



AmericanAirFilter®

VariCel®

*High and Medium Efficiency
Extended Surface
Supported Pleated Filters*

VariCel® with Antimicrobial

*IAQ Engineered Media Treated
with Antimicrobial*

Better Air is Our Business® **AAF**
INTERNATIONAL

VariCel® and VariCel® with Antimicrobial

Extended Surface Supported Pleated Filters

- Available in three efficiencies **MERV 14 (90-95%), MERV 13 (80-85%), and MERV 11 (60-65%)**
- Available with antimicrobial in 90-95% & 60-65% efficiency
- **UL Class 1**
- **Ideal for difficult operating conditions**
 - Variable air volume
 - Turbulent airflow
 - Repeated fan shutdown
 - High temperature operation
 - High humidity
 - Intermittent exposure to water such as seacoast installations



Designed to Improve Indoor Air Quality

VariCel filters with antimicrobial are designed specifically to improve Indoor Air Quality (IAQ). Air filters are designed to trap and concentrate particulate air contaminants including viable fungal and bacterial spores. The presence of antimicrobial preservative in the filter media is intended to preserve the integrity of the media throughout the useful life of the filter. Antimicrobial preservatives are not meant to increase the efficiency of the filter, nor to kill microorganisms "on the fly" as they pass through a filter. Antimicrobial is EPA registered and environmentally safe.



VariCel® MERV 13 filters and higher meet efficiency requirements established for LEED® Project Certification.

Engineered for a Variety of Applications



Type SH Single Header VariCel filters are designed for systems originally supplied by AAF International. A unique $\frac{13}{16}$ " flanged header on the air entering side allows the filter to be easily inserted and latched into front and side access systems.



Type DH Double Header VariCel filters are designed to upgrade air cleaning performance and reliability. Two $\frac{13}{16}$ " thick flanged headers make the filters compatible with the holding frames and latching devices of various manufacturers, including rear access systems.

XL Series VariCel filters, single header (XL-S) and double header (XL-D), contain up to 67% more media and offer more than twice the service life of standard single and double header models.



High Temp Series VariCel filters are designed for systems operating from 350°-900°F. Constructed of aluminized steel, High Temperature VariCel filters offer rated efficiency with proven reliability over the life of the filter. See page 4 for models and temperature limits.

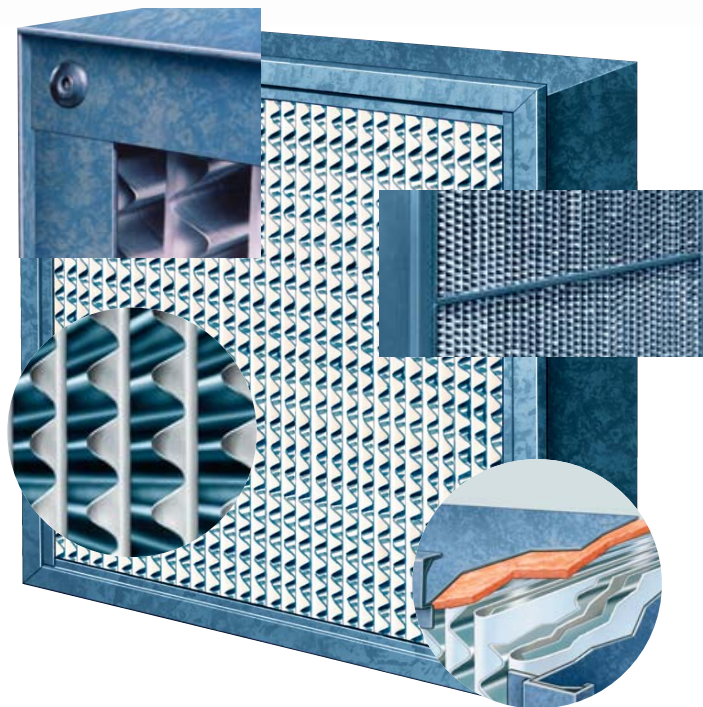


Type NH Series VariCel filters are designed for special sizes and applications, including incineration and compaction disposal systems. Manufactured of fire-retardant, $\frac{3}{4}$ " thick, heavy wall particle board, Type NH VariCel filters (U.L. Class 1) are operable at temperatures up to 200°F. The filters are constructed without headers and cell sides are flush with front face dimensions.

