or less	3years
Buildings in which rooms are used as office space with centrally controlled air conditioning.	Carbon monoxide and carbon dioxide content in the atmosphere, room temperature, outside temperature, and relative humidity.	once every 2months or less	3years
Work environments in which radiation is used in business. 1. Maintenance zones in which radiation is used in business 2. Rooms in which radioactive materials are used.● 3. Underground nuclear substance stope	Dose equivalent rate due to outside radiation; Radioactive material concentration in the atmosphere	once every month or less	5years
Indoor work places that manufacture or use type 1 and type 2 specific chemical substances ●	Type 1 and type 2 substance concentration in the atmosphere	once every 6months or less	3years (some parts)
Indoor work place that use powdery state or molten lead ●	Lead concentration in the atmosphere	Once every year or less	3years

Environmental standards relevant to atmospheric pollution



Substance	Environmental conditions (Set year month day)	Measurement method
Sulfur dioxide (SO ₂)	That 1hour value of 1day average value is less than 0.04ppm, and 1hour value is less than 0.1ppm.	Solution conductivity method or ultraviolet fluorescence method
Carbon Monoxide (CO)	That 1hour value of 1day average value is less than 10ppm, and 1hour value of 8hour average value is less than 20ppm.	Method using a non dispersive infrared analyzer
Solid particulate matter (SPM)	That 1hour value of 1day average value is less than 0.10mg/m ³ , and 1hour value is less than 0.20mg/m ³ .	Gravimetric concentration method by filter collection or light scattering method, piezoelectric balance method, beta-ray absorption method in which a straight line relation can be found with the gravimetric concentration method that derives usable volume.
Nitrogen dioxide (NO ₂)	That 1hour value of 1day average value is within or less than the zone of 0.04ppm to 0.06ppm.	Absorption photometry method that uses Salzmänn reagent for chemiluminescence method that uses the ozone.
Photochemical oxydant (OX)	That 1hour value is less than 0.06ppm.	Absorption photometry method, or coulometry method, ultraviolet absorption method that uses neutral potassium iodide solution or chemiluminescence method using ethylene

Building Health Control Standard



Measurment	standard	measureming instrument
Aerosol	0.15mg /under 1m ³	gravimetric & relative mass
CO	under 10ppm	sampling tube method
CO ₂	under 1000ppm	sampling tube method
Temperature	17°C~28°C	0.5°C marked thermometer
Humidity	40~70 %	0.5°C marked hygrometer
Wind flow	under 0.5m /s	able to measure under 0.2m /s
HCHO	under 0.08ppm	DNPH culture melting

SIBATA Aerosol Photometer





LD-3B



Digital Dust Indicator

Model: LD-3B

Range: 0.001-10 mg/m³

- The LD-3B is an aerosol photometer designed to read the relative mass concentration of aerosol.



LD-3B



Features:

- **One of the most-used aerosol photometers in Japan.**
- **Adopting Light scattering method.**
- **K factor will make accurate measurement possible.**

Other photometers:



High Concentration
Digital Dust Indicator

Model: LD-5D

Range: 0.01-100 mg/m³

The LD-5D is a portable photometer built to sample high concentration aerosol. The applications for the LD-5D are for environments with high concentrations such as tunnel construction sites which the LD-3B would not be suitable.

Other photometers:



Digital Dust Indicator

Model: LD-2

Range: 0.001-100 mg/m³

3 ranges

The LD-2 is a small sized photometer built for logging exposure to aerosol. The calibrator is built separately to form a smaller size.

Other photometers:



Personal Dust Sensor

Model: PDS-2

Range: 0.001-100 mg/m³

3 ranges

The PDS-2 is a photometer built for logging personal exposure to aerosol. The sensor and DATA logger are built separately to sample respirable aerosol.

Other photometers:



Mask Fitting Tester

Model: MT-03

Particle range: $0.3 \mu\text{m}$ or up,
 $0.5 \mu\text{m}$ or up, 0.3 to $0.5 \mu\text{m}$,
selectable 3-range

Measuring range:

Count 0 to 9999999



The MT-03 is a portable mask fitness tester. It is built to measure whether the mask is fitting the face. The leak rate is obtained by counting the number of larger particles than the pore size of a mask filter from the inside and outside of the mask.

