

# 3M™ High Air Flow (HAF) Air Filters



The open channel construction of 3M™ High Air Flow (HAF) Air Filters offers low initial airflow resistance while its unique microstructure and electrostatic charge provide effective particle capture and retention. This may translate to fewer filter changeouts, reduced coil cleaning, and/or reduced maintenance cost.

## A balanced approach to improved air filtration

3M™ HAF Air Filters may offer an ideal alternative in applications where regular filter replacement is difficult or impractical, but where low airflow resistance is important.

Developed using innovative 3M technologies, 3M HAF Air Filters are frameless, self-supporting, and are constructed from an array of open flow channels. These filters are electrostatically charged for enhanced particle capture and retention.

3M HAF Air Filters are available with an antimicrobial agent to help inhibit the growth of mold and mildew on the filter media. Users should be aware that mold and mildew may grow on captured particles that build up over time on the filter.

## Versatile performance in a wide range of applications

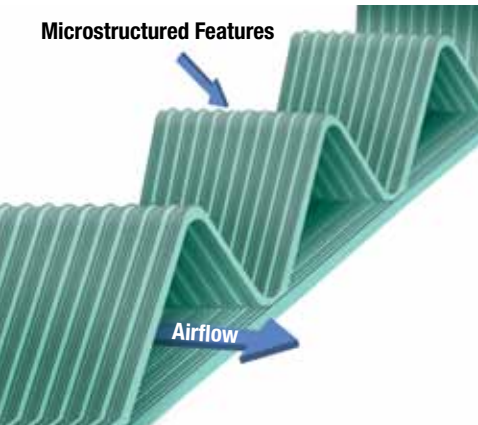
For hospitality building owners and managers, *maintenance time* and *productivity* play an important role in efficient building operation. 3M HAF Air Filters have been shown to help capture airborne dust that can deposit on in-room heating and air conditioning units, while maintaining good airflow through the unit. In addition, due to their self supporting design, 3M HAF Air Filters are easily installed and replaced.

For manufacturers of industrial equipment and electronics, airborne dust and dirt can damage various components, resulting in increased maintenance. In addition, maintaining good airflow in these units is of utmost importance. Because of their frameless, self-supporting construction, 3M HAF Air Filters can easily be adapted to many existing equipment configurations, providing a simple way to add value to the equipment design.

## Physical characteristics

- Open channel structure
- Microstructured, electrostatically charged media (refer to Performance Data on next page)
- 100% synthetic media
- Self-supporting filter
- Standard: White
- Antimicrobial: Green. The addition of an antimicrobial agent helps to inhibit the growth of mold and mildew on the filter media.\*

\* The agent helps inhibit the growth of mold and mildew on the filter media. Users should be aware that mold and mildew may grow on captured particles that build up over time on the filter.



## Performance notes

- UL 900 flammability rating

### MVSS-302 flammability testing applies to the automotive/motor vehicle industry

Burning Rate <sup>1</sup> for Standard HAF Media	5 mm	1.94 ±0.15 in/min	Passes MVSS-302 flammability criteria
Burning Rate <sup>1,2</sup> for Standard HAF Media	10 mm	0 ±0 in/min	Passes MVSS-302 flammability criteria
Burning Rate <sup>1</sup> for Antimicrobial HAF Media	5 mm	1.70 ±0.22 in/min	Passes MVSS-302 flammability criteria
Burning Rate <sup>1,2</sup> for Antimicrobial HAF Media	10 mm	0 ±0 in/min	Passes MVSS-302 flammability criteria

<sup>1</sup> Tested in accordance with MVSS-302. ASTM D5132-04, and ISO 3795:1989 are technically equivalent to MVSS-302.

<sup>2</sup> All 10 mm samples self-extinguished, but only standard HAF self-extinguished in less than 60 seconds.

- RoHS Directive compliant. The product does not contain any of the substances in excess of the maximum concentration values in EU Directive 2002/95/EC, as amended by Commission Decision 2005/618/EC.
- Maximum operating temperature: 158°F (70°C)
- Cleaning: Filters should be replaced rather than cleaned. If filters are cleaned, vacuuming may restore initial air flow rates; however, other performance metrics may not be restored, depending upon the type of particles encountered in the application.
- 3M does not recommend washing HAF Air Filters, because washing them can negatively impact efficiency, arrestance, and dust holding capacity of filters, whether large particles are present in the environment or not.

## 3M™ Antimicrobial HAF Air Filter Performance Data

The antimicrobial agent is incorporated as an integral part of the microstructured film and has no effect on efficiency when compared to standard High Air Flow media.

The agent helps inhibit the growth of mold and mildew on the filter media. Users should be aware that mold and mildew may grow on captured particles that build up over time on the filter.

