



Applied Physics, Inc.

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Nano Particle Technology

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CleanRoom Fogger™, Model CRF4

- NEW – 35 piezo ultrasonic devices producing ≈ 1.25 cubic meters pure fog / minute
- NEW– Highly visible fog at 170ml / minute fog density and 10-15 feet visible airflows
- CRF4 offers as much fog as some Liquid Nitrogen Foggers, but 33% less cost
- Compliant to Pharmaceutical USP 797 Insitu Airflow Analysis
- Compliant to Semiconductor Cleanroom Guidelines, Federal Standard 209E
- Compliant to ISO 14644-3, B.7 - Airflow Test and Visualization
- Compliant to ISO 14644-3, B12 Airflow Recovery, 0.5µm Polystyrene Latex spheres
- De-ionized Water or Water for Injection (WFI) to produce a pure fog
- Video the Airflow Patterns, Pressure Differences, Air Migration and Turbulence
- Use in Pharmaceutical Sterile Rooms, Barrier Isolators and ISO 1 - 9 suites
- Startup of the Fogger is < 30 seconds, Refill and Restart, Instant On/Off
- 45 - 90 minute operation provides up to 56 cubic meters fog to visualize turbulence
- NEW – Touch Pad Display provides water level feedback
- NEW – Touch Pad Control to adjust fog volume and airflow velocity
- NEW – Simple, “Lift and Pour” water drainage
- Low Water Sensor for Ultrasonic, Transducer Protection
- * Optional Rolling Carry / Storage Case with Extending Handle
- * Optional Fog Curtain Wand converts stream fog to a wide visual fog wall
- * Optional Remote Wireless Control using wireless key FOB
- * Optional Y Adaptor, T Adaptor, LED Light Contrast, 250mm and 500mm Fog Nozzles



The **Clean Room Fogger (CRF4)**, often referred to as a smoke generator or DI water Fogger, using DI Water or WFI water (pharmaceutical water for injection) during a typical 45 minute fog cycle. Water is converted to fog at about 170ml / minute, producing ≈ 1.25 cubic meters of fog / minute and 10-15 visible airflow distance to visualize airflow in pharmaceutical ISO suites, sterile rooms, barrier isolators, compound pharmacies and semiconductor clean rooms. The CRF4 fogger is designed to provide much more fog volume to visualize airflow, patterns and turbulence with on/off fog control. The fog output is about 68 degree F, providing a visible fog vapor composed of microscopic DI water droplets (fog) at a nominal 5µm droplet size. 16 Meg Ohm, pure DI water is the typical water used to produce the pure fog. Distilled water or Water for Injection (WFI) can also be used. The fogger cost is much lower than ultrapure foggers, yet offers as much fog as the lower volume, LN2 foggers. The CRF4 fogger uses 35 ultrasonic transducers converting over 170ml water to fog per minute, providing the highest fog density, and the very best visible airflow of any ultrasonic fogger produced in the world. A Low Water sensor protects the transducers during operation. The display provides water fill level, and the touch pad control allows airflow volume to be adjusted, as well as fog volume produced. The CRF4 fogger enclosure is stainless steel to provide a sturdy external design; while providing water cooling for the internal ultrasonic transducers, and also provides quick, easy wipe down of the fogger after use. A Handle is provided to lift the fogger and help the user when draining water at completion of fog task.

A standard power supply is provided at 110VAC, or 220VAC can be ordered. A flexible, transparent, 5 Meter fog hose is provided. Several useful options are provided, such as Fog Curtain Wand to create a wide fog curtain pattern. A **Wireless Remote Control** is available to place the fogger in a closed clean room or sterile room to operate the fogger remotely from the other side of the wall. The **Rolling Carry/Storage Case** is useful for parts storage as well as transport. Semiconductor Cleanroom or Pharmaceutical ISO Suite, Sterile Room or Medical Room use. **Y Adaptor** allows two fog outputs, while the **T adaptor** allows for extra wide fog curtain wand. The **LED Light Boost** provides superb contrast between the fore ground of fog and the background clean room.

							
Rolling Carry Storage	Y Adaptor (Requires 2 Hoses)	T Adaptor (Requires 2 Wands)	LED Boost Fog Contrast Light	5 Meter Fog Hose	250mm or 500mm Nozzles	1.3 M and 2 M Fog Wands	Remote Wireless Control



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Fogger Performance Comparisons

Model	Fog Purity	Fog Volume	Fog Density	Fog Duration	Visual Airflow Distance	Liquids Used	Where Used	Standard Power	Other Power
AP35 Ultrapure Fogger	Ultra Pure	≈ 5 cubic meters / minute	≈ 533 ml / minute	≈ 75 minutes	≈ 20 - 30 feet visual airflow	LN2 + DI Water or LN2 + WFI Water	for mid sized clean rooms, sterile rooms and ISO suites	115 VAC	220 VAC, 100VAC
AP100 Ultrapure Fogger	Ultra Pure	≈ 15.5 cubic meters / minute	≈ 1520 ml / minute	≈ 75 minutes	≈ 30 - 40 feet visual airflow	LN2 + DI Water or LN2 + WFI Water	for large clean rooms, sterile rooms and ISO suites	115 VAC	220 VAC, 100VAC
Other Ultrapure Foggers	Ultra Pure	#1: ≈ 1.5 cubic meters / min #2: ≈ 1 cubic meter / min	#1: ≈ 250ml per minute #2: ≈ 125ml per minute	#1: ≈ 45 Minutes #2: ≈ 25 Minutes	#1: ≈ 10 -15 feet visual airflow #2: ≈ 10 feet visual airflow	LN2 + DI Water or LN2 + WFI Water	for mid sized clean rooms, sterile rooms and ISO suites	115 VAC	220 VAC, 100VAC
CRF4 Cleanroom Fogger	Pure	≈ 1.25 cubic meters / minute	≈ 170 ml / minute at max fog volume; and 57 ml / minute at low fog volume	≈ 45 minutes at max fog volume; and ≈ 90 minutes at low fog volume	≈ 10 - 15 feet visual airflow	DI Water or WFI Water	for mid sized clean rooms, sterile rooms and ISO suites, RABs, Barrier Isolators	115 VAC	220 VAC, 100VAC
CRF2 Cleanroom Fogger	Pure	≈ 0.26 cubic meters / minute	≈ 55 ml / minute	≈ 50 minutes	≈ 7 - 8 feet visual airflow	DI Water or WFI Water	for smaller barrier isolators, fume hoods, flow hoods and glove boxes	115 VAC	220 VAC, 100VAC
CO2 Fogger	CO2	≈ 0.20 cubic meters / minute	≈ 20 ml / minute, decreasing over fog duration	≈ 8 - 10 minutes	≈ 6 - 7 feet visual airflow	DI Water or WFI Water	for smaller barrier isolators, fume hoods, flow hoods and glove boxes	115 VAC	220 VAC, 100VAC
Portable Glycol Fogger	Glycol	≈ 0.10 cubic meter / minute	≈ 1.0 ml / minute	≈ 45 minutes	≈ 3 - 4 feet visual airflow	DI Water + 90% Glycol	For industrial clean rooms	115 VAC	220 VAC, 100VAC