The High Volume Air Sampler



HV-500R



HV-500R



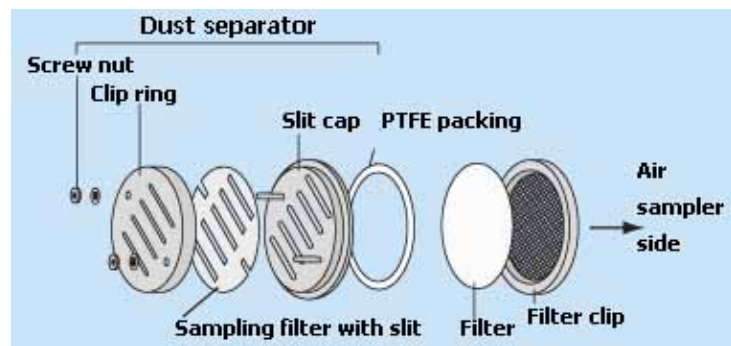
- A Compact Industrial hygiene sampler built to sample at a suction flow rate of 500L/m.
- Built for measuring aerosol at industrial environment.
- Widely used for Comparison Measurement (working environment) in Japan.

Regulations for Industrial Hygiene (Japan)



- Method : Collection on a filter using an air sampler with a separator which cuts 50% of $4.0 \mu\text{m}$ and over. (PM2.5 and PM10 will coming soon) The collection filter is weighed using an electronic balance.
- Low Volume Air Sampler: SL-30N
- High Volume Air Sampler: HV-500R

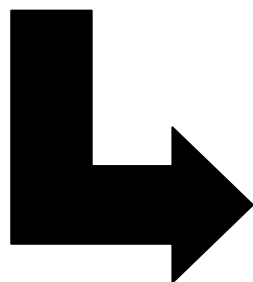




Dust separator



HV-500R



[HV-500R for aerosol (PM₄)]



**Air Sampler with
particle size classification property**





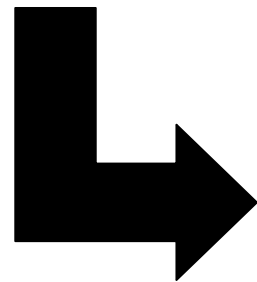
**Air sampler with
Dust separator**

+

K factor method



LD-3B



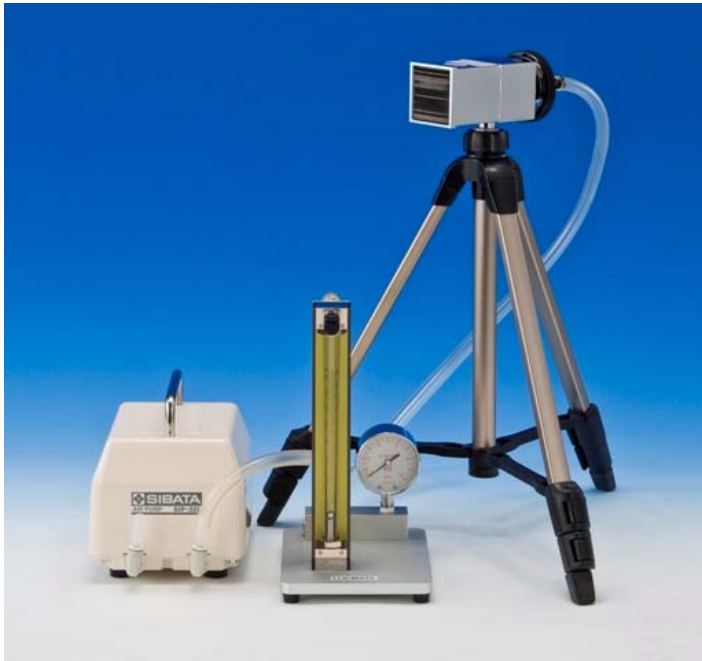
- **Dust measurement
analyzing particle size
is possible.**



Features

- Portable & user friendly
- Constant-flow system
- Digitally displayed cumulative-flow, suction-pressure, and instantaneous-flow
- Adopting a Brushless motor

Other Air Samplers :



Low Volume Air Sampler
Model: SL-30N
Flow rate: 30L/min; SPM
9.6L/min; PM4

A portable aerosol sampler designed for measurement in industrial hygiene. It is divided into a suction pump unit and a container for accessories including the dust separator and tripod.

