



270 Haven Hill Road Shelbyville, KY 40065
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Air Filter Test Report

Report No.
GLT 3732

24-Mar-15

Page:
1 of 3

Particle Size Efficiency and Filter Resistance Tests

(Test procedures and apparatus described in ASHRAE Standard 52.2-2012 were used during these tests)

Filter Description	Test Conditions												
Manufacturer: Permatron Product Name: Dust Eater Model/Style Code: Model DE Nominal Dimensions: (inches) 24 X 24 x 1 Product Description: combination of polypropylene and non-woven polyester, wire re-inforced in a stainless frame Number of Filter Panels: 1 Pleat Quantity : flat panel Pocket Quantity: N/A Media Type: synthetic Media Color: black Media Area (literature): 4 sq ft Type of Dust Adhesive: None Amount of Dust Adhesive: N/A Filter Procurement Method: Provided by Permatron	Air Flow (CFM) 1180 Face Velocity (FPM) 295 Air Temperature Range (°F) 63 - 71 Relative Humidity Range (%) 35 - 46 Barometric Pressure Range (In. HG) 29.18 - 29.41 Type of Test Aerosol: Neutralized KCl Particle Counters: Met One 3413 Filter Loading Dust: none												
Additional Information:	Test Results												
	Initial Resistance: 0.19 In. wg												
	<u>Filter Resistance vs Air Flow</u>												
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Air Flow - CFM</th> <td>295</td> <td>590</td> <td>885</td> <td>1180</td> <td>1475</td> </tr> <tr> <th>Resistance - In. WG</th> <td>0.03</td> <td>0.07</td> <td>0.12</td> <td>0.19</td> <td>0.26</td> </tr> </table>	Air Flow - CFM	295	590	885	1180	1475	Resistance - In. WG	0.03	0.07	0.12	0.19	0.26
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Resistance - In. WG	0.03	0.07	0.12	0.19	0.26								
<u>KCl Particle Size Efficiency</u> Average Efficiencies													
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>0.3 - 1.0 Micron Range - %</th> <th>1.0 - 3.0 Micron Range - %</th> <th>3.0 - 10.0 Micron Range - %</th> </tr> <tr> <td style="text-align: center;">0</td> <td style="text-align: center;">15</td> <td style="text-align: center;">36</td> </tr> </table>	0.3 - 1.0 Micron Range - %	1.0 - 3.0 Micron Range - %	3.0 - 10.0 Micron Range - %	0	15	36							
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<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Minimum Efficiency Ranking Value</th> <th>MERV</th> <th>Air Flow - cfm</th> </tr> <tr> <td style="text-align: center;">6</td> <td style="text-align: center;">6</td> <td style="text-align: center;">1180</td> </tr> </table>	Minimum Efficiency Ranking Value	MERV	Air Flow - cfm	6	6	1180							
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6	6	1180											
See Particle Size Efficiency Curve on Page 2													

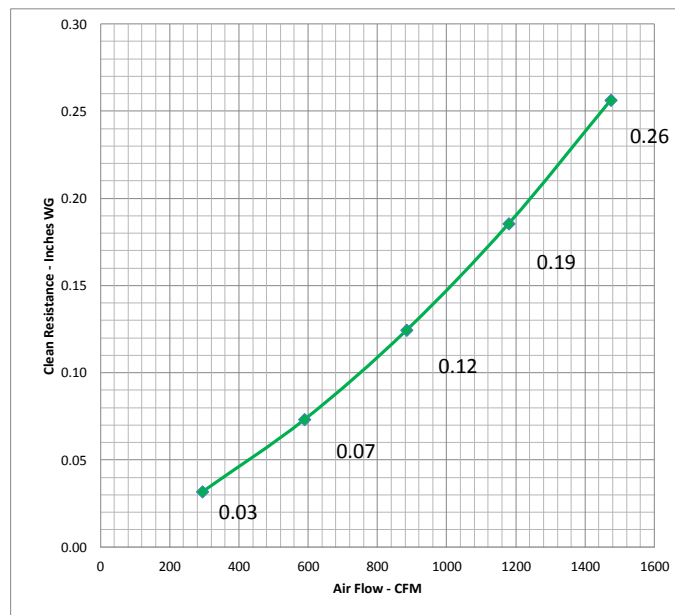
Photograph of Air Entering Side of Filter



