# CERTITEST® AUTOMATED FILTER TESTER MODEL 8130A

## COMPLIES WITH COMMERCIAL RESPIRATOR STANDARDS AROUND THE GLOBE!




The Automated Filter Tester Model 8130A continues to be the best solution for testing particulate respirator filters, disposable filtering face pieces, and a wide assortment of filter media. Based on TSI's established model 8130, the world's most-used filter tester, model 8130A now offers higher sensitivity and resolution at a lower cost of ownership due to the new serviceable photometers inside. Just one unit is needed to test your product to:

+ US 42 CFR 84, GB2626, JMOL
+ ISO 16900-3, EN 143
+ ISO 23328-1 (and more)

For more than 20 years, TSI's Automated Filter Testers have been used in quality control and manufacturing. They are used by the leading filter and filter media manufacturers and test centers around the world due to their proven durability and reliability, which is valued in demanding manufacturing environments and QA/QC laboratories.

The new serviceable photometers enable proactive scheduling of maintenance of the full filter tester so there is minimal impact to production schedules. Whether looking for a stand-alone tester to check a few filters per day or need to integrate a tester in an automated, high-volume production line, the model 8130A is up to the challenge.

Specifically designed aerosol generators and laser photometers enable highly repeatable and reproducible filter-efficiency measurements at up to six 9's of efficiency. In addition, the model 8130A features a high degree of automation and self-diagnostics that greatly simplifies operation, increases throughput, and improves overall measurement performance. Test sequences can be customized quickly to fit the ever-changing needs of different standards.

**Features and Benefits**

+ Complies to more standards than any other filter tester
+ Salt and oil testing in one unit
+ ULPA testing up to 99.9999% efficiency
+ Highly consistent test results
+ Excellent comparability with results from 8130/8127
+ New user-interface and data recording options
+ Customizable fully automated testing sequences
+ Ergonomic design
+ Reduced cost of ownership with new serviceable photometers
+ Worldwide service and support

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## Operation

The operation of the model 8130A is simple, fast, and highly automated. The operator, or robot, places a filter on the lower half of the filter holder. The test is initiated by pressing the dual start buttons, or by sending a 'START' signal to the tester through the programmable logic controller (PLC). A pneumatic cylinder quickly lowers the top half of the filter holder and aerosol is passed through the filter. Two light-scattering laser photometers simultaneously measure the upstream and downstream aerosol concentration levels. The particle penetration value is determined from the ratio of these two readings. By using two laser photometers, instead of one, measurement cycle time is reduced and measurement accuracy is increased.

Highly accurate electronic pressure transducers determine filter resistance and flow rate. The improved pressure and photometer readings are taken between every test to determine the zero offsets and background values. The microprocessor automatically compensates for these values when computing test results. This fully automatic zeroing greatly improves measurement accuracy.

When the test is complete, the filter holder opens automatically. All test data is displayed and available for printer or serial output. If a PASS level is selected, a PASS or FAIL message is displayed and provided with all outputs.

## Serviceable Photometers

One of the most important new features of the 8130A is a significantly reduced downtime due to user- serviceable photometers. Instead of sending the photometers in for service they can be maintained by the user in less than one hour. This allows preemptive scheduling which ultimately minimizes downtime, reduces the cost of ownership, and results in more profitable filter testing.

## Accessories

TSI offers a variety of optional accessories to diversify the capability and applicability of the model 8130A. Please contact us for any special requirements.

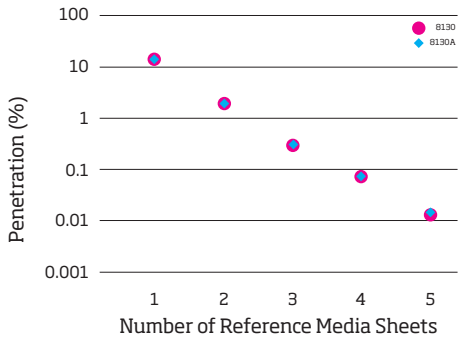
## Custom Filter Holders

TSI has an experienced design team and a fully equipped machine shop to address the special needs of our customers. Over the years, TSI has designed and built more than 100 custom filter holders to accommodate testing filters of different shapes and sizes.