### Antimicrobial Effectiveness<sup>1</sup>

Filter Tested	7 Days	14 Days	21 Days	28 Days
HAF Media with Antimicrobial Agent	0	0	0	0
Standard HAF Media	10 mm	2	2.3	2.3

### Microbial Growth Rating Scale

0 = No Growth

1 = Trace Growth, 0-10%

2 = Light Growth, 10-30%

3 = Moderate Growth, 30-60%

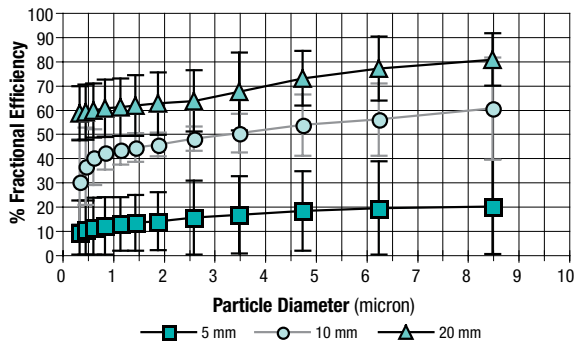
4 = Heavy Growth, >60%

<sup>1</sup> Antimicrobial effectiveness was measured on new 3M HAF Air Filters per ASTM G21-96. The test standard specifies that samples are evaluated in a laboratory environment for 7, 14, 21, and 28 days. The test standard does not include evaluation of microbial growth beyond 28 days.

# 3M™ High Air Flow (HAF) Air Filtration Media Performance Data

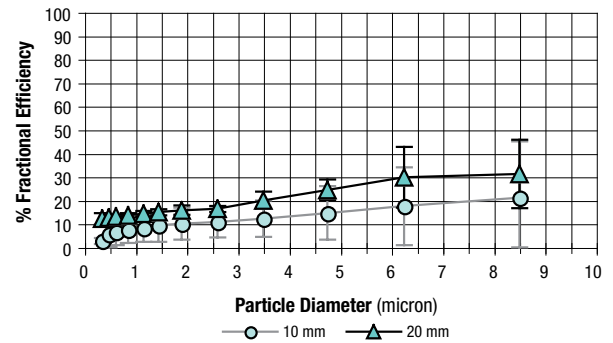
## Initial Efficiency vs. Particle Size

measured at an air velocity of 20 fpm (0.1 M/s)



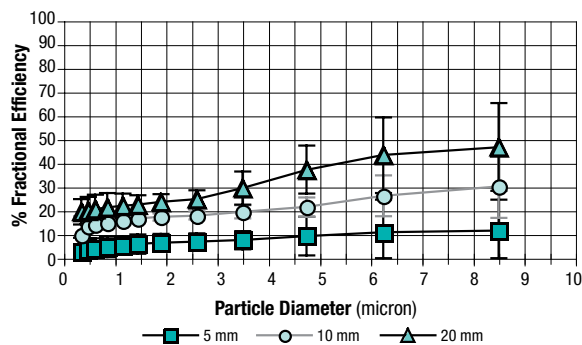
## Initial Efficiency vs. Particle Size<sup>1</sup>

measured at an air velocity of 200 fpm (1.0 M/s)

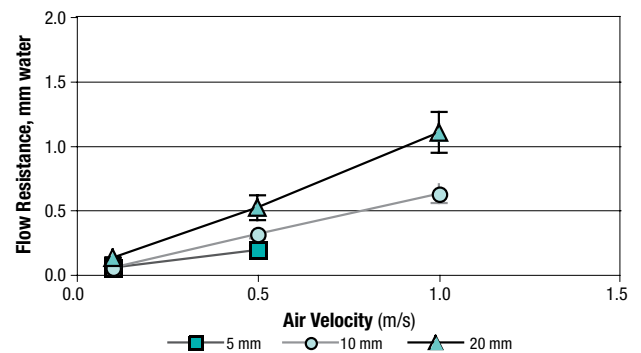


## Initial Efficiency vs. Particle Size

measured at an air velocity of 100 fpm (0.5 M/s)