Photograph of Filter Label/Markings



Filter Resistance vs Air Flow



Comments:

Approval: Monroe A. Britt
24-Mar-15



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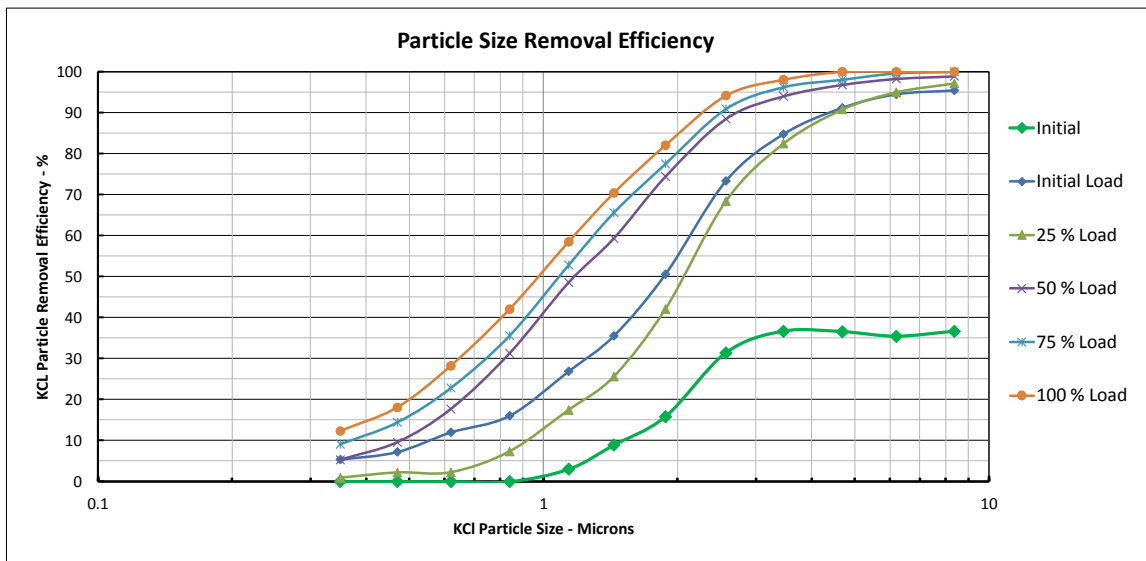
ASHRAE Air Filter

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24-Mar-15
 Page:
2 of 3

Particle Size Efficiency and Filter Resistance Tests

Filter Description		Test Conditions	
Manufacturer:	Permatron	Air Flow Capacity (CFM)	1180
Product Name:	Dust Eater	Face Velocity (FPM)	295
Model/Style Code:	Model DE	Air Temperature Range (oF)	63 - 71
Nominal Dimensions: (inches)	24 X 24 x 1	Relative Humidity Range (%)	35 - 46
Media Type:	synthetic	Barometric Pressure Range (In. HG)	29.18 - 29.41
Media Color:	black	Type of Test Aerosol:	Neutralized KCl
Effective Media Area:	4 sq ft	Particle Counters:	Met One 3413
Filter Procurement Method:	Provided by Permatron	Filter Loading Dust:	none