Built Rugged for Dependable Performance

Crimped Rear Flanges (SH) are rolled over and riveted to add strength, eliminate sharp edges, and prevent bypass leakage.

Corrugated Aluminum Separators with Rolled Edges maintain uniform pleat spacing for optimum airflow. The separators are rolled to eliminate sharp edges, preventing media damage during shipping and personal injury during installation.



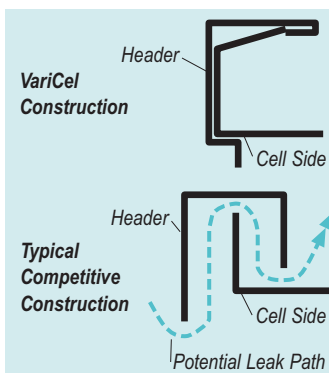
Media Pack Restraint
Steel brace on air leaving side adds support to the media pack.

Media Pack Sealant — A layer of high efficiency media seals the media pack into the cell sides. The media sealant prevents by-pass leakage and damage to the media and separators during shipping and handling. By allowing slight movement of the media pack when the filter is jarred, the cushioning sealant helps prevent tears and punctures to the media.

VariCel's rigid construction with supported pleat media pack maintains a compact, unitized structure even under tough operating conditions. Variable air velocity and repeated fan shutdown do not compromise performance.

Unitized Construction

Interlocked header and cell sides, along the entire length of each side, provide maximum sealing. Competitive filters are designed with loose fitting headers which allow greater potential for bypass leakage.



Pleats and Separators Bonded For Strength

During the pleating process, spots of glue are applied to bond each separator to the adjacent pleat. This solidifies the media pack to minimize movement and prevent media damage. Burst strength is increased to prevent the filter from blowing out under variable air volume conditions or unusually high resistance.

Galvanized steel headers and cell sides resist damage during shipping and handling, and prevent corrosion over long service life. (HT VariCel filters are constructed of aluminized steel.)

Easy Installation

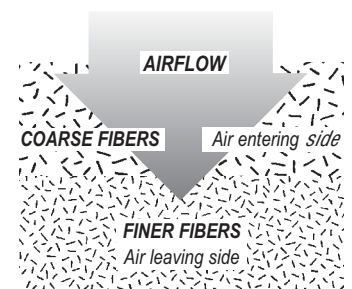
Rigid construction and minimum depth make VariCel filters easy to install in all types of systems.

Dual Density Media Reduces Operating Costs

VariCel media is manufactured with two layers of glass fibers: coarser fibers on the air entering side, and finer fibers on the air leaving side.

Our dual density design allows dirt particles to be collected throughout the entire depth of the filter utilizing the full cleaning potential of the media. Maximum dust holding capacity extends the life of the filter, minimizing operating costs.