Air Samplers for Ambient Air :



High Volume Air Sampler

Model: HV-1000R

Flow rate: 500-1200L/min

An all-weather high volume air sampler that samples aerosol on a filter. Therefore is widely used to perform quantitative analyses of the concentration and composition of particulates.

Dioxin Samplers :



High Volume Air Sampler
Model: HV-1000R for Dioxin
Flow rate: 500-1200L/min



Dioxin Sampler
Model: HV-700R
Flow rate: 100-700L/min

Dioxin Samplers :



SHUTTLE TUBE URETHANE HOLDER

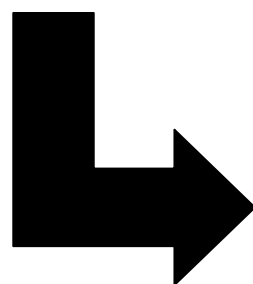


FILTER HOLDER
(w/HOPPER)



SHUTTLE TUBE FITTING SET

+



HV-500RD1

Sampling Pumps



The Sigma N Series



The Sigma N Series

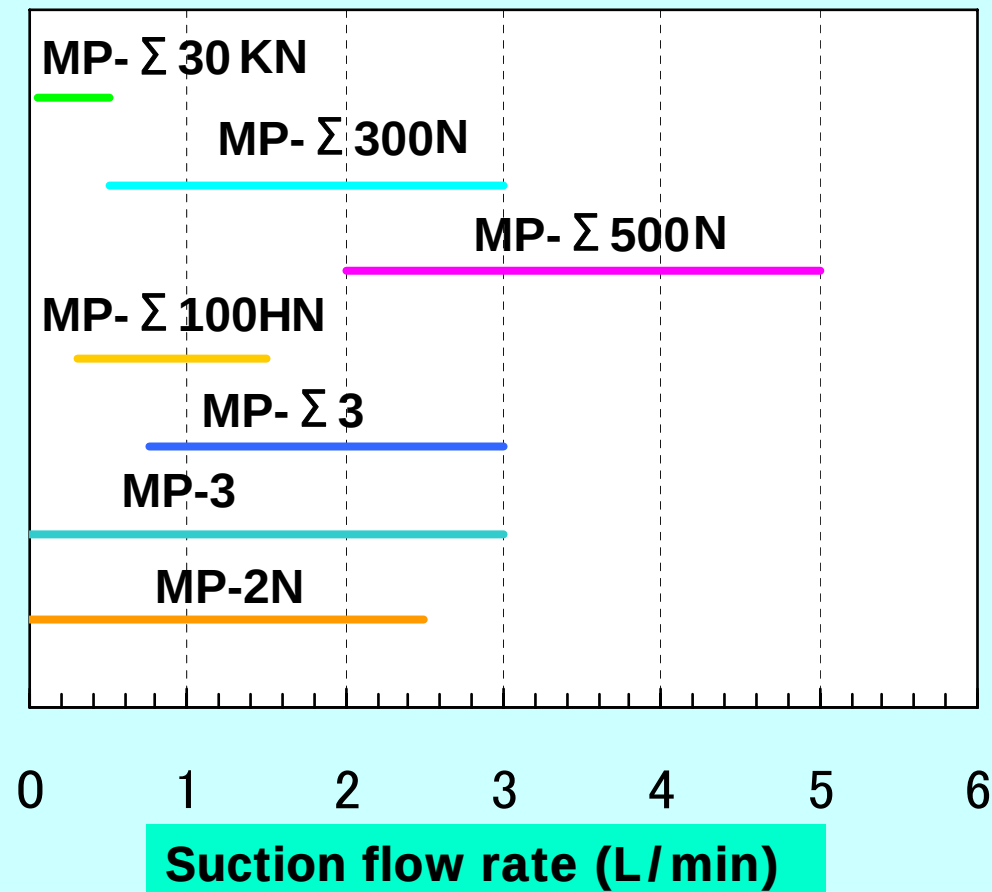


- The MP- Σ N series pump is a small sized, light weight, and portable high-performance air-suction pump with a built-in cumulative flow meter.
- Due to the high suction pressure and stable suction flow volume, it can be used widely as a sampling pump for industrial hygiene, indoor environment, and sampling for hazardous substances in the atmosphere.