KCl Particle Range - Microns	0.30 - 0.40	0.4 - 0.55	0.55 - 0.70	0.70 - 1.00	1.00 - 1.30	1.30 - 1.60	1.60 - 2.20	2.20 - 3.00	3.00 - 4.00	4.00 - 5.50	5.50 - 7.00	7.00 - 10.0	Resistance after Load - In. WG	Accumulative Dust Load - Grams	
Mean Diameter - Microns	0.35	0.47	0.62	0.84	1.14	1.44	1.88	2.57	3.46	4.69	6.2	8.37			
KCl Particle Size Efficiency - %															
Initial	0.00	0.00	0.00	0.00	3.03	8.91	15.82	31.37	36.66	36.54	35.43	36.63	0.19	0	
Initial Load	5.38	7.24	12.02	16.06	26.91	35.55	50.58	73.35	84.78	91.19	94.50	95.44	0.24	30	
25 % Load	0.89	2.18	2.23	7.32	17.45	25.60	42.10	68.44	82.47	90.81	95.02	97.19	0.44	82	
50 % Load	5.29	9.58	17.68	31.28	48.57	59.34	74.41	88.50	94.03	96.82	98.28	98.92	0.67	115	
75 % Load	9.10	14.44	22.84	35.60	52.84	65.61	77.52	90.92	96.25	98.07	99.63	100.00	0.82	126	
100 % Load	12.31	18.07	28.23	42.05	58.51	70.42	82.07	94.19	98.09	100.00	100.00	100.00	1.00	135	
Minimum PSE'S	0.00	0.00	0.00	0.00	3.03	8.91	15.82	31.37	36.66	36.54	35.43	36.63			
E1, E2, E3	Avg Effic - 0.3 to 1.0 Microns			0.00	Avg Effic - 1.0 to 3.0 Microns			14.78	Avg Effic - 3.0 to 10.0 Microns			36.31	Dust Holding Capacity to		
												1.00 Inches WG			
												119 Grams			

Comments

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 24-Mar-15



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3 of 3

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Filter Description

Test Conditions

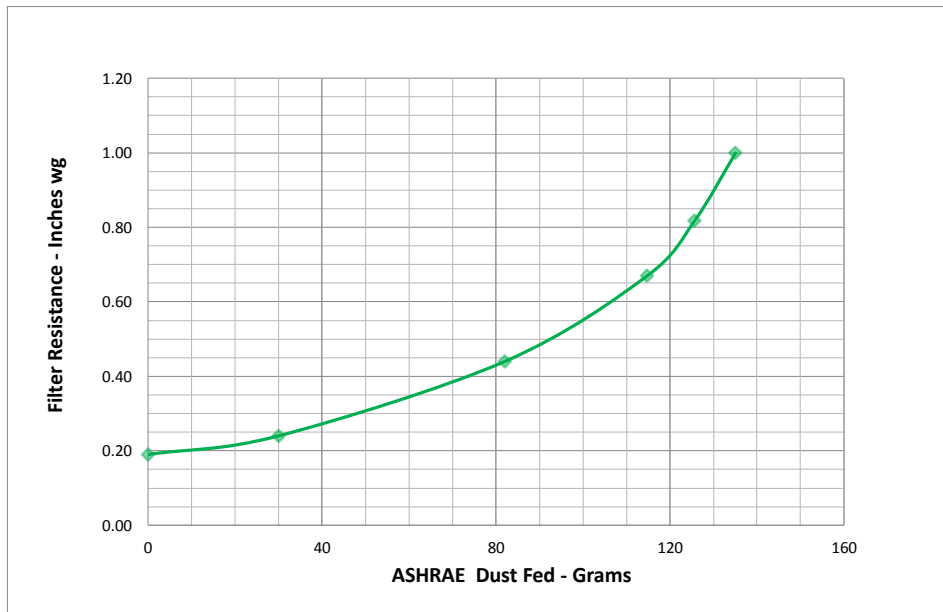
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Media Color:	black	Type of Test Aerosol:	Neutralized KCl
Effective Media Area:	4 sq ft	Particle Counter:	Met One 3413
Filter Procurement Method:	Provided by Permatron	Filter Loading Dust:	none

Dust Holding Capacity and Arrestance Data

Dust Fed - Grams	0	30	82	115	126	135
Filter Resistance - In. wg	0.19	0.24	0.44	0.67	0.82	1.00

Average Arrestance	85.7%	Final Resistance	1.0 In. wg
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Dust Holding Capacity	119 grams
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