

# HIGH FLOW IMPACTORS (HFI) MODELS 128, 129, 130 AND 131

A 100 L/min precision cascade impactor for collecting size-fractionated particle samples for gravimetical and/or chemical analyses. The Models 128, 129, 130 and 131 High-Flow Impactors (HFI) are precision, 100-L/min cascade impactors for sampling and size-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 four equal parts for chemical composition analysis by different analytical techniques.

The HFI impactor has been flown successfully in several research missions, such as ACE-Asia, producing valuable, useful data for atmospheric and climate research.

The HFI impactors provide the same sharp cut-size characteristics as our popular Micro-Orifice Uniform-Deposit Impactors (MOUDI™).



## Description

The High-Flow Impactor can have 3, 4, 5 or 6 stages operating at a sampling flow rate of 100 L/min for applications where cascade impactors with traditional 30 L/min flow rate will not provide sufficient mass for analysis. The HFI impactor has stages available with cut-point diameters of 0.25, 0.44, 0.77 or 1.0, 1.4, 2.5 and 10  $\mu\text{m}$ .

Deposits are collected in four 90° quadrants on 75-mm substrates.

The substrates can be divided into four equal parts for chemical composition analyses by different techniques (Figure 2).

The impactor is made of anodized aluminum to ensure dimensional stability of the nozzles with no oxidation build-up or corrosion and light in weight.

Multiple nozzles at each stage provide flow conditions that result in sharp-cut size characteristics (Figure 3) and low pressure drop.



Figure 1. High-Flow impactor parts



Figure 2. Nozzle pattern for Stage 3

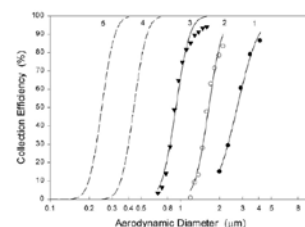
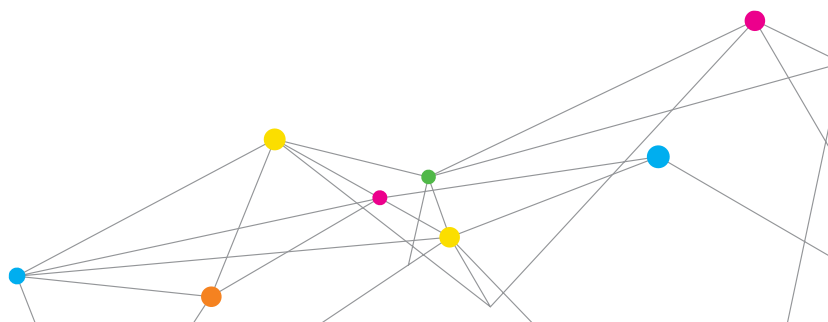


Figure 3. Impactor efficiency curves



## SPECIFICATIONS

### HIGH FLOW IMPACTORS (HFI) MODELS 128, 129, 130 AND 131

#### Applications

- + Atmospheric aerosol sampling for size distribution and compositional analyses
- + Work place aerosol analysis
- + Industrial hygiene studies

#### Features

- + 100-L/min sampling flow rate
- + Up to six impactor stages with nominal cutpoints at 10, 2.5, 1.4, 1.0 or 0.77, 0.44 and 0.26µm, plus a final filter
- + 75-mm diameter impaction substrates
- + Impaction plate deposits in four separate quadrants
- + 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

## TO ORDER

#### HFI Impactors:

Specify	Description
128	HFI Impactor, 3 Stage
129	HFI Impactor, 4 Stage
130	HFI Impactor, 5 Stage
131A	HFI Impactor, 6 Stage
131B	HFI Impactor, 6 Stage

#### Accessories:

Specify	Description
0130-01-1051	Vacuum Pump, 128-131, 110V
0130-01-1050	Vacuum Pump, 128-131, 220V, EU
0130-01-1050	Vacuum Pump, 128-131, 220V, UK
0130-96-0575	Al Foil Substrates, 75 mm, Pkg. 300
0130-01-5010	Glass Fiber Filters, 90 mm, Pkg. 100
0100-01-0100	Silicone Impactor Surface Spray
0100-96-0558	Silicone Lubricating Grease, 5.3 oz.

## SPECIFICATIONS

\*Specifications are subject to change without notice

	Model 128	Model 129	Model 130	Model 131A	Model 131B
Impactor Stages	3	4	5	6	6
Pressure Drop, kPa (w/o filter)	0.60	5.0	6.0	6.0	6.0
Cut-point diameters, µm	1.0, 2.5, 10	0.25, 1.0, 2.5, 10	0.25, 0.44, 0.77, 1.4, 2.5, 10	0.25, 0.44, 0.77, 1.4, 2.5, 10	0.25, 0.44, 1.0, 1.4, 2.5, 10
Dimensions (D x H)	108 x 216 mm	108 x 236 mm	108 x 250 mm	108 x 280 mm	108 x 280 mm
Weight (total)	1.5 kg (3.3 lb.)	1.6 kg (3.5 lb.)	1.7 kg (3.7 lb.)	2.0 kg (4.4 lb.)	2.0 kg (4.4 lb.)
Vacuum Pump (carbon vane)	115 or 230 VAC, 50-60Hz, 0.42 kW	115 or 230 VAC, 50-60Hz, 0.42 kW	115 or 230 VAC, 50-60Hz, 0.42 kW	115 or 230 VAC, 50-60Hz, 0.42 kW	115 or 230 VAC, 50-60Hz, 0.42 kW

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