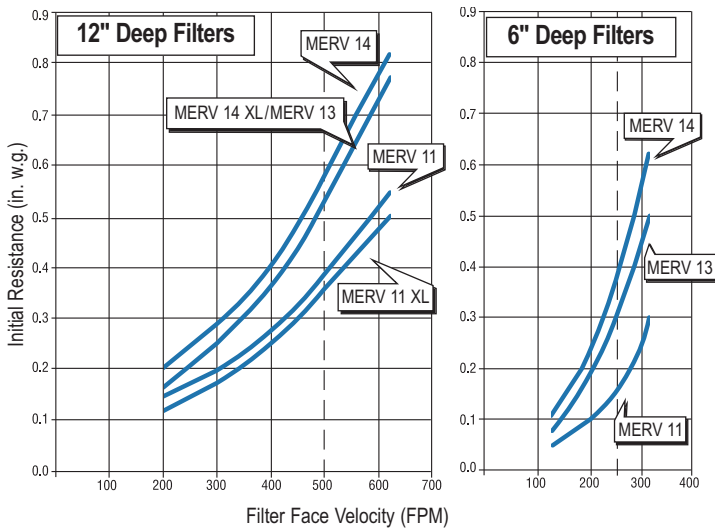
The water resistant media can withstand intermittent exposure to water, making VariCel filters ideal for installations in humid areas or where the filters are exposed to moisture.



VariCel® and VariCel® with Antimicrobial

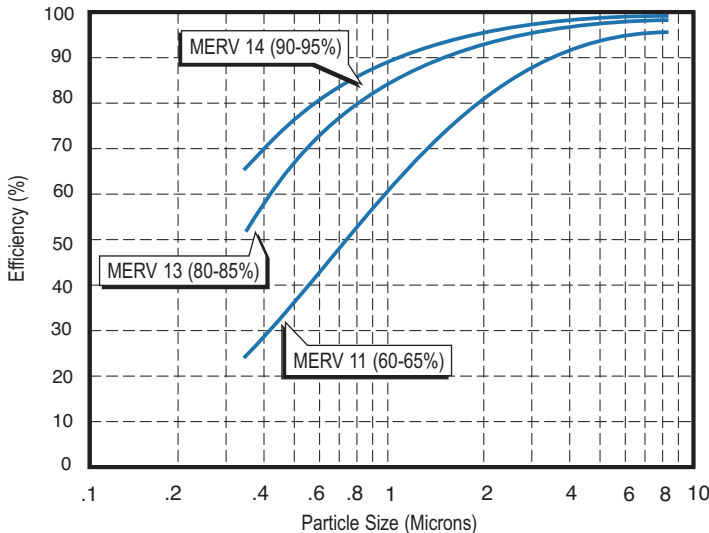
Operating Data

Initial Resistance vs. Filter Face Velocity



12" deep filters are rated at 500 FPM filter face velocity.
 6" deep filters are rated at 250 FPM filter face velocity.
 Recommended final resistance for all VariCel filters is 1.5" w.g.

Efficiency by Particle Size*



* Tested in accordance with ASHRAE Standard 52.2-2007.

Operating Temperature Limits

VariCel Model	Temperature Limit
Types SH, DH, XL	350°F 177°C
Type HT-500	500°F 260°C
Type HT-725	750°F 385°C
Type HT-900	900°F 482°C
Type NH	200°F 93°C

Underwriters Laboratories Inc. Classification: All VariCels are Class 1. Testing was performed according to UL Standard 900 and CAN 4-S111.

Prefilters Can Double VariCel® Life

Using prefilters, such as AAF's PerfectPleat® pleated filters or "5700" panel filters, will greatly extend the life of VariCel filters.

Options

- VariCel filters can be ordered with faceguards made of flattened, expanded, galvanized, or aluminized steel on one or both sides of the filter.
- Factory installed gaskets are available on the front or back of the header.
- Vinyl coated separators are available for corrosive conditions.
- 1 1/8" Single Header VariCels, designed for other manufacturers' equipment, are also available.