Comparison of suction flow rates of the Mini Pumps



Suction flow rate comparison of the Mini-pump



Liquid collection method



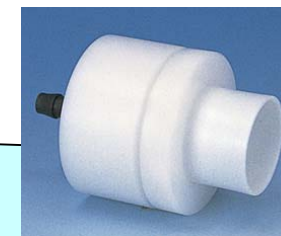
Gas tube sampling



Asbestos Sampler



Filter Holders

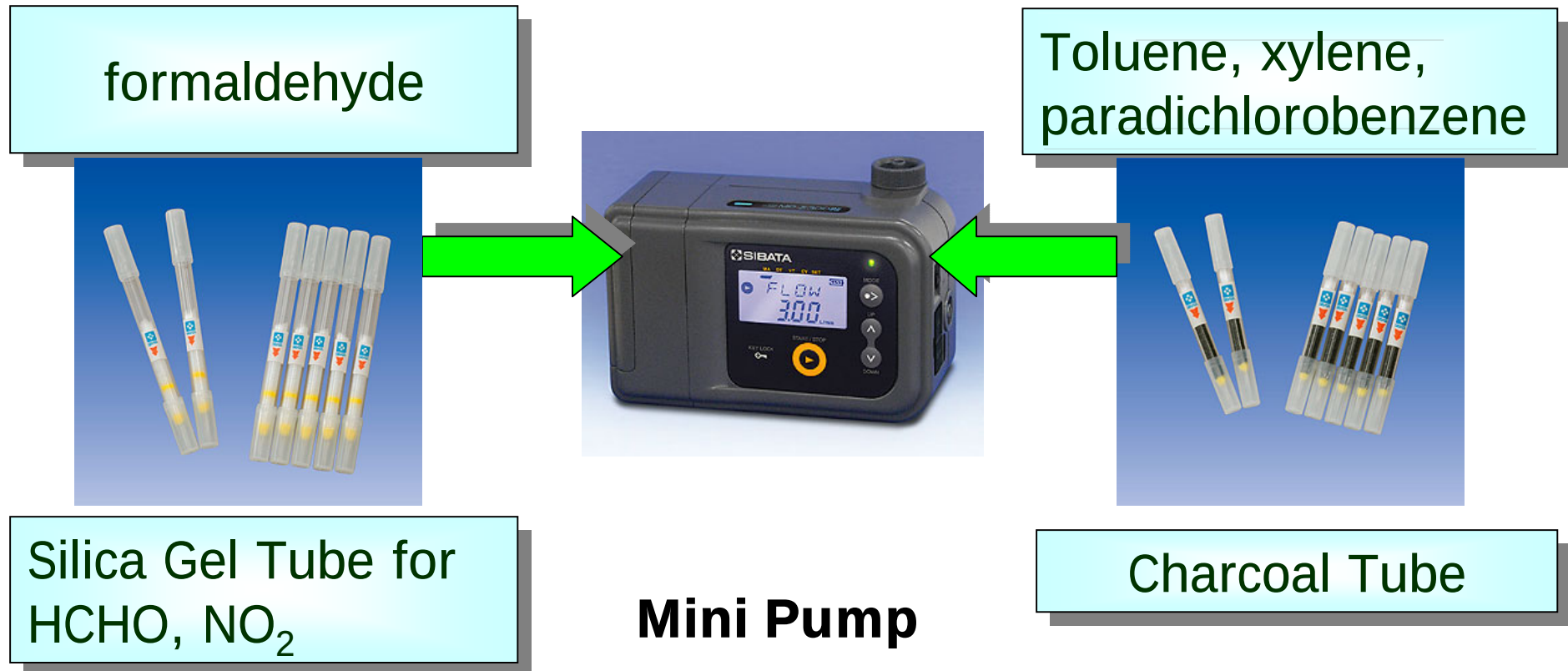


Airborne Bacteria Sampler

Gas Sampling :