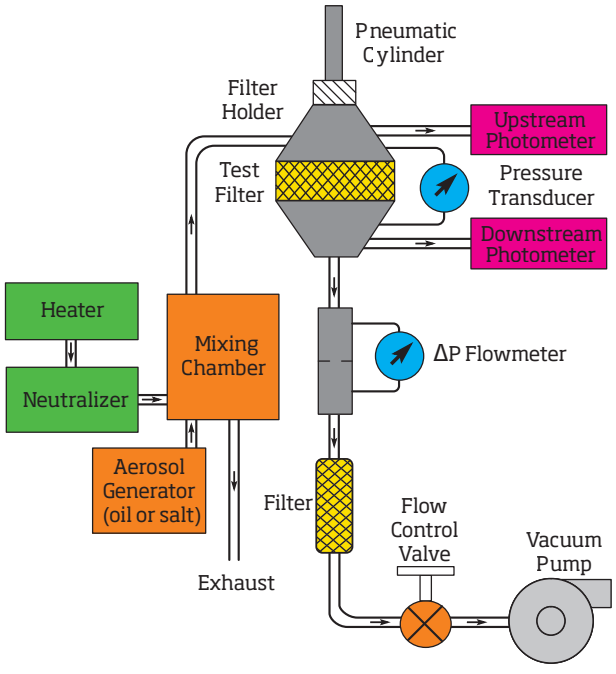
## Results Comparison with Model 8130

Since the model 8130A is replacing the model 8130 filter tester, it is important to verify that the results obtained from both testers are comparable. TSI has verified this numerous times for salt and oil testing.

**Filter Tester Comparison with Oil Aerosol at 32 L/min**




As shown in this example, the two tester models agree very well for penetration testing of flat sheet media. An increasing number of sheets is used to cover a wide range of measured penetrations.



| Features | Benefits | | | | | |
|---|---|---|---|---|---|---|
| | Meets Requirements | Repeatability and Reproducibility | Reliability | Ease of Use | Low Operating Cost | High Throughput |
| **Compliance with Regulations** | | | | | | |
| 42 CFR part 84 certification testing* | + | | | | | |
| GB2626, JMOL and related standards testing* | + | | | | | |
| ISO 16900-3, EN 143 and related standards testing* | +* * | | | | | |
| ISO 23328-1 and related standards testing* | + | | | | | |
| Quality control testing | + | + | + | | | |
| **Simple, Fast and Automated Operation** | | | | | | |
| User-friendly, menu driven color touch screen | | | | + | | + |
| Dual photometers for increased accuracy and speed | | + | + | + | | + |
| Self-check diagnostics | | + | + | + | + | + |
| Unattended operation for prolonged loading tests | | | | + | + | |
| Customizable fully automated test sequences | | | | + | | + |
| **Highly Consistent Test Results** | | | | | | |
| Produces stable aerosol (oil or salt) of known size distribution | + | + | + | | | |
| Measures penetration down to 0.0001% (efficiencies up to 99.9999%)*** | + | + | | | | + |
| Automatic zeroing before every test | + | + | + | | | |
| **Designed for Manufacturing Environments** | | | | | | |
| Able to test more than 5 filters per minute | | | | + | | + |
| Operates with minimal maintenance | | | + | + | + | |
| Serviceable photometers inside | | | + | + | + | |
| Can be integrated with automated production lines | | | | | | + |
| **Service and Support** | | | | | | |
| Installation and startup and on-site service* | | | + | + | | |
| Customized filter holders | | | | + | | |
| Worldwide coverage with TSI specialists and trusted partners | | | | + | | |

* Consult your TSI representative for more details.
** Meets requirements for testing with oil aerosol and provides test standard equivalent results for salt aerosol
*** For even higher sensitivities see http://www.tsi.com model 3160 filter tester

