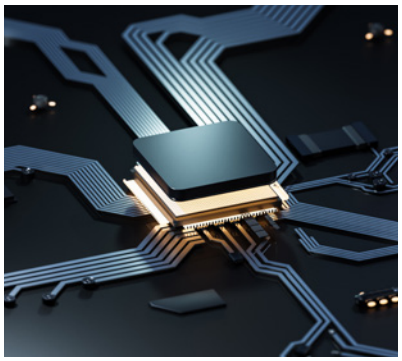
THE WORLD LEADER IN CLEAN AIR SOLUTIONS



Advancing Cleanroom Performance in Microelectronics

PROTECTING PROCESSES. ENHANCING EFFICIENCY.

AAF® INTERNATIONAL
a member of DAIKIN group

Air Filtration Innovation for Particle and Molecular Control

In microelectronics manufacturing, even the smallest contaminants can lead to costly defects, reduced yields, or compromised performance. That's why precision matters, not only in the fabrication process, but in the air that surrounds it.

AAF delivers next-generation clean air technologies engineered for the most demanding environments. From boron-free and chemically inert media to scan-tested HEPA/ULPA filters and AMC removal solutions, every product is designed to meet strict cleanroom standards and withstand the rigors of high-tech production.

Our solutions go beyond basic filtration to support:

- **Particulate Control:** Long-lasting HEPA/ULPA filters and optimized prefilter pairings reduce energy use, protect critical processes, and cut labor costs.
- **AMC Mitigation:** Advanced gas-phase filtration, including AstroSorb™ technology, removes corrosive and condensable molecular contaminants from the airstream.
- **Leak Protection:** Rugged HEPA/ULPA filters such as the MEGAcel® I and MEGAcel® II ME allow for scan testing and resist damage from shipping or installation.
- **Process Integrity:** Boron-free, hydrophobic filter media prevent off-gassing and film formation on sensitive surfaces like wafers and optics.

Built with cleanroom durability and contamination control in mind, AAF's filtration solutions help safeguard production uptime, optimize filter performance, and deliver a lower total cost of ownership all while aligning with your clean air and sustainability goals.

Precision Air Filtration Products Engineered for Microelectronics from Prefilters to AMC Protection

Every filter in AAF's portfolio is built to perform in high-stakes cleanroom environments. Whether you're mitigating particulate contamination or removing airborne molecular contaminants (AMC), these solutions offer proven performance, durability, and efficiency for microelectronics manufacturing.

MEGApleat® M9 | PreFilter

Durable, energy-efficient prefiltration

- Longest-lasting pleated filter in its class with up to 3–4x longer life
- Low initial resistance reduces fan energy use
- Protects downstream HEPA filters to lower overall lifecycle cost

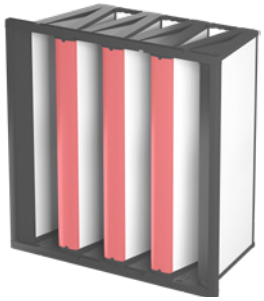
Ideal for: Air handlers, FFU prefiltration, subfab systems

VariCel® VXL RC | Final Filter

Compact, high-capacity secondary filtration

- Advanced media design for extended dust holding capacity
- Reduced initial resistance for energy savings
- Recycled components support sustainability goals

Ideal for: Tight-space AHUs, tool bays, and multi-stage systems



MEGAcel® I | HEPA Filter

Scan-testable, boron-free HEPA performance

- Membrane media is chemically inert and boron-free, no wafer film risk
- Resists handling damage better than glass media
- Allows scan testing to verify leak-free performance

Ideal for: All MAUs and AHUs

MEGAcel® II ME | ULPA Filter

Membrane media for ultra-clean, energy-efficient performance

- Industry-leading efficiency with negligible pressure drop, saving over 30% in energy use
- Lowest offgassing available and boron-free, ideal for advanced semiconductor processes
- Chemically resistant and mechanically durable, built to handle corrosive environments and rough installation

Ideal for: ISO Class 1-4 cleanrooms, photolithography, tool enclosures, and critical manufacturing zones