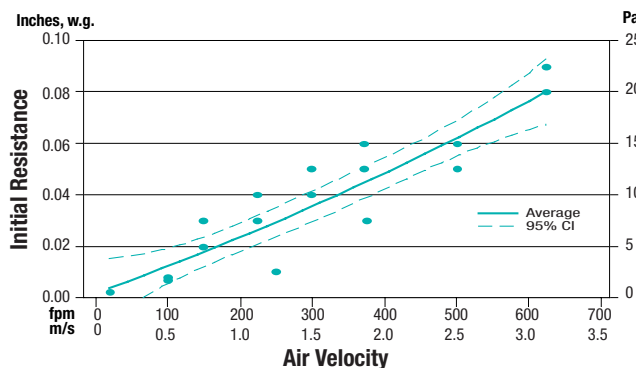


## Initial Resistance vs. Air Velocity

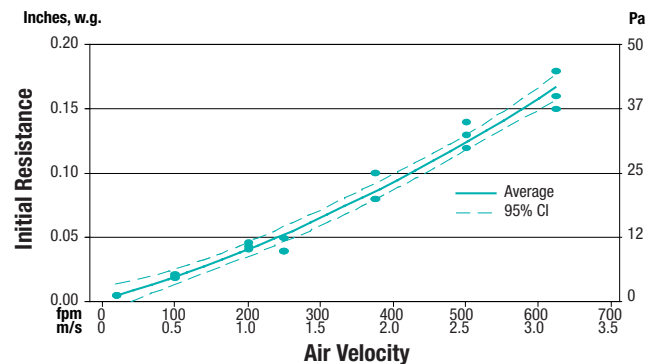


<sup>1</sup> Initial particle efficiency values of 5 mm HAF at 200 fpm (1.0 m/s) are not shown on this graph. Initial efficiency levels of 5 mm HAF at a flow velocity of 200 fpm (1.0 m/s) are expected to be less than 10% regardless of particle size when tested per applicable sections of ANSI/ASHRAE 52.2-1999.

## Initial Resistance of 5 mm HAF



## Initial Resistance of 20 mm HAF



### Dust Holding Capacity per ASHRAE 52.1-1992

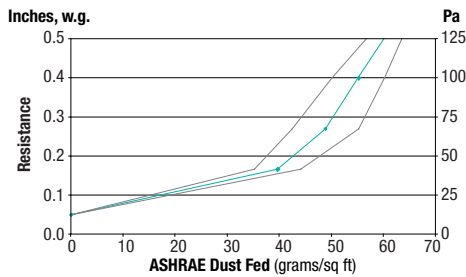
Dust Holding Capacity of 5 mm HAF Media at 0.5 inches of water (125 Pa) and 300 fpm (1.5 m/s):	23	±	5	g/sq ft
Dust Holding Capacity of 5 mm HAF Media at 1.0 inches of water (250 Pa) and 500 fpm (2.5 m/s):	22	±	3	g/sq ft
Dust Holding Capacity of 20 mm HAF Media at 1.0 inches of water (250 Pa) and 500 fpm (2.5 m/s):	25	±	5	g/sq ft

### Arrestance per ASHRAE 52.1-1992

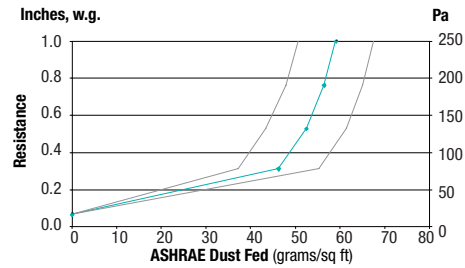
Average Arrestance of 5 mm HAF Media at 0.5 inches of water (125 Pa) and 300 fpm (1.5 m/s):	41	±	10	%
Average Arrestance of 5 mm HAF Media at 1.0 inches of water (250 Pa) and 500 fpm (2.5 m/s):	37	±	2	%
Average Arrestance of 20 mm HAF Media at 1.0 inches of water (250 Pa) and 500 fpm (2.5 m/s):	52	±	2	%

## 3M™ High Air Flow (HAF) Air Filtration Media Performance Data (Continued)

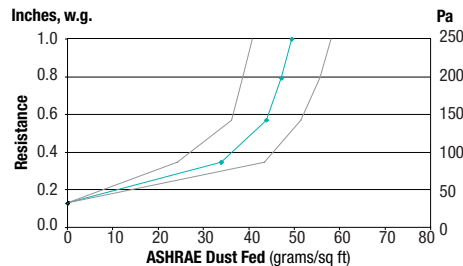
Resistance vs. Dust Loading @ 300 fpm (1.5 m/s)  
5 mm HAF Media



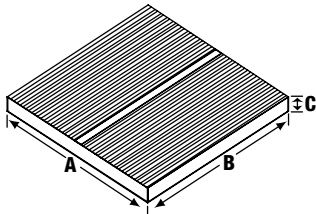
Resistance vs. Dust Loading @ 500 fpm (2.5 m/s)  
5 mm HAF Media



Resistance vs. Dust Loading @ 500 fpm (2.5 m/s)  
20 mm HAF Media



## Filter Measurements



Height "A" inches (mm) max	Length "B" inches (mm) max	Available Thicknesses "C" inches (mm)
27.56 (700)	47.24 (1200)	0.20, 0.39, 0.59, 0.79, 0.98, 1.18 (5, 10, 15, 20, 25, 30)

## Additional Information

For questions or to place an order in the U.S., please contact your local 3M Filtration distributor or 3M Customer Service at 1-800-648-3550 or 651-789-7381.

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