ATI Air Techniques INTERNATIONAL

100X
Automated Filter Tester

The **100X Automated Filter Tester** is designed for test and quality control validation of filter media, cartridges and masks used in medical and industrial hygiene applications.

Designed to exceed NIOSH 42 CFR Part 84 standards, the 100X is a high capacity automated solution ideally suited to meet the precise and rigorous requirements of both development and production quality control environments.

100Xs Salt Aerosol Filter Tester shown

Applications

- Flat Sheet Filter Media
  - HEPA/ULPA Grade
  - Electret media
- Filtering Face Pieces
- Medical Device Filters
- PAPR Filters

Key Features & Benefits

- 100% Sampling Aerosol Detection System
- Three flow rate options up to 180 L/min
- Best-in-Class Pressure Accuracy
- Measure Filter Efficiency up to 99.9995%
- Patented Aerosol Replenishment System Eliminates Production Downtime
- Automatic, Hybrid & Manual Configurations
- Quiet - Ideal for QC and R&D Labs

Delivering Best-in-Class Performance and Low Cost of Ownership

The 100X is a highly accurate, flexible test rig for a wide-range of filter media types designed to optimize production yields while delivering the lowest cost of ownership.

100% Sampling Aerosol Detection System

The 100% Sampling Aerosol Detection System is capable of testing a wide range of HEPA and ULPA filters, up to 99.9995% efficiency. Its innovative design provides a single source of truth, reduces potential sampling errors inherent in legacy designs, and with fewer, more robust parts, reduces serviceability costs while increasing equipment uptime.

Best-in-Class Pressure Management

The 100X can be configured with pressure transducers specific to your needs, providing highly accurate, repeatable results that minimize false failures, while increasing both production yields and confidence in the test results.

Wide Range of Aerosol Flow Rates

The 100X is capable of air flow rates between 5-120 liters per minute (and up to 180 liters per minute with the high flow 100Xp oil aerosol model), providing flexibility to test a wide range of filter resistance types.

Automatic, Hybrid & Manual Configurations

The 100X can be configured at time of order to operate three ways:

- A **Manual** version is ideal for lab use or production lot testing that requires the operator to initiate the test using ergonomic photoelectric actuators. Included is a manual test fixture and standard 100cm^2 flat sheet media fixture.

- The **Automatic** version integrates seamlessly with a customer designed, PLC-driven, automated production line and is ideal for 100% in-line non-destructive product testing. The unit is controlled via communication ports and becomes a client device to the automated production line.

- The **Hybrid** version provides the versatility to operate in *Manual* mode using a local test fixture or can be switched to *Automatic* mode using a remote fixture in an automated production environment.

Auto Connections

Hybrid Connections
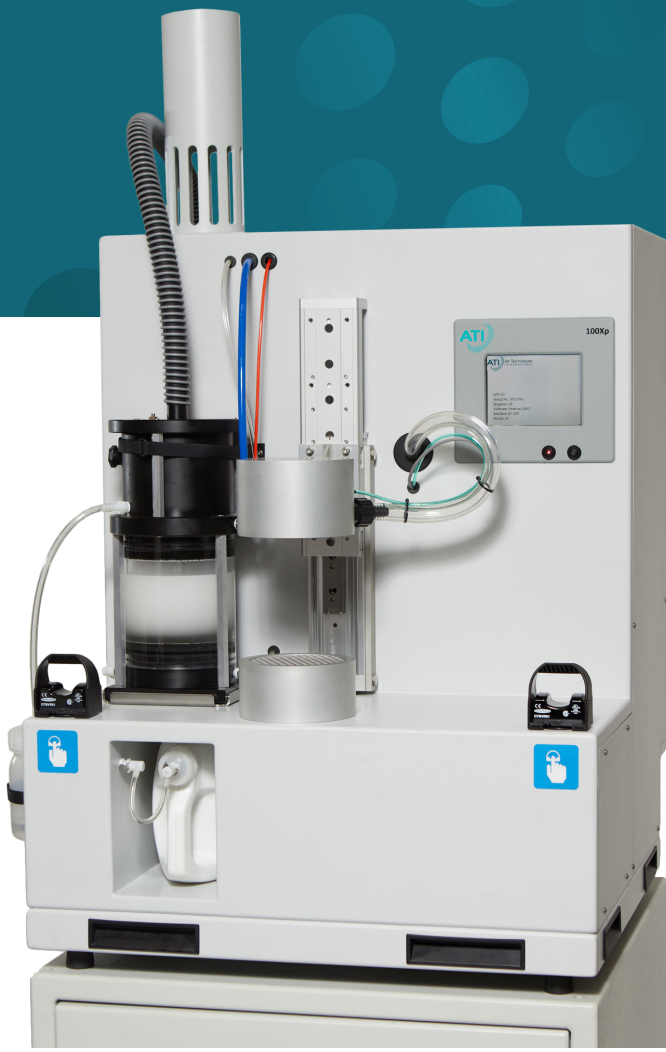
100Xp Oil Aerosol Filter Tester, manual configuration shown

Oil or Salt Aerosol Generation

The 100X is available in either Oil (DOP, PAO) or Salt (NaCl) aerosol generation models.

