Knowledge Beyond Measure.

MOUDI II™ Impactors

Models 120R, 125R

Achieving uniform particle deposition on by internal stepper-motor stage rotation

The MOUDI II™ series, including the 120R and 125R, builds on the legacy of the original MOUDI™ with advanced precision cascade impactors designed for high-accuracy aerosol sampling. These instruments collect size-fractionated particle samples for gravimetric and chemical analysis, featuring exclusive stepper motors to ensure nearly uniform particle deposition.

Both models utilize micro-orifice nozzles to minimize jet velocity, pressure drop, particle bounce, re-entrainment, and evaporative loss. Their aerodynamic design ensures sharp cut-size characteristics, low inter-stage losses, and accurate cut-size calibration, making them ideal for high-quality aerosol and environmental research.

The 125R operates at 10 L/min with 13 stages and a smallest cut-point of 10 nm. The 120R is a 10-stage, 30 L/min model with a smallest cut-point of 56 nm. Advanced electronics monitor stage rotation, instrument temperature, and pressure stability during sampling. Built-in sensors detect potential nozzle clogs, while remote control via Ethernet enhances usability.

Both models 120R and 125R are provided with instrument cabinets that also house the electronics for controlling the pump operation, monitoring and recording the output of the six pressure transducers. These features ensure the high quality of samples collected by the user.

Features

- 30 L/min or 10 L/min sampling flow rate
- Sharp cut-off size characteristics
- Size intervals and stage cut-sizes:
- Reliable internal impaction plate rotation provides nearly uniform particle deposits for better quantitative chemical analysis
- Micro-orifice nozzle plates designed for low flow resistance and reduced particle bounce and re-entrainment
- Up to 13 impactor stages with nominal cut points between 10 nm and 10 µm, plus a final filter
- Low inter-stage losses
- Easily removable collection substrates allow for quick turn-around time for productive use of the instrument
- Programmable logic controller (PLC) controls instrument operation including start and stop times
- Instrument temperature and pressures are measured, recorded, and stored at pre-determined time intervals
- Pump control (ON/OFF)
- Remote operation capability via Ethernet
- Made of hard coated anodized aluminum for light weight, durability and nozzle dimensional stability

Applications

- Sampling of atmospheric aerosols for research and environmental monitoring
- Workplace aerosol analysis
- Engine emissions analysis and monitoring
- Brakewear analysis and monitoring
- Exposure monitoring
- Industrial hygiene studies
- Tobacco smoke and e-cigarette characterization
- Biological aerosol characterization

Specifications

MOUDI II™ Impactors

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All MOUDI™ II impactors have the same aerodynamic design as in the original MOUDI™ impactors that have led to sharp cut characteristics (see Figure 1) and low inter-stage wall losses. The rotating version of the MOUDI II impactors are 2nd generation MOUDI impactors using individual stepper motors embedded in each stage to rotate the collecting substrate for uniform deposition. Power for the stepper motors comes from a single electronic package in the instrument cabinet, with power distributed to the individual motors by miniature flat-ribbon cables. Figure 2 shows a typical rotating stage, and Figure 3 shows a photograph of the stage with the uniform particle deposition on the center circular area.

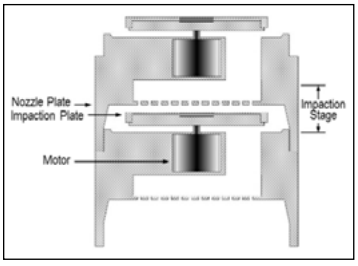

Figure 1. Typical stepper motor operated impaction stage

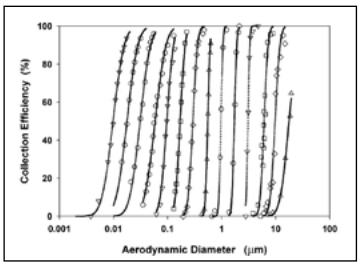

Figure 2. 125R Stage efficiency curves

Figure 3. Typical stage with uniform deposit

Specifications

	Model 120R	Model 125R
Impactor Stages	10	13
Flow Rate, L/min	30	10
Pressure Drop, kPa (w/o final filter)	41	90
Cut-point Diameter, µm	0.056, 0.10, 0.18, 0.32, 0.56, 1.0, 1.8, 3.2, 5.6, 10, 18	0.01, 0.018, 0.032, 0.056, 0.10, 0.18, 0.32, 0.56, 1.0, 1.8, 3.2, 5.6, 10
Dimensions (D x H) or (W x L x H)	80 x 510 mm (impactor) 210 x 640 mm (cabinet)	80 x 510 mm (impactor) 210 x 640 mm (cabinet)
Weight (total)	19 kg (42 lb.)	14 kg (31 lb.)
Power (cabinet)	100–240 VAC, 50–60 Hz, 30 W	100–240 VAC, 50–60 Hz, 30 W
Vacuum Pump Requirements	Carbon Vane, 115 or 230 VAC, 50–60Hz, 0.56 kW	Oil-sealed Pump, 115 or 230VAC, 50–60 Hz, 0.9 kW

Environmental Operating Conditions (impactor and cabinet)
10–50°C (50–122°F)
10%–90% RH (non-condensing)

To Order

MOUDI II™ Impactors

Specify	Description
120R	MOUDI II™ Impactor, 10 Stage
125R	Nano-MOUDI II™ Impactor, 13 Stage

Accessories

Specify	Description
0120-98-1051	Vacuum Pump, 120R, 110V
0120-98-1050	Vacuum Pump, 120R, 220V
0125-98-0100	Vacuum Pump, 125R, 110V
0125-98-0101	Vacuum Pump, 125R, 220V
0100-96-0573	Al Foil Substrates, 47mm, Pkg. 300
0001-01-9953	Glass Fiber Filters, 47mm, Pkg. 100
0001-01-5024	Quartz Fiber Filters,47mm, Pkg. 100
0100-01-0100	Silicone Impactor Surface Spray
0100-96-0558	Silicone Lubricating Grease, 5.3 oz.

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