AstroSorb® | AMC Filters

Molecular contamination control across all zones

- Removes acids, bases, condensables, and VOCs
- Available in panel, V-bank, radial, and canister configurations
- Complements HEPA filters for layered cleanroom defense

Ideal for: Tool enclosures, air recirculation, and exhaust systems

Product Line:

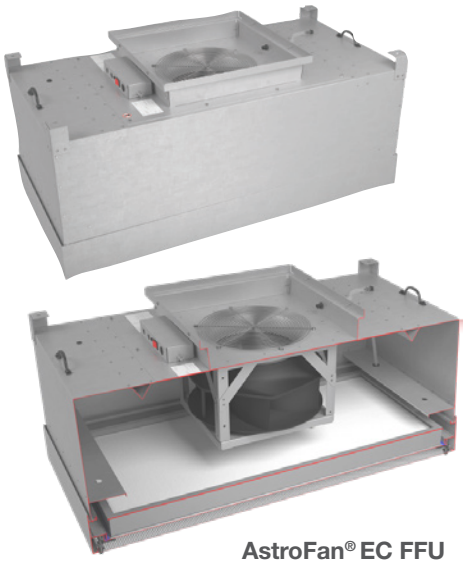
- **AstroSorb-B:** Box-style chemical filter
- **AstroSorb-C:** Canister-style chemical filter
- **AstroSorb-P:** Panel-style chemical filter
- **AstroSorb-T:** Tray-type chemical filter
- **AstroSorb-V:** V-bank chemical filter

Fan Filter Units (FFUs)

Point-of-use control with energy efficiency

- High-performance EC motors reduce energy use by up to 40%
- Compatible with cleanroom ceilings, tool enclosures, and subfabs
- Optional control consoles for managing up to 1,000 FFUs

Ideal for: ISO-certified clean zones, mini-environments, and localized filtration



AstroFan® EC FFU

Case Study: Semiconductor Manufacturer (USA)

A leading semiconductor manufacturer in the Pacific Northwest region of the U.S. faced rising energy costs and performance issues with traditional cleanroom filters during a major facility expansion. Durability, leak-free performance, and long-term value were top priorities for the manufacturer.

The Challenge

- High operational costs due to inefficient filtration
- Concerns about filter durability and shipping damage
- Need for a scalable, energy-efficient solution across cleanroom classes

The Solution

AAF proposed the **MEGAcel® II ME ULPA filter with membrane media**, offering:

- Significantly lower pressure drop than legacy filters
- Chemically inert, hydrophobic media to prevent corrosion and off-gassing
- Robust construction that resists damage during handling and installation
- Scan-testable design to ensure leak-free cleanroom compliance

The Results

- **$1.5 million** in projected energy savings over 5 years based on TCOD analysis
- Utility rebates awarded for reducing system pressure drop
- Over 8,000 MEGAcel® II filters installed across various cleanroom sizes
- AAF named the **basis of design for all future expansions** at the facility

This project demonstrates how AAF's cleanroom filtration expertise delivers measurable value from energy savings and utility rebates to long-term reliability and process protection. By combining advanced membrane technology with deep application knowledge, AAF helped set a new standard for cleanroom performance. As semiconductor facilities continue to evolve, AAF remains a trusted partner in supporting cleaner, more efficient, and more future-ready operations.

