



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 meet leading global industry standards, the 100X is a high-capacity automated solution optimized for the precise and rigorous requirements needed in 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 170 lpm
- Best-in-class differential pressure measurement 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
- Integrated flow controller maintains a constant flow rate

Meets Global Industry Standards

- NIOSH 42 CFR Part 84: Respiratory Devices
- ISO 23328: Breathing System Filters for Anesthetic and Respiratory Use
- GB 2626: Respiratory Protective Devices
- JICOSH/JMOL
- GB 19083
- GB/T 32610
- YY 0469
- EN 13274-7:2019 Paraffin Test
- EN 12941/EN 12942
- ASTM F3502-21



100X AUTOMATED FILTER TESTER

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

The 100X is a highly accurate, flexible test unit 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 reduces potential sampling errors inherent in legacy designs, and with fewer, more robust parts, reduces serviceability costs while increasing equipment uptime.

Best-in-Class Differential Pressure Management Accuracy

The 100X can be configured with your choice of four differential pressure measurement ranges, providing highly accurate, repeatable results that minimize false failures, while increasing production yields and confidence in the test results.

Wide Range of Aerosol Flow Rates

The 100X is capable of air flow rates between 10-170 lpm, providing flexibility to test a wide range of filter types.

Other features include:

- LCD touch screen user interface
- USB; RS232; PLC-controls
- Compartmentalized design, with easy access for filter replacement and serviceability.

Automatic, Hybrid & Manual Configurations

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

- The **Manual** version is ideal for lab use or production lot testing that requires the operator to initiate the test using ergonomic photoelectric actuators. A test fixture for 100 cm² flat sheet media is included.
- The **Automatic** version integrates seamlessly with a customer designed, PLC-driven, automated production line and is ideal for 100% in-line 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.

Oil or Salt Aerosol Generation

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

The patented **Aerosol Solution Replenishment System** is a separate 3.8L/1Gallon 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.



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

100Xp Oil Aerosol Filter Tester, manual configuration shown

The 100X mask test adapter enables testing of N95, KN95 and FFP-style respirator masks with the 100X. The mask test adapter is an airtight fixture that securely holds the mask being tested. The adapter allows aerosol to enter the adapter and challenge the mask according to industry standards.



Mask Test Adapter

An optional heavy-duty base cabinet is available. It is convenient for storing manuals, tools, reagent, etc. 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

Units	100Xp (Oil)	100Xp (Paraffin)	100Xs (Salt)
Standards	NIOSH 42CFR Part 84 or equivalent	EN13274-7:2019 EN 12941/EN 12942	NIOSH 42CFR Part 84 or equivalent
Reagents	DOP, PAO-4	Paraffin Oil (CAS# 8012-95-1)	NaCl
Available Configurations	Manual, Hybrid and Automatic		
Compliance	CE, RoHS, FCC, CSA		
Aerosol Generation			
Particle Size			
Count Median Diameter (CMD)	0.185 $\mu\text{m} \pm 0.02$	0.29 – 0.45 μm	0.075 $\mu\text{m} \pm 0.02$
Geometric Standard Deviation (GSD)	< 1.6	1.6 – 2.2	< 1.86
Typical Concentration (mg/m^3)	80 – 120 40 - 60 (High Flow)	15 – 25 15 - 25 (High Flow)	15 – 25
Flow Rate Options	10 – 120 lpm (0.18 – 4.2 SCFM) 10 – 40 lpm (0.18 – 1.4 SCFM) 10 – 170 lpm (0.18 – 6.0 SCFM)		
Aerosol Flow Accuracy	Accurate to: $\pm 0.4\%$ of reading, plus $\pm 0.2\%$ full scale		
Aerosol Detection			
Dynamic Range	0.1 $\mu\text{g}/\text{m}^3$ to $>200 \text{ mg}/\text{m}^3$, accurate to $\pm 1\%$ of reading		
Penetration / Efficiency	0.0005% / 99.9995%		
Pressure Management / Test Fixture / Communication Ports			
Pressure Range Options (Accuracy: $\pm 0.25\%$ of full scale)	0-25 mm H ₂ O/0-245 Pa; 1:1 TUR		
	0-50 mm H ₂ O/0-490 Pa; 2:1 TUR		
	0-100 mm H ₂ O/0-981 Pa; > 4:1 TUR		
	0-250 mm H ₂ O/0-2452 Pa; > 4:1 TUR		
Standard Test Fixture	Standard Size: ID 11.4 cm (4.5 in.) Allows for flat sheet media testing requiring face velocity of 5.33 cm/s at a flow rate of 32 lpm Stroke Height: 14.6 cm (5.75 in.)		
Custom Test Fixture	On Unit: Please inquire / Off Unit: No size limit		
Communication Ports	USB; RS232; Data Connection; PLC-Controls (Automatic, Hybrid version)		
Utilities			
Power	110VAC , 5.5A; or 220VAC, 2.5A (50/60 Hz)		
Compressed Air (Regulator Recommended)	396 lpm at 6.2 bar ± 0.35 bar (620 kPa ± 35 kPa) or 14 SCFM at 90 psig ± 5.0 psig or 14 SCFM at 90 psig ± 5.0 psig		
Air Supply Line ID	Minimum 9.5 mm (0.375 in.)		
Dimensions (L x W x H) / Weight			
100X Main Unit	71 cm x 69 cm x 89 cm (28 in. x 27 in. x 35 in.) 75 kg (165 lbs)		
Optional Base	71 cm x 69 cm x 76 cm (27 in. x 28 in. x 30 in.) 38.6 kg (85 lbs)		
Optional Local Exhaust	42.5 cm x 62.8 cm x 40.6 cm (16.75 in. x 24.75 in. x 16 in.) 20 kg (44 lbs)		
Optional Mask Test Adapter	1.6 kg (3.5 lb)		