The patented **Aerosol Solution Replenishment System** is a separate 4-liter reservoir tank that increases productivity by eliminating the need to shut down production to refill the generator. For salt-based test systems, the replenishment system mitigates aerosol concentration and size /distribution shifts due to dynamic salinity.

Other features include:

- LCD touch screen user interface
- USB; PLC-controls (for Automatic, Hybrid version)
- Compartmentalized design, with easy access for filter replacement and serviceability

Accessories:

The 100X can be supplied with an optional local exhaust module to filter all aerosol exhaust when facility exhaust ducting is not available. The local exhaust module is designed with a convenient differential pressure gauge to help determine when to replace the internal HEPA filter.

Local Exhaust Module

A large base cabinet, convenient for storing manuals and tools is available as an option. The cabinet is equipped with heavy duty locking swivel casters enabling the 100X to be easily moved wherever you need it.

Base / Storage Cabinet

PERFORMANCE & PRODUCT SPECIFICATIONS

	100Xp (Oil)	100Xs (Salt)
Reagents Primary Aerosol Reagent Replenishment Reagent	DOP, PAO-4	NaCl 4% NaCl solution by weight 0.9% NaCl solution by weight
Controls	Available in Manual, Hybrid and Automatic configurations	
Aerosol Generation Particle Size	Count Median Diameter (CMD) 0.18μm +0.02 Mass Mean Diameter (MMD) 0.3μm Geometric Standard Deviation (GSD) < 1.6 80 - 120 mg/m³ concentration	Count Median Diameter (CMD) 0.075 μm +- 0.02 Mass Mean Diameter (MMD) 0.26 μm Geometric Standard Deviation (GSD) < 1.86 18 - 25 mg/m³ concentration
Flow Rate through Media	5 - 120 L/min (0.18 - 4.2 SCFM) 5 - 40 L/min (0.18 - 1.4 SCFM)	
	5 - 180 L/min (0.18 - 6.3 SCFM) (High-Flow option available)	N/A
Aerosol Flow Accuracy	Accurate to ± 0.4% of reading, plus + 0.2% full scale	
Aerosol Detection Dynamic Range Penetration Efficiency	0.1 μg/m³ to >200 mg/m³, accurate to ± 1% of reading 0.0005% 99.9995%	
Pressure Management Pressure Range Options	0-100 mm/WC; 0-3.94"/WC 0-25 mm/WC; 0-0.99"/WC 0-50 mm/WC; 0-1.98"/WC 0-250 mm/WC; 0-9.85"/WC	
Accuracy	±0.25% of full scale	
Test Fixture	Standard Size: ID 11.4 cm (4.5"); Custom Sizes up to 30.5 cm (12") Stroke Height: 14.6 cm (5.75") Standard	
Communications Ports	USB; Data Connection; PLC-Controls (Automatic, Hybrid version)	
Utilities	Power: 110VAC , 5.5A; or 220VAC, 2.5A (50/60 Hz) Compressed Air: 311 Lpm at 6.55 bars +- 0.35 Bar (655KPa +- 35 KPa) or 11 SCFM at 95 psig +- 5.0 psig Air Supply Line ID: >9.5 mm (0.375")	
Dimensions (L x W x H)	100X: 71 cm x 69 cm x 89 cm (28" x 27" x 35") Optional Base: 71 cm x 69 cm x 76 cm (27" x 28" 30")	
Weight	100X: 75 kg (165 lbs) Base: 38.6 kg (85 lbs)	
Compliance	CE, RoHS, FCC, CSA	

Common Applicable Standards:

- NIOSH 42 CFR Part 84: Respiratory Devices
- ISO 23328: Breathing System Filters for Anesthetic and Respiratory Use
- ISO 16900-3: Respiratory Protective Devices
- IEST RP-CC001, RP-CC021 (HEPA/ULPA Filters and Flat Sheet Media)

Service & Training @ ATI

- OEM calibration, maintenance & repair
- ATI Certified Operational, Service & Maintenance Training (ask for details)
- Efficiency and resistance testing for HEPA and ULPA filters