Explore a Cleanroom in Action

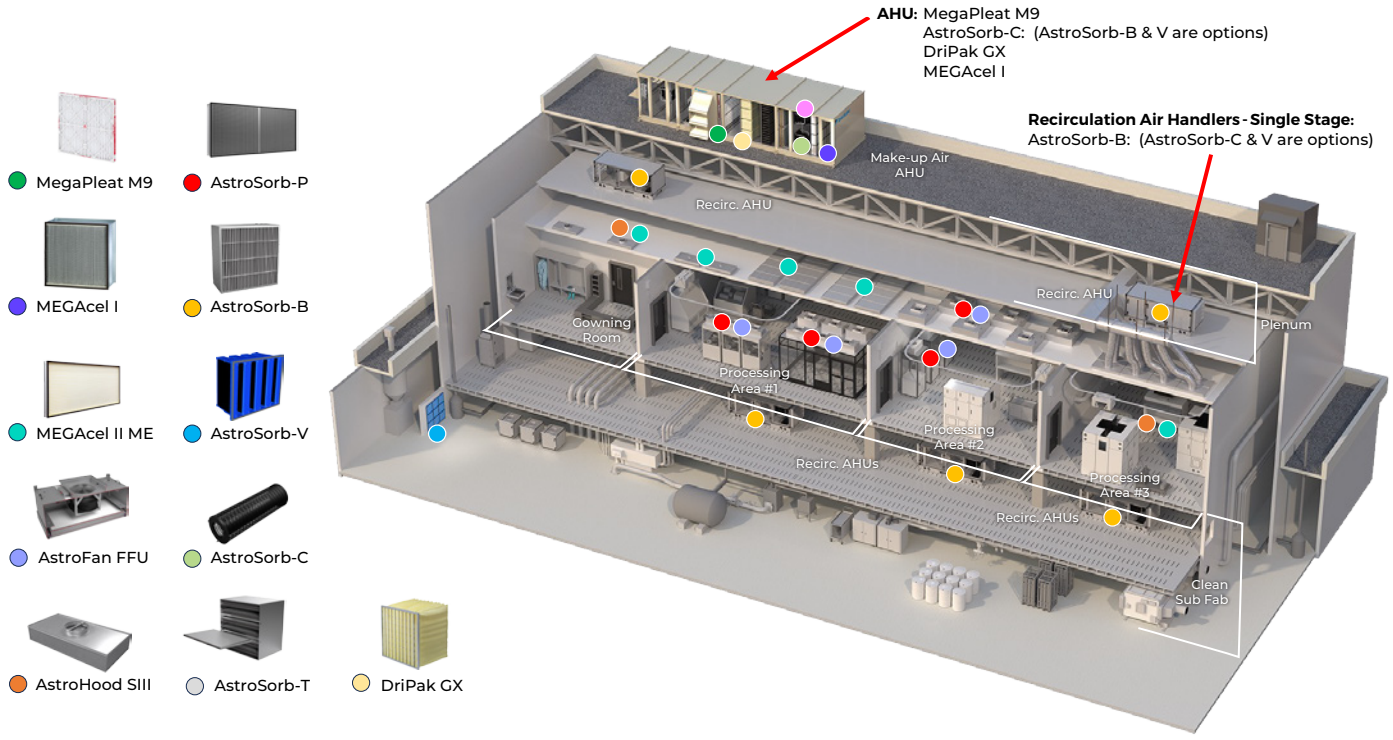
Want to see how our filtration solutions integrate into a typical cleanroom layout? Scan the QR code below to explore an interactive cleanroom image on our website. You'll discover:

SCAN HERE

Our solutions go beyond basic filtration to support:

- Where HEPA, ULPA, prefilters, and AMC filters are placed
- Application zones for fan filter units and containment housings
- Which products are best suited for each cleanroom area, from ceiling grids to subfab exhaust

Whether you're designing a new facility or upgrading an existing one, this visual tool helps you align filtration strategy with your contamination control goals.



Elevate Cleanroom Performance with AAF

When precision matters, you need more than filters, you need a partner with the expertise, innovation, and global support to help you stay ahead. At AAF, we engineer high-performance filtration solutions, help protect your production quality, reduce your operating costs, and future-proof your cleanroom. Whether you're designing a new fab or optimizing an existing process, our team is ready to collaborate and deliver clean air strategies that perform at every level.

Proven Expertise of AAF International

AAF International offers the most comprehensive air filtration portfolio in the industry, including particulate, HEPA, ULPA, and gas-phase filters, to provide a customized clean air solution. Each product is carefully designed, manufactured, and tested in full compliance with all applicable standards to meet the most challenging demands with the lowest Total Cost of Ownership.

Contact your local AAF representative for a complete list of AAF Air Filtration Product Solutions.

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