



AstroScan[®] M

BIBO Validated Scan System for
Critical Containment Applications

INSTALLATION, OPERATION, AND MAINTENANCE MANUAL



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SCAN TESTING WITH THE MANUAL ASTROSCAN SYSTEM

Housing Overview

- The Manual AstroScan® housing is designed in a manner that does not require the use of an access point or bags. This design helps to ensure operator safety and integrity of scan test results.
- The internal scan probe array is comprised of 4 overlapping fixed scan probes mounted vertically along a spine. Using the externally mounted manual pull rod the spine traverses the filter face ensuring that the entire filter face and seal areas can be effectively scan tested.
- Dependent on housing width (Filter Quantity) there may be four (4), eight (8) or twelve (12) scan probe ports located on the exterior of the housing.
- As a standard, Downstream scan probe ports will be equipped with a female chrome plated brass quick connect fitting. (Other options available)
- Scan probe position between travel extremes can be determined by scale located on manual pull rod.
- Scan housings are equipped with mechanical indicators that confirm probe end of travel to both the front and back housing pan to ensure complete filter face has been scanned.

NOTE: If applicable adjust the airflow to the velocity as determined in your safety personnel's written protocol. As stated in IEST-RP-CC034.3 section 6.2.1 The filter exit airflow velocity at which the leak test is to be conducted, unless specified otherwise, should be 0.45(+/-0.05) m/sec (90[+/-10] ft/min).

Step-by-step procedure:

STEP 1 Be sure to have any tools you may require and testing equipment on hand prior to beginning work. Tools and testing equipment should be determined and listed in your safety personnel's written protocol. (Photometer, sampling tubing, aerosol generator, aerosol injection hose, compatible male quick disconnect fittings).

STEP 2 Connect an aerosol generator to the upstream duct at a location, (upstream in-place test housing) which allows a uniform challenge of the filters to achieve proper mixing of the air, and aerosol before it reaches the filter to be scan tested. An aerosol generator that produces a 100% reading on the photometer is equivalent to 100 micrograms per liter challenge.

PRODUCT OVERVIEW & INSTALLATION INSTRUCTIONS (CONT'D)

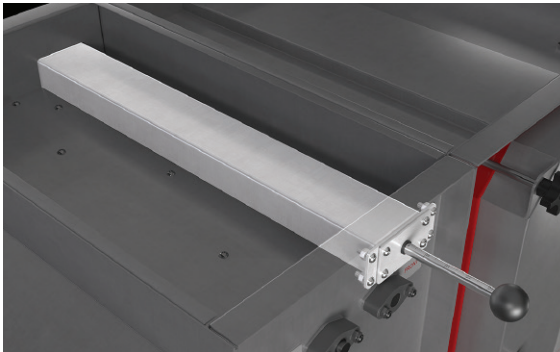
- STEP 3** Utilizing the **scan probe ports** located on the front of the Manual AstroScan® system, select and connect to the appropriate scan probe in line with the desired scan location to a photometer using a compatible male quick disconnect fitting and tubing. If equipped with isolation ball valves, open prior to beginning of scan test.

Scan Probe Ports

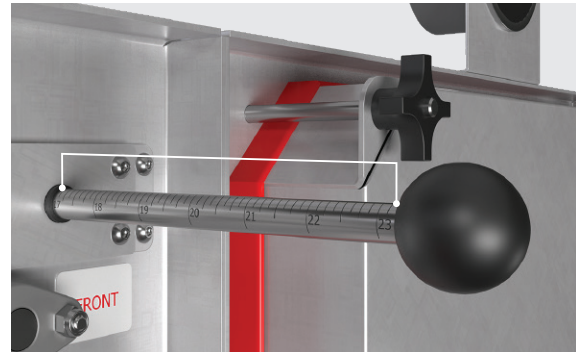


- STEP 4** Scan testing should begin in any corner of the filter to be tested. Utilizing the **Manual Pull Rod Actuator** mounted on the housing top pan slowly traverse the scan probe at a speed no faster than approximately ten (10) feet per minute (2 inches per second) for scan testing. **End of Position Indicators** on the front of the housings will confirm the end of stroke that ensures that the entire filter face and seal areas have been scanned.

Manual Pull Rod Actuator



Positional Visual Pull Rod Measurements



End of Travel Position Indicators



PRODUCT OVERVIEW & INSTALLATION INSTRUCTIONS (CONT'D)

- STEP 5** Once a scan pass is completed, close the isolation ball valve (if equipped) and disconnect the downstream sample tubing from the quick disconnect scan port and connect to the next scan port. Repeat this process until all four of the scan probes have fully traversed the filter face and seal areas thus completing the scan testing of a single filter.

NOTE: For units consisting of multiple filters in width repeat steps 4 & 5 until all filter media and seal areas have been scanned.

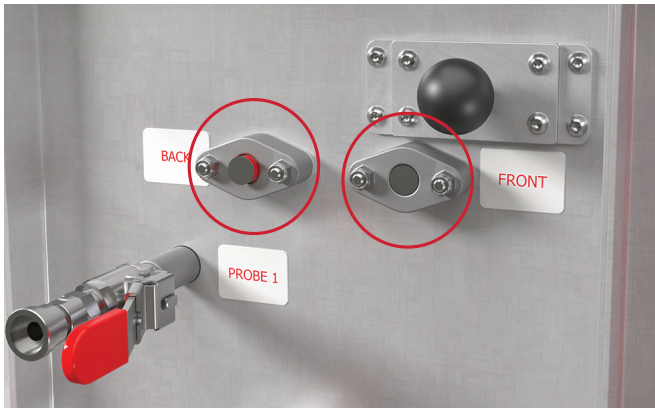
- STEP 6** Scan Testing is completed. Comply with your safety personnel's written protocol for further action to return to normal operation.

RESOLVING POTENTIAL SCAN SYSTEM FAILURE MODES

Scan Carriage Decoupling:

Operation outside of the conditions listed above could result in the de-coupling of the exterior and interior carriage of the scan system. This failure mode can be identified by the **End of Travel Indicators** or by a significant reduction of force required to actuate the exterior pull rod. If indicators do not confirm end of travel while the exterior pull rod has reached either extreme of travel de-coupling has occurred. To resolve this failure mode simply cycle the exterior pull rod to both travel extremes until carriages have re-coupled. Once re-coupled, confirm coupling with the end of travel indicators and resume filter scanning.

End of Travel Position Indicators





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AAF, the world's largest manufacturer of air filtration solutions, operates production, warehousing and distribution facilities in 22 countries across four continents. With its global headquarters in Louisville, Kentucky, AAF is committed to protecting people, processes and systems through the development and manufacturing of the highest quality air filters, filtration equipment, and associated housing and hardware available today.

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As a global leader in air filtration, AAF understands the evolving, intensifying risks you face and the potential impacts of those risks. We can assist with site specific risk assessment and provide an innovative, science-based risk mitigation control system to meet your current and future needs.

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