



Model 130 Hi-Flow Impactor (HFI™)

A 100 liter per minute precision cascade impactor for sampling and collection of size-fractionated aerosol particle samples for gravimetical and chemical analysis



PRODUCT HIGHLIGHT

The Model 130 Hi-Flow Impactor (HFI™) is a precision, 100-L/min cascade impactor for sampling and size-classification of aerosols. Originally developed for the Navy for aerosol sampling from an aircraft, it has a compact, lightweight design and a nozzle pattern that allows the collected particle sample to be subdivided into two or four equal parts for compositional analysis by different techniques. The impactor has flown successfully in a number of research missions, producing valuable, useful data for atmospheric and climate research. Details on the complete airborne sampling package can be found in the MSP Model 4100 product brochure for the Airborne Multi-Impactor Sampler.

The Model 130 provides the same sharp cut-size characteristics as other precision cascade impactors from MSP, such as our popular Models 100 & 110 Micro-Orifice Uniform-Deposit Impactors (Moudi™). However, at 100 L/min, the Model 130 has more than three times the flow rate of the Models 100 and 110.

The high sampling flow rate of the Model 130 makes it the ideal impactor for aerosol sampling in relatively clean environments. In more polluted environments, the high sampling flow rate makes it possible to sample for shorter periods and still collect sufficient samples for analysis.

FEATURES

- 100-L/min sampling flow rate
- Six impactor stages with a 10- μm inlet stage, collecting stages at 2.5, 1.4, 0.80, 0.44 and 0.25 μm , and a final filter

- 75-mm diameter impaction substrates
- Impaction plate deposits in four separate quadrants for sample division for multiple chemical analyses
- 90-mm final filter
- Nozzle plates are hard-coat anodized aluminum for light weight, durability and nozzle dimensional stability
- Sharp cut-off characteristics
- Low inter-stage losses

APPLICATIONS

- Atmospheric aerosol size distribution and composition analysis
- Work place aerosol analysis
- Engine emission testing and analysis

DESCRIPTION

The Hi-Flow Impactor is a six-stage cascade impactor operating at 100 L/min for use in applications where cascade impactors of the more traditional 30 L/min flow rate will not provide sufficient deposits for analysis. The impactor has a 10- μm inlet and stage cut sizes at 0.25, 0.44, 0.80, 1.4, and 2.5 μm .

Deposits are collected in four 90° quadrants on 75-mm substrates, making it possible to subdivide each substrate into two or four equal parts for compositional analyses by different techniques (Figure 2).

Nozzle plates are hard-coat anodized aluminum to insure dimensional stability of the nozzles with no oxide build-up or corrosion. Multiple nozzles at each stage provide flow conditions that result in sharp-cut characteristics (Figure 3) at the stage, predictable and stable cut points and low pressure drops.



Figure 1. Hi-Flow Moudi™ Parts

Because the Hi-Flow Impactor has a design intended originally for sampling from an aircraft, special attention has been given to reducing the weight and size. This resulted in all six stages plus an after-filter in a cylindrical package, 18 cm diameter by 11 cm high, and weighing only 1.4 kg



Figure 2. Nozzle Pattern

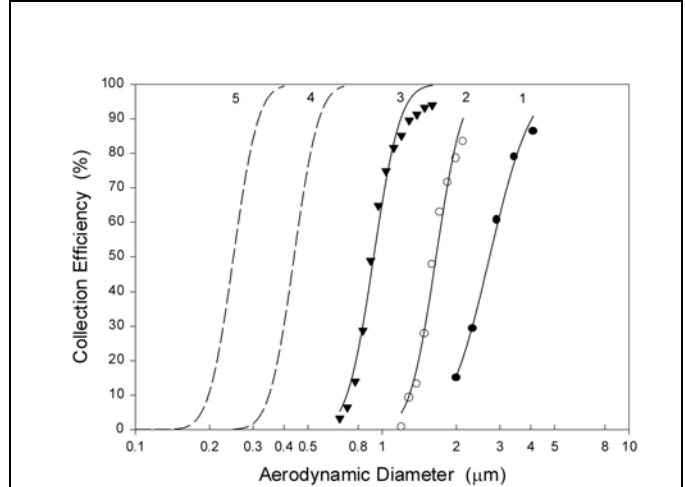


Figure 3. Impactor Efficiency Curves

SPECIFICATIONS

(Subject to change without notice)

Total Flow Rate	100 L/min
Impactor Stages	6
Cut-Point Diameter	10 (inlet), 2.5, 1.4, 0.80, 0.44 & 0.25 μm
Dimensions (DxH)	180mm x 110mm
Weight	1.4 kg (3 lb)



*Innovative technology and products
for aerosol measurement and
environmental monitoring*

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U. S. Patent 6,431,014 B1; Copyright © 2003 MSP Corporation (130 Brochure, 08/18/03)