Differential pressure was recorded from 400 cfm to 2000 cfm in increments of 400 cfm.

After being conditioned, the filters shall withstand the airflow and water spray environment listed in Table FK-4100.

Aerosol concentration and sizing data was collected using a TSI Laser Aerosol Spectrometer (LAS).

European Union (EU) requirements and standards for water and air purification were met, which includes European standard EN 1822:2000 (for health-related applications) and EN 1822:2013 (for performance tests).

Performance Specifications for FK-5140 Resistance to Pressure

The filters shall be tested for resistance to pressure according to Table FK-5000-4 shown in Table 1 below:

- Pressure shall be tested at 10 in. w. c. differential pressure in accordance with ASME AG-1 Section FK-5120.
- The filter was challenged for one hour at 10 in. w. c. differential pressure at 95°F and 93% RH.
- After preconditioning, the filter was installed in the test stand with the filter inlet facing the airflow from the positions shown in Fig. FK-4101 through Fig. FK-4104 with the filter in the horizontal orientation and with the filter inlet facing the airflow shown as the airflow enters the filter inlet along the centerline of the filter.
- Within 15 min. after completion of the pressure test, the filter shall maintain the requirement of FK-5120 at 10% airflow.

Test Conditions and Requirements

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Relative humidity</th>
<th>Rate of airborne water droplets flowing toward the filter</th>
<th>Pressure differential across filter</th>
<th>Time to reach pressure</th>
<th>Time duration at sustained differential pressure</th>
<th>Airflow</th>
</tr>
</thead>
<tbody>
<tr>
<td>95°F ± 5°F</td>
<td>95 ± 1%</td>
<td>0.1 to 0.5 bim/min per 1000 ft/min (0.45 ± 0.51 kg/min per 1700 m3/hr)</td>
<td>10.1 to 0.2 in. water (2.5 kPa)</td>
<td>0.5 min. maximum</td>
<td>1 hr, minimum</td>
<td></td>
</tr>
</tbody>
</table>

For characterization of different pressure measurements, the total filter airflow and filter media of the probe used to measure the airflow from both sides of the housing walls and compare those of a probe flush with the filter media and the centerline of the test stand.

Initial filtering efficiency test was performed at 100% and 20% of rated flow (2000 cfm) in accordance with ASME AG-1 Section FK-5120.

For all initial filtering efficiency tests, the filter was pre-conditioned with a 400 cfm airflow through an oven for 24 hours or a 10 in. w. c. differential pressure of 40 to 100 in. w. c. for 24 hours before testing.

Testing Methods

Prior to wet over pressure testing the filter was conditioned in accordance with ASME AG-1 Section FK-5140. The filter was conditioned using an oven and a hot plate with a 20% water for 24 hours or a 10 in. w. c. differential pressure of 40 to 100 in. w. c. for 24 hours before testing.

- After preconditioning the filter was installed as quickly as possible in order to maintain elevated conditions inside the test stand.
- The spray nozzle and housing were manipulated immediately following the filter.
- The stand fan, spray, and dam were turned on simultaneously.
- The stand was set to automatically regulate the flow rate required to maintain 10 in. w. c. differential pressure across the filter.
- The filter was challenged at required conditions for one hour.

Results

The results of the final efficiency test are shown in Table 2.

Pre Testing Results

Prior to performing the wet over pressure test, a resistance to airflow test was performed:

- The differential pressure was recorded from 400 cfm to 2000 cfm in increments of 400 cfm.
- The initial airflow efficiency test was performed at 100% and 20% of rated flow (2000 cfm) in accordance with ASME AG-1 Section FK-5120.

Aerosol concentration and sizing data was collected using a TSI Laser Aerosol Spectrometer (LAS) for characterization of different pressure measurements.

Damage to the filter media is shown in Figures 23 through 25.

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