PRODUCT INFORMATION

Model 130—High Flow Impactor™ (HFI™)

A 100 liter per minute precision cascade impactor for collecting size-fractionated particle samples for gravimetrical and/or chemical analyses

INTRODUCTION

The Model 130 Hi-Flow Impactor (HFI™) is a precision, 100-L/min cascade impactor for sampling and classifying aerosol particles. Originally developed for the Navy (ONR) for airborne sampling on an aircraft, it has a compact, lightweight and low-pressure drop design. It also features multiple-nozzle patterns to allow collected particle samples to be subdivided into two or four equal parts for compositional analysis by different techniques.

The impactor has been flown successfully in several research missions , such as ACE-Asia, producing valuable, useful data for atmospheric and climate research. Details on the complete airborne sampling package can be found in MSP's Model 4100 product brochure for the Airborne Multi-Impactor Sampler.

The Model 130 provides the same sharp cut-size characteristics 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

DESCRIPTION

The Hi-Flow Impactor is a five-stage cascade impactor operating at a sampling flow rate of 100 L/min for applications where cascade impactors with traditional 30 L/min flow rate will not suffice to provide sufficient particle samples for analysis. The impactor has five stages with cut-point diameters of 0.25, 0.44, 0.77, 1.4, and 2.5µm.

Deposits are collected in four 90^0 quadrants on 75-mm substrates. The substrates can be divided into two or four equal parts for compositional analyses by different techniques (Figure 2).

Figure 1. Hi-Flow Impactor Parts

Figure 2. Nozzle Pattern for Stage 3

The impactor is made of 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 predictable and stable cut point, low pressure drop, and sharp-cut size characteristics (Figure 3).

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 five stages plus an after-filter in a cylindrical package, 11 cm diameter by 24 cm high, and weighing only 1.8 kg.

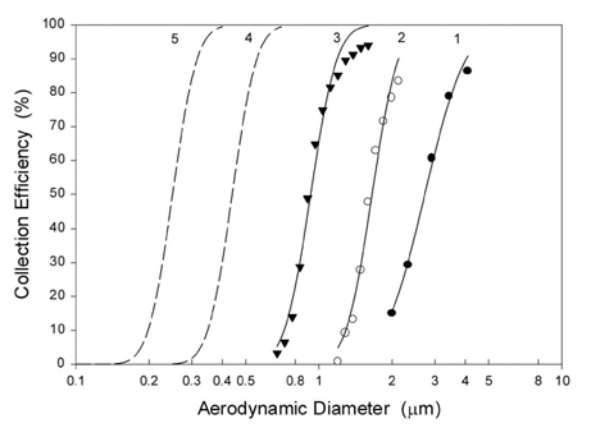

Figure 3. Impactor Efficiency Curves

FEATURES

- 100-L/min sampling flow rate
- Five impactor stages with nominal cutpoints at 2.5, 1.4, 0.77, 0.44 and 0.26μm, and a final filter
- 75-mm diameter impaction substrates
- Impaction plate deposits in four separate quadrants to allow sample to be divided for multiple chemical analyses
- 90-mm final filter
- Impactor is made of anodized aluminum for light weight, durability and nozzle dimensional stability
- Low pressure drop
- Sharp cut-off characteristics
- Low inter-stage losses

APPLICATIONS

- Atmospheric aerosol sampling for size distribution and compositional analyses
- Work place aerosol analysis
- Engine emission testing and analysis

SPECIFICATIONS

Subject to change without notice

Sampling Flow Rate	100 L/min
Impactor Stages	5
Cut-Point Diameter	2.5, 1.4, 0.77, 0.44 & 0.25 μm
Dimensions (DxH)	110mm x 240mm
Weight	1.8 kg (4 lb)
Pressure Drop (inlet to stage 5)	6 kPa
Pump Requirements	8 to 10 m^3/h max open flow,150 mbar max vacuum, 0.40 kW power

MSP Corporation
5910 Rice Creek Parkway, Suite 300
Shoreview, Minnesota 55126, U. S. A.
Phone: 651.287.8100; Fax: 651.287.8140
Sales@mspcorp.com; www.mspcorp.com