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Extended Surface, Supported Pleated Filters

Engineering Data

Supplement to Bulletin AFP-1-158

^(1,2) Nominal Size (Inches) (W x H x D)	⁽³⁾ Rated Airflow Capacity (SCFM)	Resistance (in. w.g.)			Gross Media Area (ft ²)		^(1,2) Nominal Size (Inches) (W x H x D)	⁽³⁾ Rated Airflow Capacity (SCFM)	Resistance (in. w.g.)		Gross Media Area (ft ²)
		⁽⁴⁾ Initial		Recom- mended Final	Standard	⁽⁶⁾ XL Series			⁽⁴⁾ Initial	Recom- mended Final	
		Standard	Series								
⁽⁶⁾Rated Filter Face Velocity — 500 FPM							⁽⁶⁾Rated Filter Face Velocity — 250 FPM				
24 x 24 x 12	2000	.58	.56	1.5	125	175	24 x 24 x 6	1000	.38	1.5	60
⁽⁷⁾ 24 x 24 x 12	2000	.58	.56	1.5	132	187	⁽⁷⁾ 24 x 24 x 6	1000	.38	1.5	63
20 x 25 x 12	1750	.58	.56	1.5	108	152	20 x 25 x 6	875	.38	1.5	52
20 x 24 x 12	1650	.58	.56	1.5	103	145	20 x 24 x 6	825	.38	1.5	49
20 x 20 x 12	1400	.58	.56	1.5	84	118	20 x 20 x 6	700	.38	1.5	40
18 x 24 x 12	1500	.58	.56	1.5	91	129	18 x 24 x 6	750	.38	1.5	44
16 x 25 x 12	1400	.58	.56	1.5	84	118	16 x 25 x 6	700	.38	1.5	40
16 x 20 x 12	1100	.58	.56	1.5	65	92	16 x 20 x 6	550	.38	1.5	31
12 x 24 x 12	1000	.58	.56	1.5	57	80	12 x 24 x 6	500	.38	1.5	27
⁽⁶⁾Rated Filter Face Velocity — 500 FPM							⁽⁶⁾Rated Filter Face Velocity — 250 FPM				
24 x 24 x 12	2000	.56	-	1.5	105	-	24 x 24 x 6	1000	.31	1.5	50
⁽⁷⁾ 24 x 24 x 12	2000	.56	-	1.5	113	-	⁽⁷⁾ 24 x 24 x 6	1000	.31	1.5	54
20 x 25 x 12	1750	.56	-	1.5	90	-	20 x 25 x 6	875	.31	1.5	43
20 x 24 x 12	1650	.56	-	1.5	86	-	20 x 24 x 6	825	.31	1.5	41
20 x 20 x 12	1400	.56	-	1.5	70	-	20 x 20 x 6	700	.31	1.5	33
18 x 24 x 12	1500	.56	-	1.5	76	-	18 x 24 x 6	750	.31	1.5	36
16 x 25 x 12	1400	.56	-	1.5	70	-	16 x 25 x 6	700	.31	1.5	33
16 x 20 x 12	1100	.56	-	1.5	54	-	16 x 20 x 6	550	.31	1.5	26
12 x 24 x 12	1000	.56	-	1.5	47	-	12 x 24 x 6	500	.31	1.5	22
⁽⁶⁾Rated Filter Face Velocity — 500 FPM							⁽⁶⁾Rated Filter Face Velocity — 250 FPM				
24 x 24 x 12	2000	.39	.37	1.5	105	175	24 x 24 x 6	1000	.16	1.5	50
⁽⁷⁾ 24 x 24 x 12	2000	.39	.37	1.5	113	187	⁽⁷⁾ 24 x 24 x 6	1000	.16	1.5	54
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18 x 24 x 12	1500	.39	.37	1.5	76	129	18 x 24 x 6	750	.16	1.5	36
16 x 25 x 12	1400	.39	.37	1.5	70	118	16 x 25 x 6	700	.16	1.5	33
16 x 20 x 12	1100	.39	.37	1.5	54	92	16 x 20 x 6	550	.16	1.5	26
12 x 24 x 12	1000	.39	.37	1.5	47	80	12 x 24 x 6	500	.16	1.5	22