Force air into the Charcoal tube by using suction pump (Mini Pump)

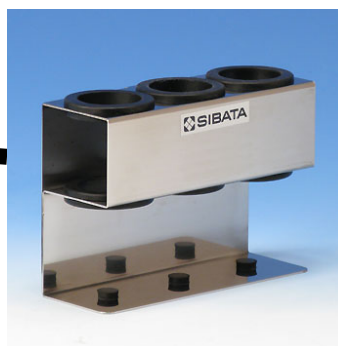


Liquid collection method :

A collection method for gases and vapor. To collect samples, pour in 10mL of absorbent and set up, aspirate with flow volume of approx. 100mL/min.



Twin impinger holder



Midget impingers

Asbestos Sampler :



Asbestos dust stand sampler

Model: APS-7

Flow rate: 0.50-3.00L/min

Filter: ϕ 25mm

Said to be the cause of pneumoconiosis and lung cancer, floating asbestos particulates in the atmosphere is gathering attention in Japan.

Airborne Bacteria Sampler :



Airborne Bacteria Sampler

Model: ABB-5

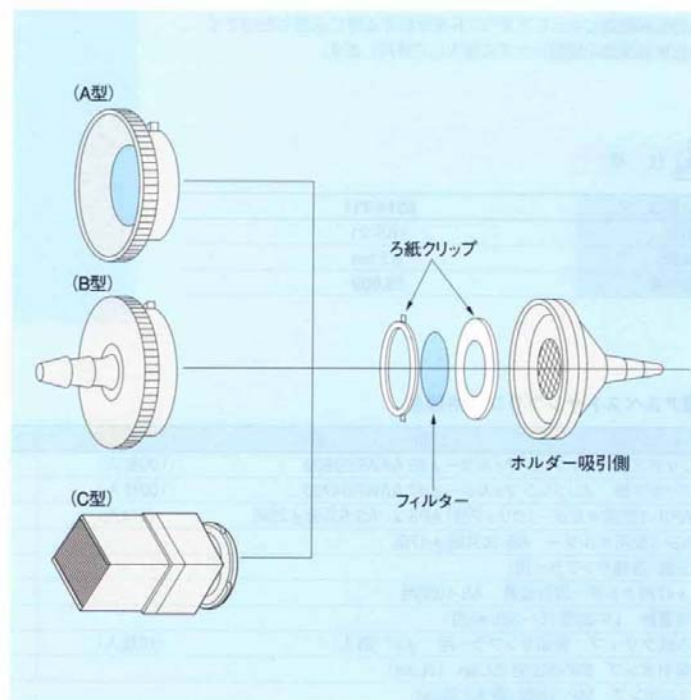
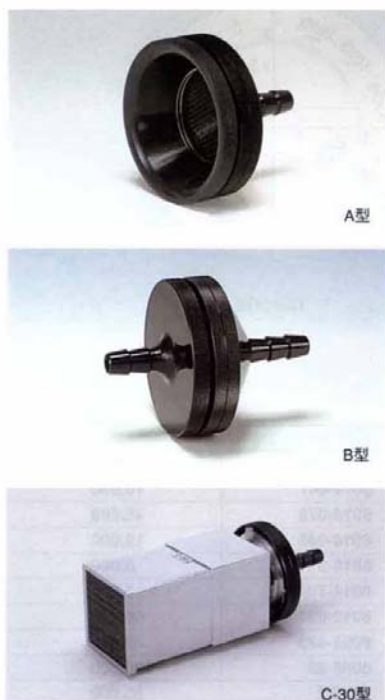
Flow rate: 2.00-4.00L/min

Filter: HA (0.45 μ m)

The ABB-5 is used for sampling airborne microorganisms and bacteria on a membrane filter.

Filter Holders :

A method in which sample air is aspirated through filter material (such as filter paper) thus substance to be measured is collected on the filter material.





End.



LD-3B



HV-500R



The Sigma N Series