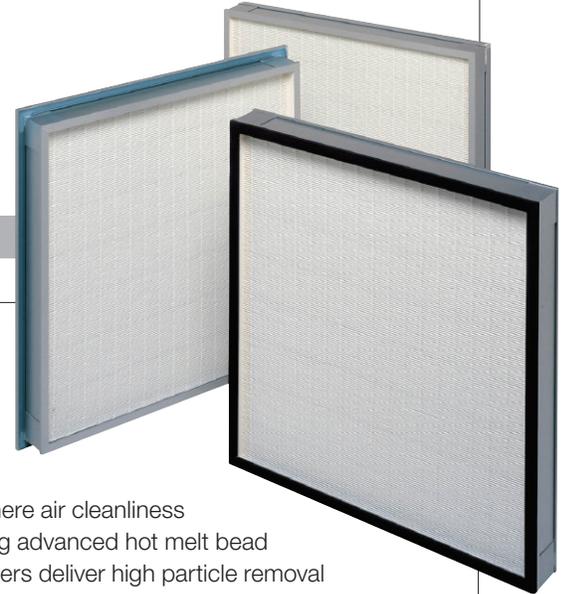


# AstroCel® II

(With Hot Melt Technology)

## HEPA AND ULPA FILTERS



### Benefits

- **Lower energy costs** from reduced pressure drop
- **Compact design** fits space-constrained systems
- **Maximized media utilization** for longer service life
- **Lightweight construction** simplifies installation
- **Leak-free sealing** supports critical contamination control
- **Consistent airflow** across the entire media pack
- **Reliable scan-tested performance** for peace of mind

### Typical Industries & Applications

AstroCel II filters are ideal for environments requiring ultra-clean air:

- Pharmaceutical production
- Biotechnology facilities
- Food processing clean zones
- Life sciences laboratories
- Cleanrooms and controlled environments
- Critical hospital and healthcare spaces

### Available Efficiency Options

- HEPA – 99.99%
- HEPA (H14) – 99.995%
- ULPA – 99.999% or 99.9995%
- 95% DOP

### High Efficiency. Low Resistance. Built for Critical Environments.

AstroCel II mini-pleat HEPA and ULPA filters are engineered for applications where air cleanliness cannot be compromised. Using advanced hot melt bead separator technology, these filters deliver high particle removal efficiency in a compact, low-resistance design that supports today's performance-driven clean environments.

Available in HEPA and ULPA efficiencies, AstroCel II filters provide reliable protection for processes, products, and people while helping minimize energy consumption and overall operating costs.

### Engineered for Critical Air Control

AstroCel II mini-pleat HEPA and ULPA filters are purpose-built for environments where air cleanliness, system performance, and energy efficiency must work together. The advanced mini-pleat design uses hot melt bead separators to maintain precise pleat spacing, allowing more usable media in a shallow profile while keeping pressure drop low.

The media pack is permanently sealed into an anodized extruded aluminum frame using UL-classified urethane adhesive to ensure airtight performance. Multiple sealing configurations, including gel seal, gasket seal, and knife-edge options, make AstroCel II compatible with a wide range of ceiling grids and housing systems.

### Performance & Testing

AstroCel II filters are scan tested at 99.99% efficiency with a non-DOP aerosol to ensure the filter is free from pinhole leaks. Also available is an ULPA (Ultra Low Penetration Air) model, which is additionally laser tested to 99.9995% at 0.10–0.20µm. The filters are ETL Classified, with testing conducted in accordance with UL 900, and are also listed in the Factory Mutual Approval Guide, supporting recognized fire safety and performance standards.

# AstroCel® II Filters

## Mini-Pleat Media Pack

- Lowest possible pressure drop among conventional glass fiber media
- Pack depths from 2" to 4"
- 8 pleats per inch allow the greatest amount of media in the shallowest depth
- Pleat straightness to  $\pm 1/4$ "—unmatched by competitors
- ETL Classified. Testing was performed according to UL Standard 900
- Listed in the Factory Mutual (FM) Approval Guide

## Space Saving Media Pack

Designed to combine maximum efficiency with low pressure drop, the pleated media pack is available in sizes from 2" to 4" deep.

