

AP Series — Ultrapure LN₂ Foggers

Category: Cleanroom Airflow Visualization & Validation Equipment

AP Series foggers generate ultrapure, neutrally-buoyant fog for visualization and verification of airflow

behavior in controlled environments. The system combines heated DI/WFI water vapor with liquid nitrogen to produce a dense aerosol that follows true airflow streamlines without contamination or residue.

The generated fog integrates into the air mass rather than falling or rising, allowing accurate observation of turbulence, laminar flow integrity, and air balance behavior.

The fog leaves no residue and evaporates back into the air after use. Cleanroom cleanup is not required. The fog travels with airflow rather than dispersing unpredictably, enabling reliable validation and documentation.



Typical Applications	Fog Characteristics	Startup Characteristics
<ul style="list-style-type: none"> • ISO Class 5–8 cleanrooms • Sterile processing and aseptic filling areas • USP <797> / <800> airflow verification • Semiconductor manufacturing environments • Barrier isolators and large ISO suites • Airflow recovery testing • Smoke studies and airflow mapping 	<ul style="list-style-type: none"> • LN₂-assisted ultrapure fog generation • Approximately 3–5 micron droplet size • Sub-visible contamination free • Neutrally buoyant behavior • No residue • Long visual travel distance (20–100+ ft depending on environment) 	<ul style="list-style-type: none"> • Water heating: approximately 10–15 minutes • Self-pressurized systems: immediate operation • Dewar systems: pressure build-up required

Platform Types

Nano Particle Technology

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Self-Pressurized AP Series

Self-pressurized models incorporate an integrated pressure-controlled LN₂ system providing stable fog output and simplified operation. These systems maintain consistent fog density and are suited for routine validation workflows.

Characteristics

- Immediate operation after warm-up
- Stable fog output
- Improved efficiency
- Reduced operator intervention
- Consistent performance across long runs

Models

Model	Typical Environment
AP30	Medium cleanrooms
AP50	Large cleanrooms
AP100	Very large suites
AP200	Fab-scale environments



Dewar-Style AP Series

Dewar models use a passive liquid nitrogen supply. Pressure develops naturally inside the vessel during operation.

Characteristics

- Requires pressure build-up before full output
- Operator-dependent consistency
- Compatible with existing LN₂ infrastructure
- Traditional configuration

Models

Model	Typical Environment
AP35	Portable legacy applications
AP-95 Dewar	Mid-size cleanrooms
AP-175 Dewar	Large environments
Legacy AP100	Large cleanrooms

AP30 — Ultrapure Fogger

Designed for medium cleanroom airflow verification.

Typical Characteristics

- Medium output
- Visible throw approximately 20–30 ft
- Runtime approximately 60–70 minutes
- Cart-mounted configuration
- Dual 80 mm fog outlets

AP50 — Ultrapure Fogger

Suitable for larger cleanroom environments and multi-hood areas.

Typical Characteristics

- High output
- Visible throw approximately 25–30+ ft
- Runtime approximately 75 minutes
- Dual 80 mm fog outlets

AP100 — High-Volume Ultrapure Fogger

Used for large sterile suites and full-room airflow visualization.

Typical Characteristics

- Very high output
- Visible throw approximately 30–40 ft
- Runtime approximately 90 minutes
- Dual 80 mm fog outlets

AP200 — Ultra-High-Volume Ultrapure Fogger

Designed for very large facilities and high-airflow environments.

Typical Characteristics

- Ultra-high output
- Visible throw 40+ ft (environment dependent)
- Extended runtime
- Dual 80 mm fog outlets

Dewar-Style Model Overview

Model	LN ₂ Capacity	Approx Fog Volume	Visual Distance	Configuration
AP35	35 L	~6.5–7.5 m ³ /min	6–8 m	Passive dewar
Legacy AP100	100 L	~10–11 m ³ /min	10–12 m	Passive dewar
AP-95 Dewar	95 L	~15–18 m ³ /min	12–16 m	Passive dewar
AP-175 Dewar	175 L	~28–35 m ³ /min	16–22 m	Passive dewar

Self-Pressurized Model Overview



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Model	LN ₂ Capacity	Approx Fog Volume	Visual Distance	Configuration
AP30	30 L	~8–9 m ³ /min	7–10 m	Self-pressurized
AP50	50 L	~10–11 m ³ /min	10–12 m	Self-pressurized
AP100	100 L	~13–14 m ³ /min	12–15 m	Self-pressurized
AP200	200 L	~16–18 m ³ /min	15–20+ m	Self-pressurized

Selection Guidance

Environment Type	Recommended Equipment
Hood, isolator, small enclosure	CRF3
Larger room without LN ₂	CRF6
ISO-critical validation	AP Series
Medium cleanroom	AP30
Large cleanroom	AP50
Very large suite	AP100
Fab-scale airflow study	AP200