Always Read & Understand All Installation Instructions Prior to Starting

This instruction applies to the use of the Aerosol Test System option for Filtered filtered laminar flow diffusers. It is intended as a guide to assist properly trained and qualified technicians.

The Aerosol Test System enables an aerosol challenge to be dispersed into the diffuser inlet, to validate that the filter is properly installed and undamaged.

At a minimum it is suggested that scanning be conducted at initial startup, and with every subsequent filter replacement. Scanning is to be conducted after the diffuser and filter have been installed, and airflow balanced.

Step 1

Release 1/4 turn fasteners and remove diffuser face. Face panel may gently be lowered until it is suspended by the safety cables, or safety cables may be unclipped and the face removed from the work area.

Step 2

Check static pressure inside the diffuser plenum. A sampling port is provided for this purpose, which can be connected by friction fitting 1/4" O.D. or 11/32" O.D. flexible tubing into the port. Low pressure indication should be open to room atmosphere. Record this reading. Additional readings may be taken during testing to demonstrate that pressure drop across the filter, and therefore flow rate, remains constant during the test.

Connect aerosol generator to the aerosol injection port. The port is a 3/8" NPT pipe connection, accessed by removing the hex socket head plug using a 5/16 " hex key.

Step 3

Turn on and adjust aerosol generator. Aerosol concentration upstream of the filter may be sampled through the static pressure port. Selection of aerosol challenge fluid and concentration should be made according to the standards or test protocols in effect for the facility. For example, poly-alpha-olefin (PAO) in concentrations of 10 µg / L to 90 µg / L.

Step 4

Scan test the downstream filter face for any leaks, following the standards and protocols in effect for the facility.

Step 5

Disconnect test equipment, and reinstall plugs in the static pressure and aerosol injection ports. Reinstall diffuser face. If the safety cables were also disconnected when removing the face, they must be reattached. When reinstalling face, care should be taken to tuck safety cables in place without damaging the filter. Make sure all 1/4 turn fasteners are firmly latched.
Note

Airflow and aerosol challenge concentration should be kept uniform during the test. Static pressure and concentration may be sampled through the static pressure port during the test, if required, to verify flow and concentration.

Recording both the flow rate and static pressure reading is recommended during initial startup, for future reference to determine remaining filter life.

Filter media is fragile. Always handle filters carefully, touching only their outer frame. Care must also be taken to avoid contacting the media when working in close proximity to filters.

Troubleshooting

- Leakage at the perimeter of the filter may indicate improper filter installation. Gently remove the filter, verify that the gel seal is intact and undamaged, and carefully reseat the filter in the knife edge frame and latch in place.
- Improper handling may damage the filter. Pinhole leaks detected by scan testing may be repaired by a properly trained technician.
- Actual installations typically have inlet conditions that are less than ideal. This often takes the form of elbows too near the diffuser inlet, flexible duct, etc. Temporarily varying damper position or supplied airflow can be used to improve the uniformity of the aerosol distribution during testing, if this is found to be required.
- Systems where neither air curtain nor full ceiling diffuser systems are used may occasionally generate false positive readings if scanned at the edge of the laminar air pattern. Scanning as near as possible to the diffuser surface is recommended. If necessary, a vertical ‘wall’ of cardboard or sheet metal may be placed in the 6” (152) below the diffuser to prevent the scanner picking up any room side contamination.
- Typical damper adjustment (1/2 to full open) does not adversely affect uniformity of the aerosol challenge in a significant way. Uniformity should be verified if dampers are less than 1/2 open.