



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, EN 143 and MILStd 282 standards, the 100X is the 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
- Best-in-Class Pressure Management Delivers Accurate Results
- Best-in-Class Aerosol Flow Rates
- Aerosol Detection to 99.9995%
- Patented Aerosol Replenishment System Eliminates Production Down-time.
- Automatic, Hybrid & Manual Configurations



100X AUTOMATED FILTER TESTER

100X Automated Filter Tester, Delivers Best-in-Class Performance & 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. The 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 best-in-class accuracy, 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 best-in-class air flows between 5-120 liters per minute (and up to 180 liters per minute with the high-flow 100Xp oil aerosol model), providing a highly flexible test that can 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:

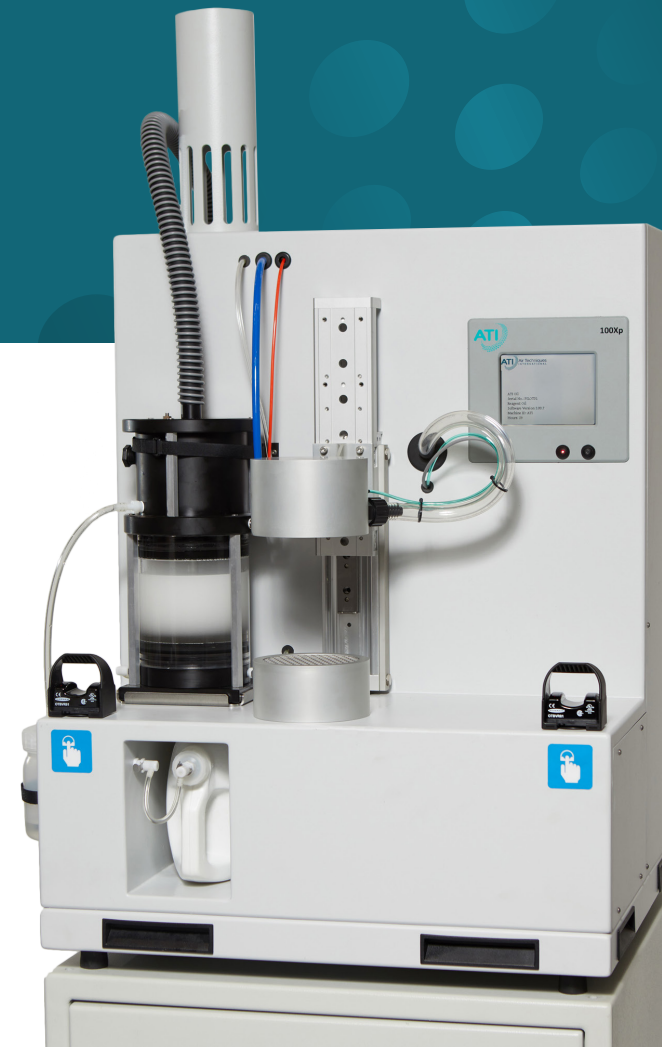
- A **Manual** version is ideal for lab use or production lot testing and requires an operator to engage a test using ergonomic photo-electric actuators. Included is a manual test fixture and standard 100cm² flat sheet media fixture.
- The **Automatic** version integrates seamlessly with a customer designed, PLC-driven, automated production line and is ideal for 100% in-line non-destructive product testing. The unit is controlled via communication port and becomes a client device to the automated production line.
- The **Hybrid** version provides the versatility to operate in manual mode using the local test fixture or switch to use the remote fixture in the 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 an 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 shutdown 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); and
- 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 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. The cabinet is equipped with heavy duty locking swivel caster wheels enabling the 100X to be moved where you need it.



Base / Storage Cabinet



100X AUTOMATED FILTER TEST

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 | Mass Mean Diameter (MMD) 0.3µm Count Median Diameter (CMD) 0.18µm +0.02 Geometric Standard Deviation (GSD) < 1.6 80 - 120 mg/m ³ concentration | Mass Mean Diameter (MMD) 0.26 µm Count Median Diameter (CMD) 0.075 µm +- 0.02 Geometric Standard Deviation (GSD) < 1.86 20 - 50 mg/m ³ concentration |
| Flow Rate through Media | 5 - 120 L/min (0.18 - 4.2 SCFM) (Standard) 5 - 40 L/min (0.18 - 1.4 SCFM) (Low-Flow option available) | |
| Aerosol Flow Accuracy | 5 - 180 L/min (0.18 - 6.3 SCFM) (High-Flow option available) | |
| Aerosol Detection Dynamic Range Penetration Efficiency | accurate to ± 0.4% of reading, plus + 0.2% full scale | |
| Pressure Management Pressure Accuracy | 0.1 µg/m ³ to >200 mg/m ³ , accurate to ± 1% of reading 0.0005% 99.9995% | |
| Test Fixture | 0-100 mm/WC (standard); 0-3.94 in/WC 0-25 mm/WC; 0-0.99 in/WC 0-50 mm/WC; 0-1.98 in/WC 0-250 mm/WC; 0-9.85 in/WC ±0.25% of full scale | |
| Communications Ports | Standard Size: ID 11.4 cm (4.5 in); Custom Sizes up to 30.5 cm (12 in) Stroke Height: 14.6 cm (5.75 in) Standard or Extended Height (Optional) | |
| Utilities | USB; Data Connection; PLC-Controls (Automatic, Hybrid version) | |
| Dimensions (L x W x H) | 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") | |
| Weight | 100X: 71 cm x 69 cm x 89 cm (28 in x 27 in x 34 in) Optional Base: 71 cm L x 69 cm W x 76 cm H (27 in x 28 in 30 in) | |
| Compliance | 100X: 75 kg (165 lbs) Base: 38.6 kg (85 lbs) | |
| | CE, RoHS, FCC, CSA | |

Common Applicable Standards:

- NIOSH 42 CFR Part 84: Respiratory Devices
- EN143: Respiratory Protective Equipment
- EN149: Filtering Face Pieces
- 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)
- MilStd 282: Flat sheet media, Respirator Cartridges, Collective Protection

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



Protecting People, Products & Critical Infrastructure

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ISO 9001:2008