Our compact size results from a mini-pleat filter design that reduces resistance and provides the lowest possible pressure drop. Hot melt beads separated every 1 inch maintain separation of pleats within the pack, while allowing a more compact filter depth than corrugated separators. The separation and precision straightness of the pleats allow air to move throughout the entire depth of the filter, utilizing the full cleaning potential of the media.

## Sturdy Construction

Manufactured from borosilicate microfibers, AstroCel II filterglass media is water resistant and fire-retardant.

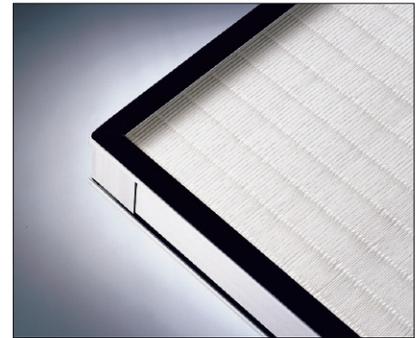
The media pack is permanently attached to an anodized extruded aluminum frame with a UL classified, urethane adhesive.

Frames are available with gasket seal, gel seal, or knife-edge seal for fluid seal grid applications.

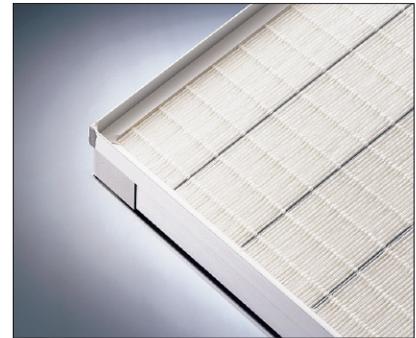
The AstroCel II filter with knife-edge cell sides is designed specifically for gel seal grid systems.



*Gel Seal Frame*



*Neoprene Gasket Seal Frame*



*Knife-edge Frame*



*Compact media pack available in sizes from 2" to 4" deep.*

## Lowest Possible Pressure Drop

Because of the relatively large volumes of air handled in a typical cleanroom application, operating cost is a prime consideration in the design of the air filtration system. One of the most important areas to be evaluated is the resistance or pressure drop across the HEPA filters, because fan horsepower is the single biggest energy consumer in the cleanroom.

Pressure drop is measured by manometer as the test filter is subjected to a metered air volume. Testing on a volumetric basis is specified in the Institute of Environmental Sciences and Technology IEST-RP-CC007 standard on ULPA filters.

AAF calculates the total square footage of usable media pack area (outside dimensions of filter minus the frame thickness and adhesive) and multiplies this number by 100 FPM to determine an accurate volumetric test flow. This method simulates actual cleanroom airflow conditions, ensuring a true measurement of pressure drop.

Some manufacturers determine the test flow by measuring the velocity (100 FPM) at one or two points on the downstream side of the filter by using an anemometer. This procedure assumes the airflow is uniformly 2" from the downstream side of the filter, and in the majority of cases the assumed test flow will be less than 550 CFM for a nominal 24" x 48" filter.

Since reduced operating pressure drop is so important, volumetric testing as performed by AAF is essential to determining true pressure drop and its impact on your cleanroom costs.

## Ongoing Quality Control

Process control starts with sample flats of each roll of media tested for efficiency, using either a Q-127 penetrometer (HEPA media) or a Condensation Nucleus Counter (ULPA and above.) The media is also tested for thickness, basis weight, tensile strength, binder content, water repellency, and pressure drop.

Once a roll meets our specifications, it is carefully pleated and assembled in the cell side designed for the specific application. The filter is then tested and certified to meet the designated efficiency requirement. If required by the customer specification, the filter is tested for pinhole leaks. A final visual inspection ensures that dimensional tolerances have been met. Every filter is identified by serial and order number and is labeled with performance criteria, media lot number, operator number, and part number.

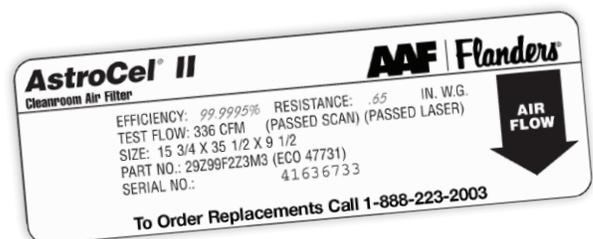
Meticulous scrutiny during every phase of the production process enables AAF to trace a filter back to the roll of media from which it was manufactured, should a defect be identified.