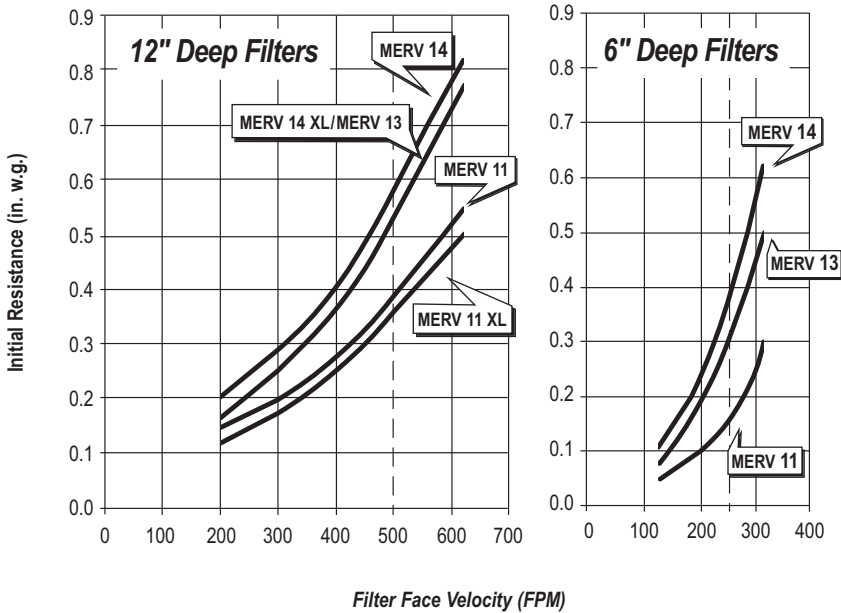
- (1) Width and height dimension are interchangeable. VariCel filters can be installed with the pleats either vertical or horizontal.
- (2) Actual dimensions are 5/8" less than nominal. (24" x 24" is 23 3/8" x 23 3/8").
- (3) SCFM (Standard Cubic Feet per Minute): Rated Airflow Capacity at "Standard" Conditions - 68°F (20°C) at Sea Level (29.92" of Mercury).
- (4) All performance data is based on the ASHRAE 52.2-2007 test method. Performance tolerances conform to Section 7.4 of ARI Standard 850-84.
- (5) XL Series VariCel filters are available with single header and double header construction, 12" deep, and MERV 14 and MERV 11 efficiencies.
- (6) VariCel filters can be operated up to 125% of rated filter face velocity.
- (7) Full size 24" x 24" actual face dimensions. Available in double header construction only.

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Performance Information

Initial Resistance vs. Filter Face Velocity



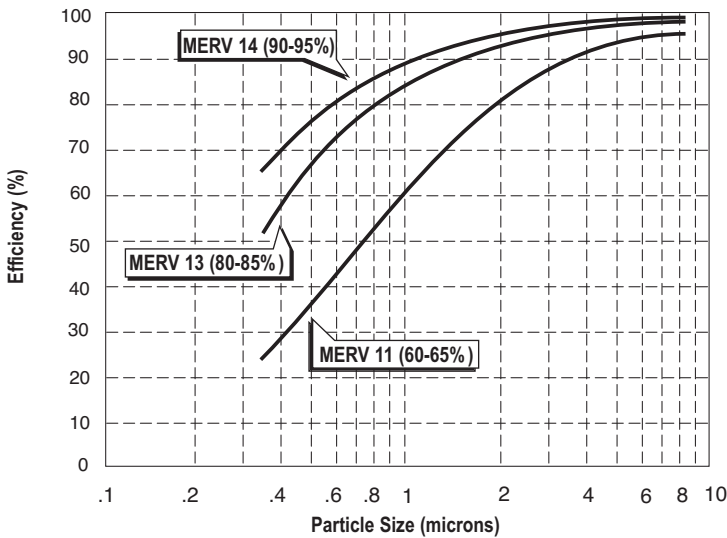
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Type NH	200°F	93°C

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Efficiency by Particle Size*



* Tested in accordance with ASHRAE Standard 52.2-2007

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