| Specifications – Aerosol Generation | | | | |
|---|---|---|---|---|
| | **EN 143:2007** | **ISO 16900-3** | **42CFR part 84** | **GB 2626** |
| **Oil Test** | **Paraffin** | **Paraffin** | **DOP** | **Paraffin or DOP** |
| Equipment | Atomizer | Atomizer | Atomizer | Atomizer |
| | Light scattering photometer (scattering at 45 °) | Light scattering photometer (forward scattering, max 45 °) | Suitable light scattering photometer or equivalent instrumentation | Defined by concentration range and precision accuracy |
| Test Flow Rate | 95 L/min | to be recorded in report | 85 ± 4 L/min (42.5 ± 2 L/min if used in pairs | 85 ± 4 L/min |
| Aerosol Concentration | 20 ± 5 mg/m³ | 15 to 35 mg/m³ | ≤ 200 mg/m³ | 50 - 200 mg/m³ |
| Count Median Diameter | 0.16 µm | 0.16 to 0.21 µm | 0.185 ± 0.020 µm | 0.185 ± 0.020 µm |
| Geometric Std. Deviation | ≤ 2 | ≤ 1.4 to 1.8 | ≤ 1.60 | ≤ 1.60 |
| Temperature | Ambient (24 ± 8 °C) | Ambient (16 to 32 °C) | Ambient (25 ± 5 °C) | Ambient (25 ± 5 °C) |
| Humidity (rH) | not defined | 50 ± 30 % | 30 ± 10 % | 30 ± 10 % |
| | **EN 143:2007** | **ISO 16900-3** | **42CFR part 84** | **GB 2626** |
| **Salt Test** | **NaCl (Sodium Chloride)** | **NaCl (Neutralized)** | **NaCl (Neutralized)** | **NaCl (Neutralized)** |
| Equipment | Atomizer | Atomizer | Atomizer | Atomizer |
| | Flame scattering photometer (equivalency shown for 8130) | Flame scattering photometer (equivalency shown for 8130) | Suitable light scattering photometer or equivalent instrumentation | Defined by concentration range and precision accuracy |
| Test Flow Rate | 95 L/min | to be recorded in report | 85 ± 4 L/min (42.5 ± 2 L/min if used in pairs) | 85 ± 4 L/min |
| Aerosol Concentration | 8 ± 4 mg/m³ | 8 to 35 mg/m³ | ≤ 200 mg/m³ | ≤ 200 mg/m³ |
| Count Median Diameter | 0.06 µm | 0.06 to 0.1 µm | 0.075 ± 0.020 µm | 0.075 ± 0.020 µm |
| Geometric Std. Deviation | 1.9 | ≤ 1.4 to 1.8 | ≤ 1.86 | ≤ 1.86 |
| Humidity (rH) | 60% | <40 % at 23 °C (± 3 °C) | 30 ± 10 % | 30 ± 10 % |



# SPECIFICATIONS (PRELIMINARY)

## CERTITEST® AUTOMATED FILTER TESTER MODEL 8130A

**Operating Range**

| | |
|---|---|
| Ambient pressure | 75 to 110 kPa (absolute) |
| Ambient temperature | 10°C to 35°C |
| Operating humidity | 0% to 95%, non-condensing |

**Aerosol Detection**

| | |
|---|---|
| Technique | Light-scattering, laser photometer |
| Dynamic Range | 1.0 µg/m$^3$ to >200 mg/m$^3$ |

**Aerosol Flow**

| | |
|---|---|
| Technique transducer | Orifice with electronic pressure |
| Flow Rate through Media | Adjustable from 15 to 110 L/min |
| Accuracy | 2% of full scale |

**Pressure Measurement**

| | |
|---|---|
| Technique | Electronic pressure transducer |
| Range | 0 to 150 mm H20 (0 to 1470 pascals) |
| Accuracy | ±1% of full scale |

**Efficiencies**

| | |
|---|---|
| Operating Range | Measures particle penetrations to 0.0001% or efficiencies to 99.9999% |

**Outputs**

Color touch screen, RS-232

**Built-in Internal Pump**

Included

**Filter Holder for Flat Sheet Media**

Included

**Utility Requirements**

| | |
|---|---|
| Power | 90 VAC to 250 VAC, 50 Hz to 60 Hz, 5.5 A continuous |
| Compressed Air | 80 psig, 7 scfm (550 kPa, 198 std. L/min) |
| Dimensions (L x W x H) | 70 cm × 70 cm × 147 cm (28 in. × 28 in. × 58 in.) |
| Weight | 150 kg (330 lb) |

## TO ORDER

**Automated Filter Testing**

| Specify | Description |
|---|---|
| 8130A | Automated Filter Tester with Salt and Oil Aerosol Generators |

The 8130A includes a color touch screen, dual laser photometers, built-in vacuum pump, and a pneumatically operated filter holder for flat sheet media. In addition, it includes test media sheets and a gravimetric filter holder.

**Accessories**

| Specify | Description |
|---|---|
| 8118A | Impactor Salt Generator |
| 1081414R | Oil Aerosol Generator |
| 8119 | Respirator Leak Tester Kit |
| 8134-xx | Custom Filter Holders |
| 8113-27 | Neutralizer |

**Service and Support**

(Contact your TSI representative for more details)
+ Field Installation and Training (subject to location)
+ Training for user-serviceable photometer on-site/at TSI
+ Service Contracts
+ Field Service

Specifications are subject to change without notice.

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|---|---|---|---|
| **USA** | **Tel:** +1 800 874 2811 | **India** | **Tel:** +91 80 67877200 |
| **UK** | **Tel:** +44 149 4 459200 | **China** | **Tel:** +86 10 8219 7688 |
| **France** | **Tel:** +33 1 41 19 21 99 | **Singapore** | **Tel:** +65 6595 6388 |
| **Germany** | **Tel:** +49 241 523030 | | |

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