This elaborate testing ensures that you receive only the highest quality cleanroom filtration products, resulting in cost effective products that meet your toughest requirements.

## State-of-the-Art Testing

AAF has established an air filtration testing methodology that is among the most comprehensive and accurate in the industry. Testing is essential in documenting filter efficiency and assisting in research and development of filtration products. AAF's testing facilities meet the highest standards for quality control.

Every HEPA and ULPA filter is tested and certified, using procedures tailored to your specifications, to meet your performance requirements prior to shipping. AAF testing procedures for overall efficiency include laser particle counters with liquid or solid aerosol challenge. Pinhole leaks can be detected using either AAF's proprietary static scan test, hand, or automatic scan testing.

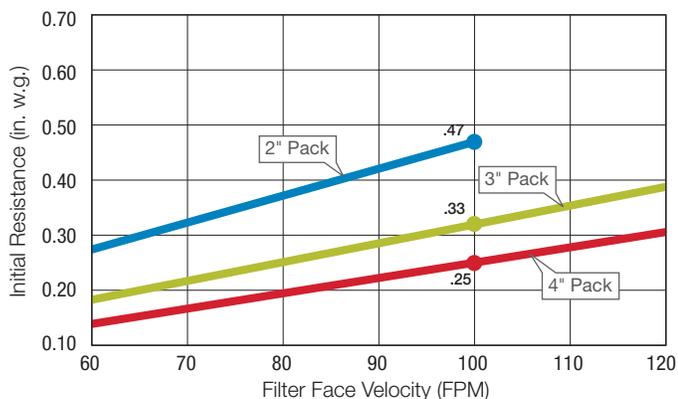


# AstroCel® II Filters

## Performance Data

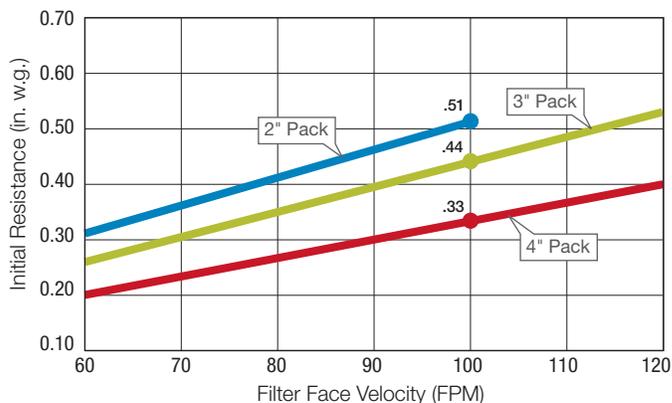
### Initial Resistance vs. Filter Face Velocity

#### AstroCel® II HEPA Filter Media



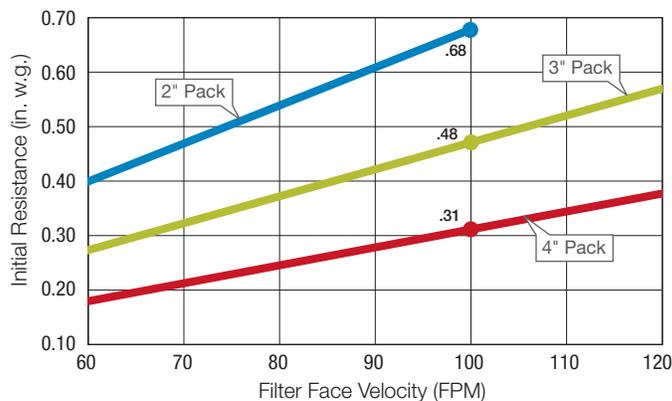
99.99% Minimum Efficiency on 0.30 Micrometer Particles

#### AstroCel® II HEPA (H14) Filter Media



99.995% Minimum Efficiency on 0.10 - 0.20 Micrometer Particles

#### AstroCel® II ULPA Filter Media



99.9995% Minimum Efficiency on 0.10 to 0.20 Micrometer Particles

AstroCel® is a registered trademark of AAF International in the U.S. and other countries.



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